

2 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

Wind energy development on BLM-administered lands is managed through ROW grants in accordance with the terms and conditions of the BLM's Interim Wind Energy Development Policy (BLM 2002a) (Appendix A). The BLM proposes to revise the interim policy through development of a Wind Energy Development Program that would establish comprehensive policies and BMPs addressing wind energy development.¹ Alternatives to this proposed action present options for the management of wind energy development on BLM-administered lands. Under each alternative, wind energy development would occur in accordance with the requirements of the FLMPA. The objective of this PEIS is to evaluate whether the proposed action presents the best management approach that the BLM could adopt.

This chapter identifies and describes the proposed action and its alternatives, including no action. A comparison of the alternatives is provided in Section 2.6.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The proposed action, assessed in Section 6.1, is for the BLM to implement a Wind Energy Development Program to address issues defined by the MPDS. The BLM believes that the goals and objectives realized through developing and implementing the Wind Energy Development Program would provide the following benefits:

- *Amendment of land use plans.* The BLM proposes that this PEIS would provide the necessary level of NEPA analysis to support the amendment of land use plans to address wind energy development in those planning areas that have the potential for future wind energy development.
- *Tiering of project-specific environmental analyses.* The BLM proposes that future, project-specific environmental analyses for wind energy development would tier off of the analyses conducted in this PEIS and the decisions in the resultant Record of Decision (ROD), and thereby allow the project-specific analyses to focus just on the critical, site-specific issues of concern.
- *Development of comprehensive policies and BMPs.* The BLM proposes that the Wind Energy Development Program would provide comprehensive policies and BMPs providing guidance that would be applicable to all wind energy development projects on BLM-administered lands.

¹ The text box on the next page titled "Policies, BMPs, and Stipulations" provides definitions for each of these terms.

Policies, BMPs, and Stipulations

Policy: A plan of action adopted by an organization. Policies adopted as part of the proposed Wind Energy Development Program would establish a system for the administration and management of wind energy development on BLM-administered lands.

Best Management Practices: A practice (or combination of practices) that is determined to provide the most effective, environmentally sound, and economically feasible means to manage an activity and mitigate its impacts. BMPs adopted as part of the proposed Wind Energy Development Program would identify for the BLM, industry, and stakeholders the best set of practices for developing wind energy and ensuring minimal impact to natural and cultural resources.

Stipulation: A restriction that is insisted upon as a condition of agreement. ROW grants issued by the BLM will include project-specific stipulations defining the conditions for wind energy development on BLM-administered lands. The policies and BMPs of the proposed Wind Energy Development Program would provide a baseline set of stipulations; additional stipulations would be developed, as needed, to address site-specific issues and concerns, on the basis of relevant land use plan requirements, other BLM mitigation guidance, and mitigation measures identified and discussed in Chapter 5 of this PEIS.

- *Consistency of ROW application and grant process.* The BLM proposes that implementation of a Wind Energy Development Program would result in greater consistency in the ROW application and grant process.

The following sections describe the development scenario analyzed in this PEIS (Section 2.2.1), the phases of wind energy development addressed (Section 2.2.2), the proposed policies and BMPs for wind energy development (Section 2.2.3), and the proposed amendment of land use plans (Section 2.2.4).

2.2.1 Description of the Maximum Potential Development Scenario

An MPDS has been developed for BLM-administered lands in 11 western states. The MPDS identifies the spatial distribution of the maximum possible extent of future wind energy development activities that may occur on BLM-administered lands over the next 20 years (i.e., 2005 through 2025). A variety of factors (e.g., economic, social, and political constraints), beyond the BLM's control or influence, are likely to limit wind energy development to some level below that projected in the MPDS. However, the MPDS is evaluated in this PEIS as representing an upper bound of potential impacts and showing where the potential development might occur.

The MPDS was constructed by NREL, a DOE laboratory focused on research of renewable energy resources. NREL has modeled and mapped the wind resources in each of the states and has assigned class designations to indicate the potential for wind power generation. Wind power classes range from 1 to 7; Class 7 has the highest potential wind power generation

and Class 1 has the lowest. On the basis of projected wind technology development, NREL has determined that wind resources in Class 3 and higher could be economically developable over the next 20 years (i.e., the time frame for the PEIS analysis). In this PEIS, Class 3 resources have been characterized as having medium potential; resources in Classes 4 and higher have been characterized as having high potential.

In constructing the MPDS, NREL applied screening criteria to BLM-administered lands within the 11-state study area. These screens included (1) location of BLM-administered lands determined to be off limits for wind energy development by virtue of statutory or administrative controls (i.e., Wilderness Areas, Wilderness Study Areas, National Monuments, and National Conservation Areas [NCAs]), and (2) occurrence of Class 3 or higher wind resources. The MPDS, therefore, identifies where BLM-administered lands that have the potential to be developed on the basis of land status and wind resources are located.

A detailed description of the methodology used to develop the MPDS is provided in Appendix B, along with Field Office-level maps depicting the location of the BLM-administered lands with the potential for wind energy development over the next 20 years (i.e., lands passing the screening criteria applied in NREL's evaluation). Figure 2.2.1-1 depicts the distribution of BLM-administered lands within the 11-state study area with medium (Class 3 wind resources) or high (Classes 4 through 7 wind resources) potential for wind energy development. As this map shows, lands with potential for development exist in each of the 11 states but are concentrated in specific portions of each state and are significantly present in Wyoming and Montana. Table 2.2.1-1 presents the total number of potentially developable acres of BLM-administered land in each of the 11 states.

NREL used a separate model, the Wind Deployment System (WinDS), to project the amount of wind power that might be generated over the next 20 years in the 11-state study area. The WinDS model, also described in detail in Appendix B, estimates the degree to which wind energy technology will contribute to electricity generation over time, considering issues such as access to and cost of transmission capacity, the intermittency of wind power, wind technology developments, and potential barriers to wind resource development.² A summary of the estimated new wind power generation for BLM-administered and other lands within each state over the next 20 years is provided in a discussion of economic impacts in Section 5.13 (Table 5.13-1).

Because the WinDS model takes into account the myriad factors that will determine how much wind power will be generated over time, the model's results can be used to approximate the amount of wind energy development that might occur on BLM-administered lands and, thus, the number of acres that might be economically developable. Whereas the MPDS identifies all the potentially developable lands and shows their locations, the WinDS model output indicates

² Barriers to wind resource development include a variety of factors. As discussed in Appendix B, Section B.2.2.1, the WinDS model excludes wind resource areas that may be environmentally sensitive or unlikely to be developed because of their ownership, designation, land use, physical attributes, or other constraints.



