EXHIBIT R

SCENIC AND AESTHETIC VALUES
OAR 345-021-0010(l)(r)

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APPENDICES

R.1 INTRODUCTION

Exhibit R addresses impacts the proposed facility would have on Scenic and Aesthetic Values in the analysis area. The exhibit responds to the requirements of OAR 345-021-0010(1)(r), as follows:

OAR 345-021-0010(1)(r) *An analysis of significant potential impacts of the proposed facility, if any, on scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans for the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0080, including:*

Response: Pursuant to OAR 345-022-0080(1), "the Council must find the design, construction, operation and retirement of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in local land use plans in the analysis area described in the project order."

This Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(r) and provides evidence to support a finding by the Council as required by OAR 345-022-0080.

R.2 APPLICABLE FEDERAL LAND MANAGEMENT PLANS AND LOCAL LAND USE PLANS

OAR 345-021-0010(1)(r)(A) *Identification of the applicable federal land management plans and local land use plans:*

Response: For the purposes of this Exhibit and as stated in OAR 345-021-0010(1)(r)(E) "*map or maps showing the location of the visible scenic and aesthetic values analyzed,*" it is assumed that in order for a federal land management plan or local land use plan to be applicable, the proposed facility must be visible to the resource(s) identified by the plan and that the resource(s) must not be of such a great distance from the facility that impacts, if any, would be negligible.

The analysis area for Exhibit R includes the area within the site boundary and extends 30 miles beyond the site boundary in Oregon as shown in Figure R-1 (in Appendix R-1). The following federal land management plans and local land use plans are applicable because they identify scenic and/or aesthetic resources within the analysis area from which the proposed facility would be potentially visible:

- Proposed Two Rivers Resource Management Plan Final Environmental Impact Statement, September 1985 (Record of Decision issued June 1986).

- John Day Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement, June 2000 (Record of Decision issued February 2001).

- Gilliam County Comprehensive Land Use Plan, October 25, 2000
- Sherman County Comprehensive Land Use Plan 1994, revised June 2003

For the sake of completeness, the following federal land management plans and local land use plan governing lands within the analysis area are also discussed. They are not applicable for the reasons stated below:

Management Plan for the Columbia River Gorge National Scenic Area, September 1992, revised May 10, 2004: The Columbia River Gorge National Scenic Area is managed for an "unparalleled combination of scenery, geology, plants, wildlife, and multicultural history" (Columbia River Gorge Commission and USDA 1992). Computer modeling using GIS technology (i.e., seen area analysis) and site visits by the principal investigator have confirmed existing topography would screen the proposed facility from the National Scenic Area's resources, including key viewing areas identified in the plan revision (Columbia River Gorge Commission and USDA 2004). Because the proposed facility would not be visible, this management plan is not applicable.

Lower Deschutes River Management Plan and Final Environmental Impact Statement, January 1993 (Record of Decision issued February 1993): The Lower Deschutes River is a designated Oregon State Scenic Waterway and Federal Wild and Scenic River (USDI 2001). Computer modeling using GIS technology (i.e., seen area analysis), site visits by the principal investigator, and personal communication with resource agency staff have indicated the proposed facility would not be visible, or would be visible at such great distance that impacts, if any, would be negligible (Anderson 2005, Fitzwater 2005, Houck 2005, Mottl, T. 2005). Therefore, this management plan is not applicable.

Management and Use Plan Update Final Environmental Impact Statement Oregon National Historic Trail and Mormon Pioneer National Historic Trail, August 1999 (Record of Decision issued November 1999): In 1978, Congress authorized the Oregon National Historic Trail to commemorate this significant travel route and to promote its preservation, interpretation, public use, and appreciation (USDI 1999). The management plan is a coordinating document that provides broad-based polices, guidelines, and standards for administering the trail to ensure its protection, interpretation, and continued use. Within the analysis area, the plan identifies five High-Potential Sites based on "historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion" (USDI 1999). These sites include Fourmile Canyon, John Day River Crossing (a.k.a. McDonald Ferry), Biggs Junction, Deschutes River Crossing, and The Dalles Complex. The plan does not identify specific scenic or aesthetic values beyond these five sites.

Computer modeling using GIS technology (i.e., seen area analysis), site visits by the principal investigator, and personal communication with resource agency staff have indicated the proposed facility would not be visible to these five High-Potential Sites (Anderson 2005, Fitzwater 2005). Therefore, this management plan is not applicable.

Comprehensive Plan for Wasco County, August 25, 1983: The Wasco County Comprehensive Plan identifies the Deschutes and John Day Scenic Waterways, the White River Canyon, the Columbia River Gorge as important scenic resources. The Deschutes River and Columbia River Gorge are not visible to the proposed facility as previously stated. The White River Canyon and portion of the John Day River corridor within Wasco County are outside the analysis area. Therefore, this local land use plan is not applicable.

R.3 IDENTIFICATION AND DESCRIPTION OF SCENIC AND AESTHETIC VALUES IDENTIFIED AS SIGNIFICANT OR IMPORTANT

OAR 345-021-0010(1)(r)(B) *Identification and description of the scenic and aesthetic values identified as significant or important in the applicable plans;*

Response: Significant or important scenic and aesthetic values for each applicable plan are as follows:

Proposed Two Rivers Resource Management Plan Final Environmental Impact Statement, September 1985, and John Day Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement, June 2000: The John Day River system includes more than 500 river miles and is one of the longest free-flowing river systems in the continental United States (USDI 2001). The main stem from its mouth at the Columbia River to approximately river mile 89 runs through the analysis area. The John Day River Canyon (i.e., the area rim-to-rim) is identified as an "area of high visual quality" (USDI 1986). The landscape within the analysis area features high desert communities of sagebrush and juniper with intermingled private ranches adding visual interest along the river (USDI 2000).

Beginning at Tumwater Falls near river mile 10 upstream through the analysis area, the river is a designated Federal Wild and Scenic River (WSR) and classified as Recreational, meaning that at the time of designation, the segment was readily accessible by road or railroad, may have some shoreline development, and may have undergone some impoundment or diversion in the past. Outstanding remarkable values include "scenic, recreation, fish, wildlife, geological, paleontological, and archaeological"; botanical and ecological values are also deemed significant (USDI 2001). The segment is also designated as a State Scenic Waterway pursuant to the Oregon State Scenic Waterways Act, ORS 390.805-390.020.

The Two Rivers Resource Management Plan Record of Decision identifies two Special Management Areas relevant to this Exhibit: the Oregon Trail Historic Sites at Fourmile Canyon and McDonald Crossing, and the John Day River Canyon. For the trail sites, "the unusual qualities of these sites will be maintained and protected" (USDI 1996). For the canyon, "areas of high visual and natural quality will continue to be protected while allowing other compatible uses in the same area" (USDI 1996).

Gilliam County Comprehensive Land Use Plan, October 25, 2000: Part Five of the Comprehensive Plan (Comp Plan) focuses on conservation of open space and natural and

scenic resources, intending to comply with statewide planning Goal 5 (Opens Spaces, Scenic and Historic Areas, and Natural Resources) and Goal 8 (Recreation Needs) (Gilliam County 2000).

In Finding 2 of Part 5, the County identifies "rock outcroppings marking the rim and walls of steep canyon slopes as an important characteristic of the county's landscape" (Gilliam County 2000). In Finding 7 of Part 5, the County identifies the John Day River corridor as an important scenic resource. The County defers to the Oregon State Scenic Waterways Act (ORS 390.805-390.925) to govern this resource and deems additional regulation unnecessary.

Policy 2 of Part 5 is relevant to Exhibit R and states "it is the policy of Gilliam County to publicize provisions of state law relative to Scenic Waterways, to render all possible assistance in enforcement of the laws, rules and regulations pertaining to State designated Scenic Waterways and to otherwise aid in the implementation of the declared policy of the State of Oregon with respect to such waterways. Conflicts between agricultural and recreational uses in this area should be resolved in favor of agriculture" (Gilliam County 2000).

Sherman County Comprehensive Land Use Plan 1994, revised June 2003: Physical Characteristics - Section XI of the Sherman County Comp Plan identifies important landscape features within the county. These include rock outcroppings, trees, and the John Day and Deschutes River Canyons (Sherman County 2003). The Comp Plan also acknowledges the state Scenic Byway designation for US 97, but provides no guidance regarding scenic or aesthetic values.

The County's Goal X is to "preserve the integrity of the Sherman County Landscape." Policy I of Goal X states "trees should be considered an important feature of the landscape and therefore the County Court shall encourage the retention of this resource when practical" (Sherman County 2003).

Goal XII is to "provide for the rational use of all resources within the designated Deschutes and John Day Oregon State Scenic Waterways." Policy I of Goal XII states "designation of the John Day and Deschutes River to the National Wild and Scenic River System shall be opposed" (Sherman County 2003).

Additionally, Section XV states the County finds it has wind resources that have not been utilized since widespread use of electricity was introduced. Under Goal XVIII to conserve energy resources, the County defines a policy to "cooperate with public agencies and private individuals in the use and development of renewable resources" (Sherman County 2003).

R.4 SIGNIFICANT POTENTIAL ADVERSE IMPACTS TO SCENIC AND AESTHETIC VALUES

OAR 345-021-0010(1)(r)(C) *A description of significant potential significant adverse impacts to the scenic and aesthetic values identified in (B), including, but not limited to, potential impacts such as*:

(i) Loss of vegetation or alteration of the landscape as a result of construction or operation;

Response: Construction will result in the conversion of dry land winter wheat agricultural lands and some Conservation Reserve Program (CRP) lands to access roads and turbine pads and their appurtenances. The design, construction, operation, and retirement of the facility is not anticipated to impact trees or rock outcroppings. Therefore, there will be no significant adverse impacts to vegetation or the landscape.

(ii) Visual impacts of facility structures, including cooling tower or other plumes, if any; and

Response: The Bureau of Land Management (BLM) administers the majority of public lands within the analysis area and has indicated that its primary concern would be visual impacts seen from the John Day River (Mottl, H. 2005). However, the proposed facility occurs on private land and is therefore not subject to BLM jurisdiction. The Oregon State Scenic Waterways Act also does not govern the facility, because the facility will be located beyond the Act's jurisdiction, which extends to all land within one-fourth of one mile of the bank on each side of the scenic waterway. ORS 390.805(1), 390.845(2)(e); see also OAR 736-040-0015(5) and (10). Guidance provided by the United States Department of the Interior (USDI) regarding Federal Wild and Scenic Rivers states "management principles may apply to private lands only to the extent required by other laws such as local zoning and air and water pollution regulations" (Federal Register 1982). The proposed facility is outside the Federal Wild and Scenic Rivers Act's jurisdiction because the site boundary is beyond the designated WSR corridor and because the Sherman County Comp Plan does not place additional restrictions on development relevant to the WSR designation. Although the BLM has no jurisdiction over the proposed facility, the following discussion is included to demonstrate compatibility with BLM management guidance for scenic and aesthetic values in the John Day River corridor.

Regarding the Oregon Trail Historic Sites at Fourmile Canyon and McDonald Crossing, computer modeling using GIS technology (i.e., seen area analysis) and a site visit by the principal investigator have indicated the proposed facility would not be visible to these sites. Therefore there would be no impact from the design, construction, operation, or retirement of the facility.

Regarding the John Day River Canyon, the seen area analysis has shown that portions of the proposed project would be intermittently visible from the John Day River between approximately river miles 15.2 and 16.8. Portions of the project may also be visible from some locations along the upper portions of the canyon walls with the highest likelihood occurring downstream of the McDonald Crossing (approximately river mile 20.7).

BLM classifies all WSR segments as Visual Resource Management (VRM) Class II in which "management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer" (USDI 2000). Because access to the rim and canyon walls is very limited, potential impacts to these areas would not be significant and are not the primary concern of the BLM (Mottl, H. 2005).

The John Day River system includes over 500 river miles. Computer modeling indicates portions of the proposed facility may be seen from approximately 1.6 river miles, or 0.3 percent of the entire river system. Given the relatively small portion of river that may be affected, that nearly all developed and undeveloped recreation sites within the river corridor occur upstream of river mile 40 and would not likely be visible to the proposed facility, and that the lower 40 river miles are interspersed with significant private lands, the design, construction, operation, and retirement of the proposed facility would not significantly affect the John Day River Canyon.

(iii) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-031-0120 [renumbered to 340-204-0050].

Response: During construction, dust may be generated during road construction, temporary batch plant operation, and clearing activities for the turbine pads. Dust will be controlled through the construction period by watering. Any potential impacts are anticipated to by temporary and negligible. Facility operation will not create air emissions, so there will be no impact.

R.5 OPPORTUNITY FOR MITIGATION

OAR 345-021-0010(1)(r)(D) *The measures the applicant proposes to avoid, reduce or otherwise mitigate any significant adverse impacts*;

Response: Impacts to vegetation on CRP lands will be mitigated as described in Exhibits I and P. Although no significant adverse impacts to scenic and aesthetic resources have been identified, the Applicant will incorporate best management practices such as using neutral white or gray finishes for the turbines to further reduce visual impacts of the proposed facility.

R.6 MAP

OAR 345-021-0010(1)(r)(E) *A map or maps showing the location of the visible scenic and aesthetic values analyzed under (B)*; and

Response: The analysis area for impacts on Scenic and Aesthetic Values includes the area within the site boundary and extends 30 miles beyond the site boundary in Oregon as shown in Figure R-1 (in Appendix R-1). Locations of the visible scenic and aesthetic values analyzed are included in Figure R-1.

R.7 MONITORING

OAR 345-021-0010(1)(r)(F) *The applicant's proposed monitoring program, if any, for impacts to scenic and aesthetic values.*

Response: The proposed facility would not result in significant adverse impacts to scenic and aesthetic values, and therefore, the Applicant does not propose an active monitoring program specific to the monitoring for impacts to scenic and aesthetic values. For those impacts to vegetation on CRP lands that will be mitigated as described in Exhibits I and P, monitoring, if any, will occur pursuant to Exhibits I and P. With respect to the Applicant's efforts to incorporate best management practices such as using neutral color matte finishes for the turbines, no ongoing monitoring is proposed for such practices.

R.8 CONCLUSION

The project will comply with all applicable regulatory guidelines concerning scenic and aesthetic resources as discussed in the responses above to the criteria contained in OAR 345-021-0010(l)(r)(A), (B), (C), (D), (E) and (F). Based on the above information, the Applicant has satisfied the requirements in OAR 345-021-0010(1)(r), and the Council may find that the standards contained in OAR 345-022-0080 are satisfied.

R.9 REFERENCES

R.9.1 Telephone Contacts/Personal Interviews

Anderson, Jim. Park Ranger. Deschutes River State Recreation Area, Oregon Department of Parks and Recreation. Personal interview with Sean Sullivan. February 16, 2005.

Fitzwater, Daryl. Park Manager. Deschutes Management Unit, Oregon Department of Parks and Recreation. Telephone conversation with Sean Sullivan. February 14, 2005.

Houck, Jan. Scenic Waterway Coordinator. Oregon Department of Parks and Recreation. Telephone conversation with Sean Sullivan. March 7, 2005.

Mottl, Heidi. Recreation Planner. Prineville District, Bureau of Land Management. Telephone conversation with Sean Sullivan. March 3, 2005.

Mottl, Tom. District Recreation Planner. Prineville District, Bureau of Land Management. Telephone conversation with Sean Sullivan. February 18, 2005.

R.9.2 Website/Document References

Columbia River Gorge Commission and USDA Forest Service, National Scenic Area. Management Plan for the Columbia River Gorge National Scenic Area. September 1992.

Columbia River Gorge Commission and USDA Forest Service, National Scenic Area. Revisions to the Management Plan for the Columbia River Gorge National Scenic Area. May 10, 2004.

Federal Register. Wild and Scenic Rivers Guidelines. Vol. 47, No. 173. September 7, 1982.

Gilliam County, Oregon. Gilliam County Comprehensive Land Use Plan and Zoning Ordinances as Amended October 25, 2000.

Sherman County, Oregon. Comprehensive Land Use Plan 1994, revised June 2003.

USDI Bureau of Land Management. Two Rivers Resource Management Plan Record of Decision. June 1986.

USDI Bureau of Land Management. John Day River Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement. June 2000.

USDI Bureau of Land Management. John Day River Management Plan, Two Rivers, John Day, and Baker Resource Management Plan Amendments Record of Decision. February 2001.

