

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Vantage Wind Project (VWP)

2. Name of applicant:

Invenergy Wind North America LLC

3. Address and phone number of applicant and contact person:

**David Iadarola
2580 West Main Street, Suite 200
Littleton, CO 80120
(720) 283-4694**

4. Date checklist prepared:

October 2007

5. Agency requesting checklist:

Kittitas County

6. Proposed timing or schedule (including phasing, if applicable):

Construction is proposed to start in May 2008, and will take six to eight months. Operation is expected to start in late 2008 or early 2009. The project will have a service life of approximately 25 years.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Invenergy currently has no plans for a future addition or expansion of the project. The County has mentioned the possibility of leasing a portion of its adjacent landfill property to Invenergy for the installation of wind turbines. However, discussions are only beginning about this possibility. If Invenergy and the County reached an agreement about leasing this property for this sort of project expansion, then Invenergy would seek appropriate permits and approvals at that time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

**Jones & Stokes Technical Report: Transportation, September 2007
Jones & Stokes Technical Report: Cultural Resources, October 2007
WEST Inc: Wildlife and Habitat Baseline Study, August 2007**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No.

10. List any government approvals or permits that will be needed for your proposal, if known.

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| ▪ Grading Permit, Critical Areas Review, Wind Overlay Zone Review | Kittitas County |
| ▪ State Environmental Policy Act [SEPA] | Kittitas County |
| ▪ Septic Permit | Kittitas County |
| ▪ NPDES Stormwater Construction and Operation General Permit | WA Department of Ecology |
| ▪ Air quality permit (batch plant) | WA Department of Ecology |
| ▪ Section 401 Water Quality Certification | WA Department of Ecology |
| ▪ Section 10/404 Permit | U.S. Army Corps of Engineers |
| ▪ Hydraulic Project Approval | WA Department of Fish and Wildlife |

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Invenergy Wind North America is proposing to build the Vantage Wind Project (VWP), a renewable wind energy generation facility with a maximum of 69 wind turbines. The project would be constructed in Central Washington’s Kittitas Valley on open ridge tops between the Towns of Ellensburg and Vantage (see Figure 1). Construction of the project will be done in a single phase to include roads, foundations, underground and above ground electrical collection systems, grid interconnection substation, feeder lines, meteorological stations and monitoring towers, operations and maintenance (O&M) buildings, concrete batch plant and associated infrastructure and facilities. The entire project site will encompass approximately 5,000 acres with approximately 325 acres considered the project footprint for the proposed turbines and related support facilities. Proposed project construction would begin May 2008 immediately after all Kittitas County permitting requirements are obtained and an interconnection agreement is signed. This project should take six to eight months to construct, with a service life of 25 years.

The project will include one 230 kV feeder line for interconnection into Puget Sound Energy’s (PSE) 230 kV Wild Horse feeder line, which is located at the upper north western end of the Vantage project site (see Figure 1). Power

would be fed along the feeder line into the interconnection point at PSE’s line. Please see the detailed Project Description attached to the application prepared by Invenergy (October 2007) for further information on the project.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

<p>Latitude and Longitude: Project site roughly bounded by 6 points: (46.9471, -120.2151), (46.9502, -120.2177), (46.9446, -120.1341), (46.9525, -120.0968), (46.9606, -120.1135), (46.9557, -120.1268)</p>	<p>Tax Parcel Number: 240833, 010833, 200833, 895436, 095336, 125336, 155336, 625336, 915336, 595336, 645336, 925336, 945336, 480933, 646536, 116536, 916536, 320833, 910833, 240833 and possibly more depending on final layout of structures, routes of roads and transmission lines and locations of substations.</p>
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B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. General description of the site (circle one): Flat, rolling, **hilly**, steep slopes, mountainous, other

Rolling with regional topography sloping down to the east. Topographic elevations vary from approximately 920 feet to 1,660 feet.

- b. What is the steepest slope on the site (approximate percent slope)?

In immediate areas of towers, steepest natural slopes appear to be about 30 percent based on topography on USGS Quad map. Walls of small quarry on the project site are near vertical but comprised of rock.

- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Soils at the project site along the ridge tops, where most construction would occur, consist primarily of shallow complexes that formed in residuum weathered from basalt and loess. Upland soils in this portion of the site, which encompasses the wind turbine locations generally include a thin layer of silty sand/sandy silt with basalt clasts over basalt bedrock (Zipper Zeman 2007). The following soils series occur in the project area:

- **Rock Creek Series: consists of shallow and very shallow soils formed in residuum from basalt bedrock. They are well drained with slow to medium runoff and moderately slow permeability. Slopes are 0 to 70%, with a bedrock contact typically at a depth of 14 inches.**
- **Argabak Series: consists of very shallow soils formed from loess and residuum from basalt. They are well drained with slow to very rapid runoff and moderately slow permeability. Slopes are 0 to 65%, with a bedrock contact at depths ranging from 4 to 12 inches. Associated soils are Whiskey Dick soils, occurring on hill slopes and ridge tops with a thickness of 20 to 40 inches over bedrock. Whiskey Dick soils are clayey, well-drained soils with slow to very rapid runoff and slow permeability.**

- **Vantage Series: consists of shallow soils formed in residuum and colluvium from basalt bedrock. They are well drained with slow to very rapid runoff and moderately slow permeability. Slopes are 0 to 45%, and depth to bedrock typically ranges from 4 to 12 inches (USDA 2002).**

In general, site soils are well drained, have slow to moderately slow permeability, and have slow to very rapid runoff, depending on slope (Energy Facility Site Evaluation Council 2004).

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No observation or indications of unstable slopes on the project site. However, several slide areas were reported for the Wild Horse Wind Power Project on the south side of Whiskey Dick Mountain approximately 4 miles north of the Vantage project site (Energy Facility Site Evaluation Council 2004).

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Filling and grading would be associated with constructing roads, establishing temporary crane pads, constructing the base for each turbine, and installation of underground and overhead electrical lines. The total amount of ground disturbance is estimated to be 325 acres. Detailed plans will be prepared for cut and fill for each project element.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion-disturbed soils could occur due to topography of site and erodability of surficial silty soils. Even though much of the construction activity would take place on the tops of ridges where slopes tend to be more gradual, there would be potential runoff during significant rain events that will be addressed in the detailed Stormwater Pollution Prevention Plan (SWPPP).

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

No specific data currently available, anticipate small percentage of total site area.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Develop SWPPP that includes Best Management Practices for site-specific conditions.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Construction activity would temporarily generate fugitive dust and construction equipment tailpipe emissions at the project site. The portable concrete batch plant used for construction would generate temporary fugitive dust emissions. Delivery trucks used during construction would generate minor tailpipe emissions along public roads serving the project.

Operational emissions would be limited to minor amounts of tailpipe emissions and fugitive dust from employee vehicles and maintenance vehicles traveling on gravel roads at the site.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

The construction contractor will be required to implement best management practices for fugitive dust control under Department of Ecology Regulations WAC 173-400-040(3a) Fugitive Dust. These practices include the following:

- **The concrete batch plant will use Best Available Control Technology to minimize emissions during cement loading and concrete manufacture, as required by the Ecology air quality permit for the batch plant.**
- **All vehicles used during construction will comply with applicable federal and state air quality regulations for tailpipe emissions;**
- **All vehicles used during construction will comply with applicable federal and state air quality regulations for tailpipe emissions;**
- **Operational measures such as shutting down equipment when not in use will be implemented;**
- **Active dust suppression will be implemented on unpaved construction access roads, parking areas and staging areas, possibly using water-based dust suppression materials;**
- **Housekeeping measures around the concrete batch plant to prevent buildup of fine materials;**
- **Traffic speeds on unpaved access roads will be kept to 25 mph to minimize generation of dust,**
- **Carpooling among construction workers will be encouraged to minimize construction-related traffic and associated emissions;**
- **Erosion control measures will be implemented to limit deposition of silt to roadways.**
- **During facility operation, the gravel roads within the facility will be maintained in good condition to minimize fugitive dust emissions.**

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Several seasonal drainages (coulees) occur within the project site and drain eastward to the Columbia River. These coulees and their tributaries are seasonal (ephemeral) Type 5 waters as defined by Section 17A.07.010 of the Kittitas County Code and the Washington Department of Natural Resources (DNR) Water Type Classifications. Per section 17A.07.010 paragraph 2 of the Kittitas County Code, there is no buffer requirement for Type 5 waters. The Washington Department of Fish and Wildlife Priority Habitat and Species mapping (WDFW 2007) identified several small wetlands (as determined from National Wetland Inventory mapping) associated with the coulees.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The proposed main entrance to the site from the Vantage Highway would cross Schnebly Coulee. Construction of this crossing would require the installation of a culvert and supporting fill. The crossing may require a

Section 10/Section 404 permit from the U.S. Army Corps of Engineers and a Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Schneibly Coulee Crossing for the main entrance would be located off of the Vantage Highway in Section 13 (see Figure 1). Fill would be associated with the installation of a culvert and supporting fill covering approximately 750 square feet (approximately 110 cubic yards).