FIGURE 2.2.1-1 BLM-Administered Lands with Medium or High Potential for Wind Energy Development

TABLE 2.2.1-1 Summary of Potentially Developable and Economically Developable BLM-Administered Land within the 11-State Study Area (acres)^a

State	Total Surface Land ^b	Total Potentially Developable Land ^c	Total Economically Developable Land ^d
Arizona	11,700,000	210,000	1,500
California	15,000,000	1,152,000	72,300
Colorado	8,400,000	208,000	4,200
Idaho	11,900,000	956,000	9,100
Montana	8,000,000	5,172,000	1,800
Nevada	47,800,000	1,157,000	34,700
New Mexico	13,400,000	1,542,000	9,800
Oregon	16,100,000	1,183,000	9,700
Utah	22,900,000	671,000	12,700
Washington	400,000	38,000	600
Wyoming	18,400,000	7,902,000	3,700
Total	174,000,000	20,191,000	160,100

^a To convert acres to hectares, multiply by 0.4047.

^b Sources: BLM (2003a-j).

^c Acreage estimates generated by the MPDS modeling (Section 2.2.1 and Appendix B).

^d Acreage estimates generated by the WinDS model (Section 2.2.1 and Appendix B).

how many total acres might be economically developable. The WinDS model, however, does not identify where the economically developable BLM-administered land is located. Table 2.2.1-1 presents the results of the WinDS model in terms of total number of BLM-administered acres likely to be developed over the next 20 years on the basis of economic factors. These results indicate that only a small portion of BLM-administered lands within each state are likely to be involved in wind energy development.

2.2.2 Phases of Wind Energy Development on BLM-Administered Lands

The impact analyses address issues related to the different phases of wind energy development at a programmatic level. All phases of wind energy development are included in the analyses: site monitoring and testing, construction, operation, and decommissioning. Typical activities that occur during each of these phases are described in Chapter 3, along with discussions of regulatory requirements; health and safety issues; hazardous materials and waste management considerations; transportation requirements; and relevant, existing mitigation

guidance for wind energy projects. Site-specific and species-specific issues pertaining to these phases of development are not within the scope of this PEIS and will be addressed in project-specific NEPA documents.

2.2.3 The BLM's Proposed Wind Energy Development Program

The BLM proposes to adopt a number of policies and BMPs as part of the proposed Wind Energy Development Program. These policies and BMPs have been formulated on the basis of a detailed, comprehensive analysis of the potential impacts of wind energy development under the MPDS and relevant mitigation measures (Chapter 5). Reviews of existing, relevant mitigation guidance (Section 3.6) and comments received during scoping (Section 7.1) were also conducted. On the basis of these reviews, the BLM identified programmatic policies and BMPs that would be applicable to all wind energy development projects on BLM-administered lands.

The BLM proposes that these policies and BMPs would establish the minimum requirements for management of individual wind energy projects. The proposed policies express the desired outcomes that BMPs are intended to achieve. In addition, the proposed policies address the administration of wind energy development activities, and the proposed BMPs identify required mitigation measures that would need to be incorporated into project-specific Plans of Development (PODs) and ROW grant stipulations. Additional mitigation measures would be applied to individual projects, in the form of stipulations in the ROW grant as appropriate, to address site-specific and species-specific issues.

This section presents the proposed policies and BMPs. Upon final approval of the BLM's proposed Wind Energy Development Program, the current Interim Wind Energy Development Policy (BLM 2002a) (Appendix A) would be revised to become the official Wind Energy Development Program.

2.2.3.1 Proposed Policies

The BLM proposes to adopt the following policies as part of its proposed Wind Energy Development Program:

- The BLM will not issue ROW grants for wind energy development on lands on which wind energy development is incompatible with specific resource values. Lands that would be excluded from wind energy development include designated areas that are part of the National Landscape Conservation System (NLCS) (e.g., Wilderness Areas, Wilderness Study Areas, National Monuments, NCAs, Wild and Scenic Rivers, and National Historic and Scenic Trails) and Areas of Critical Environmental Concern (ACECs).³ Additional areas of land may be excluded from wind energy development on the basis of

³ Although the MPDS developed for this PEIS (Section 2.2.1 and Appendix B) did not exclude all of these lands at the screening level, they would be excluded from wind energy development.

findings of resource impacts that cannot be mitigated and/or conflict with existing and planned multiple-use activities.

- To the extent possible, wind energy projects will be developed in a manner that will not prevent other land uses, including fluid minerals extraction, grazing, recreational use, and other ROW uses.
- Entities seeking to develop a wind energy project on BLM-administered lands shall consult with appropriate federal, state, and local agencies regarding specific projects as early in the planning process as appropriate to ensure that all potential siting, design, construction, operating, monitoring, and decommissioning issues and concerns are identified and adequately addressed.
- The BLM will initiate government-to-government consultation with Indian Tribal governments whose interests might be directly and substantially affected by activities on BLM-administered lands as early in the planning process as appropriate to ensure that all concerns about siting, design, construction, operating, monitoring, and decommissioning activities are identified and adequately addressed.
- Entities seeking to develop a wind energy project on BLM-administered lands, in conjunction with BLM Washington Office and Field Office staff, shall consult with the U.S. Department of Defense (DoD) regarding the location of wind power projects and turbine siting as early in the planning process as appropriate. This consultation shall occur simultaneously at both the installation/field level and the Pentagon/BLM Washington Office level.
- Existing land use plans will be amended, as appropriate, to (1) adopt provisions of the BLM's proposed Wind Energy Development Program, (2) identify land considered to be available for wind energy development, and (3) identify land that will not be available for wind energy development.
- The level of environmental assessment to be required for individual wind power projects will be determined at the Field Office level. In certain instances, it may be determined that an environmental assessment (EA) is sufficient in lieu of an EIS. To the extent that this PEIS addresses anticipated issues and concerns associated with an individual project, including potential cumulative impacts, the BLM will tier off of the decisions embedded in this PEIS and limit the scope of additional project-specific NEPA analyses. In particular, the mitigation measures discussed in Chapter 5 may be consulted in determining site-specific requirements. Public involvement will be incorporated into all wind energy development projects to ensure that all concerns and issues are identified and adequately addressed.

