Appendix B
Additional Design Features

APPENDIX B – ADDITIONAL DESIGN FEATURES

In addition to the design features specific to each of the Proposed and Connected Actions described in Section 2.1 through 2.4, West Butte Wind would implement features that would apply equally to activities on both private and BLM-managed lands. These design features would apply to overall construction and operation practices, or would target minimization of impacts to specific environmental resources, as further detailed below. These features are part of Alternatives 1 and 2, discussed in Section 2.5.

Project Construction Practices

- All control and mitigation features described above for the Proposed and Connected Actions, and the resource-specific management plans described below, would be maintained and implemented throughout construction, operation, and maintenance of the Project.
- The area disturbed by construction and operation of the Proposed and Connected Actions (both Alternative 1 and Alternative 2) would be kept to a minimum. The number and size/length of access roads, temporary fences, lay-down areas, and borrow areas would be minimized to allow for the safe and efficient construction of the project. West Butte Wind would minimize new road construction by improving and using existing roads and trails where possible.
- Construction would be conducted primarily during the dry-weather seasons when site access is safe, unrestricted due to weather conditions, and soil erosion by water is minimized. If grading needs to be done outside of the dry season, West Butte Wind would coordinate the work with the appropriate agencies and follow all applicable guidelines. Rainy season erosion control measures would be used to control runoff and erosion in the event that revegetation is not completed prior to the rainy season.
- West Butte Wind would 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). West Butte Wind would also avoid creating excessive slopes during excavation and blasting operations. Site-specific appropriate construction techniques would be used where applicable in areas of steep slopes, erodible soil, and stream channel crossings to ensure long term stability and erosion prevention.
- Erosion controls that comply with county, state, and federal standards would be applied. Practices such as jute netting, silt fences, and check dams would be applied near disturbed areas in accordance with the SWPPP. Diversion structures and spot grading would be used to reduce siltation into adjacent drainages during grading and construction activities. Grading on slopes steeper than 2:1 would be designed to minimize surface water runoff.
- On-site surface runoff controls would be maintained in accordance with state standards to minimize potential for increased localized soil erosion.

- Areas temporarily disturbed by construction would be restored and revegetated. This would be completed by implementing a restoration plan that would include (but not be limited to) the following major components:
    - revegetation, soil stabilization, and erosion reduction measures that would be implemented to ensure that all temporary use areas are successfully restored in a timely manner;
    - topsoil from all excavations and construction activities would be salvaged and reapplied during reclamation. Excess topsoil stockpiled on site would be segregated from other soils to facilitate future land restoration. Stockpiled soils would be protected from wind and water erosion;
    - grading to restore the ground contour to pre-construction conditions would be completed after temporary construction activities;
    - reseeding procedures would be established, including an appropriate native species seed mix (e.g., bluebunch wheat grass, Idaho fescue, Thurber's needle grass, prairie junegrass, bottlebrush squirelltail, Douglas and Ross sedge, and western needle grass);
    - reseeding would be completed as soon as possible after construction is completed using appropriate equipment (e.g., rangeland drill) and application rates;
    - rancher coordination would be conducted to identify the timing and numbers of livestock that would be allowed to graze in the area during the restoration process (to minimize grazing pressure during the early phases of restoration);
    - noxious weed control procedures would be followed. This would include monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulch would be required. A controlled inspection and cleaning area would be established to inspect construction equipment arriving at the project area and clean equipment to remove and collect seeds that may be adhering to tires and other surfaces. A containment area would be established to ensure that any waste water or soils generated through cleaning are captured to ensure containment of seeds brought in by construction equipment. These seed contaminated waste water and soils would be disposed of at a location pre-approved by the County Weed Master to prevent future spread of weeds. Additionally, only clean fill material from a weed-free source would be used. If pesticides or herbicides are used on the site, an integrated management plan would be developed to ensure that applications would be conducted within the framework of BLM policies and entail only the use of EPA-registered pesticides and herbicides. Pesticide and herbicide use would be limited to nonpersistent, immobile products and would only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic use; and

  - monitoring would be completed to identify when corrective actions (e.g., additional temporary erosion control measures, reseeding, noxious species control) are needed and to confirm appropriate restoration standards are achieved.

  West Butte Wind would develop this restoration plan in consultation with the appropriate stakeholders, experts, and agencies (e.g., BLM, Oregon Department of Agriculture, Oregon State University Extension, the private landowner, and the local weed master). No construction would begin on BLM lands until this plan has been reviewed and approved by the BLM's Authorized Officer.

- Locations for temporary storage of construction equipment would be designated.
- Borrow material would be obtained only from authorized and permitted sites. Existing sites would be used in preference to new sites.
- A final Grading and Drainage Plan, designed to minimize erosion, would be submitted to Crook and Deschutes Counties and BLM for review and approval. The Plan would detail any proposed temporary or permanent erosion control structures. The Plan would be approved prior to construction. Emphasis would be given to consideration of temporary erosion control structures, such as trench plugs and water bars, on moderately steep slopes.
- Soil elevation/topography would be restored consistent with the approved Grading and Drainage Plan.
- Excavations, including foundations and trenches, would be backfilled with originally excavated material as much as possible. Excess excavation materials would be disposed of only in approved areas to control soil erosion and to minimize leaching of hazardous constituents. Rock too large to crush would be stockpiled on site. Soil would be salvaged for revegetation. Soils found to be less resilient may require numerous reseeding efforts to be successful.
- During trenching or other excavating operations, the topsoil and subsoil would be separated from the underlying less productive soil substratum and bedrock. Refilling of the trench would occur first with soil substratum and bedrock, followed by subsoil material, and finally with topsoil that contains organic matter and live soil organisms to increase the success of seeding and rehabilitation efforts.
- Areas to receive fill would be stripped of vegetation, organic topsoil, debris, and other unsuitable material. Engineered fill would be placed in layers not exceeding 12 inches in loose thickness, properly moistened and compacted, and tested for 90 percent compaction.

Management of Hazardous Materials and Wastes

- "Good housekeeping" procedures would be developed to ensure that during operation 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.

- West Butte Wind would develop a hazardous materials management plan (HMMP) addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan would establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials. The plan would also identify requirements for notices to federal, state and local emergency response authorities and include emergency response plans. The HMMP would be submitted to Crook and Deschutes counties for approval prior to introducing any such materials onto the site.
- West Butte Wind would 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-spill prevention and control methods, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. This plan would address all solid and liquid wastes that may be generated at the site.
- Secondary containment would be provided for all on-site hazardous materials and waste storage, including fuel. In particular, fuel storage (for construction vehicles and equipment) would be a temporary activity occurring only for as long as is needed to support construction activities. Refueling vehicles would have a sign listing pertinent contacts to notify in the event of a spill.
- Locations for construction fueling would be designed to capture any spilled fuel to avoid ground pollution and located to avoid sensitive areas.
- Wastes would 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, West Butte Wind would 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 would be provided to BLM and other federal and state agencies, as required.
- All equipment would be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

Water Resources

- West Butte Wind would apply to the U.S. Army Corps of Engineers for permits needed to construct in waters of the U.S., if needed.
- West Butte Wind would obtain coverage under the Oregon Department of Environmental Quality 1200-C NPDES Construction Stormwater permit. As part of this coverage, West Butte Wind would prepare and implement a SWPPP to prevent off-site migration of contaminated stormwater or increased soil erosion.

Biological Resources

- In the spring of the first year of construction a helicopter survey of the construction area would be made to locate any raptor nests. These nests would be flagged and avoided in conformance with ODFW requirements for setbacks from nest areas.
- Sensitive raptor nest trees would be flagged and monitored. The environmental monitor would work with the construction contractor to avoid construction work in these areas during periods when the nests are active. Protective buffers would be established based on available state or federal recommendations to protect the specific species.
- West Butte Wind would identify and remove all carcasses of livestock, big game, etc. from within the project site, or off site areas near turbines, that may attract foraging eagles or other raptors.
- Prior to construction, West Butte Wind would flag all sensitive habitat areas (including raptor nests) near the proposed areas of construction activity to denote areas that would be restricted or "off limits" to all construction personnel. (Note: It would not be possible to avoid impacts to the green-tinged paint brush, but construction personnel would be instructed to minimize impacts where possible.)
- Designated construction zones would be enforced. Construction personnel would avoid driving over, or otherwise disturbing areas outside the designated construction areas.
- West Butte Wind would avoid construction in sensitive areas such as riparian zones, wetlands, forests, etc. where feasible. Construction in sensitive areas such as documented rare plant populations, seasonal pools, and wetlands would be restricted. These sites would be delineated within construction zones.
- West Butte Wind would implement the following design features specifically to minimize potential impacts to sage grouse:
    - Prior to construction, the area within 0.25 mile of the known and active lek on West Butte would be flagged and designated as "off limits" to all construction personnel.
    - Construction activities, including blasting, on West Butte proper (the area of a known and active lek) west of the substation would be restricted to the period of July 1 to February 1 of the project construction year.
    - During project operations, access to the West Butte area during the sage grouse lekking season (generally late February to late May) would be limited. Maintenance vehicles and general access onto West Butte proper would be restricted until after 11:00 a.m. during lekking season, each year.
- Prior to construction, training would be provided to construction staff explaining restrictions that protect wildlife, habitat, and critical area features in or near the construction zones.

- Environmental sensitivity training, including protection of existing native habitats, would be given to all personnel on site whether they are employees of the operating company or its contractors.
- All construction employees would be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons.
- Pets would not be permitted on-site during the life of the project, including facilities located on public and private lands.
- Observations of potential wildlife problems on BLM-managed lands, including wildlife mortality, would be reported to the BLM-authorized officer immediately.
- West Butte would require as a stipulation of employment that construction or operation personnel are prohibited from hunting in the project area during all phases of the project.
- West Butte Wind would provide continuing access to the Singhose/West Butte Ranch for BLM, the counties, and ODFW to enable monitoring of habitat enhancement and revegetation efforts.

Visual Resources

- West Butte Wind would 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.
- Construction materials and excavated materials would be stored out of the viewshed of public roads, whenever possible, to reduce impacts on mountain views.
- Construction activities and materials storage would be confined to within the WTG ROW.

Cultural Resources

- Prior to construction, a Phase I Archaeological Survey would be conducted over all areas that would be directly disturbed by project construction.
- West Butte Wind would avoid cultural resource properties on both private and BLM-managed public lands. If any cultural resource sites are discovered during subsequent surveys, West Butte Wind would redesign the proposed project to avoid sites, or retain features associated with significant sites. The layout of the proposed project would be adjusted around each site to avoid impacting important cultural resources. If site avoidance is not possible West Butte Wind would have an approved cultural resources firm (with Native American oversight) design a treatment program for that particular site.
- Ground disturbances in all areas containing archaeological materials would be monitored by a county-approved archaeologist and Native American monitor to ensure that any outstanding resources previously unidentified are recorded. In the event these types of resources are encountered, construction would be temporarily

redirected until the find can be evaluated and recorded pursuant to Oregon State Historic Preservation Office (SHPO) requirements.

- When working on BLM-managed lands, unexpected discoveries of cultural or paleontological resources during construction would be brought to the attention of the responsible BLM authorized officer immediately. Work would be halted in the vicinity of the find to avoid further disturbance to the resources while they are being evaluated and appropriate mitigation measures are being developed.
- With respect to the isolates discovered during surveys on BLM-managed public land, West Butte Wind would comply with BLM's recommendations for their treatment.

Air Quality and Noise Emissions

- Dust abatement techniques would be used before and during surface clearing, excavation, or blasting activities. West Butte Wind would use water or dust abatement chemicals for dust suppression when construction requires movement of earth during wind conditions. Chemicals used for dust abatement may be necessary in limited situations. The chemicals used would be from naturally occurring substances such as magnesium chloride, selected for its effectiveness in controlling fugitive dust, as well as minimizing potential environmental impacts. Prior to the use of any chemicals for dust abatement, West Butte Wind would confer with BLM's authorized officer to obtain approval.
- Construction materials and stockpiled soils would be covered if they are a source of fugitive dust.
- All equipment would have sound-control devices no less effective than those provided on the original equipment. All construction equipment used would be adequately muffled and maintained.
- Based on the results of geotechnical analyses and final facility siting, it may be necessary to use explosives to assist with rock excavation. If blasting or other noisy activities are required during construction, such activities would be limited to the period of 7:00 a.m. to 7:00 p.m., on weekdays, and nearby residents would be notified in advance.
- West Butte Wind would ensure that equipment used during construction, operation, and decommissioning of the project is maintained in proper operating condition and that emission-control systems are installed on all gasoline-powered equipment.
- West Butte Wind would maintain all WTGs in excellent working order to minimize operational noise impacts.
- The WTGs would be operated so that noise emissions meet the applicable provisions of the Oregon Department of Environmental Quality noise regulations.

Transportation, Public Services and Land Use

- A transportation plan would be developed, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment. The plan would consider specific object sizes, weights, origin, destination, and unique handling

requirements, and would evaluate alternative transportation approaches. In addition, the process to be used to comply with unique state requirements and to obtain all necessary permits would be clearly identified.

- A traffic management plan would be prepared for 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 would incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary, temporary lane configuration changes. The plan would be submitted to the Oregon Department of Transportation, and to Crook and Deschutes counties for review and approval.
- West Butte Wind would consult with local planning authorities, including Crook and Deschutes Counties and the Oregon Department of Transportation, regarding increased traffic during the construction phase of the project, 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) would be identified and addressed in the traffic management plan.
- Signs would be placed along construction roads to identify speed limits, travel restrictions, and other standard traffic control information. Signs will only be placed on BLM lands with prior BLM review and approval.
- Ongoing ground transportation planning would be conducted to evaluate road use, minimize traffic volume, and ensure that roads are maintained adequately to minimize associated impacts.
- During the construction process, West Butte Wind would coordinate with the landowner regarding livestock grazing rotations and appropriate steps to minimize impacts on grazing operations (e.g., fence and gate maintenance). Any existing fencing affected during project construction would be repaired to BLM or the private landowner's specifications.

Health and Safety

- A safety assessment would 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 would be developed to protect both workers and the general public during construction, operation, and decommissioning of the project. Regarding occupational health and safety, the program will 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; and measures for reducing occupational electric and magnetic fields exposures); establish fire safety evacuation procedures; and define safety performance standards (e.g., electrical system standards and lightning

protection standards). The program would 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 would be established.

- West Butte Wind would develop a safety policy and a detailed set of guidelines for safety within the project. The policy would identify the chain of command for enforcing guidelines, the actions to be taken to correct unsafe or potentially unsafe conditions, and the penalties for safety violations.
- Open ditches would be fenced using construction fencing; ditches left open at end of day would be sloped.
- West Butte Wind would develop a fire management strategy to implement measures to minimize the potential for a human-caused fire and, if necessary, respond to a fire during construction and operation of the project. West Butte Wind would coordinate this strategy with BLM, the Oregon Department of Forestry (ODF) and local fire districts.
- Because personnel are on site during daylight working hours and are in frequent communication with central operations, any fires seen would be noted immediately and reported to local authorities, the local fire district, ODF and BLM. As determined through the Fire Management Strategy, some fire-fighting equipment would be located at the substation site, maintenance yard, and in vehicles. Fire deterrents within the wind energy facility would include service and access roads, which may serve as firebreaks, and regular clearing of vegetation from areas around transformers, riser poles, and buildings.
- Smoking and burning would not be permitted on the project site.
- West Butte Wind would ensure that catalytic converters are installed on all gasoline-powered equipment.
- Employees or contractors responsible for blasting activities may place temporary signs in the work area as appropriate to designate a "No Cell Phone Use Area" to avoid potential premature unintentional blasting.