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No discharge to groundwater is proposed. Local permitted groundwater sources will be used for the O&M facilities and operation while water will be trucked to the site for project construction (e.g., dust suppression) activities.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No discharge of waste materials to groundwater resources is proposed.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Precipitation may result in stormwater runoff from the project site during the construction and operation phases. Any surface runoff from the project area will be allowed to infiltrate to the soil of the project site. The project will obtain coverage under WDOE's general NPDES permits for construction and operation, and will develop and implement the SWPPP.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Construction will require the use of heavy equipment as well as fuels, lubricants, solvents, etc. Washwater from equipment and tools could serve as a possible means for contaminants to enter ground or surface waters.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Invenenergy will implement both a SWPPP, in accordance with an NPDES General Construction Permit, and a Spill Prevention Control and Countermeasure Plan (SPCCP) to minimize the risk of contaminants accidentally reaching surface waters or the groundwater table. These plans will include a list of best management practices that will be in place before construction begins, including erosion control measures (silt fences, check dams, silt/sediment basins and traps), revegetation, and erosion control through grading.

4. Plants

a. Check or circle types of vegetation found on the site:

X _____ deciduous tree: alder, maple, aspen, other (**very few trees on site**)

_____ evergreen tree: fir, cedar, pine, other

X _____ shrubs (**sagebrush, antelope bitterbrush, squaw currant, chokecherry, mountain snowberry**)

X _____ grass (**bluebunch wheatgrass, buckwheat, Sanberg's bluegrass, cheatgrass**)

_____ pasture

_____ crop or grain

_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

_____ water plants: water lily, eelgrass, milfoil, other

X _____ other types of vegetation (**hedgehog cactus**)

b. What kind and amount of vegetation will be removed or altered?

Vegetation Surveys and Habitat Typing

Vegetation in the project area was mapped according to "habitat types," which are considered to be generally recognizable assemblages of plant species that occur in a pattern across the landscape. Habitat types were determined based on visual assessment of dominant plant species. Commercially available black and white high-resolution digital aerial photography was used for the habitat mapping. The habitat types were mapped during the spring and early summer of 2006. Initially, roads in and around the project area were driven in order to correlate habitat types with the signature (color, shading, texture) on the aerial photos. Each habitat type was mapped based on either visual observation of the habitat from a road or high point, or by walking the boundaries of the habitat. Due to the scale of the aerial photos used, fine-scale intermingling in transition areas and small inclusions of one habitat type within another was not shown. Literature on the vegetative communities of eastern Washington was consulted during development of the habitat map (WEST, Inc. 2007).

Seven habitat classifications were delineated within development corridors of the project: shrub-steppe dense (2,147.1 acres), shrub-steppe moderate density (1,428.0 acres), shrub-steppe sparse density (1,501.4 acres), bunchgrass grassland (106.0 acres), lithosol (79.5 acres), lithosol/shrub-steppe sparse (111.8 acres), and developed (109.3 acres) (see Figure 2).

Shrub-Steppe. The project area is located within the Columbia Basin physiographic province, which lies in the rain shadow of the Cascade Range. The province is characterized by semi-arid conditions, in which the majority of precipitation occurs during the relatively cold winters. As a result of these climatic conditions, shrub-steppe is the primary habitat that evolved in the region.

Shrub-steppe habitat within the project development area was classified using three categories based on relative spatial density of the shrub layer, including dense, moderate and sparse. Habitat mapped as shrub-steppe dense was composed of shrub cover greater than 60 percent, shrub-steppe moderate featured between 30 and 60 percent shrub cover, and shrub-steppe sparse habitat supported less than 30 percent shrub cover. In general, areas with a dense shrub layer occurred on slopes and flats with deep soils and were dominated by big sagebrush (*Artemisia tridentata*) and some antelope bitterbrush (*Purshia tridentata*). Areas supporting moderate shrub cover were found in similar topographic positions but typically featured slightly shallower soils. These areas were dominated by big sagebrush and stiff sagebrush. Shrub-steppe sparse habitat typically occurred on shallower soils on ridgetops and knolls and was composed of stiff sagebrush (*Artemisia rigida*) and various buckwheats (see Figure 2).

Bunchgrass Grasslands. Bunchgrass grassland habitat featured few to no shrub species and was dominated by bunchgrasses including bluebunch wheatgrass (*Pseudoroegneria spicata*), Sanberg’s bluegrass (*Poa secunda*), needle-and-thread grass (*Hesperostipa comata*), and Idaho fescue (*Festuca idahoensis*). Bunchgrass grassland is located near the east end of the project site (see Figure 2).

Lithosols. Lithosol and lithosol/shrub-steppe sparse communities were mapped along many of the exposed ridgetops and knolls within the project site. These communities occur on shallow, rocky substrates and feature floristically unique vegetation communities. Within the project site, the two communities were composed of a variety of buckwheats (*Eriogonum spp.*), lomatiums (*Lomatium spp.*), stiff sagebrush, purple sage (*Salvia dorrii*), antelope bitterbrush, Hood’s phlox (*Phlox hoodii*), and several of the grass species previously listed. The lithosol/shrub-steppe sparse community differed only in that it supported a greater percentage of stiff sagebrush and big sagebrush. In addition, hedgehog cactus (*Pediocactus simpsonii var. robustior*), a Washington State ‘Review’ list species, was encountered within many of the areas mapped as lithosols. Lithosols occur at intervals within the middle of the project site and associated with the lower portion of Schnebly Coulee (see Figure 2).

Impacts

Construction: Construction of the Vantage Wind Energy Project facilities would result in the permanent loss of approximately 113 acres of existing vegetative cover, including approximately 96 acres of shrub-steppe. Vegetation within the project area would be removed for construction of the access roads, wind turbines, underground electrical cables, temporary laydown areas, and substation. Vegetation to be removed or altered would include big sagebrush (*Artemisia tridentata*), stiff sagebrush (*A. rigida*), bluebunch wheatgrass (*Pseudoroegneria spicata*), buckwheat (*Eriogonum spp.*), Sanberg’s bluegrass (*Poa secunda*), and rabbitbrushes (*Chrysothamnus spp* and *Ericameria spp.*), and non-native cheatgrass (*Bromus tectorum*). Table 1 presents an estimate of impact to habitats on the project site associated with project construction.

Table 1. Impact to Habitat Types of Construction, Vantage Wind Energy Project, Kittitas County

Habitat Type	Acres of Habitat (Acres)	Area of Impact (Acres)
Shrub-steppe Dense	2,001.2	12.8
Shrub-steppe Moderate	1,275.2	22.4
Shrub-steppe Sparse	1,504.6	60.8
Bunchgrass Grassland	106.0	0.4
Lithosol	78.6	5.8
Lithosol/Shrub-steppe Sparse	111.5	10.7
Developed	2.29	0.0
Total	5,090.7	113.0

Source: Jones & Stokes 2007; WEST 2007

No impacts to riparian vegetation or stream buffers (per KCC 17A.07.010 Riparian Habitat) would occur.

