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Forest Service Handbook 2709.11 – Special Uses Handbook
Chapter 70 - Wind Energy Uses

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Superseded Document(s):

Digest: Following is an explanation of the changes throughout the directive by section

70: Establishes new chapter and title, “Wind Energy Uses,” and sets forth direction on authority, objectives, responsibility, definitions, and references for use in authorizing wind energy uses on National Forest System lands.

71: Establishes code and caption, “Types of Wind Energy Permits,” and sets forth direction on the purpose for issuing each type of permit.

72 through 72.31e: Establishes codes and captions and sets forth the procedures for screening wind energy proposal

73 through 73.23: Establishes codes and captions and sets forth direction on the application requirements and considerations that should be made during preparation of wind energy applications.

74 through 74.5: Establishes codes and captions and sets forth direction on the requirements for processing wind energy applications.

75 through 75.22: Establishes codes and captions and sets forth direction on testing and feasibility permits (sec. 75.1), including types of permits (sec. 75.11) and monitoring requirements for those permits, and permits for construction and operation of a wind energy facility (sec. 75.2), including pre-authorization requirements (sec. 75.21).

76 through 76.3: Establishes codes and captions and provides direction on the calculation of land use fees for different types of wind energy permits.

77 through 77.3: Establishes codes and captions and sets forth direction on administration of wind energy permits, including construction (sec. 77.3) and operational (sec. 77.4) requirements. Also provides direction on site restoration upon discontinuation of an authorized use (sec. 77.5).

Table of Contents

This chapter provides direction regarding the authorization of wind energy uses on National Forest System (NFS) lands. General requirements and direction for special use proposals, applications, and permits apply to the authorization of wind energy land uses. See 36 CFR part 251, Subpart B, and FSH 2709.11, chapter 10. The direction in this chapter supplements general special use requirements, including requirements for the screening of proposals and the evaluation of applications.

70.1 – Authority

Section 501(a)(4) of the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. 1761(a)(4) (FSM 2701.1, para. 15) authorizes the Forest Service to issue rights-of-way for the use and occupancy of NFS lands for generation, transmission, and distribution of electric energy. FLPMA contains provisions for reimbursement of administrative costs and collection of land use fees based on fair market value (43 U.S.C. 1764(g)).

70.2 – Objectives

The Energy Policy Act of 2005 recognizes the Forest Service's role in meeting the renewable energy goals of the United States. Consistent with Agency policies and procedures, the use and occupancy of NFS lands for alternative energy production, such as wind energy development, are appropriate and will help meet the energy needs of the United States. The directives provide consistent guidance and adequate analyses for evaluating wind energy proposals and applications for issuing wind energy permits. For additional objectives regarding wind energy facilities, see FSM 2726.02a.

70.4 – Responsibility

For responsibility regarding wind energy facilities, see FSM 2726.04.

For responsibility for NFS roads, see FSM 7700 and 7730.

70.5 – Definitions

Cultural Resource. A product or location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence, including prehistoric, archaeological, and architectural sites and structures, historic properties, sacred sites and objects, and traditional cultural properties.

Historic Property. Any prehistoric or historic district, site, building, structure, or object included or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and remains that are related to and located within these properties.

Minimum Area Permit. A land use authorization of up to 5 acres for the construction, operation, and removal of a meteorological tower (MET) or measuring instrument that is necessary for the appropriate study and evaluation of the wind resource.

Nacelle. A cover installed to protect the major components of a wind turbine, which are typically a generator and gearbox.

Plan of Development. A document describing a proposed wind energy facility, including planned construction, operation, and decommissioning.

Project Area Permit. A land use authorization of more than 5 acres for the construction, operation, and removal of multiple METs or measuring instruments that are necessary for the appropriate study and evaluation of the wind resource.

Site Plan. A scaled, two-dimensional graphic representation of the location of all proposed wind turbines, buildings, service areas, roads, structures, and other elements of a wind energy facility that are displayed in relationship to existing site features, such as topography, major vegetation, water bodies, and constructed elements.

Species of Management Concern. Federally listed threatened and endangered species; species that are candidates for listing as threatened or endangered; Forest Service sensitive species (FSM 2670), species of high public interest and State protected species.

String. A series of three or more wind turbines oriented in close proximity to one another that are usually positioned in a line, such as along a ridgeline.

70.6 – References

The following references contain useful information regarding wind energy facilities:

1. American Wind Energy Association. 2008. Wind Energy Siting Handbook. http://www.awea.org/sitinghandbook/.

2. Avian Power Line Interaction Committee. 1994. "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994." Edison Electric Institute, Washington, D.C. 78 pp.

3. Avian Power Line Interaction Committee. 1996 (reprinted 2000). "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996." Edison Electric Institute/Raptor Research Foundation, Washington, D.C. 125 pp.

4. Bureau of Land Management, Instruction Memorandum No. 2005-069, "Interim Offsite Compensatory Mitigation for Oil, Gas, Geothermal and Energy Right-of-Way Permits," 2005.

5. Bureau of Land Management. 2005. Final Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. U.S. Department of the Interior, Bureau of Land Management, Washington, D.C.

6. Bureau of Land Management. 2008. Instruction Memorandum No. 2009-043, "Wind Energy Development Policy."

7. Gipe, Paul B. "Design As If People Matter: Aesthetic Guidelines for the Wind Industry," Proceedings of the International Workshop on Wind Energy and Landscape, C. F. Ratto and G. Solari (ed.). Rotterdam: A. A. Balkema, 1998.

8. Gipe, Paul B. "Design As If People Mattered: Aesthetic Guidelines for a Wind Power Future."

9. Wind Power in View: Energy Landscapes in a Crowded World. M. J. Pasqualetti, et al. (ed.). New York: Academic Press, 2002.

10. http://www.dec.state.ny.us/website/dcs/policy/visual2000.pdf. New York State Department of Environmental Conservation, The DEC Policy System, "Assessing and Mitigating Visual Impacts," 2000.

11. Kunz, Thomas H.; Arnett, Edward B.; Cooper, Brain M.; Erickson, Wallace P.; Larkin, Ronald P.; Mabee, Todd; Morrison, Michael L.; Strickland, M. Dale; Szewezak, Joseph M. 2007. "Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document." Journal of Wildlife Management 71(8). 2449-2486pp.