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Appendix C

Sensitive Species List

West Butte Wind Project

BLM - Prineville District Sensitive Species List

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
TE & P[3]					
Lynx canadensis	Canada lynx	FT	S	Coniferous or mixed forest regions with thick undergrowth.	Moderate
Oncorhynchus mykiss	Steelhead FT		D	Coastal rivers to small headwater streams, large clear rivers, cool lakes or reservoirs with silt-free substrate.	Low
Salvelinus confluentus	Bull trout	FT	D	Fast-flowing tributary streams, cold rivers, lakes and reservoirs.	Low
Vertebrates					
Agelaius tricolor	Tricolored blackbird	OR-SEN	D	Breed in fresh-water marshes forage in open cultivated lands and pastures.	Moderate
Ammodramus savannarum	Grasshopper sparrow	OR-SEN	S	Mid-grass prairies, CRP land, and pasture/Hayland.	Moderate
Bartramia longicauda	Upland sandpiper	SEN	S	Open tracts of short-grass prairie. Nest in dry meadows, pastures, and hayfields.	Moderate
Bucephala albeola	Bufflehead OR-SEN		D	Lakes, ponds, rivers – salt and freshwater habitats.	Low

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Centrocercus urophasianus	Greater sage-grouse	SEN	D	Sage-brush habitats – foothills, mountain slopes. Leks located in open areas surrounded by sagebrush.	High
Coccyzus americanus	Yellow-billed cuckoo	SEN	S	Open woodland with thick undergrowth.	Moderate
Coturnicops noveboracensis	Yellow rail	OR-SEN	D	Freshwater marshes and emergent wetlands. Grain fields during migration.	Moderate
Cygnus buccinator	Trumpeter swan	OR-SEN	D	Mostly freshwater ponds, lakes and marshes.	Low
Cypseloides niger	Black swift	OR-SEN	S	Nests in high areas s/a waterfalls and wet cliffs, sometimes in caves.	Moderate
Dolichonyx oryzivorus	Bobolink SEN		S	Medium to tall-grass prairies, meadows and hayfields.	Moderate
Falco peregrinus anatum	American peregrine falcon	SEN	D	Nests on high cliffs, mountains and even man-made structures. Forages in farmlands, marshes, even cities.	Moderate
Haliaeetus leucocephalus	Bald eagle	SEN	D	Areas close to coasts, bays, rivers or lakes.	Low
Melanerpes lewis	Lewis' woodpecker	OR-SEN	D	Open and disturbed forest and woodlands with open tree canopy and brushy understory.	Moderate - High
Pelecanus erythrorhynchos	American white pelican	SEN	S	Rivers, lakes, reservoirs, bays and open marshes.	Low

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Picoides albolarvatus	White-headed woodpecker	SEN D		Pine and fir forests with mature pines that produce large cones.	Moderate - High
Seiurus noveboracensis	Northern waterthrush	OR-SEN	S	Wooded swamps and ponds, bogs and rivers with *Salix* and alder species.	Low
Dicamptodon copei	Cope's giant salamander	SEN	D	Streams and rivers in moist coniferous forests.	Low
Rana luteiventris	Columbia spotted frog	OR-SEN	D	Mostly aquatic species found near edges of streams, lakes, ponds, springs, and marshes.	Low
Rana pretiosa	Oregon spotted frog	SEN	D	Avoids uplands – prefers streams, lakes, ponds, springs and marshes.	Low
Antrozous pallidus	Pallid bat	SEN	D	Arid deserts and grasslands with rocky outcrops and water.	Moderate
Brachylagus idahoensis	Pygmy rabbit	SEN	D	Shrubland or desert with dense stands of sagebrush.	High
Corynorhinus townsendii	Townsend's big-eared bat	SEN D		Caves, buildings and tree cavities in forested regions and grass/shrublands.	Moderate
Euderma maculatum	Spotted bat	SEN	D	Coniferous forests to deserts – roost in caves and in cracks and crevices in cliffs and canyons.	Moderate
Gulo gulo luteus	California wolverine	SEN	S	Subalpine forest and alpine fellfields and meadows.	Moderate

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Martes pennanti	Fisher SEN		S	Coniferous and deciduous forests, preferably interior forest.	Moderate
Myotis thysanodes	Fringed myotis	OR-SEN	S	Prefers an altitude of 1,200-2,150m (3,937 – 7,054ft) in various habitats including woodlands, deserts and grasslands. Caves used for breeding.	Moderate
Spermophilus washingtoni	Washington ground squirrel	SEN D		Use underground burrows for nesting – prefer shrub-steppe habitat of the Columbia Basin ecosystem.	High
Oncorhynchus clarki lewisi	Westslope cutthroat trout	SEN D		Gravel-bottomed streams, small rivers and isolated lakes.	Low
Oncorhynchus mykiss	Inland redband trout (all stocks)	SEN D		Coastal rivers to small headwater streams, large clear rivers, cool lakes or reservoirs with silt-free substrate.	Low
Invertebrates					
Juga hemphilli dallesensis	Dalles juga	OR-SEN	D	Fast-flowing, cold springs and creeks with stable gravel substrate.	Low
Juga hemphilli hemphilli	Barren juga	SEN	S	Level-bottom, cold streams with stable gravel-boulder substrate.	Low
Juga hemphilli maupinensis	Purple-lipped juga	OR-SEN	D	Large streams with minimally impacted gravel-cobble riffles.	Low

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Monadenia fidelis ssp. nov.	Deschutes sideband	OR-SEN	D	Moist, rocky areas in forested upland sites (outside of riparian corridors).	Low
Oreohelix variabilis ssp. nov.	Deschutes mountainsnail	OR-SEN	D	Xeric, dry situations generally associated with seeps and springs.	Moderate
Boloria bellona	Meadow fritillary	SEN	S	Hayland, pastures, roadside ditches and sometimes sedge meadows.	Moderate - High
Boloria selene	Silver-bordered fritillary	OR-SEN	S	Wet meadows, bogs and marshes.	Low
Vascular Plants					
Achnatherum hendersonii	Henderson's ricegrass	OR-SEN	D	Nonforested scabland.	Moderate
Achnatherum wallowaensis	Wallowa ricegrass	OR-SEN	S	*Poa secuda* scabland.	Low
Arabis sparsiflora var. atrorubens	Sickle-pod rockcress	OR-SEN	S	Arid sagebrush and ponderosa pine habitats.	High
Artemisia arbuscula ssp. longicaulis	Lahontan sagebrush	OR-SEN	S	Only found in California, Nevada and Oregon in dry plains and hills.	Moderate
Astragalus collinus var. laurentii	Laurence's milk-vetch	OR-SEN	S	Found at altitudes above 6,461m (1,970ft.).	Moderate
Astragalus diaphanus var. diurnus	South fork john day milk-vetch	OR-SEN D		Shallow gravelly soil, sandbars or sand banks of intermittent rivers.	Low
Astragalus peckii	Peck's milk-vetch	OR-SEN	D	Very dry habitat with loose, sandy soil.	Moderate - High

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Astragalus tegetarioides	Bastard kentrophyta	OR-SEN	S	Dry habitat with gravelly soil and sagebrush and Ponderosa pine.	High
Astragalus tyghensis	Tygh valley milk-vetch	OR-SEN	D	Dry habitat with rocky soils with a sandy surface. Mounded prairies and open bunchgrass grasslands are common.	High
Botrychium ascendens	Upward-lobed moonwort	SEN S		Low montane coniferous forests.	Moderate
Botrychium crenulatum	Crenulate moonwort	SEN	S	Marsh meadows, wet roadside swales, ditches and drainageways.	Low
Botrychium minganense (*)	Gray moonwort	OR-SEN	S	Meadows, prairies, woodlands, sand dunes and riverbanks.	Low - Moderate
Botrychium montanum	Mountain grape-fern	OR-SEN	S	Meadows and moist coniferous forests.	Low - Moderate
Botrychium pumicola	Pumice grape-fern	OR-SEN	D	Pumice gravel areas at elevations of 2,400m (7,874ft).	Low
Callitriche marginata	Winged water-starwort	OR-SEN	S	Vernal pools and similar wetlands.	Low
Calochortus longebarbatus var. peckii	Peck's mariposa-lily	OR-SEN	D	Vernal sites in meadows, forest-meadow edges, often in and near Ponderosa pine woodland.	High
Calyptridium roseum	Rosy pussypaws	SEN	S	Sagebrush desert to arid montane forest – within low swales in sandy soils.	High

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Camissonia pygmaea	Dwarf evening-primrose	SEN	D	Sparsely vegetated open areas of loose, rubbly substrate.	Moderate
Carex capitata	Capitate sedge	OR-SEN/ WA-STR	S	Primarily on calcareous substrates in boreal forests.	Moderate
Carex diandra	Lesser panicled sedge	OR-SEN	S	Marshes, bogs, meadows, fens and shores of lakes and ponds.	Low
Carex idahoa	Idaho sedge	OR-SEN	S	Moist, alkaline meadows of mountain valleys.	Low
Carex retrorsa	Retrorse sedge	OR-SEN	S	Swamps, marshes, sedge meadows, and shores of streams, ponds and lakes.	Low
Castilleja chlorotica	Green-tinged paintbrush	OR-SEN	D	Ponderosa pine woodland, in loose sandy soils. Typically found at elevations of 1,400-2,500m (4,593 - 8,202ft).	High
Castilleja thompsonii	Thompson's paintbrush	OR-SEN	S	Sagebrush habitat with dry soils. Typically found at higher, mountain elevations of approx. 2,135m (7,000ft).	High
Cymopterus nivalis	Snowline spring-parsley	OR-SEN	S	Dry, rocky sites in subalpine or alpine zones; typically at elevations of 2,745-3,520m (9,005 -11,549ft)	Low
Cypripedium fasciculatum (*)	Clustered lady's slipper	SEN	S	Moist to dry coniferous forests and thickets.	Moderate
Delphinium nuttallii	Nuttall's larkspur	OR-SEN	S	Well-drained soil in sagebrush deserts and open pine forests.	High

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Elatine brachysperma	Short seeded waterwort	OR-SEN	S	Shallow waters and shores of lakes and ponds in valleys.	Low
Eleocharis bolanderi	Bolander's spikerush	OR-SEN	S	Meadows, seeps, springs and stream margins, often at elevations of 1,000-3,400m (3,280 – 11,155ft).	Low
Eriogonum cusickii	Cusick's buckwheat	OR-SEN	S	Habitats associated with sagebrush and western juniper – barren flats and hills with dry soil. Typically at elevations of 1,200 - 1,600m (3,937 – 5,249ft).	High
Heliotropium curassavicum	Salt heliotrope	OR-SEN	S	Moist to dry saline soils at less than 2,100m (6,890ft).	Moderate
Lomatium ochocense	Ochoco lomatium	OR-SEN	D	Only found in the Ochoco Mountains of central Oregon.	Moderate
Lomatium ravenii	Raven's lomatium	OR-SEN	S	Alkaline habitats associated with sagebrush and pinyon-juniper vegetation. Flat slopes and ridges.	High
Lomatium suksdorfii	Suksdorf's desert parsley	SEN D		Rocky hillsides with moderate to steep slopes. Commonly found with Oregon oak, ponderosa pine and Douglas fir.	High
Lomatium watsonii	Watson's desert parsley	OR-SEN	D	Associated with sagebrush on arid, rocky hillsides.	High
Luina serpentina	Colonial luina	OR-SEN	D	Open, rocky sites on steep slopes, above small tributaries.	Low - Moderate

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Mimulus evanescens	Disappearing monkeyflower	OR-SEN S		Habitats associated with sagebrush-juniper vegetation – rocky rubble and boulders in moist, heavy gravel.	High
Navarretia leucocephala ssp. leucocephala	White-flowered navarretia	OR-SEN S		Valley grasslands and riparian wetlands below 500m (1,641ft).	Low
Penstemon deustus var. variabilis	Variable hot-rock penstemon	WA-SEN/ OR-STR	S	Dry foothills and lowlands.	Moderate
Penstemon peckii	Peck's penstemon	OR-SEN	S	Ponderosa pine habitats at lower elevations (680 - 1,090m; 2,231 – 3,576ft) with dry sandy loam soils.	High
Phacelia minutissima	Dwarf phacelia	SEN	S	Meadows and stream banks at moderate elevations in the mountains. Prefer a shrub and tree cover.	Moderate
Pilularia americana	American pillwort	SEN	D	Meadow-steppe habitat dominated by xerophytic bunchgrasses and broad-leaved herbs.	Moderate
Ranunculus triternatus	Dalles mt. buttercup	SEN	D	Grassland or sagebrush.	High
Rorippa columbiae	Columbia cress	SEN	S	Damp to wet soils near intermittent streams, permanent and snow-fed lakes, wet meadows, and irrigation and roadside ditches.	Low

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area
Rotala ramosior	Lowland toothcup	SEN	S	Riparian wetlands with small emergent annuals.	Low
Talinum spinescens	Spinescent fameflower	OR-SEN	D	Basaltic outcrops and scablands in sagebrush deserts.	High
Thelypodium eucosmum	Arrow-leaf thelypody	OR-SEN	D	Juniper-sagebrush vegetation along streambanks and hillside seeps.	High
Utricularia minor	Lesser bladderwort	OR-SEN/ WA-STR	S	Shallow water areas like mudflats, wet swales, pools, with emergent vegetation.	Low
Non-Vascular Plants					
Tortula mucronifolia	Moss O	R-SEN	S	Calcareous soils on rocks, cliffs, walls in low to high elevations.	Moderate
Dermatocarpon meiophyllizum (*)	Lichen SEN		S	Rocks of stream channels and lake margins – sometimes seeps.	Low
Texosporium sancti-jacobi	Lichen SEN		D	Arid to semi-arid grasslands, shrublands or savannas.	Moderate
Fungi					
None					

Scientific Name	Common Name	Status[1]	Documented or Suspected within Prineville District[2]	Habitat	Likelihood of Occurrence in the Project Area

[1] *FT: Federally Threatened*
SEN – Sensitive in OR and WA
OR-SEN – Sensitive in OR only
WA-SEN – Sensitive in WA only
OR-STR – Strategic in OR only;
WA-STR – Strategic in WA only

[2] *D - Documented; S – Suspected*

[3] *Federal Status: Threatened, Endangered & Proposed*

** Survey and Manage species that will remain Sensitive in OR and/or WA even though the criteria would place them in the Strategic category or off the list.*

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Appendix D

Soils Tables

Table D-1. Soils in the West Butte Wind Power Project Area

Soil Mapping Unit[1]	Map Unit	Acres In Project Area	NRCS Soil Characteristics			
			Land Capability (non irrigated)[2]	Depth (inches) to restrictive feature	Drainage Class	Wind Erodibility Group[3]
Houstake ashy sandy loam, dry, 0 to 3 percent slopes	029 99	2.19	6s	N/A[4] W	ell drained	2
Ayres very cobbly loam, 8 to 20 percent slopes	067	82.42	7s	10 to 20	Well drained	7
Ayres very cobbly loam, dry, 0 to 8 percent slopes	075	1149.37	7s	10 to 20	Well drained	7
Erakatak-Ateron complex, 12 to 30 percent south slopes	085	2262.46	N/A	20 to 40	Well drained	N/A
Erakatak-Ateron complex, 40 to 70 percent south slopes	095	319.86	6e	20 to 40	Well drained	4
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103Em	133.98	6e	20 to 40	Well drained	7
Tub-Prill-Elderflat complex, 12 to 30 percent north slopes	113	133.98	4e	40 to 60	Well drained	6
Tristan-Meadowridge-Era complex, bouldery, 2 to 40 percent south slopes	115	160.29	7s	40 to 60	Well drained	8
Era ashy sandy loam, 0 to 3 percent slopes	121 7	2.97	6s	N/A[4] W	ell drained	2
Stookmoor-Beden complex, 1 to 20 percent slopes	135Cm 80	.53	N/A	20 to 40	Somewhat excessively drained	N/A
Stookmoor-Westbutte complex, 25 to 50 percent north slopes	137Em 48	.11	N/A	20 to 40	Somewhat excessively drained	N/A

Soil Mapping Unit[1]	Map Unit	Acres In Project Area	NRCS Soil Characteristics			
			Land Capability (non irrigated)[2]	Depth (inches) to restrictive feature	Drainage Class	Wind Erodibility Group[3]
Ayresbutte-Ayres complex, 3 to 8 percent slopes	147	383.03	6s	20 to 40	Well drained	4
Ginserly-Hatrock complex, 12 to 30 percent north slopes	156	1988.93	4e	40 to 60	Well drained	5
Ginserly cobbly ashy loam, 30 to 65 percent north slopes	157	395.20	6e	40 to 60	Well drained	5
Tuscor-Anatone complex, 12 to 30 percent south slopes	159	221.52	4e	40 to 60	Well drained	8
Anatone-Merlin-Polkbutte complex, 15 to 60 percent north slopes	165	1.08	N/A	10 to 20	Well drained	N/A
Ginserly-Hatrock complex, bouldery, 12 to 40 percent south slopes	180	148.20	N/A	40 to 60	Well drained	N/A
Ginserly-Hatrock complex, bouldery, 12 to 40 percent north slopes	181	3029.42	N/A	40 to 60	Well drained	N/A
Ayres cobbly loam, moist, 3 to 8 percent slopes	204	5267.22	7s	10 to 20	Well drained	7
Ayres very cobbly loam, moist, 8 to 20 percent slopes	205	549.75	7s	10 to 20	Well drained	7
Ayresbutte-Ayres complex, moist, 3 to 8 percent slopes	207	3226.27	N/A	20 to 40	Well drained	N/A
Anatone-Tuscor complex, 30 to 65 percent south slopes	259	378.32	7s	10 to 20	Well drained	8

Soil Mapping Unit[1]	Map Unit	Acres In Project Area	NRCS Soil Characteristics			
			Land Capability (non irrigated)[2]	Depth (inches) to restrictive feature	Drainage Class	Wind Erodibility Group[3]
Choptie-Westbutte complex, 5 to 30 percent slopes	25Cm	99.79	N/A	10 to 20	Well drained	N/A
Anatone-Bocker complex, 2 to 20 percent slopes	272	882.64	7s	10 to 20	Well drained	8
Powellbutte-Luckycreek complex, 0 to 10 percent slopes	276	34.23	N/A	20 to 40	Well drained	N/A
Observation-Cadlebutte complex, 0 to 15 percent slopes	277	0.37	N/A	20 to 40	Well drained	N/A
Homehollow complex, 0 to 8 percent slopes	278	944.50	6e	20 to 40	Well drained	2
Ginserly-Hatrock complex, bouldery, 0 to 12 percent slopes	282	956.23	N/A	40 to 60	Well drained	N/A
Meld gravelly ashy loam, 0 to 15 percent slopes	285	1658.19	N/A	20 to 40	Well drained	N/A
Polkbutte ashy loamy sand, 5 to 70 percent north slopes	286 1	12.39	N/A	N/A[4] N/A		N/A
Hatrock-Ginserly complex, 30 to 60 percent north slopes	292 2	3.31	6e	N/A[4] W	ell drained	3
Observation-Bonnieview-Ateron complex, 0 to 50 percent slopes	B451	161.31	6e	20 to 40	Well drained	7
Hankins-Merlin complex, 0 to 35 percent slopes	B500	83.51	N/A	40 to 60	Well drained	N/A

Soil Mapping Unit[1]	Map Unit	Acres In Project Area	NRCS Soil Characteristics			
			Land Capability (non irrigated)[2]	Depth (inches) to restrictive feature	Drainage Class	Wind Erodibility Group[3]
Polkbutte-Anatone high precipitation, complex, 5 to 35 percent slopes	X310 4	7.02	N/A	N/A[4] N/A		N/A
Ateron-Merlin, rubbly complex, 5 to 20 percent slopes	X810	79.52	7s	12 to 20	Well drained	8
Redcliff-Rock outcrop complex, 5 to 30 percent slopes	102D	1063.45	6e	20 to 40	Well drained	7
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103E	2940.41	6e	20 to 40	Well drained	7
Stookmoor loamy sand, 1 to 3 percent slopes	132A 1	869.49	6e	20 to 40	Somewhat excessively drained	2
Stookmoor gravelly loamy sand, 20 to 50 percent north slopes	134D 19	0.70	6e	20 to 40	Somewhat excessively drained	3
Stookmoor-Beden complex, 1 to 20 percent slopes	135C 75	47.78	6e	20 to 40	Somewhat excessively drained	2
Stookmoor-Westbutte complex, 25 to 50 percent north slopes	137E 11	91.42	6e	20 to 40	Somewhat excessively drained	3
Swalesilver loam, 0 to 1 percent slopes	149A 2.	05	6w	N/A[4]	Somewhat poorly drained	4
Blayden loamy sand, 0 to 3 percent slopes	17A	457.12	6s	12 to 20	Well drained	2
Borobey sandy loam, 0 to 5 percent slopes	19A 2	996.02	6e	N/A[4]	Somewhat excessively drained	3
Choptie-Westbutte complex, 5 to 20 percent slopes	25C	648.77	6e	10 to 20	Well drained	5

Soil Mapping Unit[1]	Map Unit	Acres In Project Area	NRCS Soil Characteristics			
			Land Capability (non irrigated)[2]	Depth (inches) to restrictive feature	Drainage Class	Wind Erodibility Group[3]
Gardone sand, hummocky, 3 to 15 percent slopes	53C 11	.01	6e	N/A[4]	Excessively drained	1
Ninemile-Dester complex, 1 to 8 percent slopes	93B	525.89	6e	10 to 20	Well drained	3
Total		**45552.22**				

1 This table only displays the major soils in each map unit and describes characteristics based on the first soil type listed in the complex name. Others may exist.