- The existing Categorical Exclusion (CX) applicable to the issuance of short-term ROWs or land use authorizations may be applicable to some site monitoring and testing activities. The relevant CX, established for the BLM in the DOI Departmental Manual 516, Chapter 11, Sec. 11.5, E(19) (DOI 2004), encompasses “issuance of short-term (3 years or less) rights-of-way or land use authorizations for such uses as storage sites, apiary sites, and construction sites where the proposal includes rehabilitation to restore the land to its natural or original condition.”
- Entities seeking to develop a wind power project on BLM-administered lands will develop a project-specific POD that incorporates all proposed BMPs (Section 2.2.3.2) and, as appropriate, the requirements of other, existing and relevant BLM mitigation guidance (Section 3.6.2). Additional mitigation measures will be incorporated into the POD and into the ROW grant as project stipulations, as needed, to address site-specific and species-specific issues. The POD will include a site plan showing the locations of turbines, roads, power lines, other infrastructure, and other areas of short- and long-term disturbance.
- The BLM will incorporate management goals and objectives specific to habitat conservation for sage-grouse and other species of concern, as appropriate, into the POD for proposed wind energy projects.
- The BLM will consider the visual resource values of the public lands involved in proposed wind energy development projects, consistent with the BLM Visual Resource Management (VRM) policies and guidance. The BLM will work with the ROW applicant to incorporate, to the extent possible, visual design considerations into the planning and design of the project to minimize potential visual impacts of the proposal and to meet the VRM objectives of the area.
- Operators of wind power facilities on BLM-administered lands must consult with the BLM and other appropriate federal, state, and local agencies regarding any planned upgrades or changes to the wind facility design or operation. Proposed changes of this nature may require additional environmental analysis and/or revision of the POD.
- The BLM’s proposed Wind Energy Development Program would incorporate adaptive management strategies to ensure that potential adverse impacts of wind energy development are mitigated to the fullest extent possible. The programmatic policies and BMPs would be updated and revised as new data regarding the impacts of wind power projects become available. At the project-level, operators would be required to develop monitoring programs to evaluate the environmental conditions at the site through all phases of development, to establish metrics against which monitoring observations can be measured, to identify potential mitigation measures, and to establish

protocols for incorporating monitoring observations and additional mitigation measures into standard operating procedures and project-specific stipulations.

2.2.3.2 Proposed BMPs

The BLM proposes that the following BMPs be applied to all wind energy development projects to establish environmentally sound and economically feasible mechanisms to protect and enhance natural and cultural resources. These BMPs were derived from the mitigation measures discussed in Chapter 5 but are limited to those measures that are applicable to all wind energy development projects (Section 5.15). These BMPs would be adopted as required elements of project-specific PODs and/or as ROW grant stipulations. They are categorized by development activity: site monitoring and testing, development of the POD, construction, operation, and decommissioning. The BMPs for development of the POD identify required elements of the POD needed to address potential impacts associated with subsequent phases of development.

Some of the proposed BMPs address issues that are not unique to wind energy development but that are more universal in nature, such as road construction and maintenance, wildlife management, hazardous materials and waste management, cultural resource management, and pesticide use and integrated pest management. For the most part, however, the level of detail provided by the BMPs is less specific than that provided in other, existing BLM program-specific mitigation guidance documents (Section 3.6.2). As required by proposed policy (Section 2.2.3.1), mitigation measures identified in or required by these existing program-specific guidance documents would be applied, as appropriate, to wind energy development projects; however, they are not discussed in detail in the programmatic BMPs proposed here.

In summary, stipulations governing specific wind energy projects would be derived from a number of sources: (1) the proposed BMPs discussed in this section; (2) other, existing and relevant program-specific mitigation guidance (Section 3.6); and (3) the mitigation measures discussed in Chapter 5. Guidelines for applying and selecting project-specific requirements include determining whether the measure would (1) ensure compliance with relevant statutory or administrative requirements, (2) minimize local impacts associated with siting and design decisions, (3) promote postconstruction stabilization of impacts, (4) maximize restoration of previous habitat conditions, (5) minimize cumulative impacts, or (6) promote economically feasible development of wind energy on BLM land.

2.2.3.2.1 Site Monitoring and Testing

- The area disturbed by installation of meteorological towers (i.e., footprint) should be kept to a minimum.

- Existing roads should be used to the maximum extent feasible. If new roads are necessary, they should be designed and constructed to the appropriate standard.
- Meteorological towers should not be located in or near sensitive habitats or in areas where ecological resources known to be sensitive to human activities (e.g., prairie grouse) are present. Installation of towers should be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors.

2.2.3.2.2 Plan of Development Preparation

General

- The BLM and operators should contact appropriate agencies, property owners, and other stakeholders early in the planning process to identify potentially sensitive land uses and issues, rules that govern wind energy development locally, and land use concerns specific to the region.
- Available information describing the environmental and sociocultural conditions in the vicinity of the proposed project should be collected and reviewed as needed to predict potential impacts of the project.
- The project should be planned to minimize or mitigate impacts to wildlife, habitat, visual resources, surface water resources, cultural and historical resources, other valued resources, and other land use.
- The Federal Aviation Administration (FAA)-required notice of proposed construction should be made as early as possible to identify any air safety measures that would be required.
- To plan for efficient use of the land, necessary infrastructure requirements should be consolidated wherever possible, and current transmission and market access should be evaluated carefully.
- The project should be planned to utilize existing roads and utility corridors to the maximum extent feasible, and to minimize the number and length/size of roads, lay-down areas, and borrow areas.
- A monitoring program shall be developed to ensure that environmental conditions are monitored during the construction, operation, and decommissioning phases. The monitoring program should incorporate adaptive management strategies to ensure that potential adverse impacts of wind energy development are mitigated to the fullest extent possible

throughout the life of the project. The monitoring program should identify the monitoring requirements for each environmental resource present at the site, establish metrics against which monitoring observations can be measured, identify potential mitigation measures, and establish protocols for incorporating monitoring observations and additional mitigation measures into standard operating procedures and BMPs.

- “Good housekeeping” procedures should be developed to ensure that during operations the site would be kept clean of debris, garbage, fugitive trash or waste, and graffiti; to prohibit scrap heaps and dumps; and to minimize storage yards.

Wildlife and Other Ecological Resources

- Operators should review existing information on species and habitats in the vicinity of the project area to identify potential concerns.
- Operators should conduct surveys for federally and/or state-protected species and other species of concern (including special status plant and animal species) within the project area and, to the extent feasible, design the project to minimize or mitigate impacts to these resources.
- Operators should identify important, sensitive, or unique habitats in the vicinity of the project and, to the extent feasible, design the project to minimize or mitigate impacts to these habitats (e.g., locate the turbines, roads, and ancillary facilities in the least environmentally sensitive areas; i.e., away from riparian habitats, streams, wetlands, drainages, or critical wildlife habitats).
- Operators should evaluate avian and bat use of the project area and, to the extent feasible, design the project to minimize or mitigate the potential for bird and bat strikes. Scientifically rigorous avian and bat use surveys should be conducted; the amount and extent of ecological baseline data required should be determined on a project basis.
- The location of turbines in areas with high bird usage, in known bird migration pathways, near wetlands and other bird-rich habitats, and in areas with a high incidence of fog and mist, should be avoided.
- Turbines should be configured to avoid landscape features known to attract raptors.
- Operators should determine the presence of bat colonies and avoid placing turbines near known bat hibernation, breeding, and maternity/nursery

colonies; in known migration corridors; or in known flight paths between colonies and feeding areas.