12. U.S. Fish and Wildlife Service. 2011. Draft Land-Based Wind Energy Guidelines and Draft Eagle Conservation Plan.

71 – Types Of Wind Energy Permits

There are two types of permits for wind energy uses: site testing and feasibility permits and permits for construction and operation of a wind energy facility.

1. Site testing and feasibility permits (sec. 75.1). These permits are issued for the installation, operation, and removal of METs or other instruments to gather data regarding the wind resource and to determine the feasibility of producing wind energy. A site testing and feasibility permit may be issued for up to 5 years. There are two types of site testing and feasibility permits: minimum area permits and project area permits.

2. Construction and operation permit (sec. 75.2). These permits are issued for the construction, operation, and removal of a wind energy facility. Proponents must establish the feasibility of successfully producing wind energy within a proposed project area before they may be issued a construction and operation permit for that area. The feasibility of a project is usually established through the analysis of data collected during the tenure of a site testing and feasibility permit. A permit for construction and operation of a wind energy facility may be issued for up to 30 years.

Environmental analyses for each type of wind energy permit should address only the proposed land use under consideration for authorization by the permit and connected actions essential to enabling that use. For example, environmental review of a permit for site testing and feasibility should address the environmental consequences of the installation, operation, and removal of METs or other instruments necessary for study of the wind resource. Connected actions for a permit for the construction and operation of a wind energy facility might include reconstruction of an NFS road to accommodate oversized vehicles needed to move wind turbine components and construction of a power line to connect the proposed site with the existing energy grid.

Section 72 provides guidance regarding proposals for wind energy permits. Section 73 addresses applications for wind energy permits. Section 74 provides guidance on processing applications for wind energy permits. Section 77 addresses administration of wind energy permits.

72 – Wind Energy Proposals

This section applies to all proposals for wind energy permits.

72.1 – Pre-Proposal Meetings

1. Ensure proponents of wind energy projects contact the Forest Service, as described in 36 CFR 251.54(a), as early as possible before submission of a proposal.

2. Use the pre-proposal meeting to:

   a. Explain the process for screening proposals and processing applications, including the authority of the Forest Service to allow compatible uses of NFS lands within a permit area.

   b. Identify potential issues and possible conflicts, including impacts on natural and cultural resources, such as sacred sites and other areas used for tribal traditional and cultural purposes, treaty and reserved rights, and conflicts with recreational use.

   c. Identify environmental or cultural resource studies and analyses that may be required.

   d. Assess public interest and likely concerns.

   e. Discuss other potential locations for wind energy production.

   f. Discuss the financial obligations that a proponent must assume.

   g. Clarify expectations for coordination and consultation with tribal governments, State agencies, and Federal agencies, such as the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Departments of Defense (DoD) and Homeland Security (DHS), the Federal Aviation Administration (FAA), and the National Weather Service.

72.2 – Screening of Proposals

To screen proposals for site testing and feasibility permits and proposals for construction and operation of wind energy facilities, refer to 36 CFR 251.54(e) and Forest Service Handbook (FSH) 2709.11, sections 12.2 and 12.3. These references describe the screening process and nine criteria to be used in screening special use proposals.

Deny proposals for wind energy facilities in wilderness areas and wilderness study areas; in wild and scenic rivers; at national historic sites; on National Historic or National Scenic Trails; in other special areas where Federal law precludes land use for wind energy production; and in areas authorized for use by DoD or one of its agencies, unless DOD concurs with siting wind energy facilities at that location.

Proposals for wind energy facilities may be denied in areas where DoD, DHS, FAA, or the National Weather Service expresses substantial concern that a proposed wind energy facility would adversely impact national security, military readiness or suitability of training areas, radar and electronic security, or safety of military or civilian airspace and mitigation for the concern is not possible.

72.21 – Siting Considerations

Wind turbines are generally installed individually, in clusters, or in strings along ridgelines where the wind is sufficient and consistent enough to warrant investment in facilities for energy production. Electricity produced by wind turbines will likely require a generation substation and transmission lines to carry it to a power grid. Other facilities may be required for access, construction, operation, and maintenance of a wind energy facility.

In making the long-term management decision to authorize wind energy uses, consider the public benefit for energy and the current and future needs of the Nation, local community and the Forest Service.

Ensure that wind energy proposals are consistent or can be made consistent with the applicable land management plan (36 CFR 251.54(e)(1)(ii)). Follow procedures for special uses management policy in FSM 2700.

Apply the following siting considerations in conducting initial and second-level screening of wind energy proposals (36 CFR 251.54(e)(1) and (e)(5)). Chapter 3 of the 2007 American Wind Energy Association (AWEA) Handbook, the 2011 U.S. Fish and Wildlife Service Draft Land-Based Wind Energy Guidelines, and "Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document" contain additional useful recommendations and factors regarding siting of wind energy facilities.

72.21a – Recreational and Scenery Considerations

Recreational settings and experiences and scenery valued by the public are important siting considerations.

1. Use the Recreation Opportunity Spectrum (ROS) (FSM 2311.1) to identify the recreational activities, settings, and facilities in the area proposed for a wind energy project.

2. Consider how recreational settings may be affected by:

   a. Noise and lighting impacts and

   b. Dust or air quality impacts during construction or maintenance.

3. Consider how ROS classes may be modified by road construction and increased recreational use.

4. Strive to maintain the ROS characteristics of the proposed area, including the setting, views, number of motorized access routes, and remoteness.

5. Use the Scenery Management System (SMS) (FSM 2380) to assess the value of scenery in the project area, the experience it provides relative to competing resource demands, and the impacts on scenery from project construction and operation.

72.21b – Community Tourism Considerations

1. Where possible and to the extent practicable, manage wind energy uses to protect community tourism values associated with natural scenery, recreation settings, wildlife viewing, fishing, and cultural resources.

2. Consider the effects of wind energy uses on tourism values and communities, including opportunities to enhance tourism.