2 Land capability values of 3 through 8 with an "e" subclass indicates main limitation as risk of erosion unless close-grown plan cover is maintained.

3 Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

4 N/A indicates data was not available through Soil Data Mart for OR654 (Prineville Area) and OR620 (Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties) (NRCS 2010a), or the USDA-NRCS Soil Survey Division Official Soil Series Descriptions (NRCS 2010b).

Table D-2. Alternative 1 Temporary and Permanent Soil Disturbances

Soil Mapping Unit	Map Unit	Temporary Disturbance BLM Land	Temporary Disturbance Private Land	Total Temporary Disturbance	Permanent Disturbance BLM Land	Permanent Disturbance Private land	Total Permanent Disturbance
Anatone-Bocker complex, 2 to 20 percent slopes	272 0		35.7	35.7	0	10.7	10.7
Anatone-Tuscor complex, 30 to 65 percent south slopes	259 0		0.8	0.8	0	0	0
Ateron-Merlin, rubbly complex, 5 to 20 percent slopes	X810 0		2.8	2.8	0	1.2	1.2
Borobey sandy loam, 0 to 5 percent slopes	19A 2.	4	10.8	13	1.93	5.41	7.24
Choptie-Westbutte complex, 5 to 20 percent slopes	25C 0		0.8	0.8	0	0.8	0.8
Choptie-Westbutte complex, 5 to 30 percent slopes	25Cm 0		4.9	4.9	0	1	1
Erakatak-Ateron complex, 12 to 30 percent south slopes	85 0		11.7	11.7	0	5.1	5.1
Erakatak-Ateron complex, 40 to 70 percent south slopes	95 0		2.2	2.2	0	0.3	0.3
Gardone sand, hummocky, 3 to 15 percent slopes	53C 0		0.8	0.8	0	0.4	0.4
Ginserly cobbly ashy loam, 30 to 65 percent north slopes	157 0		0.9	0.9	0	0.81	0.81
Ginserly-Hatrock complex, 12 to 30 percent north slopes	156 0		1.3	1.3	0	1.3	1.3
Ginserly-Hatrock complex, bouldery, 12 to 40 percent north slopes	181 0		13.9	13.9	0	5.1	5.1

Soil Mapping Unit	Map Unit	Temporary Disturbance BLM Land	Temporary Disturbance Private Land	Total Temporary Disturbance	Permanent Disturbance BLM Land	Permanent Disturbance Private land	Total Permanent Disturbance
Ginserly-Hatrock complex, bouldery, 12 to 40 percent south slopes	180 0		7.1	7.1	0	3	3
Ginserly-Hatrock complex, bouldery, 0 to 12 percent slopes	282 0		57.6	57.6	0	14.4	14.4
Polkbutte ashy loamy sand, 5 to 70 percent north slopes	286 0		1.7	1.7	0	1.5	1.5
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103E 3.	3	7.7	11	2.64	2.11	4.75
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103Em 7.	5	9.5	17	1.72	2.91	4.63
Redcliff-Rock outcrop complex, 5 to 30 percent slopes	102D 0	.4	3.3	3.6	0.4	1.5	1.8
Stookmoor loamy sand, 1 to 3 percent slopes	132A 5.	6	4.5	10.1	4.56	0	4.56
Stookmoor-Beden complex, 1 to 20 percent slopes	135C 0.	5	15.7	16.2	0.41	7.6	8.01
Stookmoor-Beden complex, 1 to 20 percent slopes	135Cm 0		9.6	9.6	0	4.51	4.51
Stookmoor-Westbutte complex, 25 to 50 percent north slopes	137E 0		0.8	0.8	0	0.4	0.4
Total		**19.7**	**204.2**	**223.5**	**11.7**	**70.1**	**81.5**

Table D-1. Alternative 2 Temporary and Permanent Soil Disturbances

Soil Mapping Unit	Map Unit	Temporary Disturbance BLM Land	Temporary Disturbance Private Land	Total Temporary Disturbance	Permanent Disturbance BLM Land	Permanent Disturbance Private land	Total Permanent Disturbance
Anatone-Bocker complex, 2 to 20 percent slopes	272 0	.0	41.3	41.3	0.0 11	.1	11.1
Anatone-Tuscor complex, 30 to 65 percent south slopes	259 0	.0	0.8	0.8	0.0 0.	0	0.0
Ateron-Merlin, rubbly complex, 5 to 20 percent slopes	X810 0	.0	3.2	3.2	0.0 1.	1	1.1
Ayres cobbly loam, moist, 3 to 8 percent slopes	204 0	.0	4.6	4.6	0.0 4.	6	4.6
Ayres very cobbly loam, moist, 8 to 20 percent slopes	205 0	.0	0.3	0.3	0.0 0.	3	0.3
Ayresbutte-Ayres complex, 3 to 8 percent slopes	147 0	.3	0.0	0.3	0.3 0.	0	0.3
Ayresbutte-Ayres complex, moist, 3 to 8 percent slopes	207 0	.8	6.2	7.1	0.8 6.	2	7.0
Borobey sandy loam, 0 to 5 percent slopes	19A 0.	9	2.4	3.3	0.0 2.	0	2.0
Choptie-Westbutte complex, 5 to 20 percent slopes	25C 0.	0	1.5	1.5	0.0 0.	8	0.8
Choptie-Westbutte complex, 5 to 30 percent slopes	25Cm 0.	0	5.0	5.0	0.0 1.	1	1.1
Erakatak-Ateron complex, 12 to 30 percent south slopes	085 0	.0	15.2	15.2	0.0 5.	2	5.2
Erakatak-Ateron complex, 40 to 70 percent south slopes	095 0	.0	2.2	2.2	0.0 0.	3	0.3

Soil Mapping Unit	Map Unit	Temporary Disturbance BLM Land	Temporary Disturbance Private Land	Total Temporary Disturbance	Permanent Disturbance BLM Land	Permanent Disturbance Private land	Total Permanent Disturbance
Gardone sand, hummocky, 3 to 15 percent slopes	53C 0.	0	0.0	0.0	0.0	0.0	0.0
Ginserly cobbly ashy loam, 30 to 65 percent north slopes	157 0	.0	1.5	1.5 0.	0	0.8	0.8
Ginserly-Hatrock complex, 12 to 30 percent north slopes	156 0	.0	6.3	6.3 0.	0	3.5	3.5
Ginserly-Hatrock complex, bouldery, 0 to 12 percent slopes	282 0	.0	60.2	60.2 0.	0	14.4	14.4
Ginserly-Hatrock complex, bouldery, 12 to 40 percent north slopes	181 0	.0	16.0	16.0 0.	0	5.0	5.0
Ginserly-Hatrock complex, bouldery, 12 to 40 percent south slopes	180 0	.0	8.5	8.5 0.	0	3.1	3.1
Houstake ashy sandy loam, dry, 0 to 3 percent slopes	29 1.	7	0.0	1.7 1.	7	0.0	1.7
Meld gravelly ashy loam, 0 to 15 percent slopes	285 0	.0	10.4	10.4 0.	0	6.3	6.3
Polkbutte ashy loamy sand, 5 to 70 percent north slopes	286 0	.0	3.3	3.3 0.	0	1.7	1.7
Powellbutte-Luckycreek complex, 0 to 10 percent slopes	276 0	.0	0.0	0.0	0.0	0.0	0.0
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103E 1.	4	4.6	6.0	0.04	1.3	1.4
Redcliff-Rock outcrop complex, 30 to 65 percent south slopes	103Em 0.	8	8.9	9.8	0.02	2.9	2.9
Redcliff-Rock outcrop complex, 5 to 30 percent slopes	102D 0.	1	0.0	0.1	0.0	0.0	0.00

Soil Mapping Unit	Map Unit	Temporary Disturbance BLM Land	Temporary Disturbance Private Land	Total Temporary Disturbance	Permanent Disturbance BLM Land	Permanent Disturbance Private land	Total Permanent Disturbance
Stookmoor loamy sand, 1 to 3 percent slopes	132A 2	.3	0.0	2.3	0.1	0.0	0.1
Stookmoor-Beden complex, 1 to 20 percent slopes	135C 0.	2	0.0	0.2	0.0	0.0	0.0
Stookmoor-Beden complex, 1 to 20 percent slopes	135Cm 0.	0	12.0	12.0	0.0	4.4	4.4
Stookmoor-Westbutte complex, 25 to 50 percent north slopes	137E 0.	0	0.0	0.0	0.0	0.0	0.0
Tristan-Meadowridge-Era complex, bouldery, 2 to 40 percent south slopes	115 0	.0	0.5	0.5	0.0	0.5	0.5
Total		**8.5**	**214.9**	**223.3**	**2.9**	**76.6**	**79.5**

Appendix E

ODFW Comment Letter

Oregon
Theodore R. Kulongoski, Governor

Department of Fish and Wildlife
Deschutes Watershed District
Prineville Field Office
2042 SE Paulina Highway
Prineville, OR 97754
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#0031

17 May, 2010

Steve Storo
BLM Prineville District Office
3030 N.E. 3rd Street
Prineville, Or. 97754

RE: West Butte Wind Project Right of Way (ROW)
DOI-BLM-OR-P060-2009-0064-EIS

Dear Mr. Storo:

The Oregon Department of Fish and Wildlife (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed West Butte Wind Project (WBWP) Right of Way (ROW). The Department participated in both the Deschutes and Crook County Planning and Siting processes for the WBWP, and is a member of the Technical Advisory Committee (TAC) that was established by Crook County. The Department also provided comments to the Prineville BLM in our project scoping letter dated 9 October, 2009, and responded to informational requests from BLM and the applicant's representative during the preparation of this DEIS. The Department has gone on record to the developer and the two counties that the 3-mile area around the lek is unmitigatable and the project should be denied. Approving this project, that impacts unmitigatable sage-grouse habitat, will contribute to the case to federally list the species as Threatened.

It is the policy of the Oregon Department of Fish and Wildlife (Department), as mandated by the state, to manage fish and wildlife to prevent serious depletion of indigenous species and to provide optimum recreational and aesthetic benefits for present and future generations of the citizens of this state (ORS 496.012).

The Department is cognizant of its advisory role in this planning process, current national need for alternate energy sources, Oregon legislation to increase "green" energy production, and benefits this facility could provide to the landowner and citizens of Crook and Deschutes Counties. Consistent with the Departments mission we offer the following comments and recommendations regarding potential impacts to wildlife and their habitats.

GENERAL COMMENTS

Chapter 3, Affected Environment and Environmental Consequences

This chapter provided descriptions of the bird and sensitive wildlife species impacted and possible effects to populations and habitats. It is suggested when available 2010 survey information be incorporated into this document for all relevant wildlife species. While mule deer, elk, and pronghorn were noted as present, the DEIS failed to identify that the project is within sensitive big game (mule deer, antelope, and elk) habitats recognized by Deschutes and Crook County Comprehensive Land-Use Plans. The Department suggests this information be incorporated into this and other relevant sections of the DEIS.

Wildlife Mitigation

The Department is concerned that the DEIS does not adequately describe mitigation measures BLM should require of the developer to address potential impacts to listed wildlife species, wintering mule deer and elk, county recognized species, and sensitive habitats of concern. Where operational guidelines or mitigation are described they are sometimes couched with terms like "minimize", or avoid impacts "where feasible" or "practicable" which the Department feels are not accountable and will jeopardize mitigation effectiveness.

The DEIS points out that the TAC chartered by Crook County to develop mitigation measures has no authority over the BLM, or the lands it administers. While the Department agrees the TAC has no authority over BLM, the BLM should coordinate with the counties, as well as require the developer to implement sound, resource based measures that apply to BLM lands that complement those developed by the counties.

The Department's Fish and Wildlife Habitat Mitigation Policy (OAR 635-415) provides direction for staff to review and comment on projects that may impact fish and wildlife habitat. This policy recognizes six distinct categories of wildlife habitat ranging from Category 1 – essential, limited, and irreplaceable habitat, to Category 6 – Non-habitat.

The policy goal for Category 1 habitat is no loss of habitat quantity or quality via avoidance of impacts through development alternatives, or a recommendation to not authorize proposed development action if impacts cannot be avoided. The Department recommends avoidance of Category 1 habitats as they are irreplaceable, and thus mitigation is not a viable option.

Categories 2-4 are for essential or important, but not irreplaceable habitats. Category 5 habitat is not essential or important habitat, but has high restoration potential. Mitigation measures are needed when proposed actions impact habitat Categories 2-5.

The following specific comments are intended to help in the development of such measures, and provide additional relevant information.

SPECIFIC COMMENTS

Pg. 2-23, Sec. 2.4.1 Compensatory Mitigation Section – The Department agrees with BLM that the TAC and its decisions (regarding mitigation) are outside of BLM's control. For that reason, and to meet BLM legal responsibilities, the Department believes this document needs to clearly describe and set forth better organized mitigation measures for project impacts to federal and state listed wildlife species, wintering mule deer and elk, and county recognized wildlife species and habitats on BLM Lands.

Pg. 3-20, Big Game and Other Mammals Section – Expand this section to recognize big game habitats identified in Crook and Deschutes County Comprehensive Land-use Plans impacted by the project.

The Department and the applicant have documented antelope, elk and deer use on West Butte. The project area includes Crook and Deschutes County identified elk and general deer winter ranges, and important antelope range. Based on the ecology of big game habitats and research on effects of human caused disturbances to the species, the Department has made the following determinations for big game habitats affected by this project:

- Category 2 habitat – Mule Deer and Elk Winter Range, Antelope Range: Winter range is considered a Category 2 habitat due to its essential function and limited geographic distribution in facilitating over-winter survival for mule deer and elk. Winter range sites are critical for sustaining populations at desired levels. Antelope range is Category 2 due to its essential function and limited geographic distribution in facilitating antelope survival. Both category 2 habitats need high habitat integrity and low human disturbance to maintain their species populations. If avoidance of these areas is not possible, providing for "no net loss" and a "net benefit" (restoration) of winter range should be a vital component of the mitigation plan.

Mule deer, antelope, and elk are important big game species in Oregon. Mule deer population declines across Oregon have intensified concerns among hunters, the public, and the Department. West Butte is in the Department's Paulina Wildlife Management Unit (WMU) near the eastern boundary with the Maury WMU. Mule deer 2009 winter population levels in the Paulina and Maury WMUs were 43% and 58% of desired population levels respectively. Maintaining winter range for mule deer has become a greater priority for the Department as public pressure to recover mule deer populations has increased. Crook County mapped mule deer and elk winter ranges overlap portions of the project area, while Deschutes County mapped mule deer winter range and antelope range do the same. Big game winter ranges are recognized by Crook and Deschutes Counties and the Oregon Department of Land Conservation and Development as sensitive habitats that represent crucial Goal 5 resource areas for big game. Protection and mitigation of these habitats should be addressed in the habitat mitigation plan.

BLM lands within the proposed project have been identified in the Upper Deschutes Resource Management Plan (UDRMP) as primary wildlife habitat. UDRMP guidelines for primary wildlife emphasis are (page 55):

a) Habitat effectiveness should advance toward 70% or better.
b) Manage for low densities of open motorized travel routes.
c) Maintain larger, un-fragmented areas.
d) Identified as a high priority for habitat restoration.
e) Restrictions on group activities may be applied in some areas or seasonally for resource protection.
f) Seasonal closures.

To address winter range impacts and effects from project development and operation the Department recommends the following measures be a part of the mitigation:

- Avoid construction activities associated with the transmission line, access road, ROW and other associated infrastructure on that portion of the project which lies within county identified big game winter range Dec. 1 - April 30. The Department is willing to consider shortening the restriction in the spring if it is a mild winter and wintering animals have moved out of the area.
- A 2 to 1 mitigation ratio for every acre of mule deer and elk winter range and/or antelope range permanently impacted by the project's footprint. ROW acres would include the road right-of-way, buildings, parking lots, and transmission line infrastructure. Restoration should include seeding of native grasses and forbs, but also planting of root stock native shrub species.

- Once the wind project is operational nonessential or otherwise schedulable activities to avoid December 1 through April 30. Access should be limited to performing essential maintenance and emergency service only. Unnecessary access, regardless of the means, should be avoided.
- The provisions in the two previous bullets need to be maintained throughout the life of the project, regardless of facility operator.