Operation: No impacts to vegetation would occur from project operation. Vehicular traffic and maintenance operations would occur at prescribed locations (i.e., disturbed areas). The land owners would continue cattle and sheep grazing activities on the project area.

c. List threatened or endangered species known to be on or near the site.

Rare Plant Surveys

Rare plant surveys were conducted by WEST, Inc. botanists during peak flowering and/or fruiting periods when target species were best identified. Rare plant study corridors were established and included proposed turbine strings and a 164-ft (50-m) buffer, based upon an April 2006 facility layout information which lacked access roads, collector lines, substation, O&M facility, and laydown areas. During the survey, botanists followed meandering transects, and conducted the surveys in a zigzag pattern across the survey corridor. Botanists established a list of all vascular plants encountered, and made informal collections of unknown species for later identification using Flora of the Pacific

Northwest (Hitchcock and Cronquist 1973). Additional information was collected on general plant associations, land use patterns, unusual habitats, and photographs of habitat types and representative individual plants.

Results

No threatened or endangered plant species have been documented on the project site or in the immediate vicinity. During the Vantage rare plant surveys, no federally-listed ‘Endangered’, ‘Threatened’, ‘Proposed’ or ‘Candidate’ plant species were found, nor were any Washington state-listed ‘Endangered’, ‘Threatened’, or ‘Sensitive’ plant species found in the survey area. One Washington State ‘Review’ plant species was found, the *hedgehog cactus*. This species is listed in Review Group 1, meaning more research is needed before assigning a more definitive status. This species appears to be common in the region, and was documented to be relatively widespread during vegetation surveys on the adjacent Wild Horse Project (Lack et al. 2003). The hedgehog cactus populations found within the Vantage project area are located in lithosolic habitats. These habitats are well represented within the project area, interspersed among sagebrush steppe and grassland habitats.

Impacts

Construction: Impacts to cactus may occur in development areas if not marked and avoided, or if individual cacti are not physically relocated. As part of mitigation for the Wild Horse Project, hedgehog cactus were successfully relocated from areas that were to be impacted to areas of like habitat not impacted by project construction or operations (Jennifer Diaz, PSE, pers comm., in WEST 2007). Invenergy will plan to mark and avoid cacti to the greatest extent possible, and will relocate those cacti that can not be avoided to a suitable location.

Operations: No impacts to cactus are anticipated after road and facility construction or during operation of the project.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Invenergy has committed to a number of measures to reduce effects on vegetation in the project area, including fencing of the disturbance area to clearly mark the boundary of the construction area, utilizing the existing road system to the greatest extent possible to reduce the need for new access roads, avoiding tree removal whenever possible, and washing all vehicles that have operated in weed-infested areas to clear weed seed and plant remnants. Invenergy will also follow the WDFW Wind Power Guidelines (WDFW 2003) in any vegetation enhancement activities at the site.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: **hawk**, heron, **eagle**, **songbirds**, other:

mammals: **deer**, bear, **elk**, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other:

Wildlife Surveys

A baseline study of wildlife was conducted by WEST, Inc. to determine wildlife use of the Vantage Wind Energy Project area. The study consisted of the following research components: 1) winter eagle surveys, 2) seasonal avian use surveys, 3) raptor nest surveys, 4) Federal and State sensitive wildlife and wildlife habitat surveys, 5) sage grouse surveys, and 6) general wildlife observations.

Winter bald eagle surveys were conducted by driving transects to evaluate the numbers of wintering bald eagles and other birds and their movements in the project area. The surveys were initiated in mid-February, 2006 and continued through early April 2006. Eight surveys were conducted between February 17 and April 7, 2006. Five AM surveys were conducted between February 17 and March 29 in order to capture the survey window for potential sage grouse lekking behavior. Three PM surveys were conducted March 8, 24, and April 7.

Winter Bald Eagle Surveys

Bald eagle(s) were observed during every survey on the Columbia River, but none were observed on site or anywhere between the site and the Columbia River eagles. One adult golden eagle was observed perched on rock outcrop of Hult Butte on March 1 and March 16, 2006, prior to installation of a meteorological tower. Other incidental eagle observations are described under general wildlife observations, below.

Seasonal Avian Use Surveys

Eight plots were surveyed weekly for a year, each consisting of a 2,625-ft (800-m) radius circle centered on an observation point location. Landmarks and topographic map features were located to aid in identifying the 2,625-ft (800-m) boundary of each observation point. All raptors and other large birds observed during the survey were assigned a unique observation number and plotted on a topographic map of the survey plot (refer to Appendix B in the WEST, Inc. report). Flight or movement paths were mapped for all raptors and large birds and given the corresponding unique observation number. This mapped information, such as point of first observation and later flight path, was digitized for describing spatial use of the site.

Four instantaneous counts for raptors and large birds were made during each observation period. Instantaneous counts were made at the beginning and end of the observation period with two additional counts in between at quarterly intervals. The behavior of all birds observed and the habitat in or over which the bird occurred was recorded. Approximate flight height at first observation was recorded to the nearest meter or 5-meter increment and the approximate lowest and highest flight heights observed were also recorded. Any comments or unusual observations were noted in the comments section.

A total of 59 avian species were identified during the avian point count surveys, aerial raptor nest survey, in-transit travel, and incidentally while conducting other field tasks at the project site. Forty-six species of birds were observed during point count surveys at the 8 stations. The number of species observed was higher in the spring (29) than in fall (28), summer (20), or winter (19).

Avian richness (defined as number of species per survey) was higher in the summer (3.73) than in spring (3.23), winter (1.56), or fall (1.49). The mean number of birds observed per survey was much higher in the spring (10.86) than in summer (9.23), winter (5.05), or fall (3.83). High spring use was primarily due to large numbers of horned larks (61 groups of 203 individuals) as well as white-crowned sparrows (5 groups of 141 individuals).

Raptor Nest Surveys

The search for raptor and large bird nests within the project area included an approximate 2-mile buffer. Surveys were conducted from a helicopter with one observer on March 25, 2006. Nest searches were conducted by searching habitat suitable for most aboveground nesting species, such as cottonwood, ponderosa pine, tall shrubs, and cliffs or rocky outcrops.

Three active red-tailed hawk nests, a great-horned owl, and a common raven nest were observed during the aerial surveys. Raptor nest density for this project is $0.05/\text{mi}^2$. This is much lower than observed at almost all other wind facilities with similar open landscapes. One common raven nest is close to a proposed turbine string, located in a radio facility tower. None of the raptor nests will be impacted by the proposed project.

Sage Grouse Surveys

Sage grouse lek surveys were conducted following methods used at the Yakima Training Center (YTC):

Ground: Four ground surveys were conducted from 5 March through 15 April 2006. Routes were established along existing roads within the project site in conjunction with eagle driving surveys. An observer drove the route and stopped every half-mile or less to search the surrounding area with binoculars while listening for displaying grouse. Surveys were conducted during a half-hour before sunrise to 1.5 hours after sunrise. Surveys were conducted without precipitation, winds ≤ 15 mph, and visibility ≥ 5 miles.

Aerial: One helicopter survey was conducted on 25 March 2006, after coordinating with YTC survey results (i.e., conducted survey when YTC active lek attendance was high). The survey was conducted at no greater than 40 feet above-ground and at an approximate speed of 40 MPH. The helicopter was flown along transects spaced no greater than 1/8 mile in potential habitat within 2 miles of the project area. Deviations in the survey methods were made to

more thoroughly survey areas that appeared more suitable to lekking grouse.

Sensitive species walking surveys were used to document presence or absence of sage grouse using the project area for nesting and brood-rearing. In addition to May and June surveys, one additional sage grouse survey was conducted in mid-July focusing on brood detection.