72.21c – Public Access Considerations

Consider the effects of wind energy uses on public access via roads, trails, and waterways. Review road management objectives for NFS roads and trail management objectives for NFS trails (FSM 7714). Consider the effect of traffic on NFS roads and NFS trails for wind energy construction, operations, and maintenance on the ability of those roads and trails to meet their management objectives. Consider the effects of extending the availability of NFS roads that are open seasonally to year-round use for purposes of maintaining wind energy facilities.

72.21d – Species of Management Concern

Siting of wind energy facilities must consider all species of management concern in the area where the proposed use would occur, but should primarily focus on birds and bats because of their particular vulnerability to METs and turbines during flight.

The following are siting considerations for species of management concern:

1. Locate METs, roads, turbines, and other necessary facilities away from protected areas or where ecological resources are known to be sensitive to human activities. Examples of these areas include wetlands, riparian zones, streams, lakes, bogs, or fens; globally unique, rare or threatened ecosystems; critical habitat of wildlife protected under Federal or State law; nests of hawks, eagle, falcons, and owls; and prairie or shrub-steppe grouse breeding grounds and habitat fragmentation.

2. Avoid or minimize the placement of towers and turbines in areas with a high incidence of frontal weather events that lead to frequent fog or mist if existing information indicates a high risk to migratory birds or bats during these weather events.

3. Avoid or minimize the placement of turbines in areas where topography and landscape features may funnel nocturnal migrants, such as over mountain passes, along river corridors, or ridge tops.

4. Use existing roads and utility corridors to the extent feasible, and minimize the number, length, and size of new roads, lay-down areas, and borrow areas.

5. Avoid placement of towers in habitat, security areas or critical range of species of management concern.

72.21e – Historic Properties and Cultural Considerations

Consider potential effects on historic properties and cultural resources. Comply with section 106 of the National Historic Preservation Act and FSM 2360.

73 – Wind Energy Applications

73.1 – Application Requirements for All Wind Energy Permits

1. Coordinate and, if necessary, enter into consultation with tribal governments and with regulatory agencies such as the U.S. Fish and Wildlife Service, DoD, DHS, the FAA, and the National Weather Service.

2. Notify proponents for all wind energy permits that they shall file a feasibility proposal with the FAA to obtain an early assessment of potential impacts on civilian aviation. The FAA may be contacted at Southwest Regional Office, Air Traffic Airspace Branch, ASW-520, 2601 Meacham Boulevard, Fort Worth, Texas 76137-0520, (866) 835-5322, https://oeaaa.faa.gov/oeaaaEXT/portal.jsp.

73.2 – Application Requirements for Site Testing and Feasibility Permits

An application for a site testing and feasibility permit (section 75.1) requires less documentation than that required for a permit to construct and operate a wind energy facility (section 75.2). Ensure that applicants submit sufficient information regarding the location and tenure of METs and other testing equipment and procedures to complete appropriate environmental analysis.

To reduce bat and bird mortality, require applicants to avoid the use of guy wires on METs, if feasible. If applicants propose to use guy wires, require applicants to mark them with bird-deterrent devices to the maximum extent possible (see "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996," as updated in 2000). To reduce potential effects on scenery, require applicants to limit the height of METs to a functional minimum.

73.3 – Application Requirements for Permits for Construction and Operation of a Wind Energy Facility

Require applicants for a permit for construction and operation of a wind energy facility to submit a study plan (sec. 73.31), a plan of development (sec. 73.32), and a site plan (sec. 73.33) according to FSM 2726.21a.

73.31 – Study Plan

Ensure that applicants for a permit for construction and operation of a wind energy facility submit a study plan. The study plan must provide a brief description of the studies required for processing the application, including the methodologies to be used in needed studies. The results of the studies described in the study plan should enable the authorized officer to evaluate the application fully during environmental analysis.

Study plans must include:

1. A review of existing information regarding identified species of management concern, including habitat use, location, or presence in the study area, and identification of ecologically sensitive areas in or near the study area, including landscape and topographical features known to attract or concentrate birds or bats;

2. Identification of information and methods by which to gather information for the development of biological assessments and evaluations of project-specific species of management concern and their habitats;

3. An inventory of historic properties and cultural resources;

4. An inventory of invasive species;

5. An inventory of existing land uses, including existing recreational use and facilities, special uses, grazing, and mining;

6. An inventory of existing infrastructure and resource investments such as power lines, other utilities, and access roads under the jurisdiction of the Forest Service or a public road authority; reforestation; landscape restoration; wildlife habitat improvements; and fencing;

7. An inventory and assessment of the landscape using the SMS (FSM 2380) or an alternate visualization technique suitable for assessing potential impacts on scenery; and

8. A review of land ownership records, noting any valid outstanding rights, including mining claims and land use authorizations.

73.32 – Plan of Development

Ensure that applicants for a permit for construction and operation of a wind energy facility submit a plan of development (POD). The POD is used to determine if a wind energy project is consistent with the applicable land management plan and facilitates the safe and orderly use of land for wind energy production. The POD is also useful in developing the proposed action for purposes of environmental analysis. The environmental analysis should address likely changes in environmental conditions anticipated during the life of the project and connected actions essential for developing the wind energy facilities such as constructing a power line connecting the project to the existing energy grid and reconstructing NFS roads to accommodate oversized vehicles needed to move wind turbine components. After an environmental review is completed, ensure that the POD is reviewed and revised to address changed conditions and specific requirements contained in the corresponding Agency decision document.

The POD must describe the following in text, illustrations, or photographs:

1. The existing condition and uses of the project area, including topography, the type and condition of vegetative cover, soils, water, infrastructure, and current alteration of the natural landscape.

2. The project area, including the proposed location and number of wind turbines and other structures and facilities; associated access roads and power distribution lines; necessary power line rights-of-way; the anticipated installed generating capacity of the facility; and requirements for wind turbines, structures, and buildings, including their size, height, construction materials, exterior texture, and color.

3. The location of supporting improvements and necessary safety measures for power distribution lines, utility corridors, parking, sanitary facilities, and fuel storage.

4. The development process, including the sequence, timing, and duration of construction phases; construction methods; required access to facilities; and additional development that may be requested in the future.

5. Needed road or trail access and the number, length, and width of roads, including design, construction, and maintenance standards and identification of staging areas, temporary fences, timber decking areas, disposal areas, and borrow areas needed for construction. Existing roads and utility corridors must be utilized to the maximum extent feasible. Design, operation, and maintenance standards for NFS roads should meet applicable requirements in FSM 7700, 7720, and 7730.