- Operators should determine the presence of active raptor nests (i.e., raptor nests used during the breeding season). Measures to reduce raptor use at a project site (e.g., minimize road cuts, maintain either no vegetation or nonattractive plant species around the turbines) should be considered.
- A habitat restoration plan should be developed to minimize or mitigate negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species. The plan should identify revegetation, soil stabilization, and erosion reduction measures that should be implemented to ensure that all temporary use areas are restored. The plan should require that restoration occur as soon as possible after completion of activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
- Procedures should be developed to mitigate potential impacts to special status species. Such measures could include avoidance, relocation of project facilities or lay-down areas, and/or relocation of biota.
- Facilities should be designed so that they cannot be used as perching or nesting substrates by birds. For example, modified power poles should be required to prevent raptor electrocutions, and raptor and raven nesting and perching.

Visual Resources

- The public should be involved and informed about the visual site design elements of the proposed wind energy facilities. Possible approaches include conducting public forums for disseminating information, offering organized tours of operating wind developments, and using computer simulation and visualization techniques in public presentations.
- Turbine arrays and turbine design should be integrated with the surrounding landscape. Design elements to be addressed include clustering of turbines, visual uniformity, use of tubular towers, proportion and color of turbines, nonreflective paints, and prohibition of commercial messages on turbines.
- Other site design elements should be integrated with the surrounding landscape. Elements to address include minimizing the profile of the ancillary structures, burial of cables, prohibition of commercial symbols, and security lighting. Regarding lighting, efforts should be made to minimize the need for and amount of lighting on ancillary structures.

Roads

- An access road siting and management plan should be prepared incorporating existing BLM standards regarding road design, construction, and maintenance such as those described in the BLM 9113 Manual (BLM 1985) and the *Surface Operating Standards for Oil and Gas Exploration and Development* (RMRCC 1989) (i.e., the Gold Book).

Transportation

- A comprehensive transportation plan should be developed, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment. The plan should consider specific object sizes, weights, origin, destination, and unique handling requirements and should evaluate alternative transportation approaches. In addition, the process to be used to comply with unique state requirements and to obtain all necessary permits should be clearly identified.
- A traffic management plan should be prepared for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan should incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration.

Noise

- Proponents of a wind energy development project should take measurements to assess the existing background noise levels at a given site and compare them with the anticipated noise levels associated with the proposed project.

Noxious Weeds and Pesticides

- Operators should develop a plan for control of noxious weeds and invasive species, which could occur as a result of new surface disturbance activities at the site. The plan should address monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching and the cleaning of vehicles prior to arrival at a location to avoid the introduction of invasive weeds should be required.
- If pesticides are used on the site, an integrated pest management plan should be developed to ensure that applications would be conducted within the

framework of BLM and DOI policies and entail only the use of EPA-registered pesticides. Pesticide use should be limited to nonpersistent, immobile pesticides and should only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.

Cultural/Historic Resources

- The BLM should consult with Indian Tribal governments early in the planning process to identify issues regarding the proposed wind energy development, including issues related to the presence of cultural properties, access rights, disruption to traditional cultural practices, and impacts to visual resources important to the Tribe(s).
- The presence of archaeological sites and historic properties in the area of potential effect should be determined on the basis of a records search of recorded sites and properties in the area and/or, depending on the extent of existing information, an archaeological survey. Archaeological sites and historic properties present in the area of potential effect should be reviewed to determine whether they meet the criteria of eligibility for listing on the *National Register of Historic Places* (NRHP).
- If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan (CRMP) should be developed. This plan should address mitigation activities to be taken for cultural resources found at the site. Mitigation options include avoidance of the area, archaeological survey and excavation (as warranted), and monitoring. If an area exhibits a high potential, but no artifacts were observed during an archaeological survey, monitoring by a qualified archaeologist could be required during all excavation and earthmoving in the high-potential area. A report needs to be prepared documenting these activities. The CRMP also should (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land.

Paleontological Resources

- Operators should determine whether paleontological resources exist in a project area on the basis of the sedimentary context of the area, a records search for past paleontological finds in the area, and/or, depending on the extent of existing information, a paleontological survey.

- If paleontological resources are present at the site, or if areas with a high potential to contain paleontological material have been identified, a paleontological resources management plan should be developed. This plan should include a mitigation plan for collection of the fossils; mitigation could include avoidance, removal of fossils, or monitoring. If an area exhibits a high potential but no fossils were observed during survey, monitoring by a qualified paleontologist could be required during all excavation and earthmoving in the sensitive area. A report needs to be prepared documenting these activities. The paleontological resources management plan also should (1) establish a monitoring program, (2) identify measures to prevent potential looting/vandalism or erosion impacts, and (3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of fossils on public land.

Hazardous Materials and Waste Management

- Operators should develop a hazardous materials management plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan should identify all hazardous materials that would be used, stored, or transported at the site. It should establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials. The plan should also identify requirements for notices to federal and local emergency response authorities and include emergency response plans.
- Operators should develop a waste management plan identifying the waste streams that are expected to be generated at the site and addressing hazardous waste determination procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures.
- Operators should develop a spill prevention and response plan identifying where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions for each material or waste, the locations of spill response kits on site, a procedure for ensuring that the spill response kits are adequately stocked at all times, and procedures for making timely notifications to authorities.

Storm Water

- Operators should develop a storm water management plan for the site to ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion.

Human Health and Safety

- A safety assessment should be conducted to describe potential safety issues and the means that would be taken to mitigate them, including issues such as site access, construction, safe work practices, security, heavy equipment transportation, traffic management, emergency procedures, and fire control.
- A health and safety program should be developed to protect both workers and the general public during construction, operation, and decommissioning of a wind energy project. Regarding occupational health and safety, the program should identify all applicable federal and state occupational safety standards, establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses; Occupational Safety and Health Administration [OSHA] standard practices for safe use of explosives and blasting agents; measures for reducing occupational electric and magnetic fields [EMF] exposures), and define safety performance standards (e.g., electrical system standards). The program should include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers. Documentation of training and a mechanism for reporting serious accidents to appropriate agencies should be established.
- Regarding public health and safety, the health and safety program should establish a safety zone or setback from residences, roads, and other public access areas that is sufficient to prevent accidents resulting from various hazards. It should identify requirements for temporary fencing around staging areas, storage yards, and excavations during construction or decommissioning activities. It should also identify measures to be taken during the operations phase to limit public access to facilities (e.g., permanent fencing would be installed only around electrical substations, and turbine tower access doors would be locked).
- Operators should consult with local planning authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day, their size, and type. Specific issues of concern (e.g., location of school bus routes and stops) should be identified and addressed in the traffic management plan.
- The project should be designed to establish a sufficient setback from turbines to the nearest residence to reduce EMF, shadow flickers, and exposure to low-frequency sound emissions. A minimum distance of 10 rotor diameters is recommended to reduce shadow flicker (Burton et al. 2001) and may be sufficient for EMF and low-frequency sound.
- The project should be planned to minimize electromagnetic interference (EMI) (e.g., impacts to radar, microwave, television, and radio transmissions).