No sage grouse or sage grouse sign were seen at the Vantage project site during either the aerial lek survey or walking ground surveys (see TES species surveys above). Additional early morning surveys were conducted during 2006 February-March eagle surveys; again, no sage grouse were observed. The project site has low canopy cover of sagebrush on top of ridges with a very rocky substrate, with less big sagebrush and more stiff sagebrush. More mature big sagebrush occurs as inclusions in the draws and low-elevation slopes with deeper soil. No sage grouse sign was observed in these habitats during TES surveys. Cover is largely lacking and open exposed areas are not generally used by lekking sage grouse.

General Wildlife Observations

All wildlife species of concern, uncommon species, and big game observed while field observers were conducting various surveys were recorded on incidental/in-transit data sheets. Data recorded with incidental observations included GPS coordinates, observation number, date, time, species, number, sex/age class, height above ground, and habitat.

Sensitive status species observed include the following: loggerhead shrike (6), golden eagle (3), sage thrasher (3), sage sparrow (1), burrowing owl (1), and common loon (1). Bald eagle survey results and all other sensitive species except common loon are discussed above. The common loon observation was made on the Columbia River during eagle surveys, use of the site by this species is not expected.

Impacts

Birds

Construction: Wind project construction may affect birds through loss of habitat, potential fatalities from construction equipment, and disturbance/displacement effects from construction and human occupation of the area. Potential mortality from construction equipment on site is expected to be quite low. Equipment used in wind plant construction generally moves at slow rates (e.g., cranes) or is stationary for long periods. The risk of mortality from construction to avian species is most likely limited to potential destruction of a nest with eggs or young for ground and shrub nesting species when equipment initially disturbs the habitat. Disturbance type impacts can be expected to occur if construction activity occurs near an active nest or primary foraging area. Birds displaced from these areas may move to areas with less disturbance; however, breeding effort may be affected and foraging opportunities altered during the life of the construction.

Operations: Substantial data on avian mortality at operational wind facilities are currently available (e.g., Erickson et al. 2001, Erickson et al. 2004, Young et al. 2007). Outside of California and based on the 2001 summary (Erickson et al. 2001), diurnal raptor fatalities composed approximately 2 % of wind facility-related fatalities. Passerines (excluding house sparrows and European starlings) were the most common collision victims, composing 82% of the 225 fatalities documented. No other group (e.g., raptors, waterfowl) composed more than 5% of fatalities. Of 841 avian fatalities reported from California studies (>70% from Altamont Pass, CA) in Erickson et al. (2001), 39% were diurnal raptors, 19% were passerines (excluding house sparrows and European starlings), and 12% were owls. Non-protected birds including house sparrows, European starlings, and rock doves composed 15% of the fatalities. Other avian groups generally made up less than 10% of fatalities.

Project and turbine characteristics of six Pacific Northwest regional wind facilities, where standardized fatality monitoring has been conducted, have shown average fatality estimates for all birds ranging from 0.6 to 3.6 fatalities/turbine/year or 0.9 to 2.9 fatalities/MW/year. The only species representing more than 10% of the documented fatalities has been horned lark, the most commonly observed species at all of these facilities during daytime use surveys. Using baseline data for these projects, overall estimated bird use for the Vantage site was found to be typical of other open habitat project sites in the U.S. This suggests that mortality estimates observed at these projects provide a strong basis for predicting mortality impacts for the Vantage project.

Raptors

Construction: Foraging habitat for raptors would be reduced during project construction as a result of vegetation clearing and noise and disturbance from construction activities. No disturbance impacts to raptor nests are anticipated.

Operations: The most common raptors killed during wind turbine operation include red-tailed hawks, American kestrels, burrowing owls, golden eagles, and barn owls. Until the past few years, the largest operating turbines were 330-kW turbines, with rotor diameters of 33 m. Wind turbine design has changed significantly since the first large wind plants were developed in California. Turbines are now typically installed on tubular steel towers instead of lattice towers and without open platforms at the top of the tower, eliminating perching and nesting opportunities for raptors and other birds. No observations have been made of raptors perched on the new turbine types during studies at Foote Creek Rim (WY) (Johnson et al. 2000a), Buffalo Ridge (MN) (Johnson et al. 2000b), Vansycle (OR) (Erickson et al. 2000), Hopkins Ridge (Young et al. 2007) and Stateline (OR/WA) (Erickson et al. 2004), suggesting that new turbines are not a perch attractant for birds.

Mean raptor use at the project site is relatively low ($< 0.3/20$ - min survey) compared to several other wind plants in the U.S that have been surveyed using similar methods. Projects in the region consistently observe red-tailed hawk, American kestrel, northern harrier, and wintering rough-legged hawks as the most abundant raptor species.

Raptor nest density within the Vantage site and a 2-mile buffer was $0.05/\text{mi}^2$, which is much lower than the average raptor nest density for other proposed and existing wind facilities in mixed-habitat landscapes (see Table 15 in the WEST, Inc. report). At Klondike I, Oregon, raptor nest density was also 0.15 per square mile within 5 miles of and including the Klondike facility area, but no raptor mortality was documented during a 1-year fatality monitoring study (Johnson et al., 2003b). At Buffalo Ridge, Minnesota, raptor nest density was also 0.15 per square mile, and the only documented raptor mortality over a 6-year period was a single red-tailed hawk (Osborn et al., 2000; Johnson et al., 2000b). Raptor nest density at the large Stateline wind facility on the Oregon-Washington border was 0.21 per square mile and raptor mortality was estimated to be 0.09 raptor fatalities per MW per year, consisting primarily of red-tailed hawks and American kestrels. Raptor nest density for the 41-MW Combine Hills wind facility, adjacent to Stateline, was estimated to be 0.24 per square mile, and no raptor fatalities were documented the first year of operation (D. Young pers. comm., 2005; Young et al., 2005). Raptor nest density for the recently permitted Hopkins Ridge wind facility in Columbia County, Washington, was 0.43 per square mile, and that site has seen the highest raptor mortality in the region (0.14 per MW per year).

Given the information on raptor use and nesting density at this and other projects, the habitat and topographic characteristics of the site, and relevant mortality data from nearby projects, raptor fatality rates are anticipated to be low ($< 0.1/\text{MW}/\text{year}$). WEST, Inc. anticipates that the majority of the fatalities of diurnal raptors to be red-tailed hawks and American kestrels, two species that (with the exception of great-horned owls) have the largest estimated raptor population sizes in North America (979,000 and 2,175,000, respectively; Millsap and Allen 2006). Monitoring results from the Wild Horse Project for 2007 will provide additional data for raptor fatality predictions in this eastern Kittitas region.

Passerines/Songbirds

Construction: Foraging and nesting habitat for passerines would be reduced during project construction as a result of vegetation clearing and noise and disturbance from construction activities.

Operations: Passerines, often referred to as songbirds, have been the most abundant avian fatality at wind facilities outside California often composing more than 80% of the total avian fatalities (Erickson et al. 2001, Erickson et al. 2002). Passerines are also the most commonly observed birds during point count surveys at all of these sites. Both migrant and resident passerine fatalities have been observed. Based on mortality observed at other operating wind projects located in similar landscapes (Erickson et al. 2004, Erickson et al. 2003, Johnson et al. 2003, Young et al. 2005, 2007), an approximate range of 1.0 to 2.75 songbird fatalities/MW/year are predicted for the Vantage project. The largest number of fatalities will likely be horned larks, a common grassland songbird. No other species (migrant or resident) is anticipated to make up a large proportion of the fatalities, based on the patterns of results of other regional studies. No impacts to threatened or endangered songbird species are anticipated.

Waterfowl

Construction: No impact to waterfowl is anticipated.