6. A plan for emergency repair, scheduled equipment replacement, and security for the facilities and equipment, including fire protection and spill prevention, containment, and cleanup.

7. A plan for managing the introduction, spread, and removal of noxious weeds and invasive species. The plan should provide for monitoring of noxious weeds and invasive species and methods for treating infestations. The plan must address the use of certified weed-free mulch, establishment of inspection and cleaning areas for construction equipment arriving or leaving the authorized area, and removal and collection of seeds that may adhere to tires and other equipment. The plan should also identify appropriate training of personnel regarding weed identification, dissemination, and control.

8. Management requirements necessary for safe and reliable operation and maintenance, considering rights-of-way for access, maintenance of equipment, road cost-share agreements, road management objectives, road operations including snow plowing, investment sharing (FSM 7731.3), road maintenance commensurate with use (FSM 7732.03), and the engineering design standards for the project.

9. Proposed alteration of the project area and potential impacts on existing land uses, including necessary restrictions on public use. Restrictions should address effects on Federal and State species of management concern and their habitats; the local watershed; cultural resources; scenery; public access and safety; use of existing facilities; and location of utilities and necessary safeguards for those utilities.

10. A reclamation plan identifying the removal of foundations, roads, and associated infrastructure; native re-vegetation; invasive species control; soil stabilization; erosion control; and restoration of the project area upon termination of the authorized land use.

11. Design criteria and operational controls.

a. Testing and Feasibility. The design criteria and operational controls should mitigate impacts from site testing and feasibility studies, such as ground disturbance from road and tower construction, siting of temporary staging areas, vegetation removal, and operation of temporary facilities. Mitigation measures developed during site-specific environmental analysis and decision-making must be included in the final POD.

b. Construction and Operation. The design criteria and operational controls should protect cultural resources and Federal and State species of management concern and their habitats; address scenery management and potential effects on recreation, existing uses, and settings; control storm water and erosion; and meet fire prevention protocols.

12. Photo-realistic visual simulations depicting all wind turbines, structures, other facilities, and site disturbances, including access roads. The visual simulations must be

of sufficient detail for the authorized officer to ascertain the scale, scope, and visual effect of all components of the proposed wind energy project.

13. Financial security should be appropriate for the successful operation, termination and reclamation of the project.

73.33 – Site Plan

Ensure that applicants for a permit for construction and operation of a wind energy facility prepare a site plan. Consult with applicants during preparation of the site plan to ensure that the wind energy project is adequately described. The site plan must:

1. Display the location of all proposed facilities, including wind turbines, buildings, service areas, roads, office and maintenance structures, and the project area, including any specific areas the Forest Service excludes from development.

2. Be of a scale and contour interval appropriate for evaluation by technical experts and agency staff.

3. Be modified as necessary to reflect the requirements of the corresponding wind energy permit.

4. Upon completion of project construction, the permit holder must submit to the authorized officer a as-built representation of the project.

73.4 – Resource Considerations

73.4a – Species of Management Concern

Much of the information in this chapter regarding wildlife concerns, assessments, and potential mitigation was derived from the 2011 U.S. Fish and Wildlife Service Draft Land-Based Wind Energy Guidelines, the 2008 AWEA Handbook, "Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document," and the Bureau of Land Management's "Final Environmental Impact Statement on Wind Energy Development." These publications should be consulted for more explicit guidance, in addition to other applicable sources, including State guidelines.

Ensure that applicants for a permit for construction and operation of a wind energy facility:

1. Develop biological evaluations and assessments for Forest Service sensitive species and federally designated threatened, endangered, and candidate species that meet the requirements of FSM 2670, and, if needed, conduct consultation pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531 et seq.).

2. Comply with all other Federal and State laws and regulations regarding wildlife, fish, and rare plants, including the Bald and Golden Eagle Protection Act (16 U.S.C. 668-

668d) and the Migratory Bird Treaty Act (16 U.S.C. 703-712), and Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.

a. Comply with the Bald and Golden Eagle Protection Act (BGEPA, 50 CFR 22.26 and 22.27) regarding a permit for non-purposeful "take" and nest "take."

b. Coordinate and consult early with the Service regarding Bald and Golden Eagle Protection Act or on other wildlife concerns.

c. Early coordination with the Service regarding the cultural review of projects affecting eagles and eagle sites.

d. Where possible, consider an integrated federal team for wind energy environmental analysis (NEPA).

3. Locate wind turbines, roads, and ancillary facilities away from protected and sensitive areas such as wetlands, riparian zones, streams, lakes, bogs, and fens; globally unique, rare, and threatened ecosystems; Federal-listed and State-listed critical habitat; nests built by raptors such as hawks, eagles, falcons, and owls; big game winter range; and shrub-steppe and prairie grouse leks.

4. Avoid, minimize, or mitigate the potential for bird and bat collisions by configuring wind turbines to avoid natural and man-made landscape features and habitat known to attract or concentrate wildlife, particularly if site surveys demonstrate that such placement would create adverse impacts.

a. Factors relevant to consideration of the potential for bird collisions include known or discovered migration pathways, migration stopover or staging areas, roosts, rookeries, and colonial breeding and feeding areas; flight paths between nesting and feeding areas; cliffs; areas known to attract raptors such as hawks, eagles, falcons, and owls; prairie dog towns and prairie grouse leks; and proximity to Federal or State wildlife refuges, sanctuaries, or important bird areas.

b. Factors relevant to consideration of the potential for bat collisions include hibernating, breeding, and maternity or nursery colonies; flight paths between colonies and feeding areas; areas with open water, caves, and mine adits; and forested areas known to be used by foliage, tree dwelling, or roosting species.

5. Design wind energy structures, including utility poles and wires, to discourage perching or nesting by birds. Use the 2006 APLIC recommendations for design of above-ground lines, transformers, and conductors.

6. Where possible, bury utility and distribution lines to minimize surface disturbance and lessen potential disturbance to wildlife and their habitat. Use existing utility corridors and structures to the extent practical; avoid development of new infrastructure.