Pg. 3-26, Birds Section – The second bullet from top of the page refers to adhering to general guidelines for seasonal restriction and distance buffers as outlined in the BLM's UDRMP. Please list and incorporate these guidelines in the table suggested below. (See next suggestion regarding providing a table that presents by species what the specific guidelines are, and in what situations they would apply.)

It would be helpful if the information on this and subsequent pages included a description and table illustrating the various nesting raptor species that have been documented in the project area. Additionally, key habitat features and sites, such as nests and roost trees should be detailed, along with distance from these sites to turbines, other infrastructure, and both proposed ROW routes. Please include 2010 survey data whenever possible, including the active golden eagle nest to the west of the proposed WBWP. The table should illustrate and summarize species, impacts, and protective measures; and situation(s) when those measures would apply.

The status of identified nest sites is important, as active raptor and golden eagle nest sites are protected by the federal Migratory Bird Treaty Act and Eagle Protection Act. Under the Department's Fish and Wildlife Habitat Mitigation Policy, mitigation categories for habitats associated with these species for this project would include:

- Category 2 habitat – Golden Eagle and Ferruginous Hawk Nests: Both species are considered sensitive by the Department and are protected by federal regulations. A 0.25 mile radius buffer around active sites restricting any construction activity during the nesting season is recommended. The Federal Eagle Protection Act protects Golden Eagle nests year around.
- Category 2: habitat – American kestrel, Red-tail and Cooper's Hawk Nests: Nests of these species were reported by the applicant. The federal Migratory Bird Treaty Act protects active raptor nests. The Department would recommend a 0.125 mile radius buffer around active nests during the nesting season.

Pg. 3-26, Birds, Loss of Habitat Section – Four bullet design features are described to "minimize" displacement. The description of the features does not include needed dates and timing when restrictions would be in effect, the width of protective buffers, or who conducts the monitoring for compliance and impacts.

Nationally, grassland and shrubland birds show the most consistent population declines over the last 30 years of any group of bird species. Across the U.S., 63% of shrubland and shrub-dependent bird species and 70% of grassland species are declining. In the Intermountain West, more than 50% of grassland and shrubland species show downward trends (Paige 1999).

The sagebrush ecosystem has been reduced in area by greater than 40% since pre-European settlement, and less than 10% remains in a condition unaltered by human disturbance. Populations of many of the sagebrush-associated species are declining, and approximately 20% of the ecosystem's native plants and animals are considered imperiled (Wisdom 2005).

In addition to measures the BLM identified, the Department recommends the applicant provide on-site mitigation for impacts to shrub-steppe habitat from the ROW and Connected Actions as follows:

- Revegetation: In addition to seeding, include planting of bare root shrubs and watering necessary for establishment. Provide a list of species to be planted that should include native shrub-steppe grasses, forbs, and shrubs suitable for West Butte.
- Mitigation Ratio: 2 acres of shrub-steppe habitat restored for every acre permanently impacted by the project (2:1 ratio). The mitigation plan needs to describe how many acres impacted and the number to restore, where restoration will occur, the means used, species list, and monitoring to ensure the restoration occurs and is maintained through the operation of the wind facility. The applicant has proposed a Juniper Tree Management Program that could meet or exceed the Department's recommendation. However, more details are needed to be able to make this determination.
- Noxious Weed Control: The Department supports provisions for a noxious weed plan, but believes more detail is needed to ensure implementation over the long term, including a commitment requiring control efforts for as long as the facility operates.

Pg. 3-32, Birds, continued – At the top of the page another design feature to avoid impacts to nesting raptors includes conducting surveys in the spring to locate and flag nests. ODFW supports this part of the provision. It also states: "*an environmental monitor would work with the construction contractor to **minimize** construction work in these areas **to the extent feasible** when the nest is active*". The Department suggests BLM more strongly word this protective guideline so it would better protect the resource of concern. To accomplish that we recommend wording be: **avoid** construction around nest sites until the young have fledged.

Pg. 3-34, Big Game and Other Mammals, Loss of Habitat Section – This section details lost habitat, but fails to provide measures to offset or mitigate for lost habitat. The Department believes the BLM is obligated to hold the applicant accountable for this habitat loss, and clearly describe how and where mitigation will occur (see pg 3-20 comments)

Pg. 3-35, Big Game and Other Mammals, Indirect Impacts, Displacement – The Department has and continues to emphasize the importance of this area for big game. Surveys conducted by the applicant verified the presence of winter mule deer and pronghorn. BLM's UDRMP provides direction to help meet ODFW objectives for big game. ODFW asks for BLM to follow this direction and implement guidelines not allowing construction during the winter period to avoid impacting big game animals using this area (see pg 3-20 comments).

Pg. 3-40-43, Table 3.6-1 BLM Special Status Species – This table provides a comprehensive list of state and federal special status species. The Department recommends Deschutes and Crook County species of concern (mule deer, elk, antelope, prairie falcon, sage grouse, and golden eagle) also be listed and referenced. A check of the table also noted these discrepancies:

- Northern Goshawk – The Department designation is "SV", BLM has "SC".
- Spotted Bat –Species was not listed in the table; the Department lists these species as "SV".
- Fringed myotis - Species was not listed in the table; the Department lists these species as "SV".

Pg. 3-46, Sage-Grouse – 2010 lek counts have been completed. The lek was counted 3 times from a ground survey, with a minimum of 2 males observed on one count, and a maximum of 4 males and 1 female observed on April 29, 2010. Two helicopter surveys of the West Butte and Bear Butte lek areas resulted in 3 males at West Butte and no birds counted at Bear Butte.

Pg. 3-59-61, Sec. 3.6.2, Sage-Grouse Mitigation and Enhancement – The DEIS stated sage-grouse were a primary wildlife consideration. Both agencies have identified high value wildlife resources, including important sage-grouse habitat associated with West Butte. The Department (through its Wildlife Habitat Mitigation Policy (OAR 635-415-0000) and Greater Sage Grouse Conservation Assessment and Strategy for Oregon (OAR 635-140-0005 & -0010)) and BLM through the UDRMP, National Environmental Policy Act (NEPA), and direction set forth in IM No. OR-2009-038, No. 2010-071, No. 2010-073 have policies in place to prevent further losses to this species. The Department is on record to Crook and Deschutes Counties and in our 9 October, 2009 letter to BLM providing recommendations to avoid impacting lek sites and other key habitat within a 3-mile radius of the leks. The Department is concerned that the Proposed Action, including potential impacts from the Connected Action, is not consistent with the above mentioned Department and BLM policies and management guidelines. Since a lek site is an irreplaceable habitat, and thus unmitigatable, the Department recommends that if the project is approved, that BLM require that the Applicant to purchase existing sage grouse habitat on private properties with active lek sites and associated rearing habitat. These lands would be transferred to an entity (public, private non-profit or other) and managed in perpetuity as an "ecological uplift" such that those habitats would ensure high quality sage grouse habitat into the future and offset losses from development.

Pg. 3.62, Sec. 3.6.2 continued – The DEIS indicates that listed mitigation measures proposed by the developer may provide benefits, but no determination can be made without knowing the specific mitigation measures the developer will implement. The Department recommends that BLM not proceed with this application until the applicant commits to specific mitigation measures that BLM can evaluate and make a determination as to their effectiveness.

Pg. 3.63, Sec. 3.6.2, Ferruginous Hawk – The DEIS indicates nesting surveys have documented the presence of nesting, and notes that Ferruginous hawks could be adversely impacted by construction and traffic. The importance of surveying and documenting nest locations is stated, but no clear protection restrictions describing the size of nest buffers or timing restrictions to avoid displacement are provided. As noted previously, provisions using wording is needed that clearly states these sites will be protected and construction near them avoided. Vague or weak language such as "minimize construction to the extent feasible or practicable" does not provide accountability.

OTHER WILDLIFE AND HABITATS

The Department requested and the applicant conducted bird and bat surveys, and prepared habitat mapping for the project area, the results of which are documented in their application to Crook and Deschutes Counties, and this DEIS.

Under the Department's Fish and Wildlife Habitat Mitigation Policy, the categories for habitats of concern within this project's footprint include:

- Category 2 habitat – Springs, Seeps, and Wetlands: These habitats provide essential function, they are limited in distribution, and facilitate habitat needs for a wide variety and large number of wildlife and plants. Because of the essential nature of wetlands and

water, "no net loss" and "net benefit" (restoration) are paramount if protection is not possible.

- Category 2 habitat – Shrub-Steppe Habitat: These habitats provide essential function, they are limited in geographic distribution, and facilitate the habitat needs for 88 bird species, 62 mammals, 21 reptiles, and 10 amphibians (Johnson and O'Neil 2001), including 21 state listed sensitive species and 1 state threatened species. Large blocks of unfragmented habitat with low human disturbance are needed to support shrub-steppe wildlife. If avoidance of these areas is not possible, providing for "no net loss" and a "net benefit" (restoration) of shrub-steppe habitat should be a vital component of the mitigation plan (See comments for Pg. 3-26).

The Department recognizes this project challenges both agencies to work together in an effort to address the important wildlife resource values present in the planning area. The Department will continue to work with Crook County's permitting process and with BLM with this ROW application. Again, we appreciate the opportunity to work with BLM staff, the applicant, and provide these comments.

Respectfully,

Brian T. Ferry
District Wildlife Biologist
Prineville Wildlife District

CC: ODFW – G.Ardt, S.George, C.Hagen, A.Dale, A.Stuart, P.Snow, J.Germond, C.Carey, R.Hooton
USFWS – J.Cordova, N.Gilbert
BLM – S.Roberson, J.Hanf
Crook Co. – H.Bauer, B.Zelenka
WBWP – S.Rankin Stahl

Reference Cited:

Johnson, D. and T. O'Neil. 2001. Wildlife habitat relationships in Oregon and Washington.
Paige, C. and S.A. Ritter. 1999. Birds in a sagebrush sea: managing sagebrush habitats for bird communities. Partners in Flight Western Working Group, Boise, ID.
Wisdom, M.J., M.M. Rowland, and L.H. Suring editors. 2005. Habitat threats in the sagebrush ecosystem: methods of regional assessment and applications in the Great Basin. Alliance Communications Group, Lawrence, Kansas, USA.

Appendix F
Comment Report

Comments received on West Butte Wind Power Right of Way DEIS

All "substantive" comments are listed and responded to below. A substantive comment is one that suggests a reasonable alternative (or mitigation) not already considered, or points out flaws in the analysis of effects (e.g., inaccurate information, or missing information or research).

Some (but not all) "non-substantive" comments are also listed below, but they are not followed by a BLM response since the comment did not bring up new alternatives or suggest what needed to be corrected in the analysis. Non-substantive comments are those that express an opinion about which alternative the BLM should select, or suggest actions or ask questions outside the scope of the project or agency authority. The Prineville District Manager will consider all comments, substantive and not, before making a decision on which alternative and mitigation measures to select.

Comments presented below are a rephrasing of one or more example comments from letters. Examples are listed by letter#/comment#. Three dots ". . ." indicate words have been left out. Brackets "[blah blah]" contain words that have been added to clarify the comment. This report is organized into the following topics:

- **Policy** (comments that assert BLM has violated policy, regulation or law)
- **Alternatives, mitigation** (comments that suggest changes or additions to actions)
- **Effects analysis, assumptions, data** (comments that suggest the analysis is flawed)
- **Correction, clarification**
- **Record of Decision** (comments expressing an opinion about which alternative or mitigation should be selected)

Policy, regulation

Comment: BLM Policy IM 2010-071 does not apply to the West Butte project.

Response: BLM Policy IM 2010-071 does apply to the federal lands associated with the West Butte Wind Power Right of Way EIS. The Washington Office BLM has not provided verbal or written guidance indicating that any BLM projects are exempt from this policy.

Example text from letters:

7 / 22 The discussion on these pages [Ch3-60-61] implies that BLM IM 2010-071 applies to the West Butte Project. It does not apply. . . BLMWO [BLM's Washington Office] has informed us that this IM does not apply to the West Butte Project.

Comment: The "Plans and Policies" section of the FEIS should acknowledge that this project could be eligible for economic stimulus funding from the federal government.

Response: The commenter correctly states that the The West Butte Wind Power Project is labelled a "fast track" project that could be eligible for stimulus funding. However, the fast track label refers to a process for prioritizing workload, not a policy that has a bearing on the analysis of effects in or a decision following an EIS. In a December 29, 2009 press release, BLM director Bob Abbey stated, “The fast-track process is about focusing our staff and resources on the most promising renewable energy projects, not about cutting corners, especially when it comes to environmental analyses or opportunities for public participation.” The CEQ regulations require agencies to "focus on significant environmental issues and alternatives" and "reduce paperwork and the accumulation of extraneous background data." Therefore, discussion of the fast track process has not been added to the Plans and Policies section of the EIS.

Example text from letters:

7 / 6 There should be a statement included within the BLM Plans and Policies section [Ch 1-11, Sec 1.5.1] the West Butte Wind Power project has been selected by the Department of the Interior as 1 of 34 Federal Fast Track Renewable Energy Projects and the only such project within Oregon. "Fast-track projects are those where the companies involved have demonstrated to the BLM that they have made sufficient progress to formally start the environmental review and public participation process. These projects are advanced enough in the permitting process that they could potentially be cleared for approval by December 2010, thus making them eligible for economic stimulus funding under the American Recovery and Reinvestment Act of 2009. 'The BLM is committed to helping diversify this county's energy portfolio in an environmentally responsible manner,' Abbey said." (BLM Press Release 12/29/2009).

Comment: The bat and avian mortalities estimated in the EIS do not warrant cut-in speed limitations on turbines; even if they did, imposing these restrictions on private land would violate BLM policy.

Response: The FEIS describes bat and avian fatalities in Chapter 3. The project is expected to result in close to 5 raptor deaths per year from collisions with turbines, and "golden eagles could be at relatively high risk of colliding with wind turbine blades within the Project Area due to the local topography and use of the area by breeding and non-breeding birds" (FEIS p. 3-26). While pre-operational surveys made it difficult to fully assess impacts to bats, review of existing research indicated the project would be "expected to cause direct mortality to both resident and migratory bat species" (FEIS p. 3-35). Since studies have shown that "when turbines did not operate until winds were 6.5 mph or more, there was a 53 to 87 percent reduction in bat deaths," the FEIS analyzes mitigation that would allow more thorough studies of bat mortality, and if warranted, limits on turbine cut-in speeds. Inclusion of this mitigation in the FEIS is consistent with BLM Washington Office policy to follow CEQ guidelines by considering in an EIS all relevant, reasonable mitigation measures that could improve the project, even if they are outside the jurisdiction of the agency (H-1790-1 page 62). NEPA affords the decision-maker discretion whether to select or not select mitigation measures.

Example text from letters:

7 / 28 BLM cannot require cut-in speed limitations on turbines. . . Recommendations now being reviewed by Secretary Salazar specifically address this issue: ". . .Operational modifications and other measures to address fatalities should be applied only at sites where collision fatalities are predicted or demonstrated to be high." . . .applying cut in speed requirements . . . Would mean that BLM has sufficient information to say that high bat and avian mortalities are a high probability. If so, that was not presented in the Draft EIS.

7 / 29 West Butte Wind Power does not believe that BLM can legally require turbine operational modifications on private land. The BLMWO [BLM Washington Office] has instructed the Prineville Office that BLM's policy is not to require restrictions on the operation of turbines on private or BLM lands.

Comment: The EIS does not need to include mitigation for every effect.

Response: The Council of Environmental Quality has answered this question (CEQ, NEPA's 40 Most Asked Questions): "The mitigation measures discussed in an EIS must cover the range of impacts of the proposal . . . all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so. . . All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. This will serve to alert agencies or officials who can implement these extra measures, and will encourage them to do so. The EIS is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation." While the EIS needs to include a full range of mitigation, the ROD, as the commenter correctly states, does not need to adopt it all.

Example text from letters:

7 / 26 Mitigation for all potential impacts analyzed in an EIS is not required. According to the Supreme Court Decision in Robertson v. Methlow Valley Citizens 490 U.S. 332 (1989): ". . .While a reasonably complete discussion of possible mitigation measures is an important ingredient of an EIS. . .NEPA does not impose a substantive duty on agencies to mitigate adverse environmental effects or to include in each EIS a fully developed mitigation plan. . . " . . . the ROD only needs to present rationale for why mitigation measures suggested during scoping or public comment were not required.

Comment: The EIS should analyze alternative mitigation measures.

Response: CEQ requires agencies to consider mitigation, but specifies that mitigation only includes actions that aren't included within the alternatives. Any "mitigation" that is built into the alternatives is called a design feature. This means the decisionmaker can choose from a wide range of mitigation options; the decision regarding mitigation does not need to be "adopt all" or "adopt none."

Example text from letters:

34 / 3 There are no alternative mitigation measures discussed in the report. The FEIS should include a full discussion of mitigation alternatives.

Comment: The proposed action would be in compliance with BLM and State policy on sage grouse because it minimizes impacts to this specie.

Response: The BLM agrees that the applicant has adopted design features in the proposed action to minimize or avoid impacts on wilidlife. The FEIS includes design features (built into the alternatives) to reduce or avoid impacts, as well as mitigation measures to reduce, avoid, or compensate for negative effects on sage grouse. The commenter is correct that the Oregon State Strategy for the Greater Sage Grouse Conservation and BLM Instruction Memo 2010-38 contain guidelines for BLM to consider when approving projects, and that all of the EIS alternatives would be in compliance with these guidelines.

Example text from letters:

7 / 23 It is ..our opinion that the West Butte Project complies with both the Oregon State Strategy for the Greater Sage Grouse Conservation and IM 2010-38. . . These documents use terms such as "whenever possible, minimize impacts to", and "should be considered". . . The design features and mitigation measures described in the Draft EIS clearly demonstrate that the BLM and development proponent have considered and adopted Best Management Practices to avoid and/or minimize impacts to sage grouse and all other species of plants and animals on the project area. [Ch3-60-61]

Comment: The proposed action would be inconsistent with BLM and State policy on sage grouse and big game.