Operations: Canada geese and one unidentified flock of ducks were the only waterfowl observed flying over the Vantage project area. Other migrant species may also fly over the project area; however overall use of the site is predicted to be very low due to the predominant shrub-steppe habitat lacking stopover or foraging opportunities. Waterfowl mortality on average is expected to be very low. The possibility exists for a rare event involving several individuals of a flock colliding with wind turbines given unusual weather circumstances. However, such an event would have negligible effects, if any, on the Pacific population of Canada geese (a species which has exhibited an increase in populations over the last decade (USFWS 2003).

Displacement Effects

Construction: The presence of wind turbines may alter the landscape so as to change wildlife habitat use patterns, thereby displacing wildlife from areas near turbines. Several studies have been conducted in the U.S. looking at the potential displacement effects on birds; however most of the studies focused on grassland bird and raptor species (e.g., Leddy et al. 1999, Erickson et al. 2004, Osborn et al. 1998). "Displacement" means that birds tend to avoid an area. However, avoidance of an area may not imply impacts on population parameters such as population size, and such impacts have not been documented. While displacement effects have been documented for some species/groups in U.S. and Europe, there is little information on whether displacement effects have any real impacts on population parameters such as population size and reproduction. Preliminary results from the Stateline (OR/WA) Wind Project suggest a relatively small-scale impact of the wind facility on grassland nesting passerines, with a large portion of the impact due to direct loss of habitat from turbine pads and roads and temporary disturbance of habitat between turbines and road shoulders (Erickson et al. 2004). Horned larks appeared least impacted, with some suggestion of displacement to grasshopper sparrows, although sample sizes were limited.

Some indirect impacts to birds in shrub-steppe habitat are anticipated. Given that displacement effects have been relatively low at other projects (reduced densities <100 m from turbines/roads), indirect impacts are anticipated to be low, however will involve sensitive species such as sage thrashers and sage sparrows.

Deer and Elk

The Vantage project area receives some year-round use by mule deer, and infrequent use by elk. No concentrations of elk or mule deer were observed during winter or at any other time of year on the project site. During the March 25, 2006, aerial sage grouse lek and raptor nest survey, one group of 31 elk and three groups of 35 mule deer were observed within the project area and 2-mile buffer. The elk and mule deer groups were observed north of the Vantage highway, i.e., north of the proposed project area. Elk scat has been observed on the project site, indicating infrequent use. Few mule deer observations were made during avian use surveys. Wintering elk forage on native grass species such as Sandberg's bluegrass, which greens up with fall and spring rains, while mule deer typically utilize more shrub species. The project site is grazed heavily by cattle and sheep, especially during the spring season grassland green-up period, thereby reducing the availability of high-quality forage to big game species. Overall, big game use of the site in winter and during other seasons appears relatively low.

Construction: Elk and mule deer are expected to be temporarily displaced from the site due to the influx of humans and heavy construction equipment and associated disturbance (e.g., blasting). Construction related disturbance and displacement is expected to be limited to the 9-12 month construction period. Most heavy construction is expected to take place during the summer months, minimizing construction disturbance to wintering big game. In addition, construction will likely not take place in severe winters, when big game impacts may be of most concern. Following completion of the project, the disturbance levels from construction equipment and humans will diminish significantly and the primary disturbances will be associated with operations and maintenance personnel, occasional vehicular traffic, and the presence of the turbines and other facilities.

Operations: There is little information regarding wind project effects on big game. Most of the studies have focused on displacement of big game, but have not determined whether these displacement effects result in any significant population level effects such as decreases in survival. Due to the lack of data regarding the potential impacts of energy development on big game, it is difficult to predict with certainty the effects of the project on wintering mule

deer and elk. While human related activity at wind turbines during regular maintenance will be dramatically less than during the construction period, it is not known if human activity associated with regular maintenance activity will exceed tolerance thresholds for wintering elk and mule deer.

Bats

Little is known about bat species distribution, but several species of bats could occur in the project area based on the Washington GAP project and inventories conducted on the Hanford Site, Arid Lands Ecology Reserve (ALE) located in Benton County to the south. The potential for bats to occur is based on migratory patterns and key habitat elements such as food sources, water, and roost sites. Prominent wetlands and/or riparian areas are lacking on the proposed site, except for Poison Spring which is approximately 1.5 miles west of the nearest turbine string. Drainage areas with old growth big sage brush and bitterbrush may provide important foraging areas.

Construction: Impacts to bats or bat habitat on the site are unlikely during construction.

Operations: Bat casualties have been reported from most wind facilities where post-construction fatality data are available. Reported estimates of bat mortality at wind facilities have ranged from 0.01 – 47.5 per turbine per year (0.9 – 43.2 bats/MW/year) in the U.S. with an average of 3.4 per turbine or 4.6 per MW (NWCC 2004). Most of the bat casualties at wind facilities to date are non-hibernating migratory species that conduct long-distance migrations between summer breeding and wintering areas, namely the hoary bat, eastern red bat and silver-haired bat (Johnson 2005). Although potential future mortality of migratory bats is difficult to predict, an estimate can be calculated based on levels of mortality documented at other wind plants. Using the estimates from other wind plants, operation of the proposed project could result in approximately 1 to 3 bats per MW per year or 100 to 300 bat fatalities per year. Actual levels of mortality are unknown and could be higher or lower depending on regional migratory patterns of bats, patterns of local movements through the area, and the response of bats to turbines, individually and collectively. Bat mortality estimates for the Wild Horse Project will be available in 2008.

Other Species

Please refer to Section 5.6 and 5.7 of the WEST, Inc. study for information on other wildlife species (i.e., other mammals and reptiles and amphibians).

b. List any threatened or endangered species known to be on or near the site.

A list of state and federally protected species that potentially occur within the project area was generated to assess the potential for impacts to these species (see Table 2 of the WEST, Inc. report). Species were identified based on the WDFW Species of Concern list, which includes state listed endangered, threatened, sensitive and candidate species; and the USFWS, Central Washington Ecological Services office list of Endangered, Threatened, Proposed, Candidate and Species of Concern for Kittitas County.

TES species surveys focused on shrub-steppe obligate species such as sage sparrow, sage thrasher, burrowing owl, sage grouse, and white-tailed and black-tailed jackrabbits. Areas within 1,000 feet (305 meters) of the centerline of the proposed turbine corridors were surveyed for special status/sensitive wildlife twice between May 1 and June 30, 2006. Surveys consisted of walking transects spaced approximately 50 meters apart, and were conducted from dawn to 12:00 PM. Surveys were rotated among proposed turbine areas so that at least one or two of the visits occurred before 9:00 AM. The location of any sage grouse and sage grouse scat were recorded. Notes on habitat and condition were also recorded, as were observations of other wildlife such as amphibians, reptiles, small mammals, and raptors.

The USFWS lists 29 wildlife species as threatened or endangered within the state of Washington, of which six occur within Kittitas County including marbled murrelet, northern spotted owl, grizzly bear, gray wolf, and Canada lynx. With the recent delisting of the bald eagle, no federally listed species is likely to occur within the vicinity of the Vantage project site.

The State of Washington lists 36 threatened or endangered wildlife species. Of these, the ferruginous hawk (*Buteo regalis*) and greater sage grouse (*Centrocercus urophasianus*) are the only species recently documented to occur in the

vicinity of the Vantage project site (Erickson et al. 2003). Several other sensitive status species have the potential to occur on the project area (see Table 2 of the WEST, Inc. report).

Development corridors were surveyed twice between May 23 and June 16, 2006. A third survey was conducted July 23-26, 2006, primarily focused on sage grouse detection. During the May-June period, 94 sage thrashers (45 first survey), 90 sage sparrows (50 first survey), 6 loggerhead shrikes (4 first survey), and 4 white-tailed jack-rabbits were observed.

Impacts

No impacts to federally threatened or endangered species are anticipated from the project. Bald eagle was recently removed from the federal threatened and endangered species list.

Washington State Listed Species

Eagles

Based on extremely low use of the project area by bald eagles, impacts to the species are considered negligible. No bald eagle fatalities have been observed at other wind projects, and many have estimated bald eagle use much higher than this project (Erickson et al. 2001).