7. Assess effects on wildlife, as applicable. The following items, although not exhaustive, should be considered when assessing effects on birds, bats, and other species of management concern:

a. The fact that in the absence of intensive surveys, each species with range overlapping the proposed project area should be considered present in the area.

b. Site climate and weather patterns, facility footprint, configuration of the facility within the landscape, and potential impacts on species migrating to or dwelling in the proposed project area.

c. The presence or proximity of natural and man-made landscape features and habitat that attract, congregate or concentrate wildlife. See section 73.4a, paragraph 4.

8. Consider the effects of proposed wind energy uses on bats and birds that are continental migrants, semi- or regional migrants, or year-round residents; habitat use and requirements; seasonal use; and migration activity.

9. Include in assessment of direct, indirect, and cumulative effects on migrant birds and bats all factors routinely assessed for resident species, including susceptibility to mortality from collision with or electrocution from proposed project facilities and seasonal variation in the effects that construction or operation of wind energy facilities may have on these species.

73.4b – Scenery Management

Ensure that applicants for a permit for construction and operation of a wind energy facility:

1. Integrate wind turbine strings and design into the surrounding landscape, considering the scenic integrity objectives (SIOs) of the applicable land management plan. Where SIOs may not be met, consider offsite mitigation opportunities. In addition:

a. Address key design elements including visual uniformity, use of tubular towers, the proportion and color of turbines, and prohibition of commercial messages.

b. Use view shed mapping, photographic and visual simulations, computer simulations, and field inventory techniques to determine with reasonable accuracy the visibility of the proposed project. Simulations should illustrate sensitive and scenic viewpoints.

c. Eliminate or reduce lighting per FAA requirements. Daytime lighting should be prohibited. Consider the use of lightly-colored wind turbine generators.

d. Design and configure wind energy facilities to create visual uniformity in the shape, color, and size of rotor blades, nacelles, and towers.

e. Maintain wind turbine generators in good working order. Inoperative turbines should be promptly repaired, replaced, or removed.

2. In planning, designing, and siting wind energy structures and facilities, consult FSM 2380, USDA Handbook #701 (Landscape Aesthetics), and FS-710 (The Built Environment Image Guide for the National Forests and Grasslands) regarding integration of wind energy facilities into the existing landscape and evaluation of scenery impacts. In planning and designing associated utilities and roads, consult USDA Handbook #478 (National Forest Landscape Management), Volume 2, Chapter 2, Utilities, and USDA Handbook #483 (National Forest Landscape Management), Volume 2, Chapter 4, Roads.

3. Avoid placing substations or large buildings at highly visible elevations and along skylines that are visible to the public. Conceal these structures, or make them as inconspicuous as possible.

4. Where possible, bury utility and power collection lines to minimize visual disturbance.

5. Consider SIOs in the location, design, and construction of the power line connecting the wind energy project to the existing energy grid.

73.4c – Noise Management

Ensure that applicants for a permit for construction and operation of a wind energy facility:

1. Minimize noise where possible and practical.

2. If possible and practical, minimize the amplitude of wind turbine and associated generator noise using available noise-dampening technologies.

a. Wherever possible, restrict noise to 10 decibels above the background noise level at nearby residences and campsites; in or near habitat of wildlife known to be sensitive to noise during reproduction, roosting, or hibernation; or where habitat abandonment may be an issue.

b. Provide for comparison of noise measurements of proposed equipment during wind turbine operation with the background noise level in the project area over a 24-hour period. Data may be derived from existing sources or from reasonable extrapolations of available information.

73.4d – Lighting

Ensure that applicants for a permit for construction and operation of a wind energy facility reduce the attraction of bats and migratory birds to wind turbines, towers, and all ancillary structures by:

1. Unless otherwise required by the FAA, mark approximately 1 in 5 turbines with duel red-strobe lights on the top of the nacelles of marked turbines.

2. Unless otherwise required by the FAA, lighting should be of a minimum intensity and maximum "off" phase (i.e., 20 flashes per minutes) that effectively marks the facility boundary and turbines within the project site, making the facility visible to pilots at night.

3. Lights unless otherwise required by the FAA, mark approximately 1 in 5 turbines with duel red within the entire facility should eliminate synchronously. Under no circumstance should L-810 lights be used.

4. Security lighting at power substations, equipment sheds and related infrastructure should be heat or motion-sensitive, illuminated only when needed.

5. Security lighting should be down-shielded to minimize bird attraction at night. Security lights should not remain "on" all night.

73.5 – Public Outreach

Ensure that applicants for a permit for construction and operation of a wind energy facility consider conducting meetings to inform the public regarding wind energy development, including the design, operation, and public benefit of a facility. Encourage applicants to use photo-realistic computer simulation and visualization techniques in public presentations regarding a wind energy project. Consult, as appropriate under relevant policy and direction, with affected tribes after an application for a wind energy project has been accepted, as part of the ongoing government-to-government consultation.

74 – Requirements for Processing Wind Energy Applications

Requests to use NFS lands for wind energy projects must comply with all applicable Forest Service procedures, regulations, laws, including NEPA. Evaluate proposed wind energy use, including their effects on the environment, per 36 CFR 251.54(e)(6) and (g)(2) and FSH 2709.11, sections 12 through 14.

74.1 – Environmental Analysis

Environmental analysis for wind energy applications must comply with Agency NEPA procedures at 36 CFR part 220 and FSH 1909.15 and should be commensurate with the activities proposed and potential effects anticipated. Retain the environmental analysis and decision document for each wind energy permit in the permit file.

74.2 – Applications Involving Lands under the Jurisdiction of Multiple Federal Agencies

If a wind energy application includes Federal lands under the jurisdiction of another Federal agency, such as the Bureau of Land Management, meet with officials from the other agency

early in the evaluation process to determine which agency will take the lead for processing the application.

To achieve appropriate coordination, the authorized officer shall identify the lead agency and the participating roles of the involved Federal, State, or tribal agencies.Ensure that the application is evaluated in accordance with regulations, policies, and requirements of each agency, including any applicable cost recovery requirements. Each agency must issue a land use authorization for the lands under that agency's jurisdiction.