Signal strength studies should be conducted when proposed locations have the potential to impact transmissions. Potential interference with public safety communication systems (e.g., radio traffic related to emergency activities) should be avoided.

- The project must be planned to comply with FAA regulations, including lighting regulations, and to avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips.
- Operators should develop a fire management strategy to implement measures to minimize the potential for a human-caused fire.

2.2.3.2.3 Construction

General

- All control and mitigation measures established for the project in the POD and the resource-specific management plans that are part of the POD shall be maintained and implemented throughout the construction phase, as appropriate.
- The area disturbed by construction and operation of a wind energy development project (i.e., footprint) should be kept to a minimum.
- The number and size/length of roads, temporary fences, lay-down areas, and borrow areas should be minimized.
- Topsoil from all excavations and construction activities should be salvaged and reapplied during reclamation.
- All areas of disturbed soil should be reclaimed using weed-free native grasses, forbs, and shrubs. Reclamation activities should be undertaken as early as possible on disturbed areas.
- All electrical collector lines should be buried adjacent to roads, unless it is necessary to install surface lines to avoid further habitat disturbance.
- Operators should identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and the dip angles of geologic strata). Operators also should avoid creating excessive slopes during excavation and blasting operations. Special construction techniques should be used where applicable in areas of steep slopes, erodible soil, and stream channel crossings.

- Erosion controls that comply with county, state, and federal standards should be applied. Practices such as jute netting, silt fences, and check dams should be applied near disturbed areas.

Wildlife

- Guy wires on permanent meteorological towers should be avoided.
- In accordance with the habitat restoration plan, restoration should be undertaken as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
- All construction employees should be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, any pets should be controlled to avoid harassment and disturbance of wildlife.

Visual

- Operators should reduce visual impacts during construction by minimizing areas of surface disturbance, controlling erosion, using dust suppression techniques, and restoring exposed soils as closely as possible to their original contour and vegetation.

Roads

- Existing roads should be used to the extent possible, but only if in safe and environmentally sound locations. If new roads are necessary, they should be designed and constructed to the appropriate standard and be no higher than necessary to accommodate their intended functions (e.g., traffic volume and weight of vehicles). Excessive grades on roads, road embankments, ditches, and drainages should be avoided, especially in areas with erodible soils. Special construction techniques should be used, where applicable. Abandoned roads and roads that are no longer needed should be recontoured and revegetated.
- Access roads and on-site roads should be surfaced with aggregate materials, wherever appropriate.
- Access roads should be located to follow natural contours and minimize side hill cuts.

- Roads should be located away from drainage bottoms and avoid wetlands.
- Roads should be designed so that changes to surface water runoff are avoided and erosion is not initiated.
- Access roads should be located to minimize stream crossings, to the extent practicable. All structures crossing intermittent and perennial streams should be located and constructed so that they do not decrease channel stability or increase water velocity. Crossings should be constructed at right angles to all riparian corridors and streams to minimize the area of disturbance. In areas where this is not possible, a stream should not be straightened, or otherwise channelized, in order to create a right-angle road crossing. Operators should obtain all applicable federal and state permits.
- Existing drainage systems should not be altered, especially in sensitive areas such as erodible soils or steep slopes. Culverts of adequate size to accommodate the runoff of a 25- and 100-year storm for temporary and permanent roads, respectively, should be used when constructing streams or wash crossings. Potential soil erosion should be controlled at culvert outlets with appropriate structures. Catch basins, roadway ditches, and culverts should be cleaned and maintained regularly.

Transportation

- Project personnel and contractors should be instructed and required to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to ensure safe and efficient traffic flow and to reduce wildlife collisions and disturbance and airborne dust.
- Traffic should be restricted to the roads developed for the project. Use of other unimproved roads should be restricted to emergency situations.
- Signs should be placed along construction roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration should be given to limiting construction vehicles traveling on public roadways during the morning and late afternoon commute time.

Air Emissions

- Dust abatement techniques (e.g., water spraying) should be used on unpaved, unvegetated surfaces to minimize airborne dust.

- Speed limits (e.g., 25 mph [40 km/h]) should be posted and enforced to reduce airborne fugitive dust.
- Construction materials and stockpiled soils should be covered if they are a source of fugitive dust.
- Land should be watered before and during surface clearing or excavation activities. Areas where blasting would occur should be covered with mats.

Excavation and Blasting Activities

- Operators should gain a clear understanding of the local hydrogeology. Areas of groundwater discharge and recharge and their potential relationships with surface water bodies should be identified.
- Operators should avoid creating hydrologic conduits between two aquifers during foundation excavation and other activities.
- Foundations and trenches should be backfilled with originally excavated material as much as possible. Excess excavation materials should be disposed of only in approved areas.
- Borrow material should be obtained only from authorized and permitted sites. Existing sites should be used in preference to new sites.
- Explosives should be used only within specified times and at specified distances from sensitive wildlife or streams and lakes, as established by the BLM or other federal and state agencies.

Noise

- Noisy construction activities (including blasting) should be limited to the least noise-sensitive times of day (i.e., daytime only between 7 a.m. and 10 p.m.) and weekdays. As much as possible, noisy activities should be scheduled to occur at the same time since additional sources of noise generally do not add a significant amount of noise.
- All equipment should have sound-control devices no less effective than those provided on the original equipment. All construction equipment used should be adequately muffled and maintained.
- All stationary construction equipment (i.e., compressors and generators) should be located as far as practicable from nearby residences.

- If blasting or other noisy activities are required during the construction period, nearby residents should be notified in advance.

Cultural and Paleontological Resources

- Unexpected discovery of cultural or paleontological resources during construction must be brought to the attention of the responsible BLM authorized officer immediately. Work must be redirected to avoid further harm, while the resources are evaluated and appropriate mitigation strategies are developed.

Hazardous Materials and Waste Management

- Secondary containment should be provided for all on-site hazardous materials and waste storage, including fuel. In particular, fuel storage (for construction vehicles and equipment) should be a temporary activity occurring only for as long as is needed to support construction and decommissioning activities.
- Wastes should be properly containerized and removed periodically for disposal at appropriate off-site permitted disposal facilities.
- In the event of an accidental release to the environment, the operator should document the event, including a root cause analysis, appropriate corrective actions taken, and a characterization of the resulting environmental or health and safety impacts. Documentation of the event must be provided to the BLM authorized officer and other federal and state agencies, as required.
- Any wastewater generated in association with temporary, portable sanitary facilities should be periodically removed by a licensed hauler and introduced into an existing municipal sewage treatment facility. Temporary, portable sanitary facilities provided for construction crews should be adequate to support expected on-site personnel and should be removed at completion of construction activities.

Public Health and Safety

- Temporary fencing should be installed around staging areas, storage yards, and excavations during construction to limit public access.