Response: The commenter is correct that there are several BLM and State policies in place to limit undesirable impact on sage grouse and big game winter range. These policies describe guidelines to modify proposed actions to reduce or avoid impacts, or compensate for effects through mitigation. These guidelines suggest the avoidance of high value wildlife habitat, but do not prohibit BLM from taking actions that would affect these habitats. Alternative 1 and 2 in the FEIS would be consistent with these guidance documents, as they both include a variety of design features (built into the alternatives) to reduce or avoid impacts, as well as a suite of mitigation measures that could help reduce, avoid, or compensate for negative effects on sage grouse. The BLM has not put restrictions on development in the Juniper Acres community, or on other private land. There is no BLM policy, past or present, that limits development on private land. While the EIS analyzes effects to private as well as public land resources, the BLM's decision is limited to approving or not approving the right of way across public land.

Example text from letters:

8 / 8 Fragmentation and loss of winter range habitats for pronghorn, mule deer, and elk is also cause for concern. This is the reason that restrictions were put in place on development in Juniper Acres. Therefore allowing West Butte Wind to develop their project would be inconsistent with the past and present directives of the BLM.

31 / 25 Both agencies [BLM and ODFW] have identified high value wildlife resources, including important sage grouse habitat associated with West Butte. The Department (through its Wildlife Habitat Mitigation Policy (OAR 635-415-0000) and Greater Sage Grouse Conservation Assessment and Strategy for Oregon (OAR 635-140-0005 & -0010)) and BLM through the UDRMP, NEPA, and . . .IM No. OR-2009-038, No. 2010-071, No. 2010-073 have policies in place to prevent further losses to this species. . . The Department is concerned that the Proposed Action, including potential impacts from the Connected Action, is not consistent with the above mentioned Department and BLM policies and management guidelines.

32 / 7 The habitat within a 3 mile radius around occupied leks provides essential nesting habitat. Analysis by the ODFW of radio telemetry data from Oregon indicates that eighty percent of sage grouse nests analyzed (n=493) were within three miles of the nearest lek (ODFW 2009). Additionally, providing for a 3 mile radius of habitat protection around lek sites will help to address and/or minimize project induced impacts to sage grouse through increased mortality (both human cuased and natural), displacement, habitat degradation and fragmentation, and disturbance.

Comment: The project should not be approved until the State's new Sage Grouse Conservation Strategy is released.

Response: A draft of Oregon's updated Sage-Grouse Conservation and Assessment Strategy, released in August 2010 for public and agency review and comment, provides maps depicting "core" habitat. Since this is a draft, it remains uncertain how or where core habitat will be officially designated and protected. Until the new State Strategy is finalized, the BLM continues to recognize the current Strategy, as well as ODFW's Fish and Wildlife Habitat Mitigation Policy defining Category 1 habitat as essential, limited and irreplaceable habitat. The new Strategy, once finalized, will be guidance, which does not hold the same weight as regulation. BLM Instruction Memo 2010-071 states, "when a range-wide 'priority' or 'core' sage-grouse habitat map is developed and as additional research on threats to sage-grouse other than energy development becomes available, the BLM will issue a more comprehensive Bureau-wide policy directive."

Example text from letters:

32 / 1 [The] West Butte Wind Power Project, should not be approved until the Sage Grouse Conservation Assessment and Strategy for Oregon (Conservation Strategy) is updated by the Oregon Department of Fish and Wildlife (ODFW). . . It is our understanding that ODFW is planning to update and release its Conservation Strategy and core area approach this summer. At that time the Service would review the Conservation Strategy and could potentially revisit our NEPA recommendation on this Project based on our evaluation of the effectiveness of the Conservation strategy.

Alternatives, mitigation

Comment: The applicant should not be required to bury the transmission lines.

Response: An EIS must examine all "reasonable" alternatives to the proposal (40 Code of Federal Regulations, Section 1502.14). Alternatives may be eliminated from detailed analysis if they are technically or economically infeasible, after considering past and current practice and technology (BLM NEPA Handbook H-1790-1, page 52). While transmission lines have traditionally been overhead, this has been changing recently given technological advances that make it cheaper and easier to bury lines. Given this, and that overhead lines for this project are predicted to have adverse impacts on raptors, sage grouse, bats and other wildlife, it is important to include a mitigation measure that allows a comparison of the effects of running the lines overhead versus underground. The BLM will consider applicant costs as well as environmental effects when making a decision about what mitigation to include in the Record of Decision.

Example text from letters:

7 / 27 The costs and technical difficulties of buried transmission lines would make this option prohibitively expensive. The cost of undergrounding 115 kV lines is about $2.0+ million per mile, probably more in the rocky area of West Butte, versus $250,000 per mile for overhead lines.

Comment: There should be an alternative that considers putting wind farms on top of city buildings, or an alternative that. . .

Response: Chapter 1 described the purpose and need for this EIS, which was to consider West Butte Wind Power's right of way request. The EIS can only include alternatives to the proposed right of way (the road and powerline); it can not examine alternate locations for the wind farm.

Example text from letters:

1 / 1 The better position for wind farms is atop tall city buildings, not rural wide open spaces where minimal disruption & death of wildlife occurs as a result & noise created is of little consequence.

Comment: When implementing this project, the BLM should consider whether it might make sense to complete other work in the area at the same time.

Response: The BLM will keep this in mind when planning projects for this area.

Example text from letters:

14 / 1 If Alt 1 is approved the BLM may consider a strategy to coordinate vegetation treatment efforts, with construction and rehab tactics needed for the 3.9 mile-long ROW. A strategy, as such, may be of significant benefit. The primary objective here is to reduce or minimize undesirable cumulative impacts to wildlife and vegetation.

Comment: If water stations are installed as part of the mitigation, make them safe for wildlife, and a benefit to wildlife, not just livestock.

Response: Page 2-23 of the DEIS described mitigation actions, including one that involved placement of four wildlife watering stations on private land in the project area. The mitigation section of the FEIS (section 2.5) no longer includes installation of water stations, troughs or guzzlers. The primary reason for this is that water is not a limiting factor to wildlife in the area, so additional water would not provide a benefit.

Example text from letters:

1 / 4 ...since a/some guzzler(s) are proposed being built as part of the conservation mitigation, please consider water features to be wildlife inclusive & bat friendly ones. That is, size, depth, shape, design should all be considered. No barbed wire surrounds would be utilized & these features would not resemble the old standard primarily large animal only types that have been built by hunter groups commonly found in Deschutes County today.

34 / 7 If water stations or livestock water troughs are installed, bird ramps should be mounted to the structure so that birds can access the water source. These stations should be outside the project area as to avoid drawing wildlife to a potentially dangerous environment. We suggest the BLM and/or the ODFW be involved in construction, monitoring and maintaining structures so that water stations provid a benefit to wildlife and not simply livestock. . .poorly maintained and designed water stations can become breeding grounds for mosquitoes which carry West Nile virus and can cause mortalities in sage grouse and other birds. As well, these water stations could facilitate conditions for invasive vegetative species to thrive which harms sagebrush systems and results in additional fragmentation. Because of the potential adverse effects on sage grouse, BLM should either eliminate water stateions from its list of mitigation measures or expressly include least-impactful construction and operation of such stations as a condition of the ROW. BLM should also require maintenance of the water stations in functioning condition as a condition of the ROW.

Comment: The BLM should coordinate with the counties, ODFW and USFWS to develop sound mitigation measures.

Response: The BLM has and will continue to participate on the Crook County Technical Advisory Council to develop a detailed, comprehensive mitigation plan that includes monitoring for the life of the project. The County has required an approved wildlife mitigation plan be developed before it will issue permits to proceed with the project. The plan includes mitigation for BLM lands as well as for private lands. Additionally, the BLM is working with the applicant and USFWS to develop an Avian Protection Plan.

Example text from letters:

31 / 5 The BLM should coordinate with the counties, as well as require the developer to implement sound, resource based [wildlife mitigation] measures that apply to BLM lands that complement those developed by the counties.

32 / 12 A mitigation lands management plan, acceptable to the Service, ODFW, and BLM, should be prepared and adequate funding provided to implement management, monitoring, and reporting actions in the future. [This] plan should contain clear provisions describing: (a) biological surveys (e.g., BLM's ecological site index); (b) a description of how the long term habitat mitigations efforts will be accomplished; (c) responsible party(ies) and a specific timeline for implementing the mitigation; (d) implementation and evaluation of mitigation measures including an annual assessment; and (e) an adaptive management strategy.

35 / 2 If additional analysis indicates a potential impact to the golden eagle population, BLM and WBWP should work with the USFWS, ODFW and the TAC to identify potential mitigation measures for inclusion in the FEIS.

Comment: The EIS should include more mitigation measures to benefit wildlife, and require long term monitoring of implementation of these measures.

Response: The FEIS includes numerous design features built into the alternatives to minimize and avoid negative impacts on wildlife. These include limits on vehicle speed, bird flight diverters on meteorological tower guy lines, flagging "off limits" areas such as near sage grouse leks and raptor nests, and many other design features (see Chapter 2 alternative descriptions and Appendix "Design Features"). Monitoring is built into both action alternatives, and is described under "Construction Compliance and Monitoring" in Chapter 2. West Butte Wind Power LLC would hire an environmental monitor to train construction personnel on avoidance of sensitive areas and to monitor construction activities to ensure compliance with design features and permit conditions. The Wildlife Mitigation Plan prepared by the proponent and approved by the county will utilize a wildlife consultant and agency biologists to conduct monitoring during the first five years of the project.

The FEIS also outlines a number of mitigation measures that are not built in to the alternatives as design features, but that could be applied to any selected alternative (other than the no action alternative). The mitigation section in the FEIS includes a number of measures that were not in the DEIS, including but not limited to: reduction of turbine operations at low speeds (below 6.5 mph) when bats are most active; closure of roads during sensitive periods for deer, raptors, and other wildlife; and implementation of an avian protection plan (APP). The APP would include long term monitoring of effectiveness in reducing impacts to birds.

Example text from letters:

1 / 3 Of course, subsequent surveys must be done to ensure sage grouse numbers are maintained.

8 / 2 In the DEIS I have not found any evidence of a positive nature that would benefit the wildlife in the area other than the no action alternative. While I appreciate the overall project idea and the precautionary steps to lessen the impact to the area wildlife, I feel that more requirements could be included on the applicant and the equipment utilized in the project. There was no indication that the applicant would be required to have an ongoing wildlife consultant throughout the life of the project.

8 / 4 For the life of the project would West Butte Wind be proactive in a wildlife impact monitor program and be willing to provide remedial actions if problems were detected? Not just study but actually implement recommendations. For example, the willingness to relocate any Wind Turbines that cause high bird mortality? Based on examples from Altamonte Pass Wind Resource Area there should be remedy requirements in place prior to initiation of the project. Reference www.Altamontsrc.org/alt_doc/p70_src_relocation_guidelines.pdf

31 / 9 Big game winter ranges are recognized by Crook and Deschute Counties and the Oregon Dept of Land Conservation and Development as sensitive habitats that represent crucial Goal 5 resource areas for big game. Protection and mitigation of these habitats should be addressed in the habitat mitigation plan.

31 / 21 This section [pg 3-34, big game and other mammals, loss of habitat section] details lost habitat but fails to provide measures to offset or mitigate for lost habitat. The Department believes the BLM is obligated to hold the applicant accountable for this habitat loss, and clearly describe how and where mitigation will occur.

32 / 8 The Service believes that the proposed mitigation measures listed in the DEIS (pages 2-23 and 3-62) do not adequately mitigate Project impacts resulting from direct impact to sage grouse and its habitat, indirect impacts of habitat degradation and fragmentation, and sage grouse displacement. We believe that mitigation in the immediate vicinity of the proposed wind turbines is unlikely to provide beneficial sage grouse mitigation. . .The Service concurs with the statement in the DEIS that: "Without adequate mitigation, the direct and indirect loss or degradation of sage grouse habitats in an area with preferred high elevation habitats designated as "primary wildlife emphasis" in the Upper Deschutes RMP (2005) would likely contribute to an overall potential decline in sage grouse numbers in the area."

32 / 16 . . .as stated in our previous letters [January 27, 2010, February 5, 2010, and March 25, 2010] we continue to recommend that the Project develop an Avian and Bat Protection Plan.

32 / 17 Two currently unoccupied golden eagle nests (both in large ponderosa pine trees) are located approximately 0.5 and two miles from the project, respectively. The Project area is part of one or more golden eagle territories, with six known active and inactive nest sites within ten miles. The nest sites are distributed north, south, east and west from the Project. . .one nest approximately four miles from the Project along Hwy 27 is active this year (2010). . .the six golden eagle nests surrounding the Project indicate a concentration of golden eagle use on West Butte and the surrounding area, and therefore a higher risk of golden eagle injury or mortality from a turbine strike. . . No measures are proposed that support the goal of stable or increasing golden eagle breeding populations. . . Please include information in the final EIS regarding how the project will avoid and minimize impacts, and provide conservation measures that support the goal of stable or increasing golden eagle breeding populations.

34 / 8 . . . BLM should consider shut-off times during bat migratory periods to reduce the likelihood of impacts to migratory bats.

Comment: The mitigation section should be more specific about what exactly would occur, when, and where.

Response: The mitigation section has been expanded between the draft and final EIS. It now includes a number of measures that could be applied to mitigate adverse effects to wildlife. The measures are not all site specific, but instead provide criteria for when and how they would be applied. Additional details will be provided in the Record of Decision. For example, one mitigation measure is to purchase a certain number of acres of sagebrush steppe habitat. Since it is unknown exactly which properties will be available for sale at the time funding is made available, the FEIS states that no matter when and where the property is located, it must possess certain characteristics, such as being within active sage grouse range and with vegetation in good or better condition.

Example text from letters:

31 / 4 The DEIS does not adequately describe mitigation measures . . . to address potential impacts to listed wildlife species, wintereing mule deer and elk, county recognized species, and sensitive habitats of concern. Where operational guidelines or mitigation are described, they are sometimes couched with terms like "minimize" or avoid impacts "where feasible or practicable" which the Department feels are not accountable and will jeopardize mitigation effectiveness.

31 / 18 The Department recommends the applicant provide on site mitigation for impacts to shrub-steppe [wildlife] habitat from the ROW and connected actions . . . Mitigation Ratio: 2 acres of shrub-steppe habitat restored for every acre permanently impacted by the project (2:1 ratio). The mitigation plan needs to describe how many acres impacted and the number to restore, where restoration will occur, the means used, species list, and monitoring to ensure the restoration occurs and is maintained through the operation of the wind facility. The applicant has proposed a juniper tree management plan that could meet or exceed the Department's recommendation. However, more details are needed to be able to make this determination.

31 / 27 The DEIS indicates that listed mitigation measures proposed by the developer may provide benefits [to wildlife], but no determination can be made without knowing the specific mitigation measures the developer will implement. The Department recommends that BLM not proceed with this application until the applicant commits to specific mitigation measures that BLM can evaluate and make a determination as to their effectiveness. [Section 3.6.2]

34 / 1 . . .the project is likely to have significant impacts to wildlife, particularly the greater sage grouse and pygmy rabbits. . .Some concerns could potentially be addressed through appropriate mitigation. However, we are concerned that the potential mitigation measures discussed in the DEIS are too preliminary and undefined, and ask that more definite mitigation measures be described in the FEIS . . .the conservation easements planned by Pacific Wind Partners (DEIS at 3-26) have potential to mitigate at least part of the harm that the Project is likely to cause to wildlife, particularly sage grouse. However, the proposal leaves the details and the calculation of the actual acreage of other habitat that will be protected until after construction. Without information in the FEIS regarding locations and acreages where conservation easements would be acquired, and the protective terms of those easements, there is no way to evaluate whether such conservation easements will actually mitigate harm to species such as sage grouse. To ensure that this mitigation potential is realized, the FEIS should contain detailed information on the specific easement proposals.

Comment: The mitigation should address seasonal restrictions on construction activities and vehicle use to protect wildlife.

Response: Seasonal restrictions on construction activities and vehicle use on public and private land to protect a variety of wildlife species have been incorporated into Alternatives 1 and 2 as design features, and additional measures have been added to the mitigation section of the FEIS. The BLM will follow guidance in the UDRMP as it applies to BLM administered lands.

Example text from letters:

8 / 3 Timing of construction would be a critical concern in regards to the impact on sage grouse, other ground nesters and big game mammals with fawns.

31 / 10 To address winter range impacts and effects from project development and operation the Department recommends . . . : Avoid construction activities . . . on that portion of the project which lies within county identified big game winter range Dec 1 - April 30. The Department is willing to consider shortening the restriction in the spring if it is a mild winter and wintering animals have moved out of the area.

31 / 12 To address winter range impacts and effects from project development and operation the Department recommends . . . : Once the project is operational nonessential or otherwise schedulable activities to avoid December 1 through April 30. Access should be limited to performing essential maintenance and emergency service only. Unnecessary access, regarldess of the means, should be avoided. . . throughout the life of the project, regardless of facility operator.

31 / 14 The status of identified nests is important, as active raptor and golden eagle nest sites are protected by the federal Migratory Bird Treaty Act and Eagle Protection Act. Under the Department's Fish and Wildlife Habitat Mitigation Policy, mitigation categories for habitats associated with these species for this project would include: Category 2 habitat, golden eagle and ferruginous hawk nests: both species are considered sensitive by the Department and are protected by federal regulations. A 0.25 mile radius buffer around active sites restricting any construction activity during the nesting season is recommended. The Federal Eagle Protection Act protects golden eagle nests year around. Category 2 habitat, American kestrel, red-tail and Cooper's hawk nests: nests of these species were reported by the applicant. The federal Migratory Bird Treaty Act protects active raptor nests. The Department would recommend a 0.125 mile radius buffer around active nests during the nesting season.