74.3 – Proprietary Information

Require applicants for a permit for construction and operation of a wind energy facility to submit sufficiently detailed wind energy data to support environmental analysis of the application and to allow evaluation of the proposed development. Wind inventory and/or other pertinent data collected under a site testing and feasibility permit are proprietary information that may be withheld from public review to the extent allowable by law. These data shall be used only for analysis and decision-making related to authorization of construction and operation of the proposed wind energy facility.

74.4 – Change in Ownership or Control of an Applicant

If an application is pending and there is a change in ownership or control (36 CFR 251.121) of the applicant, require:

1. The applicant to provide current documentation of ownership or control of the applicant. This information may require additional analyses or revision of the application (36 CFR 251.54(e)); or

2. The entity that owns or controls the applicant to withdraw the pending application and file a new one with any necessary revisions, including documentation reflecting the current ownership or control of the applicant.

74.5 – Cost Recovery Requirements

Applications for wind energy permits are subject to processing fees (36 CFR 251.58(c)). Applicants are responsible for providing all the information necessary for the Forest Service to make a decision regarding their application pursuant to NEPA and other applicable law.

Wind energy permits are also subject to monitoring fees (36 CFR 251.58(d)).

75 – Wind Energy Permits

75.1 – Site Testing and Feasibility Permits

1. Minimum Area Permit. Multiple minimum area permits may be issued in one study area if it can adequately accommodate all the site testing equipment and if installation of that equipment is otherwise suitable in that area.

2. Project Area Permit. Only one project area permit may be issued for a project area. Require a proponent to justify the number and location of METs or other instruments within the area requested. If necessary or desirable, consult with the Department of

Energy's National Wind Technology Center in Golden, Colorado (http://www.nrel.00v), to evaluate a proposal and to determine if the number and placement of METs or other instruments are viable for assessing the wind resource in the project area.

3. Installation of Equipment and Reporting of Test Results for All Site Testing and Feasibility Permits.

a. If equipment is not installed and operational within 2 years after issuance of either type of site testing and feasibility permit, the permit shall terminate.

b. If test results from METs or other instruments are not reported to the Forest Service within 3 years after issuance of either type of site testing and feasibility permit, the permit shall terminate, unless a request for an extension is submitted at least 6 months before termination and is approved by the authorized officer.

c. The authorized officer may approve up to 2 additional years for testing and feasibility study, up to a maximum permit term of 5 years, if the holder demonstrates due diligence in conducting site testing and feasibility studies.

4. Issuance of a site testing and feasibility permit does not ensure issuance of a permit for construction and operation of a wind energy facility.

75.11 – Site Testing and Feasibility Studies

1. Upon issuance of a site testing and feasibility permit, encourage the holder to continue planning for construction and operation of a wind energy facility. At this time, the holder should begin collecting information and conducting studies needed to evaluate the feasibility of the project and its environmental compatibility. Information from these studies is required for processing an application (section 73.31) for a permit for construction and operation of a wind energy facility and must accompany the study plan.

An evaluation of site feasibility should include a description of the following relative to the site:

a. The wind resource.

b. The proximity to transmission lines and access roads.

c. Any species of management concern and their habitat.

d. Bat and bird migration routes. Installation of a bat detection instrument on MET towers is recommended, using an acceptable method of bat detection based on best available science.

e. Visual resources.

f. Soil and geological factors.

g. Cultural resources.

h. Wetlands.

i. Noise that may affect wildlife or humans.

j. Community facilities and services.

k. Aviation considerations.

l. Required road construction, including construction of new roads, reconstruction of existing roads, and between road and construction of temporary roads.

2. See the 2011 U.S. Fish and Wildlife Service Draft Land-Based Wind Energy Guidelines and Chapter 3 of the 2008 AWEA Wind Energy Siting Handbook for other recommendations regarding site feasibility.

75.12 – Determination of Competitive Interest

1. Minimum Area Permits. Minimum area permits authorize land use for the minimum area necessary for the construction, operation, and removal of the authorized site testing equipment and facilities, and may not exceed 5 acres. Because more than one minimum area permit may be issued within a study area, requests for minimum area permits are evaluated as they are received from proponents and do not require a determination of competitive interest before they may be issued.

2. Project Area Permits. Project area permits may be issued for an area greater than 5 acres and may encompass an area larger than that required solely for the installation and use of the authorized testing equipment and facilities. A project area permit excludes use of the authorized area for site testing and feasibility study by other project proponents. Consequently, project area permits require a determination of competitive interest before they may be issued.

a. Determination of Competitive Interest. When a proponent submits a proposal for a project area permit, determine whether competitive interest exists based upon:

(1) Expression of interest in the project area or submission of proposals by more than one proponent for the same project area; or

(2) Response to a notice of the opportunity published in the local newspaper and either a notice published in The Wall Street Journal or posted on the FedBizOpps Web site (http://www.fedbizopps.gov/).

If competitive interest exists, issue a prospectus in accordance with FSM 2712.1.

b. Permit Area. In determining the area to be authorized by a project area permit, consider how much land would be needed to construct and operate the contemplated wind energy facility, based on projections of the project's scale derived from anticipated testing results and generally accepted engineering practices.

c. Use of the Project Area. The holder of a project area permit is authorized to occupy and use the project area for site testing and study. This land use precludes issuance of additional site testing and feasibility permits in the project area during the term of the project area permit, and precludes consideration of an additional or alternate wind energy facility within the project area. The holder of a project area permit shall obtain an additional permit for construction and operation of a wind energy facility. The Forest Service may authorize other compatible uses of NFS lands within the project area.

75.13 – Site Testing and Feasibility Permit Form

To authorize site testing and feasibility, use form FS-2700-4, Special Use Permit, and use code 414 wind energy site testing. See FSH 2709.11, section 53.11, for guidance on completing form FS-2700-4.

Require construction and reclamation bonding of at least $2,000 per MET for all site testing and feasibility permits. Bonding may take the form of corporate surety, U.S. Treasury bills, notes, bonds, or other negotiable securities, cash deposits, irrevocable letters of credit, assignment of savings accounts, or assignment of certificates of deposit. See FSH 6509.11k, chapter 82, for direction on requiring and administering bonding.