Golden eagles have nested historically within two miles of the project area. Overall use of the project area by golden eagles is relatively low compared to other wind plants where golden eagle fatalities have been documented. The project is in the northern area of the Great Basin Bird Conservation Region (BCR) which has a population estimated to be approximately twice the size of populations in all three other BCRs east of the cascades (Good et al. 2007). While the potential exists for golden eagles to collide with turbines at the proposed Vantage facility, overall risks to golden eagle populations are considered low and only a few individuals, if any, are expected to collide with turbines over the life of the project.

Sage sparrows, Sage Thrashers, and Loggerhead Shrikes

Sage sparrows, sage thrashers, and loggerhead shrikes are shrub-steppe obligate species that breed within the project area. Most of the large mature sagebrush and other shrub habitats within the project area occur on the sides of ridges and in drainages, while most turbines will be located on ridge tops lacking dense shrub habitats.

Construction: Foraging and nesting habitat for Sage sparrows, sage thrashers, and loggerhead shrikes would be reduced during project construction as a result of vegetation clearing and noise and disturbance from construction activities.

Operations: Observations of breeding individuals indicate that sage sparrows generally do not fly within the rotor-swept-area (Erickson et al. 2003). Sage thrashers were documented in this study to fly within blade height 20% of the time (see Table 10 in WEST, Inc. report). The potential exists for migrating and dispersing individuals to collide with turbines. Displacement effects from operations may occur with these species. However, the majority of proposed turbines are located in sparse shrub-steppe or lithosols. Many of the 2006 sage thrasher, sage sparrow, and loggerhead shrike observations were away from proposed permanent facilities. Overall impacts to sage sparrow and sage thrasher populations are considered negligible, with only small potential displacement effects and collision fatalities being rare.

Greater Sage Grouse

The project area is south of the Colockum Wildlife Management Area, yet considered within the recovery zone of the sage grouse management unit (Stinson et al. 2004). No sage grouse or leks were observed during sage grouse surveys in March and April, 2006 within and surrounding the Wild Horse project. No sage grouse, sage grouse scat, or leks were observed during other surveys and travel on the Vantage site for the entire study year. The nearest known active lek is approximately 7 miles south on the Yakima Training Center. Sage grouse have historically been observed north of the project area, especially in fall and winter. Broods have been observed in that area, suggesting some historical nesting may have occurred somewhere not far from the project site.

Presence of young broods at the Foote Creek Rim Wind Project suggests nesting has occurred somewhere near wind turbines, although the nesting location relative to the wind project is not known (in WEST 2007, R. Good, pers. comm.).

Construction and Operations: The proposed project is not expected to negatively impact nesting habitat for sage grouse. Given expansive intact shrub-steppe habitat surrounding the proposed project and existing Wild Horse project, the project should not impact connectivity between Douglas County populations and the Yakima and Kittitas County populations. The project is currently disturbed with heavy grazing and fragmented with cross country graded roads, county landfill, biosludge deposition sites, and several communication towers.

c. Is the site part of a migration route? If so, explain.

The project site is not part of a designated migration route.

d. Proposed measures to preserve or enhance wildlife, if any:

Inverenergy has committed to mitigate all permanent and temporary impacts on vegetation (i.e., wildlife habitat) in accordance with the guidance outlined in the WDFW Wind Power Guidelines (WDFW 2003). Mitigation will involve the designation of a mitigation site located within the project area. The mitigation parcel will meet or exceed the required habitat replacement ratios under the WDFW guidelines. The parcel will be fenced to exclude livestock grazing but to allow game species to cross. Consistent with WDFW's guidelines, permanent impacts on habitat would be replaced at a ratio equal to or greater than 1:1 for grassland and 2:1 for shrub-steppe.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Diesel will be the principal energy source for construction of the project. It will be used as fuel for construction equipment. Operation of the project will use wind to produce energy.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Operation of the project will use wind to produce energy. The applicant proposes several conservation measures that will be undertaken during operations:

- **Water usage at the site will be closely monitored during operations due to the limited capacity of the on-site water storage tank.**
- **Carpooling among operations workers will be strongly encouraged.**
- **High-efficiency electrical fixtures and appliances in the O&M facility and substation control house would be used where possible.**
- **Low water use toilets will be used in the in the O&M facility.**
- **Recycling of waste office paper and aluminum will be encouraged.**

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No.

1) Describe special emergency services that might be required.

No special emergency services would be required.

2) Proposed measures to reduce or control environmental health hazards, if any:

Construction of the project will require a NPDES General Construction Permit, which mandates the preparation of a Spill Prevention, Containment, and Countermeasures Plan. Contingency measures will therefore be in place for the duration of construction and operation. These contingency measures include hazardous materials “awareness training” for all staff doing grading or excavation and a contingency plan to identify, segregate, and dispose of contaminants in accordance with the Model Toxics Control Act.

The applicant will execute a fire protection services agreement with Ellensburg Rural Fire District #2 for the project to ensure that suitable fire protection services are in place during the construction and on-going operations of the project. A fire protection services agreement shall be maintained for the life of the project, or until the project site is annexed into a Fire District or other municipal entity which provides fire protection services.

Emergency plans shall be prepared and submitted to the County prior to construction.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Current noise levels at existing homes in the project area are likely low, and likely dominated by noise associated with traffic from the Vantage Highway.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction noise:

Elevated levels of short-term noise would occur during construction and would be similar to the type of noise produced by road construction. However, no nighttime construction would occur for the project. The wind turbines would be located at least ½-mile from all residences, so temporary daytime construction noise levels would likely decrease to background levels at night. .

Occasional blasting might be required to construct foundations for the towers. If so, blasting would be limited to daytime periods.

Haul trucks delivering the towers and turbines will access the site via I-90 through Vantage, and will pass near few local homes along the route. Therefore, few homes would be affected by haul truck noise.

Operational noise:

Substation transformers would generate small amounts of noise. The transformers and switching equipment would be designed to comply with allowable Washington State nighttime noise limits in WAC 173-60 (70 dBA at adjoining agricultural land, and 50 dBA at residences).

Audible noise from high-voltage transmission feeder lines would occasionally occur as a low-frequency hum caused by routine corona discharges during wet or foggy weather. Transmission line noise will comply with the allowable levels specified by the Washington state noise regulation (50 dBA at the edge of the right of way).

Per Title 17 of the KCC, all proposed turbines would be located at least ½-mile from the existing residences, all of which are located along the Vantage Highway.

3) Proposed measures to reduce or control noise impacts, if any:

Construction activities will be limited to day-time hours. The following contractor practices are recommended to minimize the effects of construction noise in the project area:

- Implement work-hour controls so that noisy activities occur between 7 a.m. and 10 p.m., which would reduce the impact during sensitive nighttime hours.
- Do not allow haul trucks to park and idle within 100 feet of a residential dwelling.
- Conduct blasting only during daylight hours.
- Maintain equipment in good working order and use adequate mufflers and engine enclosures to reduce equipment noise during operation.
- Coordinate construction vehicle travel to reduce the number of passes by sensitive receivers.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The site is currently undeveloped open space that has been used for grazing and in some areas, biosolids application. Across Vantage Highway from the project site is the Wild Horse Wind Project.

b. Has the site been used for agriculture? If so, describe.

Historically, the property has been used primarily for grazing.

c. Describe any structures on the site.

There are three existing meteorological towers, one on the western portion of the site, and two in the middle of the site.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

The current zoning classification of the site is Forest and Range (Kittitas County Zoning Map 2005).

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the site is Rural (Kittitas County Comprehensive Plan 2006).

g. If applicable, what is the current shoreline master program designation of the site?

N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

The project would employ approximately 6-10 people full time.

i. Approximately how many people would the completed project displace?