31 / 15 The description of features [to "minimize" displacement] [page 3-26, birds, loss of habitat section] does not include needed dates and timing when restrictions would be in effect, the width of protective buffers, or who conducts the monitoring for compliance and impacts.

31 / 20 At the top of the page [pg 3-32, birds] another design feature to avoid impacts to nesting raptors includes conducting surveys in the spring to locate and flag nests. ODFW supports this part of the provision. It also states, "an environmental monitor would work with the construction contractor to minimize construction work in these areas to the extent feasible when the nest is active." The Department suggests BLM more strongly word this protective guideline so it would better protect the resource of concern. To accomplish that we recommend wording be : avoid construction around nest sites until the young have fledged.

31 / 22 The BLM's UDRMP provides direction to help meet ODFW objectives for big game. ODFW asks for BLM to follow this direction and implement guidelines not allowing construction during the winter period to avoid impacting big game animals using this area.

31 / 28 The DEIS [Section 3.6.2, ferruginous hawk] indicates nesting surveys have documented the presence of nesting, and notes that ferruginous hawks could be adversely impacted by construction and traffic. The importance of surveying and documenting nest locations is stated, but no clear protection restrictions describing the size of nest buffers or timing restictions to avoid displacement are provided. . . Provisions using wording is needed that clearly states these sites will be protected and construction near them avoided. Vague or weak language such as "minimize construction to the extent feasible or practicable" does not provide accountability.

Comment: The mitigation should consider burying transmission lines so as to not increase raptor predation on special status species.

Response: The mitigation section in the FEIS now includes the option of burying transmission lines on both public and private land. This would limit the amount of new raptor perches, so as not to increase raptor predation on special status species.

Example text from letters:

4 / 2 The area surrounding the proposed ROW contains several special status species that are prey for raptors. . . greater sage grouse, pygmy rabbit, northern sagebrush lizard. . .Everything possible should be done to assist these special status species to maintain or build their populations. This must include not attracting more predator species to the area, and not artificially creating a more favorable hunting habitat for raptors. . .In part, this can be accomplished by placing all transmission lines underground along any proposed ROW. . . . Utilizing "excluders" or "diverters" on the utility poles to prevent perching by raptors would still be insufficient. Any raptor the size of a male red tailed hawk or smaller can, and will, use the transmission line itself as a perch, rather than the pole. . .the USFWS Wind Turbine Guidelines Advisory Committee . . .recommendations are well worth noting. . . "place low and medium voltage connecting power lines associated with the wind energy development undergound.., unless burial of the lines is prohibitively expensive (e.g., where shallow bedrock exists). . ."

Comment: The mitigation should have more details on the revegetation plan and noxious weed control.

Response: The BLM has modified the revegetation plan so it includes use of root stocks in addition to seeding, and so it is clear the plan would be in effect for the life of the project, including decommissioning. The species list is not included in the FEIS but the FEIS clarifies that it would be approved by BLM and ODFW.

Example text from letters:

31 / 11 To address winter range impacts and effects from project development and operation the Department recommends . . . : A 2 to 1 mitigation ratio for every acre of mule deer and elk winter range and/or antelope range permanently impacted by the project's footprint. ROW acres would include the road right of way, buildings, parking lots, and transmission line infrastructure. Restoration should include seeding of native grasses and forbs, but also planting of root stock native shrub species. . . Maintained throughout the life of the project, regardless of facility operator.

31 / 17 The Department recommends the applicant provide on site mitigation for impacts to shrub-steppe [wildlife] habitat from the ROW and connected actions: Revegetation: In addition to seeding, include planting of bare root shrubs and watering necessary for establishment. Provide a list of species to be planted that should include native shrub-steppe grasses, forbs, and shrubs suitable for West Butte.

31 / 19 The Department recommends the applicant provide on site mitigation for impacts to shrub-steppe [wildlife] habitat from the ROW and connected actions . . . Noxious weed control: The department supports provisions for a noxious weed plan, but believes more detail is needed to ensure implementation over the long term, including a commitment requiring control efforts for as long as the facility operates.

Comment: The mitigation should include measures to protect sage grouse from improper grazing within the project area and on public land in other areas, and from industrial development on private land within core sage grouse habitat.

Response: The BLM has processes in place to modify grazing as needed to protect grouse, therefore this mitigation has not been added to the current FEIS. The BLM can accept permit relinquishments within the Upper Deschutes RMP area (which this project area is within), but is obligated to offer relinquished permits to other qualified applicants unless the land use plan identifies the allotment for "closure if relinquished." The UDRMP does not identify the allotments on West Butte for closure if relinquished. In no case is the BLM permitted to offer monetary compensation for relinquished permits. Therefore, the suggestion for BLM to set up a fund for purchasing relinquished permits has not been added to the FEIS. One of the mitigation measures currently in the FEIS is the purchase of conservation easements. This could be used to protect sage grouse habitat, including "core" habitat when it is defined, that is threatened by industrial development.

Example text from letters:

34 / 6 The greater sage grouse lek within the project boundary requires mitigation so that the habitat lost from development might be restored or protected in another area. More definite mitigation measures could include expanding BLM's focus on sage grouse protection in other areas, including by limiting effects on the birds from public lands livestock grazing and designating lands within core sage grouse habitat as unsuitable for industrial development. To reduce stress on sage grouse in the development area, we suggest the developer and landowner agree to a species conservation agreement, to be incorporated as a term of the ROW grant, which would minimize other impacts on sage grouse habitat by limiting livestock use within the strutting and nesting areas. We also suggest that the BLM set up a sage grouse mitigation fund with the developer that could go to future grazing permit retirement for willing lessees.

Comment: The mitigation should include the purchase of conservation easements.

Response: The DEIS included a paragraph on conservation easements (page 2-23). The FEIS goes into much more detail regarding the number of acres, type of habitat, and duration of easement. The FEIS also expands the effects that would be mitigated for, from just temporary and permanent soil disturbance to areas where wildlife are displaced.

Example text from letters:

31 / 26 Since a lek site is an irreplaceable habitat, and thus unmitigatable, the Department recommends that if the project is approved, that BLM require that the Applicant purchase existing sage grouse habitat on private properties with active lek sites and associated rearing habitat. These lands would be transferred to an entity (public, private non-profit or other) and managed in perpetuity as an "ecological uplift" such that those habitats would ensure high quality sage grouse habitat into the future and offset losses from development. [Section 3.6.2]

32 / 10 Although it is not possible to fully offset Project impacts if approved and implemented as presently proposed, we believe it is essential to make every effort to minimize the Project impacts to the declining Central Oregon subpopulation of sage grouse. Therefore, if the Project proceeds as proposed we recommend that the applicant implement off-site conservation measures that provide significant conservation benefits . . .Due to anticipated long term impacts resulting from project placement and design, the habitat acquired for mitigation should occur off-site but within the area identified as the Central Oregon subpopulaiton of sage grouse (Connelly et al. 2004).

32 / 11 Impacts to nesting habitat within a 3 mile radius of the West Butte and Bear Butte lek complexes should be mitigated through acquisition of equal or higher quality habitat at a 2:1 ratio or greater to try to achieve no net loss of habitat. . . within the area identified as the Central Oregon subpopulation . . protected from degradation . . .in an area that will reasonably be expected to maintain habitat values over the life of the project . . Protected in perpetuity through the use of fee title acquisition with a conservation easement held by ODFW or a third party, or similar mechanism.

Comment: The project design should use "macrositing" to avoid negative effects on wildlife, and the EIS should include specific mitigation to protect pygmy rabbits.

Response: Macrositing is a process for early identification of conflicts and resource concerns. West Butte Wind has worked closely with the BLM, ODFW and others to identify and avoid sensitive areas during the project design phase. For example, no turbines or roads are proposed within 1/4 mile of sage grouse leks and raptor nests, or in areas where pre-construction surveys find pygmy rabbit burrows. West Butte Wind has agreed to include these limits as design features within the alternatives, therefore they are not in the mitigation section. Some project components would occur within Category 1 and 2 wildlife habitat in Alternatives 1 and 2. The FEIS analyzes the effects of this action, and the BLM will consider these effects as it makes a decision about whether to deny the right of way application (Alternative 3) or grant a right of way (Alternatives 1 or 2) with or without mitigations in addition to the project design features.

Example text from letters:

32 / 4 . . .many of the resource impacts could have been avoided by using the "macrositing" process described in the 2008 Oregon Columbia Plateau Ecoregion Wind Energy Siting and Permitting Guidelines (ODOE et al. 2008), or as described by BLM Instruction Memorandum No. OR-2009-038 and ODFW Mitigation Policy (ODFW 2009). Specifically, we recommend [avoidance of]. . . Category 1 and 2 habitats. .[including a] 3-mile radius around occupied lek complexes (West Butte and Bear Butte).

34 / 5 Because pygmy rabbits are a species of concern and a potential candidate for listing on the endangered species list, and the previous sightings indicate this area might be pygmy rabbit habitat, BLM should develop . . . specific mitigation measures to avoid or mitigate harm to pygmy rabbits, including, if appropriate, elimination of a turbine or turbines closest to recent rabbit sighting locations.

Comment: The project should avoid Category 2 habitats, or if this is not possible, the mitigation plan should provide for "no net loss" or a "net positive benefit" of sagebrush steppe habitats.

Response: The FEIS includes analysis of avoidance of Category 2 habitats (Alternative 3 is to deny the ROW application, which would preclude construction of the project) as well as compensatory mitigation (purchasing conservation easements on good condition sagebrush steppe habitats off-site acres at a 2:1 ratio, and/or making improvements to sagebrush steppe habitats off-site).

Example text from letters:

31 / 7 Category 2 habitats [per OAR 635-415] . . . provide essential function, they are limited in distribution, and facilitate habitat needs for 88 bird species, 62 mammals, 21 reptiles, and 10 amphibians (Johnson and O'Neil 2001), including 21 state listed sensitive species and 1 state threatened species. Large blocks of unfragmented habitat with low human disturbance are needed to support shrub steepe wildlife. If avoidance of these areas is not possible, providing for "no net loss" and a "net positive benefit" (restoration) of shrub steppe habitat [including winter range] should be a vital component of the mitigation plan.

Comment: The turbines and meteorological towers should be painted contrasting colors, rather than just white, to reduce avian fatalities.

Response: Painting turbines a specific color is a requirement of the Federal Aviation Association. Contrasting colors is sometimes considered in areas where snow is on the ground for several months. This has not been incorporated into the FEIS, as West Butte is covered in snow only a couple weeks each year.

Example text from letters:

8 / 5 Visual blur is another concern. Especially in this area when snow is present making white turbine on a white background. Would applicant be willing to implement or insist that the wind turbine manufacturer implement the methods recommended in existing studies such as painting patterns on the blades. Reference: "Raptor Acuity and Wind Turbine Blade Conspicuity" by Hugh P McIsac, Raptor Research Ctr, Boise State Univ. available at www.pdf.com and "Minimization of Motion Smear, Reducing Avian Collision with Wind Turbines" by W Hodas, Univ. of Maryland available at www.nrel.gov/docs/fy03osti/33249.pdf

8 / 6 The visual contrast of the meteorological towers would also need to be addressed to minimize avian collisions. I realize that human visual contrast of the towers and the wind turbines is of concern but people are not going to be viewing these continuously and the impact of avian collisions is of greater concern. In fact, painting the turbines yellow with black centers so they look like giant sunflowers in a field would be just fine by me if it would reduce avian fatalities.

Effects analysis, assumptions, data

Comment: The analysis should consider the cost and difficulty (or ease) of constructing Alternative 2, the northern access route, vs Alternative 1, the proposed action.

Response: Details on cost and technical details are appropriate to include when they are reasons for eliminating an alternative from detailed analysis (BLM NEPA Handbook H-1790-1, page 52). The FEIS has been changed to show that Alternative 2, the northern access road, will no longer go up Williamson Creek, due to costs and technical difficulties. Alternative 2 will still come in from the north, but it will take a different route to the project site after reaching the southern end of Cascade Way. The technical difficulties that remain after the re-routing Alternative 2 are described briefly in the Chapter 2 description of this alternative.

Chapter 2 of the FEIS has been expanded to recognize factors related to technical difficulties brought up in comments, including details of upgrades that would be needed on Reservoir Road and Cascade Way; and the width of the road and need for easments on private land. Chapter 3 of the FEIS has been expanded to better compare differences in environmental effects between the alternatives, including those between vehicle fuel use, and soil and vegetation disturbance and subsequent erosion.

Example text from letters:

5 / 4	Alt 1 utilizes Hwy 20 for access versus Reservior Rd in Alt 2. Hwy 20 is an asphalt concrete road and Reservoir road is an oil mat road. . . Hwy 20 is much stronger and will support large, heavy weight bearing trucks that will be used during construction operation. Pre-construction activities are minimized under Alt 1 as compared to Alt 2.
15 / 1	Alternative Route 2. . . Would [require] working with 64 property owners. The road easement on Cascade Way in some places is only 30-60 ft in width.
15 / 2	The Alternative 2 route that crosses and parallels Williamson Creek is totally unacceptable for several reasons. First, this crossing is 40 ft to 50 ft deep in places and is subject to flooding during thunderstorms and rapid snow melt. To construct a new road parallel to Williamson Creek would involve moving huge amounts of rock, soil, trees, juniper and pine. . .Alternative 2 would be tough to build because of the gumbo soil and all the underground springs which makes it damp to wet year around.
15 / 4	. . .Reservoir Road is substandard for the extended lengths and heavy weights associated with hauling wind turbines and heavy loads. Highway 20 is a certified road that carries large and heavy aggregate loads.
15 / 5	This route [Alternative 2] would then be 30 miles long. The road drops over 1000 feet in elevation and then rises over 2500 feet in elevation. An excessive amount of diesel would be used. In building Alternative 2 roads would take at least 3 times as many trucks to bring in the materials. . . Alternative 1 road would be less expensive to maintain as it would parallel the power line. . . Since all the aggregate used to build the project is located just a mile south of the proposed BPA switch station, it is very advantageous to build the project from the south and not the north.
15 / 6	If the O&M building is located on the north side, power would have to be brought in from Hwy 27. . . A new line would have to be built. This line would have to cross BLM land and several different property owners.
16 / 1	Hwy 20 or the south side of West Butte. . .is the only route that was approved by Crook County. The truck traffic and other vehicle requirements [for Alternative 2] are way beyond what Juniper Acres can tolerate. The heavy weight that the trucks will carry will destroy Reservoir Road.
29 / 2	Coming in from Cascade Way seems to be the natural choice. First of all, there is a road already existing for the majority of the way. This road is wide, flat and straight. Yes it needs some definite improvement, but wide, flat and straight and existing seems to beat the other alternative. Which is winding, more difficult terrain, and much of the road will need to be build from scratch.

Comment: The project area defined in the EIS should be smaller.

Response: The term Project Area is used in NEPA documents to help focus the reader's attention on the broad area that bounds the project. The BLM usually draws the Project Area boundary so that it includes, at a minimum, all areas where the document proposes an action. This includes all alternatives, not just the applicant's preferred alternative. Rather than a small corridor surrounding the actions, the BLM often pushes the boundary out to the nearest section line. This is what was done for the West Butte Wind Power Right of Way EIS. Since Alternative 2 goes through the middle of the Juniper Acres community, it was appropriate to include the entire community within the Project Area.

The Project Area in this EIS is different than the County's project area. The County only had to look at the applicant's preferred alterative, whereas the BLM is required to analyze all reasonable alternatives. The analysis area includes any lands, regardless of jurisdiction, for which the BLM synthesizes, analyzes and interprets data and information that relates to a particular resource for the affected environment and effects analysis. The analysis area may or may not correspond with the general Project area.

Example text from letters:

7 / 1 The Project Area as defined and shown on maps is way too large. There is no nexus to include all of Juniper Acres within the project area, and Bear Creek Ranch in the North, or to include land clear over to Millican Highway on the southwest. BLM did not consult with the applicant when establishing these boundaries for the Project Area. The applicant has no control over the private properties on the north side of the project, so putting them within the project area serves no purpose.

34 / 9 . . .we ask the BLM to revise the project area boundary in Figures 1-1, 2-1, 2-1a, and 2-1b as this boundary includes Alternative 2. While the northern route is being considered as an alternative, it is not a formal area of the project and it expands the project boundary to a northern area past Bear Creek Butte which has not been under consideration. For the purposes of continuity and clarity the project boundary in the final EIS needs to maintain the same boundaries as intended by the developer and permitted by the County.

Comment: The analysis should reflect that Alternative 2 (northern access route) would affect redband trout and westslope cutthroat trout and other aquatic species.

Response: The DEIS showed Alternative 2 crossing Williamson Creek. Because of concerns about soil erosion and associated effects, this alternative has been modified. In the FEIS the route in Alternative 2 no longer crosses Williamson Creek, therefore there would be no effects on fish.

Example text from letters:

34 / 4 Crossing Williamson Creek [in Alternative 2] could impact fish such as the inland redband trout and westslope cutthroat, and other aquatic species that might be affected by soil erosion, runoff, and vegetation loss within the riparian area.

Comment: The EIS should describe how the project would reduce greenhouse gas emissions.

Response: This EIS is limited to describing the effects of the no action alternative (do not grant a right of way) to the effects of the action alternatives and connected actions (granting a right of way, which would enable development of a wind farm). Analyzing the difference between installing a wind farm versus constructing a different type of energy development is outside the scope of this analysis because the analysis would require assumptions about the energy portfolio of the northwest that would be speculative rather than reasonably foreseeable. Therefore, the statement regarding the amount of carbon dioxide offset by this wind farm has not been added to the document.