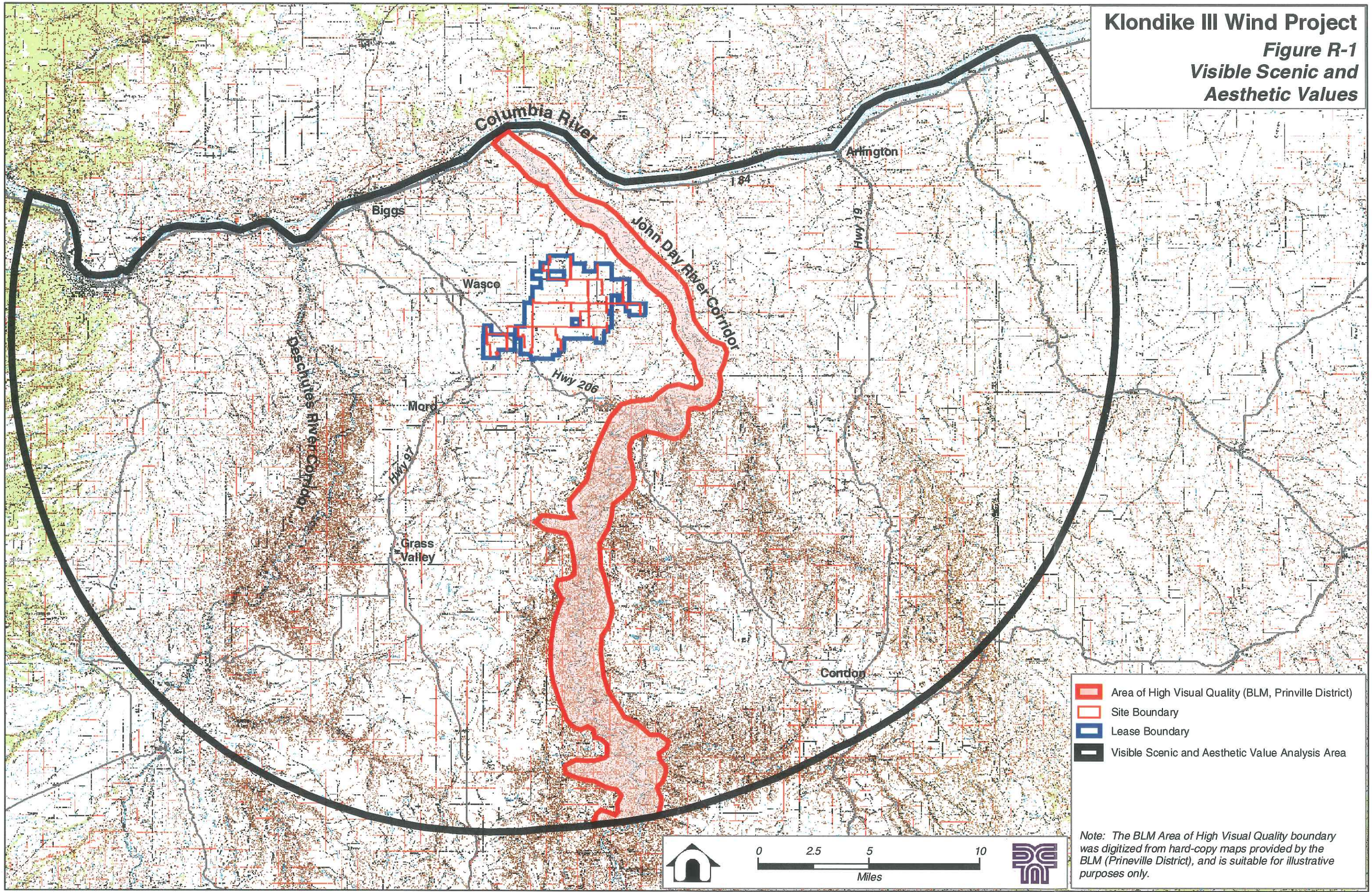
USDI National Park Service. Management and Use Plan Update Final Environmental Impact Statement Oregon National Historic Trail and Mormon Pioneer National Historic Trail, August 1999.

APPENDIX R-1

Figure R-1: Visible Scenic and Aesthetic Values - Map

Klondike III Wind Project

Figure R-1
Visible Scenic and Aesthetic Values



Note: The BLM Area of High Visual Quality boundary was digitized from hard-copy maps provided by the BLM (Prineville District), and is suitable for illustrative purposes only.

p:/ppme00000001/0600info/gs/arcmap/figures/fig_R1_scenic.mxd March 23, 2005

APPENDIX R-2

Photographs – Scenic and Aesthetic Values

PHOTO R-1: John Day River corridor viewed from OR 206 looking north (downstream).

PHOTO R-2: John Day River corridor viewed from Oregon Trail Interpretive Site looking northeast.

EXHIBIT S

HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES
OAR 345-021-0010(1)(s)

TABLE OF CONTENTS

S.1 INTRODUCTION

OAR 345-021-0010(1)(s) *Information about historic, cultural and archaeological resources providing evidence to support a finding by the Council as required by OAR 345-022-0090, including:*

Response: OAR 345-022-0090 states in full:

> *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction, operation and retirement of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:*
>
> *(a) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;*
>
> *(b) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and*
>
> *(c) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c)*
>
> *(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*
>
> *(3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-0310 without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*

This Exhibit provides information about historic, cultural, and archaeological resources that will support a finding by the Council as set forth above. The analysis area for cultural resources is defined as "the area within the site boundary" and is considered to include the construction area of the proposed wind power generating facility, existing road sections requiring widening, new road construction, underground and overhead power collection systems, new substations, Operations and Maintenance facility ("O & M"), and temporary construction lay-down areas.

S.2 SUMMARY

The following is a brief summary of the methods, results, and conclusions of the historic, cultural, and archaeological investigation performed for the Klondike III Wind Project. Full investigation results are provided in the technical report prepared for the project, which is included as Appendix S-1.

Methods of investigation included a literature review and records search (including records of the Oregon State Historic Preservation Office), as well as field investigations. The fieldwork consisted of the systematic pedestrian survey of the proposed turbine string alignments, laydown areas, new roads, overhead and underground utility lines, substations, meteorological towers, improvements to existing roads, and wildlife mitigation area. The fieldwork for the Klondike III Wind Project survey was conducted by walking parallel transects spaced at 20-m (66-ft) intervals, oriented either north-south or east-west across the project areas. The project survey areas were located by using maps and a hand-held Global Positioning System (GPS) unit to match Universal Transverse Mercator (UTM) coordinates that were provided for the alignments by David Evans & Associates, Inc. (DEA). No subsurface probes were excavated, because no locations within the surveyed areas were considered likely to contain buried cultural deposits that would not be visible on the surface. Fieldwork for the project was conducted in five field sessions under the general supervision of AINW Senior Archaeologist David V. Ellis, M.P.A. AINW Supervising Archaeologist R. Todd Baker, M.A., served as the field director for the field studies.

Results of the cultural resource survey showed that there were no previously recorded archaeological resources within the analysis area. Four archaeological resources were identified in the AINW field survey. Three of these resources are prehistoric archaeological isolates (each represents the find of a single artifact) and the fourth is a small assemblage of historic-period refuse (also recorded as an archaeological isolate). It is the general policy of the Oregon SHPO that archaeological isolates are not significant resources and are not eligible for listing in the NRHP. AINW has also stated, based on professional opinion, that these isolates are not significant resources. No mitigation measures are therefore necessary to address possible project effects to these resources.

A number of historic-period resources within the analysis area were identified. Most of these resources are buildings and structures associated with private ranching operations, although a few are associated with commercial and public uses (e.g., the Webfoot school). Most of these resources are recommended as not significant given their lack of integrity (primarily due to more recent alterations and modifications) or their lack of distinction. Four resources merited more extensive treatment: the Anson farmstead, the Emigrant Springs Cemetery, the Webfoot school, and the Columbia Southern railroad alignment. However, a more thorough evaluation of these resources indicated that none are likely to be eligible for listing on the National Register of Historic Places. No mitigation measures are therefore necessary to address possible project effects to these four resources.

The Oregon Trail alignment through the Klondike III project area is a designated historic trail under both federal and Oregon statutes. The alignment of the trail, as best it can be reconstructed, crosses the northeastern portion of the Klondike III project area. One source (Franzwa 1990) indicated that intact segments of the trail were still visible in the early 1980s in the current analysis area. AINW's field crews paid special attention to the areas where Franzwa showed intact segments. No physical evidence of the trail was observed at any of these locations or anywhere else in the field survey. All of the reported locations of intact trail segments were agricultural fields, and farming activity is likely to

have obliterated most—if not all—physical traces of the trail. In a meeting with the Board of Directors of the Sherman County Historical Society on March 9, 2005, Jesse Gronner, the Applicant's contact, was told that the Oregon Trail did not always follow a well-established route and that farming has erased much of the evidence for the trail.

Despite the lack of physical evidence for the Oregon Trail within the Klondike III project site boundary, the trail alignment has been recognized at both the federal and state levels. Any intact segments are highly likely to be eligible for listing on the National Register of Historic Places and would also likely be eligible for designation as a National Historic Landmark. Given this potential and given discussions between Klondike III and the Sherman County Historical Society, AINW recommended that construction of the Klondike III project proceed carefully in the vicinity of the mapped alignment of the Oregon Trail. Should intact physical evidence of the trail that is not currently recognized be observed where there is potential for adverse effects, concerted efforts will be made to avoid any disturbance to the intact segments through redesign, re-engineering, or imposing limits on the areal extent of construction activity. Should avoidance of intact trail segments not be practicable, Klondike III will consult with the Oregon State Historic Preservation Office to define appropriate mitigation measures.

In addition, construction of the turbine strings—especially those in the northeastern Klondike III area—are likely to constitute an adverse effect on the visual setting of the Oregon Trail alignment in general and any intact segments that may be extant. This area is a focus of visitors to Sherman County exploring the Oregon Trail; therefore, the visual impacts to the presently rural setting of the trail alignment will be taken into consideration and mitigation measures have been proposed. Proposed mitigation measures as set forth in Section S.6 of this Exhibit.

S.3 RESOURCES LISTED OR ELIGIBLE FOR LISTING UNDER NATIONAL REGISTER OF HISTORIC PLACES

OAR 345-021-0010(1)(s)(A) *Historic and cultural resources within the analysis area that have been listed, or would likely be eligible for listing, on the National Register of Historic Places;*

Response: The Oregon Trail alignment through the Klondike III project area is a designated historic trail under both federal and state statutes. The project cultural resource investigation found that no intact segments were documented as occurring within the project analysis area. This is the only historic or cultural resources within the analysis area that has been listed, or would likely be eligible for listing, on the National Register of Historic Places.

S.4 ARCHAEOLOGICAL OBJECTS AND SITES ON PRIVATE LANDS

OAR 345-021-0010(1)(s)(B) *For private lands, archaeological objects, as defined in ORS 358.905(1)(a), and archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area;*

Response: Four archaeological resources were identified in the analysis area. Three of these resources are prehistoric archaeological isolates (each represents the find of a single artifact) and the fourth is a small assemblage of historic-period refuse (also recorded as an archaeological isolate).

S.5 ARCHAEOLOGICAL OBJECTS AND SITES ON PUBLIC LANDS

OAR 345-021-0010(1)(s)(C) *For public lands, archaeological sites, as defined in ORS 358.905(1)(c), within the analysis area;*

Response: The Klondike III Wind Project is located entirely on private lands; therefore, an investigation of public lands was not conducted. The only public lands within the site boundaries were rights-of-way along County roads where road improvements have been proposed. No archaeological objects or sites were located on these lands.

S.6 IMPACTS OF PROPOSED PROJECT ON HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES

OAR 345-021-0010(1)(s)(D) *The significant potential impacts, if any, of the construction, operation and retirement of the proposed facility on the resources described in paragraphs (A), (B) and (C) and a plan for protection of those resources that includes at least the following:*

(i) A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the State Historic Preservation Officer and the National Park Service of the U.S. Department of Interior for the purpose of locating, identifying and assessing the significance of resources listed in OAR paragraphs (A), (B), and (C);

(ii) The results of surveys, inventories, and subsurface testing work recommended by the state and federal agencies listed in subparagraph (i), together with an explanation by the applicant of any variations from the survey, inventory, or testing recommended;

(iii) A list of measures to prevent destruction of the resources identified during surveys, inventories and subsurface testing referred to in subparagraph (i) or discovered during construction; and

(iv) A completed copy of any permit applications submitted pursuant to ORS 358.920. Notwithstanding OAR 345-021-0000(4), the applicant shall include copies of the permit applications as part of the site certificate application. If the same information required by subparagraphs (i) through (iii) above is contained in the permit applications, then the applicant may provide cross-references to the relevant sections of the permit applications in substitution; and

Response: No State of Oregon Archaeological Permit was required for the archaeological field studies as no subsurface probes were excavated, either in an identified archaeological site or as exploratory probes on public lands.

It is the general policy of the Oregon SHPO that archaeological isolates are not significant resources and are not eligible for listing in the NRHP. AINW has also stated, based on professional opinion, that the specific isolates identified by AINW are not significant resources. No mitigation measures are therefore necessary to address possible project effects to these resources.

Despite the lack of physical evidence for the Oregon Trail within the Klondike III project site boundary, the trail alignment has been recognized at both the federal and state levels. Any intact segments are highly likely to be eligible for listing on the National Register of Historic Places and would also likely be eligible for designation as a National Historic Landmark. Given this potential, construction of the Klondike III project will proceed carefully in the vicinity of the mapped alignment of the Oregon Trail. Should intact physical evidence of the trail, that is not currently recognized, be observed where there is potential for adverse effects, concerted efforts will be made to avoid any disturbance to the intact segments. These efforts may include redesign, re-engineering, or imposing limits on the areal extent of construction activity. Should avoidance of intact trail segments not be practicable, Klondike III will consult with the Oregon State Historic Preservation Office to determine appropriate mitigation measures.

In addition, construction of the turbine strings—especially those in the northeastern Klondike III area—are likely to constitute an adverse effect on the visual setting of the Oregon Trail alignment in general and any intact segments that may be extant. The following mitigation measures are proposed in order to offset adverse visual effects to the presently rural setting of the trail alignment:

1. The present setting of the Oregon Trail alignment from the John Day River canyon to Biggs will be documented through photographs and videotape prior to construction of the Klondike III project; and

2. Klondike III will partner with the Sherman County Development League and consult with the Sherman County Historical Society to develop and enhance educational and interpretive displays and materials on the Oregon Trail at Biggs, which offers the best opportunity for visitor contact given the presence of an intact segment of the trail at Biggs and the proximity to Interstate 84.

S.7 PROPOSED MONITORING PROGRAM

OAR 345-021-0010(1)(s)(E) *The applicant's proposed monitoring program, if any, for impacts to historic, cultural and archaeological resources during construction, operation and retirement of the proposed facility;*

Response: Survey results have shown that there is a low probability of finding significant cultural resources within the project site boundary due to the agricultural nature of most of the site. However, should unanticipated archaeological or historical resources be encountered during project construction, all ground-disturbing activity in the vicinity of the find will be halted, in accordance with Oregon State law (ORS 97.745 and 358.920).

The Oregon SHPO will be promptly notified to assure compliance with relevant state and federal laws and regulations, and a qualified archaeologist would be consulted.

S.8 CONCLUSION

As demonstrated in this Exhibit, the facility is not likely to result in significant adverse impacts to archaeological resources, because only scattered isolates occur within the site boundary. Nor is it likely to have direct effects on the Oregon Trail, because no intact sections remain within the site boundary. The project may have adverse impact on the visual setting of the trail. With the proposed mitigation - documenting the trail alignment from the John Day River to Biggs, and partnering with the Sherman County Historical Society to develop and enhance interpretive information at Biggs-these impacts will not be significant.

Based on above information, the Applicant has satisfied the requirements in OAR 345-0021-0010 (1)(s), and the Council may find that the requirements in OAR 345-022-0090 are satisfied.

APPENDIX S-1

Cultural Resources Analysis Results

CONFIDENTIAL

Findings: (+)
County: Sherman
Township: 1 North and 2 North
Range: 17 East, 18 East, and 19 East
USGS Quadrangle: *McDonald, Oreg., Klondike, Oreg.,* and *Wasco, Oreg.*
Project Acres: 694 acres
Acres Surveyed: 878 acres
Project Type: Survey
Field Notes Location: AINW

A CULTURAL RESOURCE SURVEY OF THE PROPOSED KLONDIKE III WIND PROJECT, SHERMAN COUNTY, OREGON

Prepared for
David Evans and Associates, Inc.
Portland, Oregon
and
Klondike Wind Power III LLC
Portland, Oregon

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REPORT NO. 1450

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EXHIBIT T

RECREATIONAL FACILITIES AND OPPORTUNITIES

OAR 345-021-0010(1)(t)

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APPENDICES

T.1 INTRODUCTION

Exhibit T addresses impacts the proposed facility would have on important recreational opportunities in the analysis area. This exhibit responds to the requirements of OAR 345-021-0010(1)(t), as follows:

OAR 345-021-0010(1)(t) *Information about the impacts the proposed facility would have on important recreational opportunities in the analysis area, providing evidence to support a finding by the Council as required by OAR 345-022-0100, including:*

Response: **OAR 345-022-0100(1)** requires that the application for site certificate for the proposed energy facility address important recreational opportunities, and that "the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in significant adverse impact to important recreational opportunities in the analysis area as described in the project order."

The Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(t) and provides evidence to support a finding by the Council as required by OAR 345-022-0100.

T.2 IMPORTANT RECREATIONAL OPPORTUNITIES AND FACILITIES IN THE ANALYSIS AREA

OAR-345-021-0010(1)(t)(A) *A description of any important recreational opportunities in the analysis area considering the criteria in OAR 345-022-0100;*

Response: The analysis area for impacts on recreational opportunities includes the area within the site boundary and extends five miles beyond the site boundary in Oregon as shown in Figure T-1 (Appendix T-1). In general, recreational activities within the analysis area include upland bird and big game (i.e., deer) hunting, rafting, boating, fishing, sightseeing, nature and wildlife photography, and bicycling. Horseback riding, hiking, and camping may also occur on a limited basis. (Anderson 2005, Macnab 2005, Mottl, H. 2005). Water-based recreation activities occur on the nearby John Day River. Recreational opportunities within the site boundary are generally limited to "access by permission only" upland bird and deer hunting on private property and viewing historic trail alignments from county roads.