75.2 – Permits for Construction and Operation of a Wind Energy Facility

75.21 – Pre-Authorization Requirements

A permit for construction and operation of a wind energy facility may be issued only after the applicant has:

1. Documented that construction and operation of the wind energy facility must not hinder national security; military readiness or training areas; radar or electronic security; or military or civilian airspace.

2. Submitted a study plan that includes survey outcomes from site testing and feasibility studies. Include the study plan as an appendix to a permit for construction and operation of a wind energy facility.

3. Submitted a final POD, including all required on-site construction drawings and specifications, drawings and specifications for road construction to connect the site to existing forest roads and for reconstruction of NFS roads; abatement procedures; acceptable design measures; and other requirements determined through environmental analysis. Include the POD as an appendix to a permit for construction and operation of a wind energy facility.

4. Submitted a final site plan consistent with the corresponding environmental analysis. Include the final site plan as an appendix to a permit for construction and operation of a wind energy facility.

5. Submitted an annual operating plan prepared in consultation with the authorized officer that meets the following requirements:

a. Construction Phase. The operating plan must address transportation and traffic management for the construction phase of the project. Specifically, the operating plan must specify the size, weight, origin, destination, unique handling requirements, and alternative transportation that may be necessary for turbine components, main assembly cranes, and other large equipment. The operating plan must identify any permits that are required for movement of these loads in accordance with state traffic law (36 CFR 212.5(a)). The operating plan must address minimizing hazards from increased truck traffic. The operating plan also must identify needed temporary traffic control measures, such as signs, barricades, flaggers, and pilot cars, which are warning vehicles that drive in front and sometimes behind oversized vehicles and vehicles with oversized loads. All temporary traffic control measures must comply with the Manual on Uniform Traffic Control Devices for Streets and Highways (23 CFR 660.603 and FSM 7731.16). Specify dates or seasons of operation and other information required to administer the authorized use, such as seasonal limitations on the use of heavy equipment.

b. Operational Phase. For the operational phase of the project, the operating plan must:

(1) Require submission of final as-built drawings of the wind energy facilities before operations commence.

(2) Specify dates or seasons of operation and other information such as seasonal limitations on the use of heavy equipment and requirements for plowing snow.

(3) Address hazardous materials and waste management, specifically, requirements for the storage, use, transportation, and disposal of hazardous materials and waste anticipated to be used, stored, or transported at the site; spill prevention and response

measures; inspection procedures; and procedures to ensure that the site is kept free of debris and trash.

(4) Include a safety plan describing site access, safe work practices, security, emergency procedures, fire control, and other measures to avoid or mitigate safety hazards.

6. Submitted a monitoring plan prepared in consultation with the authorized officer. Include the monitoring plan as an appendix to a permit for construction and operation of a wind energy facility. The monitoring plan must address the potential effects on wildlife and any required mitigation measures discussed in the corresponding environmental analysis and site testing and feasibility studies. See FSH 2609.13, chapter 80, for recommendations on developing a monitoring plan and sampling protocols for effects on wildlife. The following are examples of items that may need to be addressed or included in a monitoring plan:

a. Effects of wind turbine construction and operation on species of management concern and their habitat.

b. Newly discovered ecologically sensitive habitats or features, such as bat hibernacula or breeding sites, so that measures may be taken to prevent or mitigate adverse effects.

c. Requiring the holder to submit to the authorized officer an annual report summarizing results of all monitoring data and use of the annual report as appropriate to revise the next annual operating plan, including adding provisions to mitigate adverse effects on species of management concern.

d. Instructing all on-site personnel to avoid harassment and disturbance of wildlife, especially during courtship, nesting, and fledging seasons.

e. Requiring the holder to report promptly to the authorized officer adverse effects on certain protected habitats, such as wetlands.

f. Requiring the holder to report promptly to the authorized officer and appropriate State agency the discovery of a carcass of a State-protected species, and to report promptly to the U.S. Fish and Wildlife Service the discovery of a carcass of a Federally listed endangered, threatened, or candidate species, bald or golden eagle, or other protected wildlife as identified during consultation with the U.S. Fish and Wildlife Service.

75.22 – Authorization of Wind Energy Facilities

1. Use form FS-2700-4, Special Use Permit, and use code 621, wind power facility, when authorizing construction and operation of a wind energy facility, in accordance

with FSH 2709.11, chapter 10, and exhibit 03. See FSH 2709.11, section 53.11, for guidance on completing form FS-2700-4.

2. Ensure that construction of roads needed to connect the site to existing forest roads is authorized in a permit for construction and operation of a wind energy facility.

3. Authorize use of NFS roads under a permit for construction and operation of a wind energy facility, under a road use permit (FSM 7730.05 & 7731.17) or a combination of the two. As applicable, investment sharing (FSM 7731.3) and cost recovery (FSM 7732.22) must be required in the authorizing instrument.

4. Ensure that holders of a permit for construction and operation of a wind energy facility obtain construction and reclamation bonding of at least $10,000 per wind turbine. Bonding may take the form of corporate surety, U.S. Treasury bills, notes, bonds, or other negotiable securities, cash deposits, irrevocable letters of credit, assignment of savings accounts, or assignment of certificates of deposit. See FSH 6509.11k, chapter 80, section 82, for direction on requiring and administering bonding. Additional bonding may be required at the discretion of the authorized officer. See FSH 2713.3 for guidance on performance bonds. At least every 5 years, review bonding for permits for construction and operation of a wind energy facility to ensure adequacy of the bonding.

5. According to the terms of a permit for construction and operation of a wind energy facility, the permit will terminate:

   a. If construction has not commenced within 2 years after issuance of the permit; and

   b. If wind turbines are not operational within 5 years after issuance of the permit.

76 – Land Use Fees

Land use fees for wind energy permits are separate from processing and monitoring fees that may be charged for those permits.

76.1 – Land Use Fees for Site Testing and Feasibility Permits

Calculate the annual land use fee for the two types of site testing and feasibility permits as follows:

1. Minimum Area Permits. The land use fee must be the regional minimum fee (FSH 2709.11, sec. 31.51a) or $600 for each MET. If the land use fee is charged for each MET, do not charge a land use fee for the acreage authorized.