No residents will be displaced by the project.

j. Proposed measures to avoid or reduce displacement impacts, if any:

N/A

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The VWP is located within an area designated by the County for wind development [Kittitas County Wind Overlay Zone] and is compatible with existing and projected future uses. The project area is currently used for grazing cattle, and those activities will continue.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

The project will not provide any housing units.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

The project will not eliminate any housing units.

c. Proposed measures to reduce or control housing impacts, if any:

N/A

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest structure will be the wind turbines, approximately 389 feet from bottom to the tip of the blade (80 meters (280 feet) from bottom to the hub of the turbine). The O&M building will be a typical butler building about 20 feet high with metal siding.

b. What views in the immediate vicinity would be altered or obstructed?

The project area is located in a sparsely populated area in Eastern Kittitas County, near the existing Interstate 90 highway. There are no high quality scenic viewpoints in the area. Although the project turbines will affect the views of and across the project site from two residences in the vicinity and I-90, the impacts are not expected to be significant, especially considering the Wild Horse Wind Project located directly across the highway from the Invenergy project. Please see Figure 3, Photo Simulations.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No measures are proposed because significant aesthetic impacts are not anticipated. However, the applicant will incorporate the following measures into the project's design:

- Active dust suppression will be implemented to minimize the creation of visible dust clouds during the construction period.
- Areas temporarily disturbed during the construction process will be reseeded to facilitate their return to natural-appearing conditions when construction is complete.
- The wind turbine towers, nacelles, and rotors used will be uniform and will conform to the highest standards of industrial design to present a trim, uncluttered, aesthetically attractive appearance.
- The turbines will have a neutral finish to minimize contrast with the sky backdrop.
- A low-reflectivity finish will be used for all surfaces of the turbines to minimize the reflections that can call attention to structures in a landscape setting.
- The rotors will be turning approximately 80-85% of the time as a result of local wind conditions and the equipment used. This will minimize the appearance of the turbines being non-operational.
- The small cabinets containing pad-mounted equipment that will be located at the base of each turbine will have an earth-tone finish to help them blend into the surrounding ground plane.
- The only exterior lighting on the turbines will be the aviation warning lighting required by the FAA. This lighting will be kept to the minimum required intensity to meet FAA standards
- Most of the project's electrical collection system will be located underground, eliminating potential visual impacts.
- Where feasible, existing road alignments will be used to provide access to the turbines, minimizing the amount of additional surface disturbance required. Where possible, access road widths will be restricted to 20 feet (approximately half of all access road miles.) The access roads will have a gravel surface and will have grades of no more than 15%, minimizing erosion and its visual effects.
- The O&M facility building will have a low-reflectivity earth-tone finish to maximize its visual integration into the surrounding landscape.
- The parking areas at the O&M facility will be covered with gravel, rather than asphalt, to minimize contrast with the site's soil colors.
- Outdoor night lighting at the O&M facility and the substation(s) will be kept to the minimum required for safety and security, sensors and switches will be used to keep lighting turned off when not required, and all lights will be hooded and directed to minimize backscatter and offsite light trespass.
- All equipment at the substation(s) will have a low-reflectivity neutral gray finish to minimize visual sensitivity.
- All insulators in the substations and takeoff towers will be non-reflective and non-refractive.
- The control buildings located at each substation will have a low-reflectivity earth-tone finish.
- The chain-link fences surrounding the substations will have a dulled, darkened finish to reduce their contrast with the surroundings.

11. Light and glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

There will not be glare off the projects wind turbines. The only lights that will be associated with the project will be required FAA lights that will be placed on every other turbine. These lights are for pilots and will have GPS coordinates. The lights will blink simultaneously to minimize nighttime visual intrusion.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

Project lighting will be limited to that required by the FAA.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Ginkgo State Park is located east of the project site.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

N/A

13. Historic and cultural preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no places or objects listed on, or proposed for, national, state, or local preservation registers on or next to the site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Historic and cultural resources are discussed in greater detail in the Jones & Stokes technical report (2007) that is submitted with this checklist.

Previously recorded sites

Remnants of the previously recorded archaeological site 45KT2479 (aka, Historic-era Vantage Highway, Sunset Highway, Primary State Highway 7), which was recorded with the Washington State Department of Archaeology and Historic Preservation (DAHP) exist within the project area and will potentially be impacted by project construction. 45KT2479 is significant based on its association with early 20th century highway construction in Washington State. The Historic-era Vantage Highway was originally constructed in 1906 and was the main east-west highway running through Washington state at that time. The route of the highway was subsequently altered during construction of the existing Vantage Highway (SR 10) during the early 1940s, leaving abandoned segments within the project area.

Portions of these abandoned segments retain the original 1920s asphalt and are in good condition; other portions have had their asphalt removed or the asphalt has been damaged by road grading activities. The abandoned portions of 45KT2479 are drivable and, due to the lack of construction in the vicinity, the landscape has remained relatively similar to that of the 1920s. The Historic-era Vantage Highway and surrounding landscape can be considered a historic cultural landscape. While the Wild Horse Wind Farm and modern high-voltage electric lines can be seen from the Historic-era Vantage Highway, telephone poles with

glass insulators similar to those of the 1920s and the surrounding shrub-steppe vegetation, lacking in any major modern structures, was likely what the early drivers of the highway would have observed. It is Jones & Stokes preliminary recommendation that 45KT2479 is eligible for listing in the NRHP and/or Washington Heritage Register.

45KT1384, a lithic scatter, was previously recorded near proposed tower O1. Upon revisiting the site, it was determined that no cultural material was present and that observable lithic material was naturally occurring. Therefore, this site is not considered eligible for listing in the NRHP. Construction of towers and infrastructure will not impact this site.

Newly recorded sites

Three newly recorded sites (45KT2762, 45KT2673, and 45KT2764) were identified during the field survey in August 2007. All three sites are pre contact lithic material sites consisting of light to moderate density lithic debitage scattered on the ground surface. 45KT2762 is located near proposed tower L1, 45KT2763 and 45KT2764 are located to the east and west, respectively, of proposed tower K1. Based on Jones & Stokes' preliminary recommendations, these three sites are not considered eligible for listing in the NRHP. Construction of towers and infrastructure may impact these sites.

Isolated Finds

Nineteen isolated finds were located within the project area during field surveys in August 2007. The isolated finds consisted of lithic material and historic refuse. Isolated finds were located near towers O1, J1, J3, J4, D3, CC1, BB2, and BB6. Isolated finds were also located between towers and along the access roads: between N2 and L5, between FF1 and J1, between J3 and G2, between D1 and CC1, and between I2 and D4. These isolated finds are not considered eligible for listing in the NRHP. Construction of towers and infrastructure may impact these isolated finds.

c. Proposed measures to reduce or control impacts, if any:

The portion of 45KT2479 which extends from the main gate entrance eastward across the project area is currently drivable and portions of the road which contain intact asphalt and a defined road prism could be impacted by project construction. 45KT2479 was not constructed to withstand the weight of modern construction and transport vehicles. Additionally, track vehicles, such as a backhoe used to create access roads between turbine strings, would also adversely impact the integrity of the original asphalt. In order to avoid adversely impacting 45KT2479, all construction related vehicles will avoid driving on 45KT2479 from the proposed "L" tower string at Hult Butte eastward across the site. Access roads will be constructed on either side of the 45KT2479 alignment to allow construction access to tower and utility corridor locations. The excavation of a utility corridor to link the proposed "L" tower string will be bored beneath 45KT2479 to a depth great enough to avoid any adverse impact to the site.

Subsurface disturbance due to the construction of towers or infrastructure may result in the inadvertent discovery of buried archaeological or historic resources. Although highly unlikely, buried cultural artifacts, such as chipped or groundstone, historic refuse, building foundations, or human bone could be discovered during construction excavation. If significant cultural resources are discovered during construction excavation, all construction activity in the immediate area will stop so that a qualified archaeologist can accurately assess the context and integrity of the find. Upon discovery of significant cultural resources (e.g., human skeletal remains), the Kittitas County Sheriff and, if necessary, all affected Native American tribes will be immediately contacted. The Washington Department of Archaeology and Historic Preservation will also be contacted immediately upon discovery of significant cultural resources.