Example text from letters:

7 / 5 ES-9, Greenhouse Gas Emissions: This discussion should include a discussion of greenhouse gas emissions that includes the reductions in greenhouse gas emissions that will occur as a result of the project. The West Butte project will annually offset 174,920 tons of carbon dioxide emissions. (American Wind Energy Association fact sheet "Wind Power and Climate Change")

Comment: The EIS needs to disclose that improved road access from the north will increase illegal activities in the area.

Response: This analysis has not been added to the FEIS. West Butte Wind Power LLC can work with private landowners to limit access at the south end of Cascade Way, similar to how they propose to limit public access at the south end of the main access road in Alternative 1. The BLM is not aware of existing illegal activities in the area resulting from the exisiting roads, and has no basis for an assumption that illegal use will increase.

Example text from letters:

7 / 25 There is no discussion of . . . concerns by the landowners, as well as agency and non-agency members, that improved road access from the north may lead to increased illegal OHV use, trespassing, and poaching. [Ch3-69, 3.7.3, impacts of Alt 2].

Comment: The EIS should better analyze how the powerlines, street ligthts and traffic associated with the main access route along Cascade Way (Alternative 2) would affect residents in the Juniper Acres community.

Response: Section 3.8 of the FEIS describes the effects on views from turbines, roads, powerlines and other project features. Section 3.10 includes a description of the effects on residential properties near the project area, including effects on property values, with a conclusion that, "the Proposed Action and Connected Actions would not be expected to adversely affect property values."

Between DEIS and FEIS, Alternative 2 has been modified such that the electric line would not need to be installed along the northern access route along Cascade Way. Instead it would go from the substation on top of the butte down to the O&M building at the south end of Juniper Acres. Another change between DEIS and FEIS is the addition of a mitigation measure that calls for burying the transmission lines on both public and private land. Also, there would not be street lighting along the access road, so there would not be an effect on viewing night skies in the area. The commenter is correct that there would be an increase in traffic on the road, and the effects of this are analyzed in the Socioeconomics section in Chapter 3 of the FEIS.

Example text from letters:

2 / 1	Alternative 2 would be disruptive to the wilderness lifestyle of the residents of Juniper Acres. It would degrade the air quality for the many astronomers in Juniper Acres who are there specifically due to the clear dark skies.
5 / 2	Alt 2 . . . Introduces the idea of running a 14.4 Kv utility line down the length of Cascade Way. . . The focus here for the DEIS is on "access" not on providing utilities for Juniper Acres. Therefore I'm requesting that it [the utility line down Cascade Way in Alt 2] be withdrawn from the final EIS. . . The 14.4 kv utility line needs to end at the O&M facility under Alt 2. The way you have it now appears as if Alt 2 automatically approves the construction of this utility line on Cascade Way. . .This is misleading. . .[and] beyond the scope of the DEIS.
5 / 3	Alt 2 . . . assumes that up grades to Cascade Way would be similar to that as outlined for Alt 1. This assumption is not clarified in the DEIS and may not be in harmony with ordinance #19 amendment #22 for road construction standards within Crook County. Road specifications are determined according to the potential average daily traffic "PADT." The PADT for Alt 1 will be completely different than for Alt 2. The PADT on Cascade Way will increase greatly for Alt 2. The DEIS also makes no mention of the increased PADT from site seeing traffic on Cascade Way that is expected to occur under Alt 2
7 / 3	It is important . . . to explain [at ES-7, and Ch3-69, 3.7.3, impacts of Alt 2] that residential properties, namely Juniper Acres, under the Alternative 2 option, would experience not only temporary construction related traffic noise, but in addition, a permanent inclrease in traffic noise from operational traffic.
8 / 1	The installation of powerlines along Cascade Way would not only be an eyesore but could produce enough audible noise to disrupt the enjoyment of the wilderness aspect of the area by landowners. Also, to allow commercial and heavy industrial traffic to come thru the area would be inconsistent with the previous and current intended use of this area. The fact that Juniper Acres does exist as a subdivision with residents, and landowners who appreciate its recreational and wilderness value, it would be inconsistent to allow a commercial corridor to proceed thru the area.
9 / 1	Will landowners be compensated for right of way?
9 / 2	How will right of way affect land value and re-sale value?
30 / 1	This project is going to make a significant impact on my southern view. The three test poles that have been standing on the Butte for the last couple of years, are visible from my front porch. . .I have no desire to have power poles lining my fence row, however under ground would be quite nice.
36 / 1	We [are owners of land in Juniper Acres and] will appeal the decision if our land value drops significantly with no compensation for having a future home site.

Comment: The analysis should better describe how power poles will attract raptors, and therefore increase predation on sagegrouse, pygmy rabbits, and northern sagebrush lizards.

Response: The DEIS analysis recognized that power poles and lines attract raptors, and that sage grouse avoid tall structures because they often serve as perches for hunting raptors. Section 3.6 of the FEIS analyzes the effect increased raptor presence could have on prey species other than just sage grouse, such as pygmy rabbits and northern sagebrush lizards.

Example text from letters:

4 / 1 Installing above ground utility poles in this ROW area is the same as installing hunting perches for raptors. Abundant perching opportunities do not currently exist in this area. . . The wildlife section in this DEIS is not vigorous enough in stating that additional raptors will be attracted to this area should the above ground transmission lines be installed. . . This would not only bring more raptors into the near vicinity of the turbines, but the increased number of raptors would also be hunting prey species with populations already on the decline (greater sage grouse, pygmy rabbit, nothern sagebrush lizard) . . . Wind power projects are part of that slow erosion of raptor populations, sage grouse and all other species of concern in Central and Eastern Oregon. Each project, viewed in a vacuum can be stated as having only a small impact . . . But when . . . added to the long list of electrocutions, shootings, lead poisonings, vehicle impacts, loss of habitat, etc., the cumulative effect is why the overall populations of most raptor species (and other wildlife species) are declining. . . Utilizing "excluders" or "diverters" on the utility poles to prevent perching by raptors would still be insufficient. Any raptor the size of a male red tailed hawk or smaller can, and will, use the transmission line itself as a perch, rather than the pole. . . Sensitive raptors [in the area include] northern goshawk, ferruginous hawk, peregrine falcon, bald eagle.

Comment: The assumption that pygmy rabbits could occur throughout the project area is not accurate.

Response: The text in Section 3.6 of the FEIS has been modified to indicate potential for additional pygmy rabbits within the Project Area, rather than implying that pygmy rabbits are possible throughout the project area.

Example text from letters:

7 / 11 The statement . . .in Ch3-42, Table 3.6-1, pygmy rabbit. . . that "BLM has two recorded sightings on the south slope of West Butte indicating a possible presence throughout the Project Area" is scientifically unfounded. In general, we feel the EIS makes several unfounded statements like this regarding the pygmy rabbits. It is highly unlikely that there are rabbits thoughout the entire area as these rabbits need loose, flatter, deep soil to burrow. The dominant condition of the project area, specifically in the area of the proposed turbines and roads is rocky, sloped, and shallow. . .It is important to include that Northwest Wildlife Consultants and BLM did not perform pygmy rabbit specific surveys within the Project Area due to the very reason that significant activity/presence is unlikely given soil types and known pygmy rabbit behavior. [Ch3-51, 3rd paragraph].

Comment: The EIS needs to incorporate 2010 information on the active golden eagle nest to the west of the proposed project, and additional analysis of the effects on eagles.

Response: The BLM has added information to the FEIS regarding 2010 eagle observations, effects on eagles, and new BLM guidance on eagle management. A recent BLM Instruction Memo, IM No.2010-156, provides direction for complying with the Bald and Golden Eagle Protection Act, and requires USFWS approval of an avian protection plan before the BLM authorized officer can issue a Notice to Proceed.

Example text from letters:

31 / 2 It is suggested when available 2010 survey information be incorporated into this document for all relevant wildlife species. . . Including the active golden eagle nest to the west of the proposed WBWP.

32 / 15 In light of information that indicates a declining golden eagle population (DOI 2009), we recommend that BLM provide additional analysis of direct, indirect, and cumulative impacts of the Project on the golden eagle population on the Prineville District. Please see the specific recommendations in our letters dated January 27, 2010, February 5, 2010, and March 25, 2010.

Comment: The EIS needs to recognize and describe effects from the project to big game winter range.

Response: Information has been added to Section 3.5 of the FEIS regarding presence of project effects on important big game habitat within the project area.

Example text from letters:

31 / 3 The DEIS failed to identify that the project is within sensitive big game (mule deer, antelope, and elk) habitats recognized by Deschutes and Crook County Comprehensive Land Use Plans. . .expand this section [page 3-20] to recognize big game habitats identified in [the County plans].

31 / 6 Expand this section [pg 3-20] to recognize. . .Winter range is considered Category 2 habitat [per OAR 635-415] due to its essential function and limited geographic distribution in facilitating over-winter survival for mule deer and elk. Winter range sites are critical for sustaining populations at desired levels. Antelope range is Category 2 due to its essential function and limited geographic distribution in facilitating antelope survival. . .Mule deer, antelope and elk are important big game species in Oregon. Mule deer population declines across Oregon have intensified concerns among hunters, the public, and the Department. West Butte is in the Department's Paulina Wildlife Management Unit (WMU) near the eastern boundary with the Maury WMU. Mule deer 2009 winter population levels in the Paulina and Maury WMUs were 43% and 58% of desired population levels respectively. Maintaining winter range for mule deer has become a greater priority for the Dept as public pressure to recover mule deer populations has increased.

Comment: The EIS should consider guidance and information from ONDA and USFWS regarding sage grouse and other wildlife.

Response: BLM has reviewed, responded to, and incorporated into the FEIS where appropriate ONDA and USFWS input on this project. This project follows some but not all of the direction in the 2003 USFWS Wind Turbine Guidelines.

Example text from letters:

1 / 2 Since both options, going south from the property to Highway 20 or going north through the Juniper Acres Development both would have a negative impact on large game, raptors, birds, rodents, sage grouse, native plants & vegetation, bats, I would encourage BLM to hear what the local Oregon Natural Desert Association's (ONDA) has developed for sage grouse sustainability. . ....once the sage grouse population is identified, deduce whether the number would be a viable population.

8 / 10 Does this application follow the guidelines set forth by the USFWS. Reference "Wind Turbine Guidelines Advisory Committee of the USFWS" available at www.fws.gov/habitatconservation/windpower/Wind Turbine Guideline Advisory_Committee_Recommendations_Secretary.pdf

Comment: The EIS should include additional information recognizing the importance of the area for many bird species.

Response: Thank you for the information. Additional information on the importance of the sagebrush ecosystem has been added to Chapter 3 of the EIS.

Example text from letters:

31 / 16 Page 3-26, birds, loss of habitat section: Nationally, grassland and shrubland birds show the most consistent population declines over the last 30 years of any group of bird species. Across the US, 63% of shrubland and shrub-dependent bird species and 70% of grassland species are declining. In the intermountain west, more than 50% of grassland and shrubland species show downward trends (Paige 1999). The sagebrush ecosystem has been reduced in area by greater than 40% since pre-European settlement, and less than 10% remains in a condition unaltered by human disturbance. Populations of many of the sagebrush associated species are declining, and approximately 20% of the ecosystem's native plants and animals are considered imperiled (Wisdom 2005).

Comment: The EIS should put the effects to wildlife in perspective; only a very small area will be affected.

Response: The FEIS describes direct effects to habitat (a few hundred acres of ground disturbance) as well as indirect effects from habitat fragmentation (thousands of acres), and puts these in perspective with the project area and with remaining wildlife habitat in the area.

Example text from letters:

7 / 2 It is important to put the acres of impact [to wildlife] in perspective . . . We suggest that the sentence [at ES-6, 4th paragraph] read: "a total of 193.5 acres are impacted within a 10,000 acre private ranch."

Comment: The EIS needs more baseline information on golden eagles in order to adequately assess impacts and develop mitigation.

Response: Additional information on eagles, eagle habitat, and effects to eagles has been added to Chapter 3 of FEIS. The FEIS includes additional mitigation measures that would reduce negative effects on eagles and other raptors (e.g., burying transmission lines). The BLM continues to work with the Crook County Technical Advisory council on a mitigation plan. Also, the BLM is working with the applicant and USFWS to develop an Avian Protection Plan.

Example text from letters:

32 / 14 We provided letters (dated March 11, 2009, January 27, and March 25, 2010) to the applicant and/or BLM recommending preconstruction golden eagle surveys, project design elements to avoid golden eagle mortality (and other forms of take), and post construction monitoring adequate to ensure consistency with the goal of stable or increasing golden eagle breding populations. . .The data gathered would provide information on baseline circumstances for evaluation of any permit application pursuant to the BGEPA and the Eagle Permit Final Rule (DOI 2009), and to develop adequate information to analyze Project impact under NEPA. This information would also be important in identifying potential mitigation measures . . .The DEIS provides only a limited golden eagle impact analysis and determination of effects.

35 / 1 While the analysis of impacts to sage grouse is fairly robust, we do have some concerns with the analysis as it relates to other avian species. Of particular concern is the golden eagle. According to the DEIS, the Project area includes "ideal nesting and foraging habitats" and the wind currents around West Butte are utilized by raptors for soaring (page 3-18). According to literature, this use of slope soaring and ridge updrafts is particularly common among golden eagles. This behavior makes them more at risk to collision with wind turbines (Barrios & Rodriguez, 2004; Hoover & Morrison, 2005). We recognize that WBWP and the BLM will consult with the USF&WS about the need to obtain an incidental take permit pursuant to the Bald and Eagle Protection Act (DEIS page 1-12), but we note that no recent population level surveys have been completed specific to golden eagles in the Project area (DEIS page 3-19). Given the noted potential for golden eagle usage of the Project area, we question whther the limited, site specific bird use surveys conducted for the project are sufficient to inform that consultation. We recommend that WBWP and the BLM work with the TAC, ODFW and USFWS to determine whether additional monitoring and analysis should ge undertaken relative to raptor use of the site (specifically, longer term surveys that consider potential wind-relief interactions with the proposed project). Based on the concerns discussed above, we have assigned this DEIS a rating of EC-2 . . . EC=environmental concerns: EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts. . . Category 2= insufficient information: The DEIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment. . .the identified additional information, data, analyses or discussion should be included in the final EIS.

Comment: The EIS should not place so much emphasis on old, irrelevant eagle data.

Response: BLM identified potential effects to avian population as an issue warranting analysis. In conducting its analysis, BLM relies on the best available information to describe the existing environment (Section 3.5.1 and 3.6.1) as well as the past, present, and reasonably foreseeable future effects (Sections 3.5.2, 3.5.3, 3.6.2 and 3.6.3). Current and historic eagle data included in the analysis provide this context from which BLM can understand how the proposed project may incrementally effect the avian population.

Example text from letters:

7 / 10 A single, fifteen year old observation of a single eagle's behavior seems inappropriate to be described as "noteworthy" or even included in this EIS. Ch3-18, second paragraph.

7 / 16 This section's focus [Ch3-47, bald eagle section] on one bald eagle nest location 12 miles away from the nearest turbine, which defies norms of known bald eagle behavior, is given too much attention in this document. The EIS should remain pertinent to the Proposed Action.

Comment: The EIS should describe the potential catastrophic effects of west Nile virus on sage grouse populations.

Response: The FEIS includes information on the effect of west Nile virus on greater sage grouse. Greater sage grouse are considered highly susceptibility to the virus, with resultant high levels of mortality. Greater sage grouse inhabiting higher elevation sites in summer are likely less vulnerable to contracting the virus than birds at lower elevation as ambient temperatures are typically cooler.

Example text from letters:

7 / 21 There should be mention [Ch3-58, 2nd paragraph] of what is known within the scientific community, that the West Nile virus is an additional leading factor in the decline of sage grouse population in the west. As stated by Dr. Richard Miller, Professor of Rangeland Ecology and Management at Oregon State University, and member of Oregon's Sage-grouse Conservation Steering Committee, "West Nile could . . . Wipe out the entire species. It is a catastrophic disease for the population." (March 5, 2010, OSU News & Announcements).

Comment: The EIS should include the latest scientific information and local monitoring data on sage grouse population trends, as well as historic information on grouse in the area.

Response: Information from the Federal Register Vol 75, No 55, March 23, 2010 p. 13921, the Oregon Sage Grouse Strategy, Doherty et al. 2010, and other sources have been reviewed and incorporated into the FEIS. More information regarding lek history, as well as recent 2010 lek survey information pertaining to the West Butte lek have been added to the FEIS.

Example text from letters:

7 / 12 We suggest this paragraph [Ch3-44, 2nd paragraph] be rewritten to reflect the latest information in the scientific literature. As written the EIS states that "sage grouse populations are continually declining throughout their range…" yet Connelly et al (2004 p. 13-2) indicate that "populations in most areas have been relatively stable or slightly declining during the last 15-20 years." This paragraph should incorporate the latest information on populations as summarized by the USFWS (Federal Register Vol 75, No 55, March 23, 2010 p. 13921) rather than using 1997 estimates which more recent studies (Connelly et al 2004, Garton et al, in press) indicate were probably too low.

7 / 14 This section [Ch 3-45, 2nd paragraph] can be updated with spring 2010 lek survey information. Northwest Wildlife Consultants in conjunction with ODFW surveyed the West Butte lek on three visits. Consistent with 2009 survey numbers, four males and one hen was the largest gathering of birds observed.

15 / 7 Some facts about the history of the sage grouse lek were also left out. The original or old lek, also called the abandoned lek, originated on BLM ground. There was large area that had several water tanks used to water livestock. In 1999, the BLM biologist insisted that we move the watering site to private land to help protect the lek area. We moved this site over 1/4 mile north to a site on our private land. The new area consistes of large water tanks which sit inside a new fenced area consisting of steel posts, 5 strand barb wire and fence stays. In 2001 a wind measuring met tower was erected about 200 yards west of the new watering site for livestock. But 2003 the sage grouse lek had moved to the new watering area. . . Next to the steel water tanks and 10 to 15 yards inside the barb wire fences. The old lek site grew up with weeds and became abandoned and les desireable for the sage grouse. Having observed the birds, they seem to seek out areas with short or no weeds so they can see their predators coming. No one has observed, at the old lek iste, any sage grouse at this site for over 6 years.