OAR 345-022-0100 prescribes criteria used to evaluate a recreation facility's relative importance: any special designation or management, degree of demand, outstanding or unusual qualities, availability or rareness, and irreplaceability or irretrievability of the opportunity. No important recreational facilities or opportunities exist within the site boundary. Several potentially important opportunities have been identified in the analysis area:

- John Day River (approximately River Mile 5 to 26)
- Journey Through Time Scenic Byway (US 97) (approximately Milepost 0 to 36)

- Historic Oregon Trail alignment, including the Barlow Road Cutoff Trail alignment
- Sherman County Historical Museum (Moro)
- Sherman County Fairgrounds and RV Park (Moro)
- DeMoss Springs Memorial Park
- Moro City Park
- Wasco City Park
- Upland bird and deer hunting

These potentially important recreational facilities and opportunities have been evaluated against the criteria prescribed in OAR 345-022-0100, a summary of which is included in Appendix T-2. Based on this evaluation, four important recreational facilities and opportunities have been identified within the analysis area: the John Day River Corridor, Journey Through Time Scenic Byway, Historic Oregon Trail and Barlow Road Cutoff Trail alignments, and DeMoss Springs Memorial Park. It is questionable if DeMoss Springs Memorial Park substantially meets the criteria to be considered important, but has been included as an important facility for the sake of completeness. These four facilities and opportunities are described below.

T.2.1 John Day River

The John Day River system includes more than 500 river miles and is one of the longest free-flowing river systems in the continental United States (USDI 2001). The main stem between approximately river miles 5 and 26 runs through the analysis area. This segment is a designated Federal Wild and Scenic River (WSR) and classified as Recreational, meaning that at the time of designation, the segment was readily accessible by road or railroad, may have some shoreline development, and may have undergone some impoundment or diversion in the past. Outstanding remarkable values include "scenic, recreation, fish, wildlife, geological, paleontological, and archaeological"; botanical and ecological values are also deemed significant (USDI 2001). The segment is also designated as a State Scenic Waterway pursuant to the Oregon State Scenic Waterways Act administered by the Oregon Parks and Recreation Department. The State of Oregon also established the John Day Wildlife Refuge in 1933, which includes the river segment in the analysis area. The primary purpose of the refuge is to protect wintering and nesting waterfowl (USDI 2001).

The primary recreational uses in the analysis area include boating, rafting, and fishing. Secondary uses may include upland bird hunting, sightseeing, and nature/wildlife photography (Mottl, H. 2005, Anderson 2005, Macnab 2005). Two BLM developed day use areas occur in the analysis area: Oregon Trail Interpretive Site near McDonald Crossing and the Rock Creek facility. Both provide boating access to the John Day River (USDI 2001). The interpretive site near McDonald Crossing also provides historical

information on the Oregon Trail. Wheel ruts and scars are visible on the adjacent hillside from the interpretive site (Appendix T-3, Photo T-1). There are no developed or undeveloped camping sites along the river in the analysis area (USDI 2001). Photos T-2 and T-3 (Appendix T-3) illustrate typical landscapes along the John Day River corridor viewed from OR 206 and near McDonald Crossing, respectively.

T.2.2 Journey Through Time Scenic Byway

The Journey Through Time Scenic Byway is a designated Oregon State Scenic Byway. The byway runs south out of Biggs along US 97 through the analysis area to Shaniko, where it turns east, and eventually courses to Baker City. The "route celebrates an area of uncommonly rich history. The route is a story of fortunes made and lost, of Chinese laborers and their culture, of towns that boomed and busted, of timber, agriculture, and pioneer settlers" (Wetter 1996).

Primary recreational uses include sightseeing and road touring. There are no developed scenic overlooks or waysides along the byway in the analysis area. Bicyclists tend to avoid US 97 due to the relatively heavy traffic volumes (Macnab 2005) including commercial traffic.

Typical views along the Journey Through Time Scenic Byway are included in Appendix T-3, Photos T-4 through T-7.

T.2.3 Historic Oregon Trail and Barlow Road Cutoff Trail Alignments

Although the trail alignments technically meet the criteria of being important recreational opportunities, agricultural practices and other development activities have destroyed nearly all evidence of the trails in the analysis area. No intact segments have been identified within the site boundary. The only accessible, intact segment within the analysis area that has been identified occurs near the McDonald Crossing as previously described in section T.2.1 above.

Trail crossings at county and state roads are somewhat well signed within the analysis area, but many signs are dilapidated or missing. Further, the surrounding landscape is primarily private land cultivated for wheat, so the recreational opportunity is limited to visiting and viewing the approximate historic alignments from county roads. Typical alignment viewing opportunities are shown in Appendix T-3, Photos T-8 through T-10. The Sherman County Historical Society has relocated an inscribed six-foot basalt column that is thought to be an artifact from the Historic Oregon Trail to a location on McDonald Ferry Lane approximately two and one-half miles east of Webfoot (Appendix T-3, Photo T-11).

T.2.4 DeMoss Springs Memorial Park

DeMoss Springs Memorial Park is a Sherman County park located between Wasco and Moro on US 97 and marks the location of the DeMoss family townsite (Appendix T-3, Photos 12 and 13). The DeMoss Lyric Bards were a relatively famous family of traveling musicians touring the US and beyond between 1872 and 1933. They studied and played

abroad for world leaders and played at five world fairs. The family settled at the current park site in 1883; the park was dedicated to Sherman County in 1921. Park facilities include two shelters, a picnic area, and interpretive signs.

T.3 SIGNIFICANT POTENTIAL ADVERSE IMPACTS TO THE OPPORTUNITIES IDENTIFIED

OAR 345-021-0010(1)(t)(B) *An assessment of significant potential adverse impacts to the opportunities identified in (A) including, but not limited to, potential impacts such as*:

(i) Direct or indirect loss of an opportunity as a result of construction or operation;

Response: Direct or indirect loss of opportunities for each of the identified important recreational opportunities are discussed below.

John Day River: There will be no direct loss of opportunity. Indirect losses could result from impacts to visual resources, but these impacts are expected to be minimal and are described in (*vi*) below.

Journey Through Time Scenic Byway: There will be no direct loss of opportunity. Indirect losses could result from temporary traffic impacts that are expected to be negligible and are described in (*iii*) below. The proposed facility is compatible with the goals stated in the Journey Through Time Management Plans: 1) Create jobs, 2) Maintain rural lifestyles, 3) Protect important values (i.e., historical attractions and artifacts), and 4) Build identity for the North Central Region (Wetter 1996).

Historic Oregon Trail and Barlow Road Cutoff Trail Alignments: This evaluation is based on the premise that an historic trail alignment alone does not constitute an important recreational resource; that is, in order for the trail to constitute an important recreational resource, physical evidence of the trail must be present.

There will be no direct or indirect loss of an opportunity as a result of project design, construction, or operation. The proposed facility occurs on private property on which no intact trail segments have been identified. Further, the project would not affect existing locations where the historic trail alignments cross county roads, nor would turbines be constructed over the historic alignments. Access roads would cross the historic alignments in a few locations, but would not impact intact segments because none exist at the proposed access road crossings.

DeMoss Springs Memorial Park: There would be no direct loss of opportunity at DeMoss Springs Memorial Park. The proposed facility is not expected to be visible from the park, so indirect impacts are not expected to occur.

(ii) Noise resulting from facility construction or operation;

Response: As detailed in Exhibit X, projected noise levels resulting from facility construction and operation would meet requirements contained in Oregon Department of Environmental Quality rules. For four noise receptors that may require a legally effective easement or real covenant that benefits the property on which the wind energy facility is located, as described in Exhibit X, none of these noise receptors are in the vicinity of the identified important recreational opportunities.

Given projected noise levels and distance between turbine locations and Protected Areas, noise resulting from facility construction or operation would not impact Protected Areas.

(iii) Increased traffic resulting from facility construction or operation;

Response: A detailed description of traffic resulting from facility construction and operation is included in Exhibit U.

The construction access route includes using US 97 from Biggs Junction at I-84 to the US 97/OR 206 intersection near Wasco. Construction traffic may also approach the site from the south on US 97. Construction traffic would use OR 206 to reach Wasco, and then use a series of local Sherman County roads to reach construction sites within the site boundary. Several local roads would need to be improved to accommodate heavier construction equipment, resulting in a long-term improvement to the local road system.

Temporary impacts such as short-term traffic delays on US 97 and local roads may affect access to recreational opportunities. However, several passing lanes on US 97 would alleviate potential impacts. Traffic demands on local roads are currently low. Any effects are expected to be temporary, negligible, and would not have detrimental impact on recreational opportunities. Long-term negative impacts due to traffic would be negligible because the facility would employ 15 to 20 people.

Local road improvements would enhance portions of the access route to the John Day River via McDonald Ferry Lane, and thus have some positive impact on ability to access the river. Visitor interest in the wind farm may also augment visits to existing recreational opportunities.

Increased traffic resulting from facility construction or operation would not detrimentally impact important recreational opportunities.

(iv) Water use during facility construction or operation;

Response: As stated in Exhibit O, water use during facility construction and operation will be minimal. During construction, water will be trucked in from offsite. During operations, the water source will be a well near the proposed Klondike III O&M facility. Water will be used during construction for concrete

mixing, road compaction, and dust suppression. Water will be used during facility operation for drinking, toilet flushing, and sink operation.

Water use for dust suppression would have a positive affect on recreational opportunities by improving air quality and reducing haze. Other water uses during facility construction or operation would not affect recreational opportunities.

(v) Wastewater resulting from facility construction or operation;

Response: As stated in Exhibit V, the use of water for construction practices is not anticipated to generate runoff. Wastewater would not be discharged into wetlands or other adjacent resources. Sanitary effluent would be treated via the proposed septic tank and stormwater would infiltrate on site.

Wastewater resulting from facility construction or operation would not affect recreational opportunities.

(vi) Visual impacts of facility structures, including cooling tower or other plumes, if any; and

Response: Exhibit R includes a thorough discussion of potential impacts to scenic and aesthetic resources resulting from the proposed facility. A summary of potential visual impacts to important recreational opportunities is discussed below.

John Day River: The Bureau of Land Management (BLM) administers the public lands within the analysis area and is guided by several potentially applicable management plans. Exhibit R includes a thorough discussion of these documents and potential project impacts to visual and aesthetic resources. Because the proposed facility occurs on private land, the proposed facility is not under BLM jurisdiction. However, the following discussion is included to demonstrate compatibility with BLM management guidance for scenic resources in the John Day River corridor.

The John Day Federal WSR and John Day State Scenic Waterway are managed for outstanding scenic quality (USDI 1986, USDI 2000, USDI 2001). The BLM has indicated that its primary concern would be visual impacts seen from the John Day River (Mottl, H. 2005).

A seen area analysis conducted using geographical information systems (GIS) technology has shown that portions of the proposed project would be intermittently visible from the John Day River between approximately river miles 15.2 and 16.8. Portions of the project may also be visible from some locations along the upper portions of the canyon walls with the highest likelihood occurring downstream of the McDonald Crossing (approximately river mile 20.7).

BLM classifies all WSR segments as Visual Resource Management (VRM) Class II in which "management activities resulting in changes to the existing character

of the landscape may be allowed, provided they do not attract the attention of the casual observer" (USDI 2000). Because access to the rim and canyon walls is very limited, potential impacts to these areas would not be significant and are not the primary concern of the BLM (Mottl, H. 2005).

The John Day River system includes over 500 river miles. Computer modeling indicates portions of the proposed facility may be seen from approximately 1.6 river miles, or 0.3 percent of the entire river system. Given the relatively small portion of river that may be affected, that nearly all developed and undeveloped recreation sites within the river corridor occur upstream of river mile 40 (well beyond the analysis area) and would not likely see the proposed facility, and that the lower 40 river miles are interspersed with significant private lands, the proposed facility would not significantly affect recreational opportunities on the John Day River.

Journey Through Time Scenic Byway: Portions of the proposed facility will likely be visible from the Journey Through Time Scenic Byway between Wasco and Moro (approximately mileposts 8 to 14) and between approximately mileposts 22 and 23. The byway management plan does not prescribe scenic management goals, but rather emphasizes four discrete goals restated here: 1) Create jobs, 2) Maintain rural lifestyles, 3) Protect important values (i.e., historical attractions and artifacts), and 4) Build identity for the North Central Region (Wetter 1996). The proposed facility will create jobs and support farming in this rural area. Therefore, the project is compatible with the byway management plan goals, so there will be no adverse visual impact to the scenic byway.

Historic Oregon Trail and Barlow Road Cutoff Trail Alignments: This evaluation is based on the premise that an historic trail alignment alone does not constitute an important recreational resource; that is, in order for the trail to constitute an important recreational resource, physical evidence of the trail must be present.

The project would not be visible from the BLM Oregon Trail Interpretive Site near McDonald Crossing, so there would be no visual impact to this important recreational opportunity. The project would be visible from many points along the historic alignment, but not from known, accessible, intact segments. Therefore, there would be no visual impact to the trail alignments.

DeMoss Springs Memorial Park: Terrain and vegetation would screen the project from DeMoss Springs Memorial Park. Since the project would not be seen, there would be no visual impact to the park.

In conclusion, visual impacts from the design, construction, and operation of the facility would not significantly impact important recreation opportunities.

(vii) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-204-0050;

Response: The proposed project would not create air emissions, so no impacts would occur.

T.4 MITIGATION MEASURES

OAR 345-021-0010(1)(t)(C) *A description of any measures the applicant proposes to avoid, reduce or otherwise mitigate the significant adverse impacts identified in (B);*

Response: Because the proposed project would not result in significant adverse impacts, no mitigation is proposed.

T.5 MAP OF ANALYSIS AREA

OAR 345-021-0010(1)(t)(D) *A map of the analysis area showing the locations of important recreational opportunities identified in (A);* and

Response: Figure T-1 (in Appendix T-1) shows the analysis area for recreational opportunities and facilities and important recreational facilities identified pursuant to OAR 345-021-0010(t)(A). Appendix T-3, includes photographs of important recreation facilities in the analysis area.

T.6 MONITORING PROGRAM

OAR 345-021-0010(1)(t)(E) *The applicant's proposed monitoring program, if any, for impacts to important recreational opportunities.*

Response: Because no significant impacts have been identified and because no mitigation is warranted or proposed, a monitoring plan is not proposed.

T.7 CONCLUSION

The project will comply with all applicable regulatory guidelines concerning important recreational opportunities as discussed above in the responses to the requirements contained in OAR 345-021-0010(l)(t)(A), (B), (C), (D), and (E). Based on the above, the Applicant has satisfied OAR 345-021-0010(1)(t), and the Council may find requirements in OAR 345-22-0100 are satisfied.

T.8 REFERENCES

T.8.1 Telephone Contacts

Anderson, Susi. County Planner. Gilliam County, Oregon. Telephone conversation with Sean Sullivan. March 7, 2005.

Macnab, Georgia. County Planner. Sherman County, Oregon. Telephone conversation with Sean Sullivan. March 3, 2005.

Mottl, Heidi. Recreation Planner. Prineville District, Bureau of Land Management. Telephone conversation with Sean Sullivan. March 3, 2005.

T.8.2 Website/Document References

USDI Bureau of Land Management. Two Rivers Resource Management Plan Record of Decision. June 1986.

USDI Bureau of Land Management. John Day River Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement. June 2000.

USDI Bureau of Land Management. John Day River Management Plan, Two Rivers, John Day, and Baker Resource Management Plan Amendments Record of Decision. February 2001.

Wetter, Michael et al. Journey Through Time Management Plan, for Oregon Department of Transportation. March, 1996.

APPENDIX T-1

Recreational Facilities and Opportunities – Map

Klondike III Wind Project

Figure T-1
Important Recreation Opportunities

McDonald Ferry Crossing

Rock Creek Facility

DeMoss Springs Memorial Park

Wasco

Moro

HWY 206

HWY 97

JOHN DAY

WASHINGTON
OREGON

184

Legend

- Journey Through Time Scenic Byway (US 97)
- Historic Oregon Trail Alignment
- Barlow Cutoff Trail Alignment
- John Day River Corridor
- Site Boundary
- Lease Boundary
- Recreation Analysis Area

0 1 2 4
Miles

Note: Many boundaries shown on this map have been digitized from hard-copy maps provided by various resource agencies. Accordingly, the boundaries are approximate and are suitable for illustrative purposes only.

p:/ppme00000001/0600info/gs/arcmap/figures/fig_t1_recreation.mxd March 31, 2005

APPENDIX T-2

Recreational Facilities and Opportunities - Summary of Recreational Importance Evaluation

Appendix T-2. Summary of Recreational Importance Evaluation for Klondike III Wind Project

	Criteria					
Facility	**Special Designation/Mgmt**	**Degree of Demand**	**Outstanding / Unusual Quality**	**Availability / Rareness**	**Irreplaceability / Irretrievability**	**Important?**
John Day River Corridor (approx. RM 5 to 26)	Federal Wild and Scenic River (Recreational) State Scenic Waterway State Wildlife Refuge John Day River Management Plan Two Rivers Resource Management Plan	Moderate to High	Outstanding scenic, recreation, fish, wildlife, geological, paleontological, and archaeological; significant ecological, botanical[2]	Uncommon	Somewhat irreplaceable	Yes
Journey Through Time Scenic Byway (approx. Milepost 0 to 36)	Oregon State Scenic Byway Journey Through Time Management Plan	Moderate	Chronicles the history of settlement in Central Oregon	Scenic quality common in analysis area	Somewhat irreplaceable	Yes
Historic Oregon Trail and Barlow Road Cutoff Trail	National Historic Trail Management and Use Plan Update FEIS Oregon National Historic Trail	Moderate	Most trail remnants destroyed due to ag practices; no access to intact segments on public land; Trail is unusual	Alignment is common in region; intact segment is rare	Most trail already irretrievably altered; intact segments are irreplaceable	Yes
Sherman County Historical Museum (Moro)	None known[1]	Low to Moderate	Typical rural county museum	Common	Replaceable	No
Sherman County Fairgrounds & RV Park (Moro)	None known[1]	Low to Moderate	Typical rural county fairground	Common	Replaceable	No
DeMoss Springs Memorial Park	None known[1]	Moderate	Marks location of 1880s town site; limited facilities	Uncommon given historic context	Somewhat irreplaceable	Questionable, include for completeness
Moro City Park	None known[1]	Low	Not outstanding – limited facilities	Common	Replaceable	No
Wasco City Park	None known[1]	Low	Not outstanding – no facilities	Common	Replaceable	No
Hunting (upland bird and deer)	ODFW hunting regulations	Low to Moderate	Not outstanding	Common	Replaceable / retrievable	No

[1] Sherman County Comprehensive Land Use Plan applies, but provides no special designation or management objectives.
[2] Record of Decision, John Day River Management Plan, Two Rivers, John Day, and Baker Resource Management Plan Amendments, February 2001.