2.2.3.2.4 Operation

General

- All control and mitigation measures established for the project in the POD and the resource-specific management plans that are part of the POD shall be maintained and implemented throughout the operational phase, as appropriate. These control and mitigation measures shall be reviewed and revised, as needed, to address changing conditions or requirements at the site, throughout the operational phase. This adaptive management approach would help ensure that impacts from operations are kept to a minimum.

Wildlife

- Employees, contractors, and site visitors should be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, any pets should be controlled to avoid harassment and disturbance of wildlife.
- Observations of potential wildlife problems, including wildlife mortality, should be reported to the BLM authorized officer immediately.

Transportation

- On-going transportation planning should be conducted to evaluate road use, minimize traffic volume, and ensure that roads are maintained adequately to minimize associated impacts.

Monitoring Program

- Protocols defined in the site monitoring program for incorporating monitoring program observations and additional mitigation measures into standard operating procedures and BMPs to minimize future environmental impacts shall be implemented.
- Results of monitoring program efforts should be provided to the BLM authorized officer.

Public Health and Safety

- Permanent fencing should be installed and maintained around electrical substations, and turbine tower access doors should be locked to limit public access.
- In the event an installed wind energy development project results in EMI, the operator should work with the owner of the impacted communications system to resolve the problem. Additional warning information may also need to be conveyed to aircraft with onboard radar systems so that echoes from wind turbines can be quickly recognized.

2.2.3.2.5 Decommissioning

General

- All management plans, BMPs, and stipulations developed for the construction phase should be applied to similar activities during the decommissioning phase.
- All turbines and ancillary structures should be removed from the site.
- Topsoil from all decommissioning activities should be salvaged and reapplied during final reclamation.
- All areas of disturbed soil should be reclaimed using weed-free native shrubs, grasses, and forbs.
- The vegetation cover, composition, and diversity should be restored to values commensurate with the ecological setting.

2.2.4 Proposed Land Use Plan Amendments under the PEIS

Analyses conducted in this PEIS support the amendment of specific land use plans for land where potentially developable wind resources are located. Plans proposed for amendment under this PEIS are identified in Table 2.2.4-1. Proposed amendments include (1) adoption of the proposed programmatic policies and BMPs and (2) identification of specific areas where wind energy development would not be allowed. By virtue of the proposed policy, wind energy development would be excluded on all NLCS lands and ACECs. Although the NOI for this PEIS (68 FR 201, October 17, 2003) indicated that the land use plan amendments would also identify some lands as suitable for competitive ROW bidding processes, they were not identified for any

TABLE 2.2.4-1 Land Use Plans Proposed for Amendment under the PEIS

State	Land Use Plan and Field Office ^a
Arizona	Ongoing and upcoming land use plan amendments being conducted outside the scope of this PEIS will address wind energy development in Arizona for those areas where developable wind resources are present.
California	Ongoing and upcoming land use plan amendments being conducted outside the scope of this PEIS will address wind energy development in California for those areas where developable wind resources are present.
Colorado	Royal Gorge RMP, Royal Gorge Field Office San Luis RMP, includes La Jara, Saguache, and Del Norte Field Offices and the San Luis Valley Public Lands Center
Idaho	Cascade RMP, Four Rivers Field Office Challis RMP, Challis Field Office Jarbidge RMP, Jarbidge Field Office Kuna MFP, Four Rivers Field Office Lemhi RMP, Salmon Field Office Owyhee RMP, Owyhee Field Office Twin Falls MFP, Burley Field Office
Montana	Billings RMP, Billings Field Office Garnet RMP, Missoula Field Office Headwaters RMP, Butte Field Office Judith-Valley-Phillips RMP, Lewistown and Malta Field Offices West Hi Line RMP, Lewiston Field Office
Nevada	Elko RMP, Elko Field Office Las Vegas RMP, Las Vegas Field Office Paradise-Denio MFP, Winnemucca Field Office Shoshone-Eureka RMP, Battle Mountain Field Office Sonoma-Gerlach MFP, Winnemucca Field Office Tonopah RMP, Battle Mountain Field Office, Tonopah Field Station Wells RMP, Elko Field Office
New Mexico	Carlsbad RMP, Carlsbad Field Office Mimbres RMP, Las Cruces Field Office Roswell RMP, Roswell Field Office White Sands RMP, Las Cruces Field Office
Oregon	Andrews/Steens RMP, Andrews/Steens Field Office Brothers/LaPine RMP, Deschutes and Central Oregon Field Offices Coos Bay RMP, Coos Bay Field Office Eugene RMP, Eugene Field Office John Day RMP, Central Oregon Field Office Medford RMP, Medford Field Office Salem RMP, Salem Field Office Southeast Oregon RMP, Malheur and Jordan Resource Areas Three Rivers RMP, Three Rivers Field Office Two Rivers RMP, Deschutes and Central Oregon Field Offices Upper Deschutes RMP, Deschutes Field Office

TABLE 2.2.4-1 (Cont.)

State	Land Use Plan and Field Office ^a
Utah	Cedar-Beaver-Garfield-Antimony RMP, Cedar City Field Office Escalante MFP, Kanab Field Office Paria MFP, Kanab Field Office Pinyon MFP, Cedar City Field Office Randolph MFP, Salt Lake Field Office St. George RMP, St. George Field Office Vermillion MFP, Kanab Field Office Zion MFP, Kanab Field Office
Washington	Spokane RMP, Wenatchee and Border Field Offices
Wyoming	Buffalo RMP, Buffalo Field Office Cody RMP, Cody Field Office Grass Creek RMP, Worland Field Office Green River RMP, Rock Springs Field Office Lander RMP, Lander Field Office Newcastle RMP, Newcastle Field Office Washakie RMP, Worland Field Office

^a Abbreviations: MFP = Management Framework Plan; RMP = Resource Management Plan.

of the plans included in Table 2.2.4-1. Interest in competitive ROW bidding processes currently is limited to two areas in California — the Palm Springs-South Coast Field Office and Ridgecrest Field Office — and would be addressed in local BLM land use planning efforts.

Some plans within the 11-state study area were excluded from amendment under this PEIS for a variety of reasons, including these: (1) if developable wind resources (i.e., Class 3 or higher) are not present in the planning area, (2) if the plan was previously amended or revised to adequately address wind energy development, (3) if the plan currently is being amended or revised in a separate NEPA review and that amendment or revision will address wind energy development, or (4) if some other reason(s) exist(s) to exclude the plan from amendment under this PEIS (e.g., a plan revision is scheduled in the foreseeable future). Information describing how each plan would be amended and the rationale for each change are provided in Appendix C.

Other land use plans could be amended or revised at some point in the future to address wind energy development. The BLM anticipates that the analyses contained in this PEIS would be incorporated into those amendments and revisions, as appropriate. In particular, it is anticipated that appropriate policies and BMPs would be incorporated into these future amendments and revisions and that it would be possible to tier off of the decisions in the ROD for the PEIS.