31 / 24 2010 lek counts have been completed. The lek was counted 3 times from a ground survey, with a minimum of 2 males observed on one count, and a maximum of 4 males and 1 female observed on April 29, 2010. Two helicopter surveys of the West Butte and Bear Butte lek areas resulted in 3 males at West Butte and no birds counted at Bear Butte. [pg 3-46, sage grouse].

32 / 6 Rangewide sage grouse have experienced long term population declines over the past 43 years. Much of this decline is attributable to the loss of leks (WAFWA 2008), indicating either a direct loss of habitat or habitat function (Connelly and Braun 1997). The Sage grouse Conservation Assessment and Strategy for Oregon (ODFW 2005) states the sage grouse lek attendance in the Prineville District has steadily declined in the period from 1980 to 2003 (although a non-significant trend). Doherty, et al. (2010) found a time lag of 3-4 years between the onset of energy development and lek loss due to high site fidelity but low survival of adult sage grouse combined with lek avoidance by yearlings.

Comment: The EIS should not refer to the West Butte lek as a lek complex, nor should it include mitigation for the three miles around the lek.

Response: The West Butte lek complex is defined by ODFW and is assigned to lek locations less than a mile apart. The ODFW defines all sage grouse habitat within 3 miles of a lek as Category 1 habitat.

Prineville District BLM sage grouse telemetry studies show the entire area is important for sage grouse. BLM is responsible for analyzing effects to sage-grouse (one of the most studied species across the western U.S.) and has used the best available science to do so. Effects to the species due to habitat fragmentation are well documented and research has shown this to be the major cause of population declines. According to ODFW, sage-grouse telemetry studies conducted on Prineville District have shown 80% of the hens nested within 4 miles of a lek, while the State's average has been 3 miles. Direction from Oregon's Greater Sage-Grouse Conservation Strategy is to err on the side of the birds' biology and use the greatest set-back distance where feasible and necessary. This Strategy recognizes that "it is critical that land management agencies err on the side of sage-grouse needs, rather than assume no effect". As the 4 mile set back distance is based on known habitat needs of sage-grouse relative to the distance from lek sites, these buffers serve as a minimum area that should be protected from development. Telemetry study and observations have noted many brood-rearing and wintering areas are also associated with these lek complexes. The USFWS has recommended a 5 mile radius. Therefore, these minimal set-backs based on the bird's biology, are not arbitrary; they are reasonable to mitigate impacts of habitat loss and fragmentation on this site, given Prineville District's population decline and the State's strategy objective to restore sage-grouse numbers and distribution of approximately 3,000 birds.

Example text from letters:

7 / 19 It is over-reaching to refer to the West Butte lek as a "complex" [Ch3-57, 3rd paragraph].

7 / 30 BLM cannot require a specific land acreage be set aside as compensation for loss of wildlife habitat from unproven potential impacts. . . The idea that BLM could arbitrarily establish mitigation areas based on alleged but not scientifically proven 3 mile impact zones from sage grouse leks is not legally supported, and should not be included in the EIS.

Comment: The EIS should recognize that the southern access route (Alternative 1) does not cross through sage grouse habitat, while the northern route (Alternative 2) does.

Response: BLM sage grouse telemetry studies show the entire project area, including both the northern and southern access alternatives, is important for sage grouse. The ODFW defines the area within three miles of a lek as Category 1 "irreplacable" habitat; this covers most of the project area.

Example text from letters:

15 / 3 This new road [Alternative 2 northern access road]. . . Will enter the sage grouse habitat area that we are currently developing. . . It then would cross into the Daly Springs area, which is another habitat area that we are protecting from any development. . . This area was considered potentially sage grouse habitat since the sagebrush was the proper species for the sage grouse food supply. This land area was rolling with different elevations, different sun exposures for both winter and summer habitats. This area is also inundated with many year around small springs. . .the [ODFW and BLM] biologists pointed out to us that we must get rid of the juniper trees. The juniper trees are one of the many reasons for the demise of the sage grouse. They can harbor predators like hawks, raptors eagles etc that will kill the young chicks. By taking their advice we have been clear cutting nearly 800 acres of the juniper trees. . .As landowners, our lease with West Butte Wind specifically states that these habitat areas are off limits from developments.

15 / 8 On Alternative 1, tall juniper trees and tall sage brush is in abundance. This is not sage grouse habitat and therefore would be the better area for the road and power lines to traverse with little or no impact to the area. . .[Alternative 2 would] totally destroying the habitat protection for deer, elk, birds, including sage grouse, and other wildlife that uses this area.

Comment: The EIS should state that it is unlikely there are any undiscovered sage grouse leks in the project area.

Response: Lek surveys in the project area have focused on existing leks, not on finding new leks. Although aerial surveys completed by ODFW in April 2010 did not find any new leks, the declining counts at known leks in the area combined with the history of lek movement in the area indicate the possibility, albeit low, that sage grouse are strutting at a new, undiscovered location. The FEIS continues to recognize the possibility that there are undiscoved leks in or near the project area.

Example text from letters:

7 / 13 It is appropriate to also include in this section [Ch3-45, first paragraph, "specific searches for new or previously undiscovered leks in the general vicinity of the Project were not completed"] that, in all the transect surveys, including Northwest Wildlife Consultants extensive activity across the entire project area, no other leks were discovered. Additionally, the landower, who has extensive knowledge of the proposerty, knows of no additional leks on the property. . . In addition, . . . ODFW have been conducting annual wildlife aerial surveys in this area, and lek specific surveys every few years. They have not discovered any new leks on West Butte.

7 / 15 The assertion that the discovery of the new lek at the water trough could mean more leks exist nearby is unfounded and this section in general omits the full history of known lek activity on West Butte which should be included. [Ch 3-46, end of 1st paragraph]. The old lek location on BLM land is about 1/4 mile from the active lek at the water trough on deeded land. The landowners removed a water trough from the old lek in 1999 per BLM request. In 2000, the landowners installed the new water trough which has evelved to become the new lek location on private land. Since that time, the grouse have discontinued use of the old lek site and moved 1/4 mile to the flat, open dirt space around the new water source. The old site on BLM has no water source and invasive weeds have grown up too high to be conducive for the birds to use as a lekking site. This is not to say that the grouse need a cattle trough in order to have a lek, but the bird's . . . are drawn to water sources - manmade and natural.

Comment: The EIS shouldn't assume sage grouse are affected the same by wind power developments as they are by oil and gas developments.

Response: The CEQ regulations require the BLM to obtain information if it is relevant to reasonably foreseeable significant adverse impacts or essential to a reasoned choice among the alternatives (40 CFR 1502.22). The sage grouse studies from the oil and gas developments, while not necessarily the same as wind energy developments, are helpful for the effects analysis. Thus, the BLM has tried to bring all peer reviewed and published literature related to effects on sage-grouse in regards to noise and human disturbances into the FEIS. A noise contour model has been added to the FEIS showing the magnitude of impacts associated with cumulative turbine noise, particularly as it relates to sage-grouse and recommendations for noise levels at leks to be less than 40dB.

Clarifying language has been added to the FEIS regarding the studies cited and their comparability to the West Butte Wind energy project.

Example text from letters:

7 / 18 Ch3-57, 2nd paragraph: Braun et al. (2002) suggest noise as a factor affecting leks, but does not describe specific noise measurement techniques nor appear to separate the effects of noise from other oil field development activities such as new road construction, well drilling, proximity of compressor stations or vehicle traffic. In general, there are many noise activities unique to oil and gas development that do not occur with wind power development.

7 / 20 It should be clarified [Ch3-57, 3rd paragraph] that the paper by Zeiler and Grunschachner-Berger 2009 does not describe any structured noise monitoring or sound measurements conducted by the authors but does present their opinion that, during strong winds, turbine noise may affect black grouse communication on leks. The authors also note other disturbing factors such as heavy year round tourist traffic which affected the leks they studied. They describe no single cause as responsible for black grouse declines at wind farms. The statement referring to full development within 3km of leks reducing lek persistence (as cited in Becker et al. 2009), is apparently a reference to Walker et al. (2007). The full development described by Walker et al. (2009) was that related to coal bed methane development. The authors indicate the development used in their modeling consisted of drilling wells every 80 to 160 acres across the landscape and "typically requires construction of 2-7 km of roads and 7-22 km of power lines per km2 as well as an extensive network of compressor stations, pipelines, and ponds." That scenario is quite distinguishable from the amount of disturbance that might be caused by the Proposed Action in the West Butte project area.

Correction, clarification

Comment: The EIS text should be corrected as described in comments.

Response: Thank you for the suggested edit. The change or clarification will be included in the FEIS.

Example text from letters:

5 / 5 Permanent O&M facility employees need not travel on Cascade Way under Alt 1.

7 / 4 ES-8-9, [and Ch3.10-1] Cultural Resources: This paragraph is incorrect. Cultural resources have been found that will be impacted by the project. A comprehensive cultural study was completed on both BLM and private land. Thirty-four lithic scatter sites were found on private property. The vast majority of these sites will be avoided by minor relocation of turbines and roads. The applicant is working with BLM and the OSHPO to develop a comprehensive cultural mitigation plan.

7 / 7 All the possible impacts under Alternative 1 should also be listed under Alternative 2 . . . [at] Ch2-34, Table 2.7.1, Row "Greater Sage Grouse Displacement."

7 / 8 This statement [at Ch2-37, Table 2.7.1, Row "cultural resources"] is inaccurate and should be reworded to: "Historic period and archaeological resource sites were identified during surveys. Avoidance of the identified resources will be performed, where avoidance is not practicable additional field investigations and research would be undertaken to assess resource significance."

7 / 9 These tables [Ch3-11-13, Table 3.4-3 and Table 3.4-4] do not include the measurement unit in the column header, it should specify acres.

7 / 24 There is a grammatical error that makes this statement on pygmy rabbit impacts hard to understand. The sentence [Ch3-66, last sentence, 4th paragraph] should read "it is expected this project's impact would be limited to no more than a few individuals - a level of impact that would not have a measureable impact on the locally breeding population."

31 / 13 The second bullet from top of the page [pg 3-26, birds section] refers to adhering to general guidelines for seasonal restrictions and distance buffers as outlined in the BLM's UDRMP. Please list and incorporate these guidelines . . .in a table that presents by species what the specific guidelines are and in what situations they would apply. It would be helpful if the information on this and subsequent pages included a description and table illustrating the various nesting raptor species that have been documented in the project area. Additionally, key habitat features and sites, such as nests and roost trees should be detailed, along with distance from these sites to turbines, other infrastructure, and both proposed ROW routes. . .the table should illustrate and summarize species, impacts, and protective measures; and situation(s) when those measures would apply.

31 / 23 [Add] Deschutes and Crook County species of concern (mule deer, elk, antelope, prairie falcon, sage grouse and golden eagle) [to Table 3.6-1]. . . Also . . .Northern Goshawk - the Department designation is SV, BLM has SC. Spotted Bat - species was not listed in the table; the Department lists these species as SV. Fringed myotis - species was not listed in the table; the Dept lists these species as SV.

Comment: Where will the water for the project come from?

Response: The DEIS explained on page 3-5 that, "construction water needs would be supplied by three existing state-permitted wells located on the West Butte Ranch (private lands)." This statement is carried forward in the FEIS in the Water Quality and Quantity section in Chapter 3.

Example text from letters:

29 / 4 Another question was the discussion of water to knock down the dust while the road is being built and the towers are being erected. I did not ever see in all the reports or paperwork of where this water would be coming from. Rumor has it that there are aquifers in the area and if they were ever tapped into this would create availability of water and the possibility to establish a water district for the area. This would be an unbelievable benefit for Juniper Acres and would help in fire protection, which we no longer have, drinking water, irrigation for livestock and crops, and once again economically improving the region.

30 / 3 The use of 30,000 gals of daily water used to keep the dust down seems with in a reasonable amount, but where will you be pulling that water from?

Record of Decision

Comment: In the Record of Decision, the BLM should select a certain alternative or require specific mitigation.

Response: These comments expressed concerns about effects, or preference for certain alternatives or mitigation measures. The comments did not claim the analysis in the DEIS was flawed, that the range of alternatives should be expanded, or that an alternative was not consistent with BLM policy or regulation. Therefore, no changes were made between DEIS and FEIS as a result of these comments. However, the BLM will consider these and all comments before making a decision.

Example text from letters:

3 / 1 We do not need more roads crossing our public land. Why not use roads that are already in use. I know this would not be the easiest access for the owner and would probably not be the most advantegeous for him, however we need to protect OUR lands, not his. I suggest Cascade Way. The right of way is already there, all the way to his property. I understand the road would have to zig zag accross his property because of the incline but, so be it.

5 / 1 Alternative 1 is clearly the best choice to support all construction activities for the project. . . The south side Hwy 20 access route is the preferred ingress egress route. . . Direct highway access, water source, and security are key issues for a properly located O&M facility.

5 / 6 . . . Alt 1 will have virtually no . . impacts on private landowners versus a large # for Alt 2. . . Air quality and noise emissions will be minimized in Juniper Acres under Alt 1.

8 / 7 Bats are worthy of protection as well and could only benefit with Alternative 3-no action.

8 / 9 Mentioned in the DEIS was the potential need for an incidental take permit under the Bald and Golden Eagle Protection Act. What motivation would there be for the applicant to minimize avian mortality if they were to be given this permit? If this application was approved in it's present form, what motivation would there be for such applicants and the manufacturers of wind turbines to make any improvements in reducing the impact to wildlife and avian mortality? And with the Wind industry expanding, these improvements will be ever more needed. In fact, what if West Butte Wind were to have future expansion? All these factors need to be included.

10 / 1 This project is estimated to create numerous jobs during its construction and operation. Moreover, it will generate $1 million in tax revenue annually for Crook County and its communities. . . the project could supply up to 50,000 residents with clean, renewable energy. This project could help lower regional electricity prices and save consumers money every year all while creating jobs and reinvesting much-needed revenue back into the region. Wind farms and other renewable energy projects will become an important part of building a balanced energy portfolio that will reduce the nation's dependence on imported energy, support the economy and increase energy efficiency. . . .wind energy produces neither pollution nor hazardous waste and is highly beneficial for public health.

16 / 2 We do not support utility lines on Cascade Way. We live off the grid because we like it.

28 / 1 I would prefer Alternative 1. . .it has the least effect on Juniper Acres and the best effect in costs. Alternative 2 would be disruptive to Juniper Acres life in general.

29 / 1 The need for different energy sources is obvious and the need for economic stimulus is also obvious. Central Oregon has been devastated by this economic downturn and projects like this and the new Facebook facility are critical for the recovery of this areas economy. . .This also could be very helpful in future projects when you can show that not only did this bring a new source of power but it rejuvenated the whole area.

29 / 3 There are no private property owners on that side [the southern access route] as far as I know and that road will not benefit anyone except the few people that service the towers. If Cascade Way is used, it will benefit all the property owners of Juniper Acres. Since the county no longer maintains Cascade Way the need for road improvement is definitely needed. We are the people that will be looking at these towers, we should be the people benefiting from any improvements. Also the power being generated could also be sold to the homeowners in Juniper Acres and between the road improvements and the availability of power, I believe this would stimulate the Juniper Acres development economically. It seems to me that many would benefit from the use of Cascade Way while very few, if none, would benefit from the other option.

30 / 2 It seems to me that Alternative 2 would be the most economical route to use, with upgrading our road [Cascade Way], to appease the county for our protection and give us road quality, a slight compensation paid on your part, to ease what ever consequence we may have to deal with in the future.

31 / 1 The Department's Fish and Wildlife Habitat Mitigation Policy (OAR 635-415) . . .recognizes. . .the 3-mile area around the lek . . . [as] Category 1 -- essential, limited, and irreplaceable habitat. . .Approving this project . . .will contribute to the case to federally list the species as Threatened. . . the project should be denied.

32 / 2 . . .under the current ODFW mitigation policy and Conservation Strategy the Project-related loss of two lek complexes and high quality year round habitat without adequate off-setting mitigation will adversely affect the conservation status of sage grouse and decrease the likelihood of recovery of this species. . .[The Project] will result in significant adverse impacts to sage grouse. . .the Service is convinced that either Alternative 1 or 2 will result in significant impacts to the human environment.

32 / 3 Based on 43 FR 55998, Council of Environmental Quality (CEQ) procedures for referring to the CEQ any Federal interagency disagreements concerning proposed major Federal actions that might cause unsatisfactory environmental effects, the Service advises BLM that, per section 1504.3(a)1 and (a)2 that we reserve the right to refer this issue to CEQ unless satisfactory agreement is reached.

32 / 5 Unfortunately, the proposed project is largely sited on Category 1 and 2 habitats. . .and with only a 1/4 mile setback from known lek sites [which] will result in a net loss of habitat for sage grouse, the likely eventual abandonment of two sage grouse lek complexes, and the displacement of sage grouse from nesting and brood rearing habitat within at least a 3 mile area around the leks. . .Should BLM decide to permit the Project, we believe [it] will negatively affect the conservation status and potential for recovery of sage grouse.

32 / 9 The Service recommends that BLM require mitigation measures . . .as terms and conditions of any ROW permit issued for the Project.

34 / 2 BLM should . . .consider requiring the mitigation measures selected to become conditions of the ROW grant to ensure that the negative impacts from the project are, in fact, ultimately mitigated.

35 / 3 We recognize that the TAC is not subject to BLM control, and that the decisions regarding compensatory mitigation will be made after the issuance of the Final EIS. We recommend, however that the issuance of the ROW be conditioned upon the implementation of the mitigation measures identified by the TAC.


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