APPENDIX T-3

Recreational Facilities and Opportunities – Photographs of Facilities

PHOTO T-1: Oregon Trail Interpretive Site near McDonald Crossing.

PHOTO T-2: John Day River corridor viewed from OR 206 looking north (downstream).

PHOTO T-3: John Day River corridor viewed from Oregon Trail Interpretive Site looking northeast.

PHOTO T-4: US 97 at MP 4.3 looking south.

PHOTO T-5: US 97 at MP 12 looking north.

PHOTO T- 6: US 97 at MP 12 looking south.

PHOTO T-7: US 97 at MP 22.8 looking north.

PHOTO T-8: Approximate Oregon Historic Trail alignment along McDonald Ferry Lane.

PHOTO T-9: Approximate Oregon Historic Trail alignment viewed from Medler Road looking south.

PHOTO T-10: Approximate Barlow Road Cutoff Trail alignment viewed from Sandon Road looking northeast.

PHOTO T-11: Basalt marker approximately 2.5 miles east of Webfoot on McDonald Ferry Lane.

PHOTO T-12: Entrance to DeMoss Springs Memorial Park from US 97

PHOTO T-13: DeMoss Springs Memorial Park

EXHIBIT U

PUBLIC SERVICES / SOCIO-ECONOMIC IMPACTS
OAR 345-021-0010(1)(u)

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TABLES

U.1 INTRODUCTION

OAR 345-021-0010(1)(u) *Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by OAR 345-022-0110. The applicant shall include:*

Response: Under OAR 345-022-0110(1), the Council must find that the construction and operation of the proposed facility, taking into account mitigation, are not likely to result in significant potential adverse impacts to the ability of the public and private providers in the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

U.2 IMPORTANT ASSUMPTIONS USED TO EVALUATE POTENTIAL IMPACTS

OAR 345-021-0010(1)(u)(A) *The important assumptions the applicant used to evaluate potential impacts*;

Response: In undertaking this analysis, Klondike Wind Power III LLC made the following estimates:

A. Facility construction is anticipated to take about nine months and employ an estimated 100 to 120 workers at peak construction periods. Construction workers will include locally hired workers for road and turbine pad construction as local expertise and availability permits; the remaining workers will be from outside the local area. When feasible, preference will be given to local workers. It is assumed that at least half of the construction workers will be come from outside of the area.

B. During the anticipated 20 to 30-year life of the proposed facility, operation and maintenance ("O&M") will employ 15 to 20 full-time and part-time employees.

C. The study area includes eight incorporated communities with a combined 2003 population of 15,450, or about 56 percent of the combined population for Gilliam, Sherman, and Morrow counties. Unemployment rates in December 2004, as reported by the Oregon Employment Department, range from 5.9 percent in Gilliam County to 10.3 percent in Wasco County; Sherman County has an unemployment rate of 9.8 percent. Based on existing unemployment in the analysis area, it is assumed that approximately 40% of the full-time and part-time operational employees (8 employees) would be hired from within the analysis area, and 60% (12 employees) would be hired from outside the area (in-migrant).

D. Existing capacities of public services were used to estimate the current level of service for the communities within the analysis area.

E. Klondike Wind Power III LLC will lease land for the facility from local landowners. Land lease payments will be made annually.

U.3 PUBLIC AND PRIVATE PROVIDERS IN THE ANALYSIS AREA

OAR 345-021-0010(1)(u)(B) *Identification of the public and private providers in the analysis area that would likely be affected;*

Response: Responses are provided in sections U.3.1 and U.3.2, below.

U.3.1 Population Within Analysis Area

While the project itself is entirely within Sherman County, the analysis area includes portions of Gilliam, Sherman, and Wasco counties and incorporated communities with a 30-mile radius of the project site. There are eight incorporated communities within the 30-mile analysis area: Arlington, Condon, Dufur, Grass Valley, Moro, Rufus, The Dalles, and Wasco. The 2003 population for all of these communities is 15,450, which accounts for about 56% of the entire population for Gilliam, Sherman, and Wasco Counties, as shown in Table U-1. By far the largest community in the project area is The Dalles, located on the far western side of the project area in Wasco County. The Dalles had a 2003 population of 12,350 people, accounting for about 80 percent of the analysis area's population in incorporated communities. The next largest community is Condon (Gilliam County) with 770 people.

Between 1990 and 2003, communities in the analysis area added population at varying rates, with the highest percent change occurring in Condon, which grew by nearly 18%, although a closer look at that community population growth actually shows a decline between 1990 and 2000 and then a sharp increase, over 40 percent, between 2000 and 2003. Other growing communities include Arlington, Moro, Dufur, and The Dalles, which grew from between 11% and 25% between 1990 and 2003.

Growth has occurred throughout the analysis area, but appears to have occurred mainly in western portion of the analysis area in The Dalles, which added 1,721 people since 1990. Other communities have also added residents, as described above, but not to the degree experienced in The Dalles. Sherman County was the only county in the analysis area to lose population, unlike Wasco and Gilliam Counties, which have grown by approximately 7.9% and 9.6%, respectively.

Table U- 1. Population of Incorporated Communities within the Analysis Area

	Population				
	1990	2000	2003	Percent Change 1990-2003	Percent Change 2000-2003
Gilliam County	1,717	1,915	1,900	9.6%	-0.8%
Arlington	*425*	*524*	*570*	*25.4%*	*8.1%*
Condon	*635*	*459*	*770*	*17.5%*	*40.4%*
Sherman County	1,918	1,934	1,900	-0.9%	-1.8%
Grass Valley	*160*	*171*	*170*	*5.9%*	*-0.6%*
Moro	*292*	*337*	*340*	*14.1%*	*0.9%*
Rufus	*295*	*268*	*270*	*-9.3%*	*0.7%*
Wasco	*374*	*381*	*380*	*1.6%*	*-0.3%*
Wasco County	21,683	23,791	23,550	7.9%	-1.0%
Dufur	*527*	*588*	*600*	*12.2%*	*2.0%*
The Dalles	*11,021*	*12,156*	*12,350*	*10.8%*	*1.6%*
Combined population of cities within the analysis area	13,729	14,884	15,450		
Percentage of three county total population	54%	54%	56%		

Source: Center for Population Research and Census, 2005

It is likely that full-time, operational in-migrant employees would relocate to one of the above communities within the 30-mile radius of the proposed facility. However, there are also small unincorporated communities (where localized census data are not available) within the analysis area boundary. It is possible that workers moving to the area may choose to relocate to one of these communities or choose to live in a rural area outside of a town or city where the residences would likely have private wells and septic systems.

U.3.2 Public and Private Providers

Table U-2 identifies the public service and utility providers for the affected communities in the analysis area that provide the essential governmental services listed in OAR 345-022-0110(1). The following is a description of the current public service providers by community in the analysis area.

Table U- 2. Public Service Providers in the Analysis Area

Type of Service	Provider by Jurisdiction	Relevant Issues/Concerns:
Sewers and Sewage Treatment	Condon: City of Condon. Lagoon treatment system with 0.13 mgd capacity. Treatment system built in 1997.	In the process of upgrading wastewater collection system. Have completed portions of the new system. Improvements are ongoing as funds are available.
	Arlington: City of Arlington. Lagoon treatment system with 0.13 mgd capacity. No other information available.	Unknown
	Grass Valley: City of Grass Valley. No other information available.	Unknown
	Moro: City of Moro. Lagoon treatment system with 0.05 mgd capacity. Stores effluent during winter months and then disperses on city owned land or evaporates in lagoons.	A fourth lagoon will be added to increase winter storage needs and comply with DEQ requirements. The entire wastewater collection system will be replaced as funds are available.
	Rufus: City of Rufus. Lagoon treatment system with 0.40 mgd capacity. Effluent drains into drainage ditches.	Treatment plant is at capacity. The City is in noncompliance with DEQ. Working with DEQ to develop new system. By 2007, the City will switch from using drainage ditches to sprinklers for effluent removal.
	Wasco: City of Wasco. Lagoon treatment capacity 0.035 mgd/average use 0.024 mgd. Stores effluent during winter months and then disperses on city owned land after frost.	The City is in the process of constructing a new storage pond. The City has been in noncompliance for storage for the last year. The new capacity will meet the city's needs and compliance issues with DEQ.
	Dufur: City of Dufur. Treatment capacity unknown. Releases effluent during winter and spring to 15-Mile Creek. Irrigates alfalfa during the summer on city owned land.	Recently installed a third lagoon for storage and built an irrigation system to disperse effluent to city owned land during the summer. No DEQ issues now that new system is online.
	The Dalles: City of The Dalles. Treatment capacity 4.14 mgd/average use: 2 to 2.5 mgd. Drains to Columbia River below boat basin. Serves entire city UGB.	Amending Master Plan. The City is in the process of a $7 million upgrade to the treatment facility. Phase One will be complete in 18 months.
Water	Condon: City of Condon. Wells within city limits, providing 0.50 mgd. Water stored in reserviors.	In the process of upgrading water lines. Have completed portions of the new system. Improvements are ongoing as funds are available.
	Arlington: City of Arlington. Wells within city limits providing 0.17 mgd. No other information available.	Unknown
	Grass Valley: No information available.	Unknown
	Moro: City of Moro. Three wells provide 100 percent of the city's water. Capacity unknown.	None. Prior to drilling the third well, water rationing was required but with the addition of the third well drilled recently, the city has adequate capacity without rationing.

Type of Service	Provider by Jurisdiction	Relevant Issues/Concerns:
	Rufus: City of Rufus. Operates three wells within the city limits, providing 0.40 mgd. Stores water in one 300,000 gallon reservior.	None. The system was completely reconstructed recently.
	Wasco: City of Wasco. Two wells provide 100 percent of the city's water. Capacity is approximately 0.30 mgd. Well capacity unknown.	The City rebuilt its water system two years ago. No issues to date.
	Dufur: City of Dufur. Two wells provide 100 percent of the city's water. Capacity is approximately 0.30 mgd	None. Future plans are to build a line from the well directly to the reservoirs rather than the existing on-demand system.
	The Dalles: City of The Dalles. 23,000 acre surface water permit provides 80 to 85 percent of municipal water. Three city wells provide remaining needs during peak times.	Developing a new Water Master Plan to be completed in June 2005 that will include a 20 year capital improvement plan.
Storm Water	Condon: City of Condon. The City has a stormwater system.	None.
	Arlington. The City of Arlington. The City has storm drains. No other information available.	Unknown
	Grass Valley: Unknown	Unknown
	Moro: City of Moro. Conveyance only, no treatment. The City has storm drains that discharge directly into Dry Creek. Provides coverage for entire city.	None.
	Rufus: No system.	N/A
	Wasco: No system.	N/A
	Dufur: No system.	N/A
	The Dalles: City of The Dalles provides conveyance only. The City also operates 4 oil/water separators.	Considering developing a stormwater management plan, but no schedule for completion.
Solid Waste Management	Condon: Sunrise Disposal and Recycling	See below.
	Arlington: City of Arlington. The City provides collection service for the entire city.	None.
	Grass Valley: Sunrise Disposal and Recycling	See below.
	Moro: Sunrise Disposal and Recycling	
	Rufus: Sunrise Disposal and Recycling	
	Wasco: Sunrise Disposal and Recycling	
	Dufur: Mel's Sanitary Service	The project is outside of the service area.
	The Dalles: The Dalles Disposal	The project is outside of the service area.

Type of Service	Provider by Jurisdiction	Relevant Issues/Concerns:
	Columbia Ridge Recycling and Landfill/ Chemical Waste Management of the Northwest	None. The landfill and recycling portion of the operation serves Oregon, Washington, Idaho, Alaska, Montana, and British Columbia and has approximately 56 years left with the current configuration. The hazardous waste facilties have the same service area, but also accept some materials from other sources nationwide.
	Sunrise Disposal and Recycling: Provides garbage and recycling services to all of Sherman County and portions of Gilliam County. Also operates a transfer facility that is open to the public twice a month. All refuse and recycling is sent to the Columbia Ridge facility.	No hazardous waste pickup is provided. Many residents bury paint and pesticides rather than disposing of them appropriately.
Police	Condon: Condon City Police Department. One full-time officer, three reserve staff.	None
	Arlington: Gilliam County Sheriff's Department	None: The Gilliam County Sheriff's Department patrols Gilliam County and provides police service to the City of Arlington. The Sheriff's Department has four full time officers and one office deputy. The station is located in the City of Condon. Staff is adequate to meet the county's needs.
	Grass Valley: Sherman County Sheriff's Department Moro: Sherman County Sheriff's Department Rufus: Sherman County Sheriff's Department Wasco: Sherman County Sheriff's Department	None. The Sherman County Sheriff's Department patrols Sherman County and provides police service for the cities of Grass Valley, Moro, Rufus, and Wasco. The Sheriff's Department has four full time officers, one part time officer, and one sheriff. The station is located in Moro. Staff is adequate to meet the county's needs.
	Dufur: Wasco County Sheriff's Department	None: The Wasco County Sheriff's Department patrols Wasco County and also provides police service to the City of Dufur. The Sheriff's Department has 17 full time officers, including the sheriff. The station is located in The Dalles. Staff is adequate to meet the county's needs.
	The Dalles: The Dalles Police Department. Provides police service within The Dalles city limits.	Project site is outside of service area.
Fire Protection and Emergency Response	Condon: City of Condon Fire Department. Serves the city of Condon and outlying areas. 20 volunteer staff. One station with two fire trucks plus rural fire equipment	None
	Arlington: Gilliam County Rural Fire Department	Unknown
	Grass Valley: South Sherman Fire Department	Unknown

Type of Service	Provider by Jurisdiction	Relevant Issues/Concerns:
	Moro: City of Moro Rural Fire Protection District. The district serves Moro and outlying areas with fire and ambulance service. The district also provides ambulance service for the North Sherman Fire Protection District. Facilities include one fire station with 11 volunteers, one fire chief and one assistant fire chief.	None
	Rufus: City of Rufus. The City has a volunteer fire department with a single station and five volunteers that serves the city and nearby areas.	None
	Wasco: North Sherman Fire Protection District. Serves North Sherman County and the existing Klondike windfarm. 10 volunteers, one fire chief, one assistant fire chief, two lieutenants. One station in Wasco. Two engines, two tenders, one tanker truck, and one jeep. Staff trained in high angle rescue.	None
	Dufur: City of Dufur Fire and Ambulance. Serves the City and surrounding areas, as needed. 10 to 12 fire volunteers, 15 ambulance volunteers. One station, two fire trucks, one rescue rig.	None
	The Dalles: Mid Columbia Fire and Rescue. Serves The Dalles and northern Wasco County. One station in The Dalles. One fire chief, one assistant chief, one fire marshall, three captains, three lieutenants and 12 engineers. 36 volunteers. Provides fire and ambulance service.	Project site is outside of service area
Health Care (Regional Facilities)	Mid-Columbia Medical Center: Regional Medical Center (The Dalles). Full service facility providing emergency and surgery services.	None. Mid-Columbia Medical Center is a regional full service facility. Emergency services would be able to accommodate emergency situations.
Education	Condon: Condon School District #25. One K-8 and one high school.	Enrollment has declined consistently for the last 10 years. No facilities issues, but a loss of revenue from fewer students reduces overall revenue for the school district.
	Arlington: Arlington School District #13. One K-8 and one high school. Approximately 136 students.	Enrollment has declined recently from approximately 160 students to 136. Loss of students equates to a loss of revenue for the school district. There are no outstanding facility issues, other than reduced revenue for upkeep.

Type of Service	Provider by Jurisdiction	Relevant Issues/Concerns:
	Grass Valley: Sherman County School District Moro: Sherman County School District Rufus: Sherman County School District Wasco: Sherman County School District	Sherman County School District serves the entire county. The district has one high school with grades 7 to 12 located in Moro. There are two elementary schools in the district providing kindergarten through 6th grade. The elementary schools are located in Wasco and Grass Valley. There are approximately 280 students although enrollment has decreased in the last several years. The district has adequate capacity and there are no facility needs.
	Dufur: Wasco School District #29: One K-12 school located in Dufur.	School enrollment has grown in the last five years to approximately 255 students. The district recently increased its classroom size and built a new gymnasium. There are no facility or capacity issues.
	The Dalles: The Dalles School District #12. One high school (two campuses), two middle schools, three elementary schools. Various sports facilities throughout district	Recently merged with Chenowith School District. Facilities generally adequate, although the high schools have parking and food service issues. No new facilities planned. Upgrades to track facilties are completed and are now completing deferred maintenance issues. Projecting 1 to 3 percent growth annually for the next ten years.