To minimize impact, the construction contractor will observe the following: Construction storage and staging areas shall be established to stage all heavy equipment used during construction, to store all construction materials, and to stockpile all construction debris not immediately transported from the project area. Construction storage and staging areas shall be located in currently developed locations, such as the quarry, where practical. If it is necessary to construct staging areas, a professional archaeologist shall carry out an archaeological survey of the proposed construction storage and/or staging areas.

14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Transportation issues are addressed in greater detail in the Jones & Stokes technical report that is submitted with this checklist. The project site would be served by the Vantage Highway, which can be accessed from I-90 or local streets in Kittitas or Vantage.

Construction:

One project access point along the Vantage Highway between MP 19 and 20 would be provided during construction. The construction trucks would access the site via the I-90 Vantage exit (Exit 136) as the primary route, and travel west on the Vantage Highway to the project access roads. The construction workers would access the site either via the I-90 Vantage exit (Exit 136) (the primary access route) or I-90 Kittitas exit (Exit 115) (secondary access route) and travel on the Vantage Highway to the project access roads.

Operations:

During operation, access to the project site would be via the main entrance (between MP 19 and 20) from the Vantage Highway. The employees or maintenance crews would access the site either via the I-90 Kittitas exit (Exit 115) or the I-90 Vantage exit (Exit 136) and travel on the Vantage Highway to the project site.

- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No.

- c. How many parking spaces would the completed project have? How many would the project eliminate?

The project would have 15 parking spaces for employees and maintenance crew. No parking spaces will be eliminated.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

The project would build new private roads to access wind tower pads within the project site for equipment delivery during construction and operations/maintenance after the project is completed. The roads will be generally 20 feet wide with gravel surface and ditches. The construction access point along Vantage Highway will be to Kittitas County Standards.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project would not use water, rail or air transportation in the vicinity of the project to deliver construction material or equipment. The project was reviewed for any potential effects on air transportation since the proposed wind turbines would be 389 feet above ground. The FAA has determined that the project would not have any adverse effect to air navigation if the proposed wind turbines are marked and/or lighted in accordance with FAA Advisory Circular 70/7460-1 K.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

There would be 6 to 10 full-time employees working at the project site between 9 a.m. and 5 p.m. during weekdays. There would be approximately 12 to 30 trips per day generated by the project. The peak volumes would occur around 9 a.m. and 5 p.m.

g. Proposed measures to reduce or control transportation impacts, if any:

No significant unavoidable adverse impacts on traffic and transportation are associated with construction or operation of the Vantage project. However, the Applicant has proposed the implementation of the following measures for construction:

- **The Applicant will prepare a Traffic Management Plan, with the construction contractor outlining steps for minimizing construction traffic impacts;**
- **The Applicant will provide notice to adjacent landowners when construction takes place to help minimize access disruptions;**
- **The Applicant will provide proper road signage and warnings, such as “Equipment on Road,” “Truck Access,” or “Road Crossings” along Vantage Highway;**
- **When slow or oversized wide loads are being hauled, appropriate signing and warning devices will be deployed per the Traffic Management Plan. Pilot cars will be used as the County or WSDOT dictates, depending on load size and weight;**
- **The Applicant will construct necessary site access roads and an entrance driveway that will be able to service truck movements of legal weight and provide adequate sight distance;**
- **The Applicant will encourage carpooling for the construction workforce to reduce traffic volume;**
- **In consultation with Kittitas County, the Applicant will provide detour plans and warning signs in advance of any traffic disturbances;**
- **The Applicant will employ flaggers as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents;**
- **Where construction may occur near the roadway, one travel lane will be maintained at all times;**
- **Applicant will videotape City and County roadways to document pavement conditions before and after construction and address changes in discussions with the City of Kittitas and Kittitas County.**

Operation and maintenance of the project would not significantly affect transportation. However, the Applicant shall implement the following measure to meet local transportation and air navigation requirements:

- **Applicant shall monitor traffic levels following construction of the project for a period of three years. After that time, applicant shall continue monitoring of operations traffic to the project site upon written request from the County. Should operations related traffic to and from the project site exceed WSDOT warrants, as contained in Chapter 910 of the WSDOT Design Manual, the applicant shall construct right and/or left turn lanes on Vantage Highway. Said improvements shall be designed and constructed in accordance with WSDOT guidelines.**
- **Wind turbines will be marked and/or lighted in accordance with FAA Advisory Circular 70/7460-1 K.**

15. Public services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The project would result in the need for emergency services in case of fire or injury other than that the project should create no increased need for public services.

c. Proposed measures to reduce or control direct impacts on public services, if any.

The applicant will execute a fire protection services agreement with Ellensburg Rural Fire District #2 for the project to ensure that suitable fire protection services are in place during the construction and on-going operations of the project. A fire protection services agreement shall be maintained for the life of the project, or until the project site is annexed into a Fire District or other municipal entity which provides fire protection services. In addition, emergency plans shall be prepared and submitted to the County prior to construction.

Because construction activities at the project site are not expected to result in significant impacts to medical services, schools, public utilities, communications, water supplies, sewage/solid waste disposal, or stormwater systems, no mitigation measures will be necessary for those services or utilities. However, the applicant will implement the following during project construction:

- **All operations personnel working on the turbines will work in pairs. In the unlikely event that an injury occurs while working in the nacelle, all staff will be trained in lowering injured colleagues from the nacelle. A rescue basket, specially designed for this purpose, will be kept at the operations and maintenance facility and will be available for use by local emergency medical services personnel. Training in rescue basket recovery will also be provided to local EMS personnel by the Applicant.**
- **The applicant will provide all police, fire, and emergency medical personnel with emergency response details for the project including detailed maps of the project site access roads, applicant contact information, procedures for rescue operations to the nacelles, and location of the rescue basket.**
- **The applicant will consult with the County regarding the impact on County law enforcement staffing. If additional staffing is required, the Applicant shall pay the additional costs for law enforcement associated with construction impacts and activities to be provided by the County Sheriff's office or a private onsite security, as deemed necessary.**
- **Provisions will be made for special training of fire district personnel for fires related to wind turbines;**
- **Detailed maps will be provided to fire districts that show all access roads to the project;**
- **Keys to a master lock system will be provided to fire districts that will enable emergency personnel to unlock gates that would otherwise limit access to the project;**
- **Spark arresters will be used on all power equipment (e.g., cutting torches and cutting tools), when necessary due to extreme fire danger conditions;**
- **Workers at the project site will be informed of emergency contact phone numbers and will have training in emergency response procedures;**
- **Fire extinguishers will be carried in all maintenance vehicles;**
- **Water supply will be provided for fire fighting locations beyond the contracted fire districts;**
- **An FCC-style communication study or appropriate study will be conducted to ensure that emergency responders communications will not be derogated by the wind generators, thus eliminating or reducing all communications on site by any emergency responders;**
- **An FAA-style lighting plan will be implemented to prevent aircraft mishaps to limit fire response;**
- **An environmental clean-up company will be under contract to provide services to protect the environment up to and beyond small incidents, including planning, implementing, and storing of all material considered to be harmful.**

16. Utilities

- a. Circle utilities currently available at the site: electricity, natural gas, **water**, refuse service, **telephone**, sanitary sewer, septic system, other.

Utilities currently available at the site include water and telephone service.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Invenergy will need water, wastewater, electricity and telephone service for the O&M building. The water will come from a small on-site well. The electricity will come from a local utility, most likely Kittitas PUD. The septic system will be put in during construction and will be monitored and approved by the Kittitas County Health Department. A local telephone company will be used for telephone service.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

Date Submitted:

Figure 1. Proposed Vantage Wind Project Site Plan (to be provided by Invenergy)

Figure 2 Habitats of the Vantage Wind Project

Figure 3. Visual Photo Simulations of the Vantage Wind Project (to be provided by Invenergy)