2.3 DESCRIPTION OF THE NO ACTION ALTERNATIVE

Under the no action alternative, assessed in Section 6.2, wind energy development would continue on BLM-administered land and NEPA analyses would be prepared on a project-by-project basis. Wind energy projects would be developed through ROW grants in accordance with the current Interim Wind Energy Development Policy (BLM 2002a) (Appendix A). The interim policy addresses site monitoring and testing activities, commercial development, ROW terms, and environmental review.

Although the interim policy places no specific restrictions on which BLM-administered land may be subject to wind energy development, for the purposes of this PEIS, it is assumed that only that land identified in the MPDS has the potential for development under the no action alternative (i.e., exclusions of Wilderness Areas, Wilderness Study Areas, National Monuments, and NCAs would apply to the no action alternative). This assumption provides the best possible estimate of where wind energy development might occur under the no action alternative, although less wind energy development might be expected to occur because of differences in management approach.

Under the no action alternative, the interim policy would not be replaced by the BLM's proposed Wind Energy Development Program. BMPs to prevent or mitigate impacts associated with wind energy development would be developed on a case-by-case basis only. Individual land use plans could be amended to address wind energy development issues. This would occur, however, on a plan-by-plan basis without the benefit of the overarching, comprehensive analysis provided by this PEIS, including consideration of cumulative impacts on a regional scale. Project reviews would continue on an individual, case-by-case basis without a comprehensive mechanism for moving the projects forward or for ensuring consistency among BLM planning areas.

2.4 DESCRIPTION OF THE LIMITED WIND ENERGY DEVELOPMENT ALTERNATIVE

The limited wind energy development alternative, assessed in Section 6.3, would allow additional wind energy development on BLM-administered land only in areas where it currently exists (i.e., restricted to existing wind energy projects in Wyoming and California) or is under review or approved for development at the time the ROD for this PEIS is published. For the purposes of establishing an upper bound on the potential impacts of this alternative, it was assumed that all proposed wind energy projects on BLM-administered land currently under review would be approved for development by the time the ROD is published (anticipated for July 2005). Future expansion of wind energy development would be allowed at existing project areas; however, no additional BLM-administered land would be made available for development under this alternative.

Under this alternative, wind energy development on BLM-administered lands would be restricted to six specific areas. Three of these areas include places where wind energy development already exists on BLM-administered lands. The other three include the locations of

project applications that are currently undergoing NEPA review. At this time, it is expected that additional wind energy projects would not be approved for development by the time the ROD related to this PEIS is published. The locations for development under this limited development scenario are discussed in Sections 2.4.1 and 2.4.2.

2.4.1 Existing Wind Energy Development

Wind energy development already exists on BLM-administered lands at the following locations:

- *Palm Springs, California.* Wind energy projects located near Palm Springs are concentrated in the San Gorgonio Pass area.⁴ Up to 5,487 acres (2,221 ha) of land in this area are determined to be suitable for wind energy development. Of these lands, 2,300 acres (931 ha) of private and 3,187 acres (1,290 ha) of BLM-administered public lands are presently developed for wind energy production. All public lands within the pass are available for wind energy proposals, and most of the available lands are developed.

The BLM's Palm Springs-South Coast Field Office manages 19 wind energy ROW grants in this area that generate more than 215 MW/h of electrical power and provide \$557,393 in annual rental to the federal government. Current projects on BLM-administered lands include (1) monitoring and maintaining compliance on existing ROWs; (2) processing proposals to expand facilities or replace older wind turbines with newer and more efficient turbines; and (3) offering an additional 285 acres (115 ha) of public lands for wind energy grants using the competitive ROW bidding process. Potential expansions to the wind energy projects located on BLM-administered lands are anticipated to provide an additional 40 MW/h, to be developed over a 10-year period (i.e., by 2015).

Appropriate NEPA analyses were conducted for initial development of these BLM-administered lands and will continue to be conducted for future development and expansion activities. Public input is sought as project proposals are analyzed and decisions are coordinated with other jurisdictions, including state, county, and city governments. The BLM wind energy program in this area is managed under the California Desert Conservation Area Plan of 1980, as amended (BLM 1999), which allows for the consideration of wind energy proposals on all lands within the California Desert Conservation Area, except those areas that are preliminarily recommended as suitable for wilderness designations. In addition, the BLM works with Riverside County to adopt appropriate county ordinances as requirements for development on BLM-administered lands. Proposed projects

⁴ BLM (2003k) provides more information about the wind energy development on BLM-administered lands in this area.

on both private and public lands involve a concurrent and often joint analysis by both the BLM and the county. Endangered Species Act of 1973 (ESA) issues are addressed through consultation with the U.S. Fish and Wildlife Service (USFWS), which has issued a Biological Opinion on each project proposal.

- *Ridgecrest, California.* Wind energy projects located near Ridgecrest are concentrated in the Tehachapi Pass area. Approximately 900 acres (364 ha) of BLM-administered lands have been developed with about 200 turbines. The aggregate installed capacity that is currently operational on BLM-administered lands is 42.61 MW. Potential expansions to the wind energy projects located on BLM-administered lands are anticipated to provide an additional 150 MW, to be developed over a 10-year period (i.e., by 2015).
- *Wyoming Wind Project, Arlington, Wyoming.* The Wyoming Wind Project, located near Arlington, Wyoming, has a generating capacity of more than 1,300 MW of electricity, with more than 180 turbines.⁵ The project has been developed in phases and consists of two discrete locations: Foote Creek Rim and Simpson Ridge. The Foote Creek Rim site is approximately 5,000 acres (2,023 ha) in size, approximately 950 acres (385 ha) of which are BLM-administered lands. The Simpson Ridge site, which is about 55,600 acres (225,000 ha) in total size, includes about 16,124 acres (6,525 ha) of BLM-administered lands. Future expansion of wind energy capacity on BLM-administered lands in this area is not anticipated.

The BLM released the Final EIS for this project in August 1995. A ROD and ROW grant were issued in July 1997 (BLM 1995, 1997).

2.4.2 Proposed Wind Energy Projects Currently under Review

The following locations currently have wind energy project applications undergoing NEPA review:

- *Table Mountain Wind Generating Facility, Nevada.* The Table Mountain Wind Generating Facility is proposed for development on a project area of approximately 4,500 acres (1,821 ha) of BLM-administered lands located about 20 mi (32 km) southwest of Las Vegas (PBS&J 2002). The proposed facilities would disturb about 325 acres (132 ha) of BLM-administered lands. The project is anticipated to generate 150 to 205 MW of electricity, with approximately 153 turbines. The Final EIS for this project was released in July 2002 (PBS&J 2002); a ROD for this project has not been issued yet. This

⁵ BLMWY (2004) provides more information about the wind energy development located on BLM-administered lands in this area.

project, if approved, is expected to be operational within 2 years (i.e., by 2007), assuming that there are no delays in the NEPA or ROW grant process.