U.4 SERVICE PROVIDERS IN COMMUNITIES

OAR 345-021-0010(1)(u)(C) *A description of any likely adverse impact to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0110;*

Response: Responses are provided in sections U.4.1 through U.4.11, below.

U.4.1 Economic and Demographic Impacts

U.4.1.1 Population

Limited in-migration for construction-related employment as well as permanent O&M employment is expected to occur as a result of the proposed project, having a beneficial impact on businesses in the nearby communities from increased patronage of area motels, restaurants, and other supporting services. Temporary construction-related jobs filled from outside of the analysis area are anticipated to last no more than 9 months, but during that time workers will likely stay in one of the area motels, eat at local restaurants, and purchase other amenities such as gas and groceries, all having a beneficial impact on the local economy. To the extent practicable, residents from the local communities would fill the 15 to 20 permanent full-time and part-time O&M jobs. In-migrant operational staff and their families would not have a significant impact on local population, particularly in

Sherman County which has lost population since 1990. Assuming 60 percent of permanent positions are filled from outside the analysis area, approximately 29 new residents would be added (12 new employees x 2.43 average persons per household) to Sherman County's population, assuming all relocated within the county and not in another county.

U.4.1.2 Economic Activity

An earlier and smaller wind power facility (Klondike I, 24 megawatts) was shown to not have any adverse impacts to public and private service providers in the area. In contrast, revenue generated for the local economy has been a boon for public services, including schools and others services Sherman County provides for its residents (Ourderkirk and Pedden, 2004). While Gilliam and Wasco County would not gain revenue from the site operation through tax payments, residents from communities within those counties may be employed during the construction or operation phases of the project. Income earned by those individuals as a result of the proposed facility would contribute to the local economy indirectly through local purchases. In addition, the proposed facility itself would purchase goods and services from local and regional businesses, from facility maintenance services to office equipment to business services. Lease payments to local landowners will also benefit the local economy because it is likely that a portion of the lease payments will be spent in nearby communities. All of this would result in a net inflow of dollars into the local economy that would have a beneficial effect beyond that of the new employment.

U.4.1.3 Tax Revenues

As with other windpower facilities in Sherman County, the proposed energy facility would be a major new source of tax revenue to local government. This injection of additional tax revenues and/or in-lieu contributions would contribute to the provision of improved roads, quality education, police, fire, and other municipal needs that would benefit the entire community, particularly because the proposed project has shown to have no adverse impacts to existing public facilities, as described below.

U.4.2 Sewers and Sewage Treatment

The proposed project is not located within or near a municipal wastewater treatment system. The nearest system serves the City of Wasco, located approximately seven miles from the nearest turbine. The proposed project would not adversely affect sewer and sewage treatment service or providers within the analysis area because it would not be connected to any existing system identified in the analysis area.

All jurisdictions within the analysis area provide wastewater collection and treatment (within the city limits). All systems are lagoon facilities, with the exception of the Dalles, which operates an activated sludge plant that drains into the Columbia River. Several improvements to existing systems within these communities have recently occurred or are planned in the near future. The cities of Moro, Rufus, Wasco, and Dufur have added capacity or will add capacity to meet DEQ standards for wastewater. Noncompliance of

these systems with DEQ standards has generally involved leaking lagoons or capacity issues that required the plants to prematurely discharge effluent into local waterways. Improvements to these systems have included constructing additional lagoons for storage and improving dispersion techniques. Most of the jurisdictions have, or will have enough storage for winter months and then will irrigate city-owned land with the gray water stored throughout the winter.

Residents living outside of incorporated communities use private subsurface sewage disposal systems. The O&M facility for the Klondike II wind generation facility now under construction will have a subsurface system in place and the new operations and maintenance facility will include construction of another new subsurface system. Installation of the system will require compliance with any applicable Sherman County and DEQ requirements prior to and during construction, and during system operations.

U.4.3 Water

The proposed project is not located within or near a municipal water system. The nearest system serves the City of Wasco, located approximately four miles from the nearest turbine.

During construction, water will be trucked in from offsite for dust control, making concrete, etc. To serve the project during operations, a new well will be drilled near the O&M facility. The well will pump less than 5,000 gallons per day. Wells of this size are exempt from local and state permitting requirement because of their limited output (see Exhibit O).

All jurisdictions in the analysis area rely on wells for drinking water, except for The Dalles, which uses surface water resources to meet approximately 85 percent of its water need. Three wells meet the remaining water need, although those wells are generally only used during peak summer use periods.

Existing facilities are generally adequate to meet municipal water needs. The City of Moro recently drilled a third well to meet demand. Prior to the addition of the third well, the City required water rationing during summer months, but with the addition of the well, rationing is no longer required. Other jurisdictions with proposed improvements include the City of Condon, which is in the process of upgrading its water lines (as funding allows) and the City of Dufur, which plans to build a water line from its wells directly to the reservoir. The cities of Rufus and Wasco have rebuilt their system recently and have no plans for any future improvements.

Residents living outside of incorporated communities use private wells. The operations and maintenance facility for the existing Klondike I wind generation facility has a well.

Because the proposed project will obtain water from its own well, and will not connect to any of the water systems described above, no adverse impacts to the local water supplies or systems are anticipated.

U.4.4 Storm Water

The proposed project is not within any jurisdiction's storm water system and would have no impact to existing storm water systems or providers. Exhibit V describes the proposed stormwater treatment and disposal for the proposed project.

Jurisdictions that provide storm water service generally provide conveyance only and do not offer treatment (except for The Dalles). Jurisdictions that provide conveyance include the cities of Condon, Arlington, Moro, and The Dalles. The Dalles provides some treatment; the City operates four oil/water separators for industrial uses, but does not treat storm water for the entire city. The Dalles is also considering developing a storm water master plan, but no schedule has been set.

Construction-related storm water impacts could occur during the construction of the proposed project, likely from road, turbine foundation, and staging area construction. Erosion control measures would be developed to mitigate these potential impacts (see Appendix I-2).

U.4.5 Solid Waste Management

Sunrise Disposal and Recycling provides solid waste service for all of Sherman County, including the existing operations and maintenance facility for Klondike I, and portions of Gilliam County. Sunrise Disposal also operates a transfer station that is open to the public on the second and fourth Saturdays of each month. Twenty, 30, and 40-yard construction waste disposal boxes are also available. Following pickup, refuse and recycling is transported via truck to the Columbia Ridge Recycling and Landfill site located near Arlington. Columbia Ridge is a large regional facility that accepts refuse from the northwest and Canada. Sunrise does not provide hazardous waste pickup, although hazardous waste disposal is available at the Chemical Waste Management of the Northwest, a facility located adjacent to the Columbia Ridge facility. Waste Management, Inc. operates both facilities.

Temporary and permanent population increases for construction and operation of the proposed project are minimal compared to the population of the affected communities. Sunrise Disposal and Recycling already provides services for all of Sherman County, including the existing O&M facility for Klondike I and has adequate capacity to accommodate construction-related debris and service to the proposed project facility. The proposed project would have no adverse impact on the ability of Sunrise Sanitation and Recycling to provide solid waste collection services.

Solid waste generated in the construction and operation of the proposed energy facility is described in Exhibit V. The proposed project will generate minimal construction waste and very little solid waste when the facility is operational that would require offsite disposal. The nearest landfill is the Columbia Ridge Recycling and Landfill Center located near Arlington. The landfill is not projected to reach capacity for at least 56 years and conversations with landfill operators did not specify any concerns regarding solid waste generation from construction or operation of the proposed project.

Other providers in the analysis area are The Dalles Disposal, which provides service for The Dalles, and the City of Arlington, which provides refuse and recycling services for the City of Arlington. The proposed project will be located outside of both of these service areas and, therefore, will not affect these providers.

U.4.6 Housing

Housing availability and supply in the affected communities is described in Table U-3. According to the 2000 census, there are 6,822 housing units in the affected communities in the analysis area, totaling approximately 54% of all housing units within Gilliam, Sherman and Wasco Counties. Housing vacancy rates in the analysis area are relatively high, averaging approximately 14% for the eight communities in the analysis area. Communities with the highest vacancy rates are located in Sherman County.

Table U- 3. Housing Supply and Availability in Communities Within the Analysis Area

Jurisdiction	Total Housing Units			Vacancy Rate
	Occupied	Vacant	Total	
Gilliam County	819	224	1,043	21.5%
Arlington	*228*	*50*	*278*	*18.0%*
Condon	*357*	*65*	*422*	*15.4%*
Sherman County	797	138	935	14.8%
Grass Valley	*74*	*20*	*94*	*21.3%*
Moro	*132*	*12*	*144*	*8.3%*
Rufus	*128*	*34*	*162*	*21.0%*
Wasco	*171*	*28*	*199*	*14.1%*
Wasco County	9,401	1,250	10,651	11.7%
Dufur	*254*	*23*	*277*	*8.3%*
The Dalles	*4,928*	*318*	*5,246*	*6.1%*

Source: U. S. Census Bureau, 2000 Summary File 3.

The demand for permanent housing in the analysis area is not anticipated to increase significantly because the proposed project would employ about 15 to 20 full-time and part-time employees. Only 12 new employees are assumed to move to the area with the remainder hired locally. Employees hired from the local community would not require new housing and, given the small number of in-migrant households and the housing vacancy rate in the affected communities, there would be no adverse impact in terms of finding permanent housing.

U.4.6.1 Temporary Housing

Approximately 100 to 120 temporary construction workers will be needed for the duration of construction. At least half of the construction workers will likely be hired

from outside of the area, identifying a need for temporary housing. There are several potential temporary housing options within the analysis area. During construction of Klondike I, construction workers were housed in motels in the communities of Moro, and Biggs Junction, and in an RV park in Wasco. There are also several motels located in The Dalles. There will thus be no adverse impact to temporary housing and lodging in the analysis area.

U.4.7 Traffic Safety

Construction-related traffic as a result of the proposed project will use public roads to access the construction staging areas and construct the turbine strings that are located on private property.

The assumed route of construction-related traffic is to take I-84 to US 97 (at Biggs Junction) to the US 97/OR 206 intersection. At that intersection, construction-related traffic will take OR 206 to Wasco. Construction traffic may also approach the site from the south on US 97. Both US 97 and OR 206 are two-lane paved highways with poor to fair pavement condition. From Wasco, construction-related traffic will use a series of local Sherman County roads to access private land where the construction staging areas and turbine strings will be located. Local roads are generally gravel rural roadways with little traffic other than local residential traffic. Local roads that will be used include: Wasco Lane, North Klondike Road, Emigrant Springs Road, Rayburn Road, Dehler Lane, Dormaier Road, McDonald Ferry Lane, Gosson Lane, Egypt Road, and Smith Road. An unnamed road connecting Gosson Lane and Dormaier Road will also be used.

Some of the local roadways will require improvements, generally a 6-inch gravel layer placed on top of the existing road, prior to project construction to accommodate the length and weight of vehicles that will deliver the turbine pieces and machinery necessary for construction. Large sections of local roads in poor condition will be completely reconstructed. Areas where substantial improvements (road reconstruction) will be made are shown in Appendix C-2. Reconstructed roadways will be improved to accommodate two eight-foot travel lanes and will be constructed with eight inches of crushed aggregate on top of a geotextile separation fabric. There is one bridge located near Webfoot, but this bridge is adequate to accommodate construction related traffic and will not require improvements. All improvements on local roads will be constructed within the public right-of-way.

Construction related traffic may cause short-term traffic delays when trucks deliver construction-related equipment and the turbines, but those delays will be temporary and are not anticipated to have an adverse impact on highways in the project area. Construction-related traffic delays on local roadways could occur but are anticipated to be limited due to very low use of these local roadways. Several local roadways will be improved or completely reconstructed to accommodate construction-related traffic. Many of the existing local roads are in poor condition; the proposed improvements will have a beneficial long-term impact by improving the quality of the road for all users.

Permanent staff for the proposed project, assumed to be between 15 and 20 employees, will use the improved local road system. Because the traffic generated from these employees is small and existing usage is low, no adverse impacts to the road system as a result of new permanent staff are anticipated.

U.4.8 Police

Some local jurisdictions provide their own police service, while others rely on the county sheriff for police service. The cities of The Dalles and Condon are the only jurisdictions within the analysis area that provide their own police service.

The Sherman County Sheriff's Department provides police service for all of Sherman County, including the proposed location of the Klondike III facility. Other sheriff's departments within the analysis area include the Gilliam County Sheriff's Department and the Wasco County Sheriff's Department. The Wasco County Sheriff's is the largest of the three departments, with 17 full-time officers, due to the much larger population it serves. Sherman and Gilliam Counties employ four to five full-time officers. All three departments have agreements to provide backup service for each other if needed.

According to the Sherman County Sheriff, no events have occurred at the existing Klondike I facility that would require police service. In the event response is required at the Klondike III facilities, sheriff services can be accommodated with existing sheriff's department resources. No adverse impacts to the sheriff's department are anticipated as a result of the proposed project.

U.4.9 Fire Protection and Emergency Response

The project site is located in the North Sherman Fire Protection District based in Wasco. The District provides fire protection and has trained EMT volunteers, although the District does not provide ambulance service. The District contracts with the Moro Rural Fire Protection District to provide ambulance service. The North Sherman Rural Fire Protection District has one volunteer trained in high angle rescue, specifically for potential accidents occurring on wind generation towers or aboveground collector line. No incidents at existing wind power facilities within the district have occurred that would require this service.

Aside from the North Sherman Fire Protection District, there are seven other fire departments or districts that provide, at minimum, fire protection. Those that provide only fire service contract with other districts that have ambulance service. Communities that provide their own fire service include the cities of Condon, Moro, Rufus, Dufur, and The Dalles. Rural fire districts serving other parts of the analysis area include the Gilliam County Rural Fire District and the South Sherman Rural Fire District. The districts provide fire and emergency response for Arlington and Grass Valley, respectively, as well as for rural county areas.

Local farmers also provide fire suppression and are often the first to respond because of the large service areas. Local service providers indicated that farmers often have their own fire equipment and also often respond to emergencies.

To minimize the potential of fires starting from construction-related activities, roads would be established prior to construction to minimize vehicle contact with dry grass; idling vehicles in grassy areas would be avoided; and open flames, such as cutting torches, would be kept away from grassy areas. Staging areas will be graveled to minimize fire potential.

Interviews with both the North Sherman County Rural Fire Protection District and the Moro Rural Fire Protection District indicated that the proposed project would not affect either department's ability to provide fire protection or ambulance service for their service areas. One fire district staff has been trained in high angle rescue specifically in the event an accident were to occur on wind generation towers or aboveground collector line. Future O&M staff will also be trained to respond in the event of an accident. In the event of a critical injury, helicopter service could also be dispatched to the project site. Accident victims would be transported to the Mid-Columbia Medical Center in The Dalles.

U.4.10 Health Care

The Mid-Columbia Medical Center, located in The Dalles, is the only full service medical facility located within the analysis area. The Center provides emergency services as well as surgery. If an accident were to occur at the site, ambulance service from the Moro Rural Fire Protection District would transport patients to the hospital. Evacuation via helicopter is also available, if needed.

The proposed project would not adversely impact medical services in the analysis area. Mid-Columbia Valley Medical Center in The Dalles would be capable of providing services for construction and operational employees in case of an emergency.

U.4.11 Schools

The Sherman County School District serves all of Sherman County. The school district operates one high school (grades 7 to 12) in Moro and two elementary schools (kindergarten through 6th grade) in Grass Valley and Wasco. The district serves approximately 280 students, although enrollment has declined in recent years due to a lack of employment opportunities.

Other school districts in the analysis area include the Condon School District #25, Arlington School District #13, Wasco School District #29, and The Dalles School District #12. The Condon and Arlington school districts each operate one kindergarten through 8th grade facility and one 9th grade through 12th grade facility. The Wasco School District serving Dufur operates one kindergarten through 12th grade school.

The Dalles and Dufur school districts are the only two districts within the analysis area that are experiencing growth in the student population. The Dalles School District expects student enrollment to increase approximately one to three percent annually. Facilities are generally adequate to accommodate the projected number of students, although the district recently merged with the Chenowith School District and is now in the process of completing deferred maintenance for former Chenowith district facilities.

Dufur School District administrators also said their enrollment is growing, primarily because of the district's proximity to The Dalles because Dufur has become somewhat of a bedroom community to The Dalles. The Dufur School District recently expanded its classrooms and built a new gymnasium to accommodate existing and projected student growth. No additional facilities are planned.

No adverse impact to local schools is anticipated to occur as a result of the construction and operation of the proposed project. No demand on school facilities is expected from the construction of the proposed project because the portion of the construction work force that might temporarily live in the area is not expected to include any families. Therefore, temporary increases in the analysis area population caused by in-migration of construction workers would result in little to no increase in the student population.

The number of in-migrant operational staff is anticipated to be small, creating few new households with school-age children. Consequently, there would be no significant increase in the student population. Interviews with local school districts indicated that the small number of potential new students would not have a significant adverse impact on the school districts and all districts would be able to accommodate students with existing capacity. All school districts said that an increase in the number of students would have a beneficial impact on school districts because each additional student would increase revenue for the district without having to add new services or facilities.