2. Project Area Permits. Calculate the land use fee by appraisal of the authorized use, in accordance with FSH 2709.11, section 31.1. The appraisal analysis must include consideration of the degree to which the holder's use will constrain or prevent other uses of the authorized land.

a. The preferred method for calculating the land use fee for project area permits is an appraisal of the market rent of the land for the authorized use.

b. If there are insufficient comparable rental data available, the land use fee for project area permits may be calculated as a percentage of the market value of the authorized land. If there are insufficient market data available to support a market-derived percentage of value, the land use fee shall be 5 percent of the market value of the authorized land.

c. If the regional appraiser advises that a site-specific appraisal is impractical for a particular project area permit, a market survey, land value schedule, or other valuation tool prepared under the direction of the assigned review appraiser may be used.

76.2 – Land Use Fees for Permits for Construction and Operation of a Wind Energy Facility

1. Construction Phase. During the construction phase, base the annual land use fee on the total acreage of NFS lands covered by the permit calculated in accordance with FSH 2709.11, chapter 10, section 31.1.

a. The preferred method for calculating the land use fee for permits for construction and operation of a wind energy facility is an appraisal of market rent of the land for the authorized use.

b. If there are insufficient comparable rental data available, the land use fee for permits for construction and operation of a wind energy facility may be calculated as a percentage of the market value of the authorized land. If there are insufficient market data available to support a market-derived percentage of value, the land use fee for permits for construction and operation of a wind energy facility must be 5 percent of the market value of the authorized land.

c. If the regional appraiser advises that site-specific appraisal is impractical for a particular permit for construction and operation of a wind energy facility, a market survey, land value schedule, or other valuation tool prepared under the direction of the assigned review appraiser may be used.

2. Operational Phase. Once a wind energy facility is operational, base the annual land use fee on the market value of the use, calculated in accordance with FSM 5409.12 and 5410 and FSH 2709.11, section 31.1.

76.3 – Land Use Fee Updates

The annual land use fee for site testing and feasibility permits and for permits for construction and operation of a wind energy facility must be adjusted annually by multiplying the current fee by the annual change (second quarter to second quarter) in the Producer Price Index for

Industrial Electric Power (PPI-IEP), Series WPU0543, published by the U.S. Department of Labor, Bureau of Labor Statistics.

77 – Administration of Wind Energy Permits

This section applies to all types of wind energy permits.

77.1 – General Administration

1. Administer site testing and feasibility permits and permits for construction and operation of a wind energy facility in accordance with the applicable land management plan and the terms and conditions of the permit.

2. Ensure that permit holders conduct technical inspections and perform administrative duties as outlined in the terms and conditions of permit, POD and Operation and Maintenance (O&M) Plan.

77.2 – Inspections

1. Require holders to provide annual inspection reports of METs and other authorized wind energy equipment to ensure that:

   a. The equipment is operating in accordance with the operating plan, the permit, and applicable Federal and State requirements;

   b. Certified inventory statements are accurate; and

   c. All equipment is secure, safe, and otherwise properly operated and maintained.

2. To facilitate administration of wind energy permits, ensure that:

   a. Holders comply with FAA lighting requirements; and

   b. Specified facilities are labeled or numbered by holders in accordance with the site plan.

77.3 – Construction Requirements

Ensure that holders:

1. Minimize the area disturbed during site testing and feasibility studies and during construction of a wind energy facility. Minimize impacts on groundwater and surface flow, as well as sedimentation and other impacts on water quantity and quality. Salvage topsoil from excavation and construction for reapplication in site restoration. Back fill as much as possible with originally excavated material. Dispose of surplus excavation materials only in approved areas, or stockpile them for use in site restoration.

2. As described in the POD, restore the project area as soon as possible after the completion of construction to minimize habitat conversion and to expedite habitat recovery. Use certified weed-free seeds from native grasses, forbs, and shrubs. The use of non-invasive, non-native species may be appropriate to stabilize an area and to establish native vegetation.

3. To minimize airborne dust during surface clearing, excavation, or blasting, apply appropriate dust abatement techniques and materials on unpaved and unvegetated surfaces.

4. Use explosives only in accordance with applicable Forest Service and other Federal and State requirements, including specified times and distances, and only as deemed appropriate given local ordinances and sensitivities.

a. Limit blasting or other noisy activities to the least noise-sensitive times of day, such as between 7 a.m. and 10 p.m. and weekdays.

b. If blasting or other noisy activities are required, notify nearby communities in advance.

c. Locate all stationary construction equipment, such as compressors and generators, as far as possible from nearby communities and recreation sites. Use and properly maintain noise reduction devices on all construction and maintenance equipment.

5. Schedule installation of METs and other facilities to avoid or minimize disruption to important wildlife activities.

77.4 – Operational Requirements

Ensure that holders:

1. Submit final as-built drawings for wind energy facilities before commencing operations.

2. Completely repair, replace, or remove inoperative wind turbines. Make sure that nacelle covers and rotor nose cones are securely in place and undamaged. Clean nacelles, towers and pedestal as needed to remove any spilled or leaking fluids, dirt, and dust that have accumulated.

3. Limit security lighting requirements to areas where safety is a concern.

4. Repair or replace inoperative down shielding for lighting.

5. Have noise dampening devices on all equipment.

6. Control noxious weeds and invasive species resulting from surface disturbance at the site.

7. If pesticides are used at the site, develop an integrated pest management plan. Use only nonpersistent, immobile pesticides registered by the Environmental Protection Agency, and apply them in accordance with label and application permit instructions.

8. Use results from multi-year monitoring to adjust operations to mitigate or eliminate impacts on species of management concern and their habitat, while still achieving the energy production objectives for the facility. See FSH 2609.13, chapter 80.

77.5 – Site Restoration Upon Discontinuation of the Authorized Use

Upon revocation of a permit or termination of a permit without renewal of the authorized use, ensure that holders:

1. Remove the authorized facilities and return roads to their pre-project state.

2. Re-establish predevelopment vegetation cover, composition, configuration, and structural characteristics, unless the authorized officer determines that a different landscape, such as a wetland or pond, is more desirable or beneficial.

3. Use certified weed-free native grasses, forbs, and shrubs. Use of non-invasive, non-native species may be appropriate to aid early stabilization of the site and establishment of native vegetation.

4. Conduct any other site restoration activities required by the POD and the permit.