- *Cotterel Mountain Wind Farm Project, Idaho.* The Cotterel Mountain Wind Farm Project is proposed to be located on BLM-administered lands in Cassia County, southeast of the town of Burley.⁶ The proposed project, located within the Burley Field Office, will entail installation of about 130 turbines for a total potential generating capacity of 200 MW. The project area is about 4,480 acres (1,813 ha) in size, all of which are BLM-administered lands. The actual acreage to be disturbed by the proposed facilities has not yet been identified but will be substantially less than the acreage of the project area. The BLM issued a “Notice of Intent to Prepare an Environmental Impact Statement/Land Use Plan Amendment” in the *Federal Register* (FR) (*Federal Register*, Vol. 67, pages 77801–77802 [67 FR 77801–77802]) on December 19, 2002. That EIS is currently under preparation. This project, if approved, is expected to be operational within 2 years (i.e., by 2007), assuming that there are no delays in the NEPA or ROW grant process.
- *Walker Ridge, California.* A wind project has been proposed for development on BLM-administered lands within the Ukiah Field Office. The proposed project would be located on Walker Ridge in Lake and Colusa Counties. The total project area would encompass about 8,200 acres (3,318 ha) and would involve about eighty 1.5-MW turbines with a total generating capacity of about 120 MW. The actual acreage to be disturbed by the proposed facilities has not yet been identified but will be substantially less than the acreage of the project area. The BLM has determined that an EIS is necessary to analyze the impacts of the proposal and to amend the 1984 related land use plan. A “Notice of Intent to Prepare a Plan Amendment and Environmental Impact Statement for Wind Energy, Ukiah Field Office, California,” was published in the *Federal Register* on August 12, 2003 (68 FR 47928–47929). This EIS is currently under preparation. This project, if approved, is expected to be operational within 2 years (i.e., by 2007), assuming that there are no delays in the NEPA or ROW grant process.

2.5 ALTERNATIVES AND ISSUES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

An alternative consisting of no wind energy development on BLM-administered land was not evaluated because wind energy development already occurs on BLM-administered land. This alternative also contradicts the current interim policy on wind energy development.

No other alternatives were suggested during the scoping process.

⁶ Windland Incorporated (2004) provides more information about the proposed Cotterel Mountain Wind Farm Project.

2.6 COMPARISON OF ALTERNATIVES

Analysis of the potential environmental, social, and economic impacts that could occur as a result of wind energy development on BLM-administered lands under the MPDS is presented in detail in Chapter 5, along with a discussion of relevant mitigation measures. The proposed action and its alternatives, which present different options for the management of wind energy development on BLM-administered lands, are evaluated in Chapter 6 in terms of their effectiveness at mitigating potential adverse impacts and facilitating wind energy development.

On the basis of the evaluations in Chapter 6, this section provides a comparison of the alternatives. The objective of this comparison is to address the question of whether the proposed action presents the best management approach for the BLM to adopt. Factors that should be considered include the impact of the alternatives on (1) the pace and cost of wind energy development, (2) the environment, and (3) the economy.

2.6.1 Comparison of Impacts on the Pace and Cost of Wind Energy Development

Each of the alternatives would impact the pace and cost of wind energy development differently. The proposed action to implement a Wind Energy Development Program would likely minimize some of the delays and costs currently associated with development on BLM-administered lands by providing programmatic guidance, facilitating land use plan amendments, and ensuring consistency in the ROW application and grant process. In comparison, the no action alternative likely would cause development to occur at a slower pace, with potentially greater costs, because the benefits of the proposed action would not be realized. The limited wind energy development alternative would result in the least amount of development on BLM-administered lands because of restrictions imposed under this alternative.

2.6.2 Comparison of Environmental Impacts

The proposed Wind Energy Development Program would incorporate policies and BMPs that establish mitigation requirements for all projects. These programmatic policies and BMPs are designed to ensure that potential impacts associated with wind energy development would be kept to a minimum. They address land exclusions, public involvement, consultation with other agencies, government-to-government consultation, the need for and scope of project-level reviews, specific mitigation measures, and adaptive management strategies. Site-specific and species-specific issues not addressed in the programmatic policies and BMPs would be addressed at the project level, as necessary. The proposed action, therefore, would provide a comprehensive approach for ensuring that environmental impacts would be minimized to the greatest extent possible. In contrast, under the no action alternative, the BLM would continue to address environmental impact issues at the project level in accordance with the terms and conditions of the Interim Wind Energy Development Policy (BLM 2002a) (Appendix A). While it is likely that these efforts also would result in effective project-specific impact mitigation, the potential for inconsistencies in the type and degree of required mitigation would exist. Similarly, under the limited wind energy development alternative, it is likely that effective environmental impact

mitigation would occur by virtue of the ongoing project-specific evaluations. Overall, however, there would be fewer environmental impacts on a regional level as a result of this third alternative because of the restricted level of development.

The possibility exists under the no action and limited wind energy development alternatives for development activities to be focused more on state, Tribal, or private lands. Under the no action alternative, this could occur because development on BLM-administered lands would be more difficult than under the proposed action. Under the limited wind energy development alternative this could occur because development on BLM-administered lands would be limited to just six locations. The resultant development on nonfederal lands potentially would be subject to less federal environmental oversight.

Indirect environmental impacts could be greater under the no action and limited wind energy development alternatives if they resulted in less wind energy development regionally. Less wind energy development could translate into additional development of traditional energy sources. As discussed in Section 6.4.2, land area disturbance, air quality, water use, and waste generation impacts associated with traditional energy sources are generally greater than those associated with wind energy.

2.6.3 Comparison of Economic Impacts

Regarding economic impacts, the greatest benefits to states, local communities, and the BLM would likely be realized under the proposed action. Similar benefits could be realized under the no action alternative; however, the absence of a comprehensive Wind Energy Development Program would be likely to slow the pace of development on BLM-administered lands and thus delay economic benefits to local communities adjacent to BLM-administered lands in the west. Under the limited wind energy development alternative, benefits would be realized in those areas where wind energy development would be allowed; however, overall, there would be far fewer benefits regionally than would occur under either the proposed action or the no action alternatives.

2.6.4 Summary of Comparison

In conclusion, on the basis of these comparisons, it appears that the proposed action would present the best approach for managing wind energy development on BLM-administered lands. The proposed action to implement the Wind Energy Development Program would likely result in the greatest amount of wind energy development over the next 20 years, at the lowest potential cost to industry. Simultaneously, the proposed action would provide the most comprehensive approach for ensuring that potential adverse impacts would be minimized to the greatest extent possible. And, finally, the proposed action would be likely to provide the greatest economic benefits to local communities and the region as a whole. As a result, the proposed action appears to best meet the objectives of the National Energy Policy recommendations to increase renewable energy production on federal lands (Section 1.1).