U.5 ADVERSE IMPACT TO THE ABILITY OF PROVIDERS TO PROVIDE SERVICES

OAR 345-021-0010(1)(u)(D) *Evidence that adverse impacts described in (C) are not likely to be significant, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts; and*

Response: Responses are provided in sections U.5.1 through U.5.12, below.

U.5.1 Economic and Demographic Impacts

U.5.1.1 Population

Limited in-migration for construction-related employment as well as permanent O&M employment is expected to occur as a result of the proposed project and would have a beneficial impact on businesses in the nearby communities from increased patronage of area motels, restaurants, and other supporting services. No significant adverse impacts as a result of temporary construction activities are anticipated. In-migrant operational staff and their families would not have a significant impact on local population, particularly in Sherman County, which has lost population since 1990.

U.5.1.2 Economic Activity

The proposed project would not have significant adverse economic impacts to the analysis area. On the contrary, revenue generated for the local economy as a result of the project may improve Sherman County's ability to provide public services, including

schools and others services Sherman County provides for its residents. Increased employment opportunities, both temporary and permanent, may increase the amount of money spent at local businesses. Landowners who receive payments for permitting the location of turbines on their property may also see an increase in income and as a result spend a portion of that at local businesses.

U.5.1.3 Tax Revenues

The proposed project would have no significant adverse tax revenue consequences within the analysis area. As with other windpower facilities in Sherman County, the proposed energy facility would be a major new source of tax revenue to local government. This injection of additional tax revenues and/or in-lieu contributions would contribute to the provision of improved roads, quality education, police, fire, and other municipal needs that would benefit the entire community.

U.5.2 Sewers and Sewage Treatment

The proposed project is not located within any waste water facility treatment area, therefore, the proposed project would have no impact to existing waste water treatment facilities or collection systems. During construction, a local provider will supply portable toilets to the site, which would be treated at a local treatment facility chosen by the toilet provider. No impacts from using the portable toilets are anticipated because the toilet provider will be required to dispose wastewater in an appropriate manner.

The proposed facility will not be connected to a local wastewater collection system because it will have its own septic system. Sherman County and/or DEQ review and approval will be required prior to installation of the septic system. No significant adverse impacts are anticipated as a result of the septic system installation.

It is assumed that temporary construction and permanent employees will use existing wastewater or private septic systems, and would have no additional impact on facilities in the analysis area. Temporary employees from outside the area would likely stay in one of the area's motels or RV parks and use those facilities, which are adequately sized to provide wastewater service. Permanent employees moving to the area would likely reside in existing dwellings already connected to a public wastewater or private septic system and would not increase need for or have an adverse impact to wastewater collection or treatment systems in the analysis area.

U.5.3 Water

During construction, water will be trucked in from offsite, possibly from a local municipal water supplier, which will be paid for the water. The proposed project is not within the service area of any water system. The proposed O&M facility will have its own well for its water needs. The well will provide less than 5,000 gallons per day, and because of its limited output, is not required to obtain a state water withdrawal permit (see Exhibit O). No adverse impacts to the local water supply are anticipated.

U.5.4 Storm Water

No significant adverse impacts to existing storm water facilities are anticipated. Construction-related storm water drainage impacts could occur during the construction of the proposed project, likely from road, turbine foundation, and staging area construction. Erosion control measures would be implemented as needed to meet any applicable local regulations and reduce the potential for project related erosion (see Appendix I-2).

U.5.5 Solid Waste Management

Sunrise Disposal has adequate capacity to accommodate construction-related debris and service to the new facility. The proposed project would have no adverse impact on the ability of Sunrise Sanitation and Recycling to provide these services.

Solid waste generated in the construction and operation will require offsite disposal. The nearest landfill is the Columbia Ridge Recycling and Landfill, which is not projected to reach capacity for at least 56 years. Conversations with landfill operators did not specify any concerns regarding solid waste generation from construction or operation of the proposed project. While the proposed project will generate some solid waste, the amount would not have a significant adverse impact on landfill operations that provide solid waste management services in the area.

U.5.6 Housing

No adverse impacts to housing in the analysis area are anticipated as a result of the proposed project. Employees hired from the local community would not require new housing and, given the small number of in-migrant households and the housing vacancy rate in the affected communities, adequate housing is available.

Temporary employees hired from outside the area will likely stay in nearby motels. While the majority of those are concentrated in The Dalles, there are other accommodations (motels, RV parks) in Wasco and in other communities that will meet temporary housing needs. Although not all of these would likely be available at one time, there are many temporary-housing possibilities within these communities compared to the relatively small number of in-migrant construction workers. There would be adequate motel and camping/trailer facilities to accommodate the short-term needs for in-migrant construction workers.

There would be no adverse impact to temporary or permanent housing in the analysis area. On the contrary, businesses would experience a beneficial impact from construction workers renting accommodations and permanent in-migrant workers purchasing homes.

U.5.7 Traffic Safety

Construction related traffic may cause short-term traffic delays when trucks deliver construction-related equipment and the turbines, but those delays will be temporary and are not anticipated to have an adverse impact on highways in the project area. Construction-related traffic delays on local roadways could occur but are anticipated to

be limited due to very low use these local roadways currently have. Several local roadways will be improved or completely reconstructed to accommodate construction-related traffic. Many of the existing local roads are in poor condition; the proposed improvements will have a beneficial impact by improving the quality of the roads for all users.

Permanent staff for the proposed project, assumed to be between 15 and 20 employees, will use the improved local road system. Because the traffic generated from these employees is small and existing usage light, no adverse impacts to the road system as a result of new permanent staff are anticipated.

Improvements to the local roadway system will have a significant beneficial impact to Sherman County roads by improving deteriorated roadway sections with additional or new aggregate. Those improvements will remain when the project's construction is complete for local residents to use. While short-term construction-related impacts, primarily traffic delays, may occur, those impacts will be temporary and would not constitute a significant adverse impact.

U.5.8 Police

The small population increase attributed to the proposed facility would not have a significant adverse impact on local police services. Discussions with the Sherman County Sheriff's Department did not identify any concerns about the in-migrant construction workers or any need for increased patrols near the proposed project, either when it is under construction or when it is operational. Therefore, the proposed project would not have a significant adverse impact on police service.

U.5.9 Fire Protection and Emergency Response

No adverse impacts are anticipated to occur to fire protection and emergency services as a result of the proposed project. Existing facilities are adequate to provide fire and emergency response services.

U.5.10 Health Care

The proposed project would not adversely impact medical services in the analysis area. The Mid-Columbia Valley Medical Center in The Dalles would be capable of providing services for construction and operational employees in case of an emergency.

U.5.11 Schools

No significant adverse impact to local schools is anticipated to occur. No short-term demand on school facilities is expected from the construction of the proposed project because the portion of the construction work force that might temporarily live in the area is not expected to include any families. The number of in-migrant operational staff is anticipated to be small, creating few new households with school-age children. Consequently, there would be no significant increase in the student population. Interviews with local school districts indicated that any new students would not have a

significant adverse impact on the school district. On the contrary, most school districts in the analysis area have lost students; an increase in the student population would have a beneficial impact on school districts because each additional student increases revenue for the district.

U.5.12 Mitigation Measures

The proposed facility would not result in any significant adverse impacts to the public service and utility providers within the analysis area. Therefore, no mitigation is required.

U.6 MONITORING PROGRAMS

OAR 345-021-0010(1)(u)(E) *The applicant's proposed monitoring program, if any, for impacts to the ability of the providers identified in (B) to provide the services listed in OAR 345-022-0010;*

Response: No adverse impacts to public facilities are anticipated, therefore, no monitoring program is required.

U.7 CONCLUSION

Based on the information presented in this Exhibit, no adverse impacts to any public services are expected. Based on the above information, the Applicant has satisfied OAR 345-021-0010(1)(u), and the Council may find the requirements contained in OAR 345-022-0110 are satisfied.

U.8 REFERENCES

U.8.1 Personal Contacts

Absolan, Sabrina, City of Rufus, City Administrator. Telephone Conversation. February 7, 2005.

Chanliss, Dan, The Dalles School District, Business Manager. Telephone Conversation. February 7, 2005.

Durfey, Rene, City of Condon, Assistant Recorder. Telephone Conversation. February 14, 2005.

Eiesland, Ric, Wasco County Sheriff's Department, Sheriff. Telephone Conversation. February 16, 2005.

Henderson, Jack, Wasco School District, Superintendent. Telephone Conversation. February 17, 2005.

Keown, Mitch, Arlington School District #3, Superintendent/Principal. Telephone Conversation. February 14, 2005.

Larhey, Brad, Sherman County Sheriff's Department. Telephone Conversation. February 15, 2005.

Macnab, Georgia, Sherman County, Planner. Telephone Conversation. March 1, 2005.

Manning, Jim, City of Wasco, Public Works Director. Telephone Conversation. February 7, 2005.

McKinney, Kim, Sherman County School District, Business Manager. Telephone Conversation. February 16, 2005.

Melvin, Gary, City of Dufur, City Superintendent. Telephone Conversation. February 14, 2005.

Moore, Rene, City of Moro, City Administrator. Telephone Conversation. February 16, 2005.

Palmer, Kal, Waste Management, Inc., General Manager. Email Correspondence. March 14, 2005.

Parker, Mike, Gilliam County Sheriff's Department, Sheriff. Telephone Conversation. February 16, 2005.

Stahl, Brian, City of The Dalles, Public Works Director. Telephone Conversation. February 7, 2005.

Thomas, Cindy, North Sherman Fire Protection District, Lieutenant. Telephone Conversation. February 17, 2005.

Thomas, Cindy, Sunrise Garbage and Recycling, Office Manager. Telephone Conversation. February 17, 2005.

U.8.2 Website/Document References

City of Arlington. www.city-data.com/city/Arlington-Oregon.html. Accessed February 2, 2005.

City of Condon. www.city-data.com/city/Condon-Oregon.html. Accessed February 2, 2005.

City of Condon. www.oregoncities.us/condon/. Accessed February 2, 2005.

City of Dufur. www.city-data.com/city/Dufur-Oregon.html. Accessed February 2, 2005.

City of Dufur. www.oregoncities.us/dufur/. Accessed February 2, 2005.

City of Grass Valley. www.oregoncities.us/grass valley/index.htm. Accessed February 2, 2005.

City of Moro. www.city-data.com/city/Moro-Oregon.html. Accessed February 2, 2005.

City of Rufus. www.city-data.com/city/Rufus-Oregon.html. Accessed February 2, 2005.

City of The Dalles. www.ci.the-dalles.or.us/frame_main.htm. Accessed February 2, 2005.

City of The Dalles. www.ci.the-dalles.or.us/police.htm. Accessed February 2, 2005.

City of The Dalles. www.ci.the-dalles.or.us/waste-water.htm. Accessed February 2, 2005.

City of Wasco. www.city-data.com/city/Wasco-Oregon.html. Accessed February 2, 2005.

Mid Columbia Fire and Rescue. www.mcfr.org. Accessed: February 7, 2005.

Population Research Center. Available online: http://www.upa.pdx.edu/CPRC/about/index.html. Accessed February 1, 2005.

Oregon Department of Transportation. December 2003. Oregon State Highway System 2003 Pavement Condition Map (District 9).

Oregon Department of Transportation. 2003. Oregon Transportation Map Showing Functional Classification of Road—Sherman County (Sheet 1 of 2).

Oregon Economic and Community Development Department. Community Profiles (Arlington, Condon, Grass Valley, Moro, Rufus, Wasco, Dufur, and The Dalles). Available online: http://info.econ.state.or.us. Accessed February 1, 2005.

Oregon Labor Market Information System. www.olmis.state.or.us/pubs/rolf/pdf/05/rolf/0105.pdf. Accessed: February 1, 2005.

Oregon State Sheriff's Association, Gilliam County. Available online: www.oregonsheriffs.org/gilliam/index.html. Accessed: February 7, 2005.

Renewable Northwest Project. 2004. August 2004. "Windfall from the Wind Farm, Sherman County, Oregon". Ouderkirk, Brad and Pedden, Meghan. (Revised December 2004).

U.S. Census Bureau. 1990 Decennial Census. Available online: www.factfinder.census.gov. Accessed: February 1, 2005.

U.S. Census Bureau. 2000 Decennial Census. Available online: www.factfinder.census.gov. Accessed: February 1, 2005.

Wasco County Sheriff's Office. Available online: www.co.wasco.or.us/sheriff/sheriffhome.html. Accessed: February 7, 2005.

EXHIBIT V

WASTE MINIMIZATION
OAR 345-021-0010(1)(v)

TABLE OF CONTENTS

V.1 INTRODUCTION

OAR 345-021-0010(1)(v) *Information about the applicant's plans to minimize the generation of solid waste and wastewater and to recycle or reuse solid waste and wastewater, providing evidence to support a finding by the Council as required by OAR 345-022-0120. The applicant shall include:*

Response: The evidence provided below demonstrates that this standard is met because the Applicant's solid waste and wastewater plans will minimize the generation of solid waste and wastewater and lead to recycling and reuse of such wastes. Also, the Applicant's plans to manage generated wastes will result in minimal impact on surrounding and adjacent areas. This Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(v).

V.2 TYPES OF WASTE

OAR 345-021-0010(1)(v)(A) *A description of the major types of solid waste and wastewater that construction, operation and retirement of the facility are likely to generate;*

Response: See Sections V.2.1 through V.2.3, below.

V.2.1 Wastes Produced During Construction

Response: A variety of nonhazardous, inert construction wastes will be generated during construction, primarily concrete waste from turbine pad construction, wood waste from wood forms used for concrete pad construction, and scrap metal steel from turbine tower construction. Some additional wastes could include erosion control materials, such as straw bales and silt fencing, and packaging materials for associated turbine parts and other electrical equipment. Wastewater will be generated during construction from washdown of concrete trucks after concrete loads have been emptied. Washdown will be up to the contractor and will likely occur at contractor owned batch plant. Portable toilets will be provided for on-site sewage handling during construction and will be pumped and cleaned regularly by the construction contractor. No other wastewater will be generated during construction.

V.2.2 Wastes Produced During Operation

Response: Little solid waste will be generated from facility operations. Office waste, such as paper and food packaging/scraps, will be generated at the O&M building. Some minor and potentially hazardous wastes include oily rags or similar wastes related to turbine lubrication and other maintenance, as described in Exhibit G. The only other source of waste will be incidental waste from repair and/or replacement of electrical or turbine equipment. No industrial wastewater will be generated during operations. Sewage from the O&M building will be disposed on site via a septic system.

V.2.3 Wastes Produced By Retirement

Response: When the facility is retired or decommissioned, the turbine towers and aboveground electrical equipment will be removed from the site and the materials reused and/or sold for scrap. Inert underground electrical cables and underground concrete turbine pads will be left in place, provided landowner permission is obtained, but no such equipment will be left within 3 feet of the ground surface, so that agricultural activities may continue. It is anticipated that at least some of the improved roads will be left in place by landowners.

V.3 PLANS FOR RECYCLING AND REUSE

OAR 345-021-0010(1)(v)(B) *The applicant's plans to minimize, recycle or reuse the solid waste and wastewater described in (A);*

Response: Waste minimization and recycling will be implemented during project construction and operations. See Sections V.3.1 through V.3.3, below.

V.3.1 Recycling During Construction

Response: Generation of wastes from construction will be minimized through detailed estimating of materials needs and through efficient construction practices. Any wastes generated during construction will be recycled when feasible. Steel scrap will be collected and transported to a recycling facility. Wood waste will also be recycled to the greatest extent feasible, depending on size and quantity of scrap and leftover materials. Concrete waste will be used as fill on site or at another site or, if no reuse option is available, removed to a local landfill. Packaging wastes (such as paper and cardboard) will be separated and recycled. Any non-recyclable wastes will be collected and transported to a local landfill.

V.3.2 Recycling During Operations

Response: Minimal waste will be generated during operations. Waste from the O&M building (*e.g.*, paper, cans, and bottles) will be collected and recycled as feasible. Non-recyclable wastes will be collected and transported to a local landfill, most likely the Columbia Ridge Recycling and Landfill site located near Arlington. The actual location of disposal will depend on the contracted waste hauler.

V.3.3 Recycling During Retirement

Response: In the event of decommissioning, most of the aboveground waste will be removed and reused as described in section V.3.1 above. Underground waste limited to concrete pads and underground cables more than 3 feet below ground surface are likely to be left in place.

V.4 ADVERSE IMPACTS OF WASTE DISPOSAL

OAR 345-021-0010(1)(v)(C) *A description of any adverse impact on surrounding and adjacent areas from the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility;*

Response: Due to the minimal quantity and inert nature of most of the potential waste, there is no anticipated adverse impact on surrounding or adjacent areas from wastes generated at the facility during construction, operation, or decommissioning. Most waste will be removed from the site and either reused, recycled, or disposed of at an appropriate landfill or hazardous waste disposal facility if necessary. Any waste disposed of on site (*e.g.*, concrete waste and wastewater) will be inert and will be disposed of in a manner consistent with applicable regulations and in a manner protective of human health and the environment.

V.5 EVIDENCE THAT ADVERSE IMPACTS WOULD BE MINIMAL

OAR 345-021-0010(1)(v)(D) *Evidence that adverse impacts described in (C) are likely to be minimal, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts; and*

Response: As discussed in the response to OAR 345-021-0010(1)(v)(C) above, taking into account waste minimization and recycling, adverse impacts caused by waste generated by the project will be minimal.

The Applicant's proposed measures to avoid, reduce, and mitigate any possible impacts on the site or to adjacent land are discussed above and in Exhibit G. They include storing all oily waste, such as rags or dirt, in sealable drums and removing it for recycling or disposal by a licensed contractor. In addition, spill kits containing items such as absorbent pads will be located on equipment and in the on-site temporary storage facilities to respond to accidental spills that may occur. Further, during construction, equipment (*e.g.*, graders, dozers) will be available to respond to spills and to quickly construct berms or ditches if necessary.

Disposal of materials as fill on site will be conducted in accordance with OAR 340-093-0080 and other applicable regulations. OAR 340-093-0080 provides a permit exemption to the disposal permit requirement for disposal of inert wastes such as soil, rock, concrete, and tile that does not contain contaminants that could adversely impact waters of the state or the United States. To meet the clean fill definition, any inert construction debris to be disposed of on site will be separated from other debris that is not inert.

The only clean fill that has the potential to be disposed of on site is waste concrete generated during construction. The construction contractor may, with agreement of the landowner, bury waste concrete (excess cement mix from a construction site; batches of concrete that do not meet specifications) on site. In such cases, the material will be placed in an excavated hole, covered with at least 3 feet of topsoil, and regraded to match existing contours.

Any packing materials, paper, and refuse will be separated, accumulated in dumpsters, and periodically removed for recycling or disposal by a licensed waste hauler. Portable toilets will be provided for on-site sewage handling during construction and will be pumped and cleaned regularly by the construction contractor.

Transportation of wastes to landfills or recycling facilities will involve periodic truck trips over public and private roads between the project and the nearest landfill or recycling facilities. Given the number and frequency of these trips and the anticipated volume of waste materials, these trips are not anticipated to have adverse impacts on the adjacent or surrounding area.

V.6 PROPOSED MONITORING PROGRAM

OAR 345-021-0010(1)(v)(E) *The applicant's proposed monitoring program, if any, for minimization of solid waste and wastewater impacts;*

Response: Because no significant adverse impacts from waste or wastewater will occur on the adjacent or surrounding areas, no monitoring program is proposed. Waste-management activities will be subject to periodic inspections to ensure compliance with applicable regulations.

V.7 CONCLUSION

The evidence provided above demonstrates that the Council's waste minimization standard is met because wastes will be minimized, reused, or recycled to the greatest extent feasible and because no significant adverse impacts on the surrounding or adjacent areas will result from the management of wastes related to the project. Based on the above information, the Applicant has satisfied the required OAR 345-021-0010(1)(v), and the Council may find that the standard contained in OAR 345-022-0120 is satisfied.

EXHIBIT W

FACILITY RETIREMENT AND SITE RESTORATION
OAR 345-021-0010(1)(w)

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APPENDIX

W.1 INTRODUCTION

OAR 345-021-0010(1)(w) *Information about facility retirement and site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:*

Response: The evidence provided below demonstrates that this standard can be met because the energy facility can be decommissioned and the site restored to a useful, non-hazardous condition that allows continued use for agriculture. The construction and operation of the facility involve minimal amounts of hazardous material and solid waste (as described in Exhibits B, G and V). Therefore, restoring the site to a useful, non-hazardous condition would require simple removal of all project features to below grade and subsequent soil restoration and revegetation. This Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(w).

W.2 USEFUL LIFE

OAR 345-021-0010(1)(w)(A) *The estimated useful life of the proposed facility;*

Response: For financial evaluation and contractual purposes, the project is assumed to have a useful life of 25 to 30 years. The trend in the wind energy industry, however, has been to "repower" older wind energy projects by upgrading existing towers and other infrastructure with more efficient turbines and related equipment. Based on today's market for renewable power, it is likely that the project would be upgraded with more efficient equipment and, therefore, could have a useful life longer than 30 years.

W.3 RETIREMENT AND SITE RESTORATION

OAR 345-021-0010(1)(w)(B) *The actions that the applicant proposes for retirement of the facility and restoration of the site to a useful, non-hazardous condition;*

Response: If the facility were terminated, the Applicant would obtain the necessary authorization from the appropriate regulatory agencies and landowners to proceed with decommissioning of the facilities. The first step in decommissioning would be dismantling all turbines, towers, pad-mounted transformers and related above-ground equipment. Turbine towers, nacelles, and pad-mounted transformers would have considerable value and would thus be removed and sold for use and/or scrap. Unsalvageable material would be disposed at authorized sites (as described in Exhibit V).

Subsequent steps in decommissioning would be removal of concrete turbine pads to an appropriate depth below the soil surface. The Applicant's lease agreements with farmers specify that in the event of project termination, all turbine foundations will be removed to a minimum depth of 3 feet below grade and soils will be restored. This will allow agricultural use of the facility site after decommissioning. The soil surface will be restored as close as reasonably possible to its original condition.

Reclamation procedures will be based on site-specific requirements and techniques commonly employed at the time the area is to be reclaimed, and will likely include regrading to restore soil and original contours and revegetation of all disturbed area with native plant seed mixes or agricultural crops, as appropriate, based on the use of surrounding lands.

One of the final steps in decommissioning will be removal of facility roads. Decommissioned roads will be reclaimed to restore the surface grade and soil to a condition useful for either agriculture or wildlife habitat, depending on the use of surrounding lands. Roads also may be left in place based on landowner preference. It is expected that landowners generally will not want the Applicant to decommission the widened portions of farm roads that preexisted the facility, but will want the Applicant to decommission the new access roads built for the facility.

All decommissioning will be done consistent with an approved weed control plan.

W.4 ESTIMATED COST OF RETIREMENT

OAR 345-021-0010(1)(w)(C) *The estimated costs to retire the facility and restore the site to a useful, non-hazardous condition and a discussion of the methods and assumptions used to estimate retirement and restoration costs; and*

Response: The Applicant estimates that the cost of retiring the Project and restoring the site will total $998,855 in 2005 dollars. The cost estimate is based on a price quote from a contractor experienced in wind-farm demolition, prepared for this specific project location and the specific model of turbine, tower, and foundation design that will be employed on this project (see Appendix W-1). The price quoted for decommissioning the entire facility is $7,270,450. This includes removal of all turbines, transformers, aboveground collector lines, and met towers, excavating foundations and underground collector lines down to a depth of 4 feet, and returning all soils to pre-construction grade, including the removal and restoration of 20 miles of roadway.

It is assumed that the scrap value of the turbine towers and nacelles will be equal to $241 per metric ton. This is the current price of salvaged steel quoted online at www.grede.com. There are 160 metric tons of steel in each turbine, including both the tower and nacelle. Thus the salvage value for 165 turbines is assumed to be $6,362,400.

The net cost of retiring the facility would therefore be $7,270,450 less the salvage value of $6,362,400, or $908,050. The Applicant proposes to assume an additional 10% contingency, bringing the net retirement cost in 2005 dollars to $998,855. This amount will be sufficient to fund the restoration of the entire facility site to a useful, non-hazardous condition. Please see Exhibit M for a discussion of the security the Applicant proposed to cover this amount.

W.5 PROPOSED MONITORING PLAN FOR HAZARDOUS MATERIALS

OAR 345-021-0010(1)(w)(D) *For facilities that might produce site contamination by hazardous materials, any proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.*

Response: A monitoring plan, such as periodic environmental site assessment and reporting would be unnecessary at this site because the facility will not produce any site contamination by hazardous materials.

W.6 CONCLUSION

Based on the above information, the Applicant has satisfied the required OAR 345-021-0010(1)(w), and the Council may find the standard contained in OAR 345-022-0050 is satisfied.

Appendix W-1

Contractor Bid for Decommissioning

Blattner

Project: Klondike III Decommissioning
Owner: PPM Energy LLC
Location: Sherman County, OR
Date: 03/29/05

Wind Tower Decommission and Site Restoration Estimate

All of the pricing is estimated based on 2005 pricing and does not include any time value of money.
The information below is for informational purposes only and does not represent a quotation to accomplish the work.
THE COSTS ARE BASED ON DISMANTLEMENT, DEMOLITION, AND LOADING ON TRUCKS
NO SALVAGE VALUE HAS BEEN ASSUMED.

		Quantity		Unit Price	Extension
1a	**Remove turbines and towers, assume 165 ea GE 1.5 MW SLE's on 80 meter towers** Towers and turbines will be removed in such a manner as to allow for re-use & max. salvage Load on trucks	165	EA	22,500	3,712,500
1b	**Disconnect electrical within turbine and ready for disassembly**	165	EA	3,500	577,500
2a	**Excavate and demolish turbine foundations to 4' below grade, incl. tranformer pads** Sites will be graded to match existing contours andrestored to a condition that will support surrounding vegitation.	165	EA	7,850	1,295,250
2b	**Remove, load on trucks 1750 kVA transformers** Remove 600 volt cabling from transformer secondary to turbine controller Remove 35kV treminations from transformer primary and abandon 4' below grade	165	EA	1,000	165,000
3a	**Roadway obliteration, gravel removal and return roads to tillable conditions.**	20	MI	17,085	341,700
3b	**Revegitation**	38	ac	1,500	57,000
3c	**Remove 35kV junction boxes, 35 kV cabling, remove and abandon 4' below sub-grade**	20	ea	1,000	20,000
4a	**Remove three (3) 80 m met towers**	3	ea	5,000	15,000
4b	**Remove electrical and abandon at 4' below subgrade**	3	ea	500	1,500
5a	**Take down 3.5 miles of 230 kV t-line and coil conductors, load on trucks**	1	ea	685,000	685,000
6a	**Remove substation, load equipment, and restore land** Remove all fencing, foundations, equipment, load, and restore land	2	ea	200,000	400,000
					7,270,450

EXHIBIT X

NOISE
OAR 345-021-0010(1)(x)

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TABLES

APPENDIX

X.1 INTRODUCTION

OAR 345-021-0010(1)(x) *Information about noise generated by construction and operation of the proposed facility, providing evidence to support a finding by the Council that the proposed facility complies with the Oregon Department of Environmental Quality's noise control standards in OAR 340-035-0035. The applicant shall include:*

Response: The noise assessment for the Klondike III Wind Power Project is provided in Appendix X-1. The information provided below is derived from the TWE report included in Appendix X-1 (TWE 2005). The GE turbine alternative was analyzed, because the noise levels are assumed to be slightly higher with the GE turbine than with the Vestas turbine.

OAR-345-021-0010(1)(x)(A) *A baseline noise assessment for the proposed site and vicinity;*

Response: Oregon Administrative Rules (OAR) specify use of an assumed background L_{50} ambient noise level of 26 dBA or the actual measured ambient background level (OAR 340-035-0035). For this project, the assumed background level of 26 dBA was used as the baseline to represent existing noise conditions.

The project vicinity is rural in nature and existing noise levels can be expected to be low with infrequent noise from agricultural activities. Throughout this Exhibit and Appendix X-1, the assumed tower hub height for analyses was 78 meters (m). Actual tower hub heights will be 80 m. The 78 m assumption represents a conservative analysis, because the noise source is closer to receptors, which are at ground level.

X.2 PREDICTED NOISE LEVELS

OAR-345-021-0010(1)(x)(B) *Predicted noise levels resulting from construction and operation of the proposed facility;*

Response: See X.3.1 and X.3.2, and Tables X-1 and X-2, below.

X.2.1 Construction Noise

Construction of the Klondike III Wind Project may cause localized, short-duration noise. Such temporarily increased noise levels will result from normal construction activities. Table X-1 presents noise levels for typical construction equipment.

Table X- 1. Typical Construction Equipment Noise (dBA)

Activities	Equipment	Range of Noise Levels at 50 feet (dBA)
Materials Handling	Concrete mixers	75-87
	Concrete pumps	81-83
	Cranes (movable)	76-87

Activities	Equipment	Range of Noise Levels at 50 feet (dBA)
	Cranes (derrick)	86-88
Stationary Equipment	Pumps	69-71
	Generators	71-82
	Compressors	74-87
Impact Equipment	Pneumatic wrenches	83-88
	Rock drills	81-98
Land Clearing	Bulldozers	77-96
	Dump trucks	82-94
Grading	Scrapers	80-93
	Bulldozers	77-96
Paving	Pavers	86-88
	Dump trucks	82-94

Source: U.S. Environmental Protection Agency, 1971.

As shown in Table X-1, noise levels from construction activities can be expected to range from approximately 70 to 100 dBA at a distance of 50 feet from the activities. OAR 340-035-0035(5)(g) specifically exempts construction activity from regulation. Therefore, by regulatory definition, there will be no significant construction noise impacts.

X.2.2 Operations Noise

Noise levels from the operation of the wind towers were predicted by using the SPM 9613 Sound Propagation Model for Outdoor Noise Sources (Version 2.0). A shielding analysis was conducted and it was determined that there is no topographical shielding, due to the assumed tower hub height of 78 m. The maximum sound power level data at cut-out speed was used in the model, resulting in a conservative analysis. Table X-2 summarizes estimated operations noise levels at noise-sensitive receivers.

Table X- 2. Estimated Operations Noise Levels at Noise-Sensitive Receivers

Receiver ID	Estimated Noise Level (dBA)
R1	31
R2	31
R3	33
R4	39
R5	37
R6	41
R7	40

The above table shows that the estimated noise levels at all receivers are below the most restrictive DEQ standard of a nighttime L_{50} of 50 dBA. Four of the receivers are at or above the 36-dBA criteria (26 dBA background + 10 dBA allowable increase) when the towers are operating at cut-out speed: R4, R5, R6, and R7. Based on measured wind speed data, it was determined that the 36 dBA criteria will be exceeded at these receivers only 3% of the time the towers are operating, or 4 days per year.

X.3 COMPLIANCE WITH OAR 340-035-0035

OAR 345-021-0010(1)(x)(C) *An assessment of the proposed facility's compliance with the applicable noise regulations in OAR 340-035-0035;*

Response: For proposed wind energy facilities subject to the jurisdiction of the Oregon Energy Facility Siting Council, such proposed facilities must be shown to comply with the Oregon Department of Environmental Quality's (DEQ) noise control regulations that are otherwise applicable to wind energy facilities. DEQ regulations at OAR 340-035-0035 establish noise standards for the following three general categories: existing noise sources, new noise sources, and new noise sources located in quiet areas. The project site does not include any areas that would currently be considered quiet areas. The standards for existing and new sources are the same. Table X-3 summarizes these regulations.

Table X- 3. Oregon DEQ Industrial and Commercial Noise Source Standards

Statistical Descriptor	Existing and New Noise Sources	
	7 am-10 pm	10 pm-7 am
L_{50}	55	50
L_{10}	60	55
L_{01}	75	60

Source: DEQ 340-035-0035

The above limits apply at noise sensitive properties, which are defined in OAR 340-035-0015(38) as properties normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries. Residences are the only noise sensitive properties identified in the project vicinity. Also, construction noise is exempt from the industrial noise limits in accordance with OAR 340-035-0035(5)(g).

At the same time, new sources on sites that have not previously been used for commercial or industrial purposes have an additional limit on the allowable increase over existing ambient noise levels. Generally, sources on new sites may not increase the L_{10} or L_{50} statistical noise levels by more than 10 dBA. However, new wind energy facilities may increase the L_{10} or L_{50} by more than 10 dBA if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located.

OAR 340-035-0035 contains other restrictions as well, including impulse noise regulations specified in OAR 340-035-0035(1)(d). However, because wind turbines do not generate impulse noise, the impulse noise regulations do not apply.

In addition to the limits discussed above, OAR 340-035-0035(1)(f) establishes standards to regulate octave band sound pressure levels and audible discrete tones. Under DEQ's rules, when the Director of DEQ has reasonable cause to believe that the requirements summarized above do not adequately protect the health, safety, or welfare of the public as provided for in ORS Chapter 467, the Department may require the noise source to meet the additional standards contained in OAR 340-035-0035(1)(f). There is no reasonable cause to believe that the requirements summarized above and as applied to this project do not adequately protect the health, safety, or welfare of the public.

X.4 DESCRIPTION OF PROPOSED MITIGATION MEASURES

OAR 345-021-0010(1)(x)(D) *Any measures the applicant proposes to reduce noise levels or noise impacts;*

Response: Noise levels are not projected to exceed DEQ noise impact criteria summarized in Table X-3. At four properties, however, noise levels are predicted to exceed the 10 dBA increase criteria. It is important to note that the noise analysis that was conducted is conservative, resulting from assuming a low background level of 26 dBA, using maximum sound levels for the wind towers at cut-out speed, and comparing the maximum expected sound levels to the standard, not the L_{10} or L_{50}. Even with maximum expected sound levels from the wind towers, overall noise levels would be relatively low (41dBA or less).

OAR 340-035-0035 specifies that the noise levels from a wind energy facility may increase the ambient statistical noise levels L_{10} and L_{50} by more than 10 dBA (but not above the limits specified in Table X-3), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. Klondike III therefore proposes to obtain easements from these property owners in accordance with DEQ regulations. Alternatively, Klondike III may choose to not construct one or more towers to meet the standard.

X.5 ASSUMPTIONS AND METHODS

OAR 345-021-0010(1)(x)(E) *The assumptions and methods used in the noise analysis; and*

Response: Noise measurements were not conducted for this analysis. Instead, a background L_{50} ambient noise level of 26 dBA was assumed in accordance with OAR 340-035-0035. As discussed above, wind energy facilities must meet the DEQ noise impact criterion for noise levels generated from a wind energy facility at noise sensitive properties as summarized in Table X-3, and may not increase the L_{10} or L_{50} by more than 10 dBA unless the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. This effectively allows for an L_{10} or L_{50} of no more than 36 dBA (26 dBA background + 10 dBA increase) at noise sensitive properties, unless, again, the

person who owns the noise sensitive property executes a legally effective easement or real covenant as described above.

The project noise sources with the potential to cause noise impacts are:

Wind Turbines: The noise characteristics of the wind turbines were supplied by GE Energy. As wind speed increases from cut-in wind speed to cut-out wind speed, the noise level increases. The maximum sound power level for the wind towers at cut-out speed was used in this analysis.

Transformers: There will be three new transformers associated with the Project.

Based on GE Energy's data, a maximum sound power level of 106 dBA (104 dBA ± 2 dBA) for each wind turbine was assumed to determine the potential area of impact. The distance to the 36-dBA contour was calculated to be approximately 0.8 miles from the wind tower boundary. Outside of this distance, the wind towers are predicted to have sound levels less than 36 dBA. Seven sound sensitive properties were identified within this contour distance and evaluated in greater detail. These properties are shown on the figure in Appendix A.

To predict the noise levels from the wind turbines at the sensitive properties, the SPM 9613 Sound Propagation Model for Outdoor Noise Sources (Version 2.0) was used. The model is based on ISO Standards 9613 Parts 1 and 2, which specifically address outdoor propagation and attenuation of sound, and engineering methods for calculating environmental noise and abatement.

The maximum sound power level octave band data, supplied by GE Energy, were used as input to the model. These data are summarized in Table X-4.

Table X- 4. A-weighted Octave Band Sound Power Level Spectra from Klondike III Wind Project Towers[1]

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Lwa [dB] octave	85.1	94.0	97.2	98.6	97.9	94.5	87.3	78.1

[1]Data supplied by GE Energy

Other inputs included a hub height of 78 meters and a rotor diameter of 77 meters, also based on manufacturer data.

There will be three new transformers associated with the Project: one in the proposed Klondike III collector substation near Schoolhouse and two in the proposed Klondike III collector substation near Webfoot (see Appendix A). The noise characteristics of the transformers were supplied by Bonneville Power Administration (BPA) staff.

Based on BPA's transmission line specification, a maximum sound level of 70 dBA at 3 feet from the transformers was assumed. The distance to the 36 dBA contour was

calculated to be approximately 150 feet from one transformer and 210 feet from the two transformers at the same location. Outside of these distances, the transformers are predicted to have sound levels less than 36 dBA. No sound sensitive properties were identified within this contour distance. Therefore, it was determined that noise from the new transformers will not impact any sensitive properties in the analysis area.

X.6 MONITORING PROGRAM

OAR 345-021-0010(1)(x)(F) *The applicant's proposed monitoring program, if any, for noise generated by construction and operation of the facility.*

Response: Because no significant noise impacts are predicted, no monitoring program is proposed.

X.7 CONCLUSION

The noise levels anticipated to be generated by the facility do not exceed specific regulatory levels (Table X-3) and are not expected to be significant. To the extent that the project will increase the L_{10} or L_{50} by 10 dBA or more at several noise sensitive properties, the Applicant will either secure from the owners of these properties a legally effective easement or real covenant that benefits the property, or elect not to construct one or more towers in order to meet the standard.

X.8 REFERENCES

Beeson, M.H., Tolan, T. L., and Anderson, J. L., 1989, The Columbia River Basalt Group in western Oregon; geologic structures and other factors that controlled flow emplacement patterns: In: Reidel, S. P., and Hooper, P. R., eds., Volcanism and tectonism in the Columbia River flood-basalt province. Geological Society of America Special Paper 239.

Beranek, Leo L. 1988. Noise and Vibration Control

International Electrotechnical Commission (IEC) 61400-14 Ed. 1, Wind Turbines – Part 14: Declaration of apparent sound power level and tonality values of wind turbines.

Oregon Administrative Rules, Department of Environmental Quality, Chapter 340, Division 35 – Noise Control Regulations.

Oregon Climate Center. 2005. Zone 6 Climate Data Archives. Oregon State University. Available on internet at: http://www.ocs.oregonstate.edu/index.html

Orr, E.L., W.N. Orr, and E.M. Baldwin. 1992. Geology of Oregon, Fourth Edition. Kendall/Hunt Publishing. Dubuque, Iowa.

Power Acoustics, Inc., SPM9613 Users Manual V2.x.

TW Environmental, Inc. (TWE). 2005. Unpublished: Klondike III Wind Project Noise Analysis Report. TWE. Portland, Oregon.

U.S. Department of Agriculture (USDA). 1964. Soil Survey of Sherman County, Oregon. Soil Conservation Service.

U.S. Environmental Protection Agency (EPA). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.

APPENDIX X-1

TWE Noise Analysis Report for Klondike III Wind Project

Noise Analysis Report for the Klondike III Wind Project

prepared for

David Evans and Associates, Inc.

prepared by

TW Environmental, Inc.

March 2005

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Contents

Tables

Appendices

1.0 Introduction

Up to 165 new wind turbines are planned for installation in the Klondike III Wind Project located in Sherman County, Oregon. The purpose of this document is to describe the potential noise impacts associated with the project.

The Klondike III Wind Project is located in rural, northeast Sherman County approximately seven miles east of Wasco, Oregon. It is roughly one mile west of the John Day River, at its closest, approximately five miles south of the Columbia River, and twelve miles east of the Deschutes River. Agriculture, particularly dry land wheat, is the predominant land use and there are very few residential dwellings and agriculture related structures in the vicinity of the project area.

2.0 Background

The Klondike III Wind Project is located on approximately 14,500 acres under lease to Klondike Wind Power III LLC, in Sherman County. The Project will generate up to 273 MW of power and will include up to 165 wind turbines. The turbine towers are configured in several north-south alignments. Klondike Wind Projects I and II exist or are under construction near the Klondike III Project. The tower alignments will be accessed by new and existing 16-foot wide gravel-surfaced roads; the underground collector system will be largely within road prisms. Project elements also include a 4-acre O&M facility, 19 laydown areas throughout the project site, a 3.5-mile 230 kV overhead feeder line, and two new collector substations.

3.0 Existing Conditions

Chapter 340, Division 35 of the Oregon Administrative Rules (OAR) specifies use of an assumed background L_{50} ambient noise level of 26 dBA or the actual measured ambient background level (OAR 340-035-0035). For this project, the assumed background level of 26 dBA was used as baseline to represent existing noise conditions.

The project area is rural in nature and existing noise levels can be expected to be low with infrequent noise from agricultural activities.

4.0 Methods

4.1 NOISE BACKGROUND INFORMATION

Noise is generally defined as unwanted sound and is measured in terms of sound pressure level. It is expressed in decibels (dB), which are defined as 10 log P^2/ P^2_{ref}, where P is the root-mean-square sound pressure and P_{ref} is the reference root-mean-square sound pressure of 2×10^{-5} Newtons per square meter.

The number of fluctuation cycles or pressure waves per second of a particular sound constitutes the frequency of the sound. The human ear is less sensitive to higher and lower frequencies than to mid-range frequencies. Therefore, sound level meters that measure environmental noise generally incorporate a filtering system that discriminates against higher and lower frequencies in a manner similar to the human ear. This produces noise measurements that approximate the normal human perception of noise.

Measurements made using this filtering system are "A-weighted" and are specified as "dBA" readings. All noise levels referred to in this report are stated as hourly equivalent sound pressure levels (L_{eq}) in terms of A-weighted decibels (dBA). The A-weighting is used in most environmental ordinances and standards. The equivalent sound pressure level (L_{eq}) is the level of a constant sound for a specified period of time that has the same sound energy as a fluctuating noise over the same specified period of time. It can be considered an hourly energy-average sound level.

Noise levels decrease with distance from a noise source. The L_{eq} noise level from a line source such as a road will decrease by 3 dBA for every doubling of distance (3 dB/DD) because of geometric divergence with distance alone. Additional noise reduction (attenuation) can be provided by vegetation and terrain effects that block or absorb noise.

A 10-dBA change in noise level is judged by most people to be approximately a two-fold change in loudness (e.g., an increase from 50 dBA to 60 dBA causes the loudness to double). The minimum change in sound levels that can be perceived by a person with normal hearing is generally 3 dBA. Sound levels produced by common noises are listed in Table 1.

Table 1 - Sound Levels of Common Sources and Noise Environments*

Thresholds/Noise Sources	Sound Level (dBA)	Subjective Evaluations	Possible Effects on Humans
Human threshold of pain Carrier jet takeoff (50 ft)	140	Deafening	Continuous exposure can cause hearing damage
Siren (100 ft) Jackhammer, power drill	130		
Loud rock band Auto horn (3 ft)	120		
Busy video arcade Baby crying	110		
Lawn mower (3 ft) Noisy motorcycle (50 ft)	100	Very loud	
Heavy truck at 40 mph (50 ft) Shouted conversation	90		
Kitchen garbage disposal (3 ft) Busy urban street, daytime	80	Loud	
Normal automobile at 65 mph (25 ft) Vacuum cleaner (3 ft)	70		Speech interference
Large air conditioning unit (20 ft) Normal conversation (3 ft)	60	Moderate	
Quiet residential area Light auto traffic (100 ft)	50		Sleep interference
Library Quiet home	40	Faint	
Soft whisper (15 ft)	30		
Broadcasting studio	20	Very faint	
Threshold of human hearing	0-10		

*Note that both subjective evaluations and physiological responses are continuous without true threshold boundaries. Consequently, there are overlaps among categories of response that depend on the sensitivity of the noise receivers.

Metrics that are used in this analysis to characterize the existing and future noise environments are the equivalent sound level (L_{eq}) and statistical noise level descriptors (L_{xx}) as defined below.

Equivalent Sound Level, L_{eq}: L_{eq} is a measure of sound energy over a specified time period. The L_{eq} is called the equivalent sound level because it is equivalent to the level of a steady sound that over a referenced duration has the same A-weighted sound energy as the fluctuating sound. Durations of one hour are commonly used in environmental assessments. Because the L_{eq} is a measure of the total sound energy, any new source of community noise will cause the L_{eq} to increase. To estimate how a wind tower would change L_{eq}, it is necessary to know the existing L_{eq} and add in the sound energy created by all of

the wind tower operations. The more wind towers, the more sound energy is added to the existing L_{eq}.

Statistical Noise Level Descriptor, L_{xx} (for example, L_{10} or L_{50}): The L_{xx} is a statistical noise level descriptor, where the xx is a percentage of the measurement time, usually 1-hour. Oregon uses L_{xx} values to determine compliance with noise regulations and for management of wind tower noise. Public response to sound depends greatly on the characteristic variation in sound levels in a given environment. People will generally find a moderately high, constant sound level more tolerable than a quiet background level interrupted by frequent high-level noise intrusions. For example, steady traffic noise from a highway is normally less bothersome than occasional aircraft fly-overs in a relatively quiet area. In light of this subjective response, it is often useful to look at a statistical distribution of sound levels over a given time period. Such distributions identify the sound level exceeded and the percentage of time exceeded, and allow for a more thorough description of the range of sound levels during the given measurement period. Some common L_{xx} statistical descriptors, including two of those used in the Oregon regulations, and their definitions follow:

> L_{10}: The sound level exceeded 10 percent of the time. This is a measure of the louder sound levels during the measurement period. Example: During a 1-hour measurement, an L_{10} of 85 dBA means the sound level was at or above 85 dBA for 6 minutes.
>
> L_{50}: The sound level exceeded 50 percent of the time. Example: During a 1-hour measurement, an L_{50} of 50 dBA means the sound level was at or above 50 dBA for 30 minutes.

4.2 REGULATIONS

For proposed wind energy facilities subject to the jurisdiction of the Oregon Energy Facility Siting Council, such proposed facilities must be shown to comply with the Oregon Department of Environmental Quality's (DEQ) noise control regulations that are otherwise applicable to wind energy facilities. DEQ regulations at OAR 340-035-0035 establish noise standards for the following three general categories: existing noise sources, new noise sources, and new noise sources located in quiet areas. The project area does not include any areas that would currently be considered quiet areas. The standards for existing and new sources are the same, but new sources on sites that have not previously been used for commercial or industrial purposes have an additional limit on the allowable increase over existing ambient noise levels. Sources on new sites may not increase the L_{10} or L_{50} statistical noise levels by more than 10 dBA. New wind energy facilities may not increase the L_{10} or L_{50} by more than 10 dBA unless the person who owns the noise sensitive property executes a legally

effective easement or real covenant that benefits the property on which the wind energy facility is located. Table 2 summarizes the regulations.

Table 2 – Oregon DEQ Industrial and Commercial Noise Source Standards

Statistical Descriptor	Existing and New Noise Sources	
	7 am-10 pm	10 pm-7 am
L_{50}	55	50
L_{10}	60	55
L_{01}	75	60

Source: ODEQ 340-035-0035

The above limits apply at noise sensitive properties, which are defined in OAR 340-035-0015(38) as properties normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries. Residences are the only noise sensitive properties identified in the Project area.

Because wind turbines do not generate impulse noise, the impulse noise regulations specified in OAR 340-035-0035(1)(d) do not apply. Also, construction noise is exempt from the industrial noise limits in accordance with OAR 340-035-0035(5)(g).

In addition to the limits discussed above, OAR 340-035-0035(1)(f) establishes standards to regulate octave band sound pressure levels and audible discrete tones. Under DEQ's rules, when the Director of DEQ has reasonable cause to believe that the requirements summarized above do not adequately protect the health, safety, or welfare of the public as provided for in ORS Chapter 467, the Department may require the noise source to meet the additional standards contained in OAR 340-035-0035(1)(f).

4.3 MEASUREMENT AND ASSESSMENT PROCEDURES

Noise measurements were not conducted for this analysis. Instead, a background L_{50} ambient noise level of 26 dBA was assumed in accordance with OAR 340-035-0035. As discussed previously, wind energy facilities must meet the DEQ noise impact criterion for noise levels generated from a wind energy facility at noise sensitive properties as summarized in Table 2 and an increase of the L_{10} or L_{50} by no more than 10 dBA. This effectively allows for an L_{10} or L_{50} of no more than 36 dBA (26 dBA background + 10 dBA increase) at noise sensitive properties.

The project noise sources with the potential to cause noise impacts are:

Wind Turbines: The noise characteristics of the wind turbines were supplied by GE Energy. As wind speed increases from cut-in wind speed to cut-out wind speed, the noise level increases. The maximum sound power level for the wind turbines at cut out speed was used in this analysis.

Transformers: There will be three new transformers associated with the Project: one in the proposed Klondike III collector substation north of T1 and two in the proposed Klondike III collector substation north of Wpt136 (see Appendix A). The noise characteristics of the transformers were supplied by Bonneville Power Administration (BPA) staff.

Based on GE Energy's data, a maximum sound power level of 106 dBA (104 dBA ± 2 dBA) for each wind turbine was assumed to determine the potential area of impact. The distance to the 36 dBA contour was calculated to be approximately 0.8 miles from the wind tower boundary. Outside of this distance, the wind towers are predicted to have sound levels less than 36 dBA. Seven sound sensitive properties were identified within this contour distance and evaluated in greater detail. These properties are shown on the figure in Appendix A.

A similar calculation was performed to calculate the sound level from the transformers. Based on BPA's transmission line specification, a maximum sound level of 70 dBA at 3 feet from the transformers was assumed. The distance to the 36 dBA contour was calculated to be approximately 150 feet from one transformer and 210 feet from two transformers at the same location. Outside of this distance, the transformers are predicted to have sound levels less than 36 dBA. No sound sensitive properties were identified within this contour distance. Therefore, it was determined that noise from the new transformers will not impact any sensitive properties in the project area.

To predict the noise levels from the wind turbines at the sensitive properties, the SPM 9613 Sound Propagation Model for Outdoor Noise Sources (Version 2.0) was used. The model is based on ISO Standards 9613 Parts 1 and 2, which specifically address outdoor propagation and attenuation of sound, and engineering methods for calculating environmental noise and abatement.

The maximum sound power level octave band data, supplied by GE Energy, were used as input to the model. These data are summarized in Table 3.

Table 3 – A-weighted Octave Band Sound Power Level Spectra from Klondike III Wind Project Towers[1]

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
L_{wa} [dB] octave	85.1	94.0	97.2	98.6	97.9	94.5	87.3	78.1

[1]Data supplied by GE Energy

Other inputs included a hub height of 78 meters and a rotor diameter of 77 meters, also based on manufacturer data. Please note that manufacturer data gave a range of possible hub heights from 78 – 80 meters; 78 meters was used in this analysis to be conservative (i.e., shorter hub height is slightly more conservative).

5.0 Results

5.1 OPERATIONS NOISE

Noise levels from the operation of the wind towers were predicted by using the SPM 9613 Sound Propagation Model for Outdoor Noise Sources (Version 2.0). A shielding analysis was conducted and it was determined that there is no topographical shielding, due to the tower hub height of 78 - 80m. The maximum sound power level data at cut out speed was used in the model, resulting in a conservative analysis. Table 4 summarizes estimated operations noise levels at noise-sensitive receivers.

Table 4 – Estimated Operations Noise Levels at Noise-Sensitive Receivers

Receiver ID	Estimated Noise Level (dBA)
R1	31
R2	31
R3	33
R4	39
R5	37
R6	41
R7	40

The above table shows that the estimated noise levels at all receivers are below the most restrictive DEQ standard of a nighttime L_{50} of 50 dBA. Four of the receivers are at or above the 36 dBA criteria (26 dBA background + 10 dBA allowable increase) when the towers are operating at cut out speed: R4, R5, R6, and R7. Based on measured wind speed data, it was determined that the 36 dBA criteria will be exceeded at these receivers only 3% of the time the towers are operating, or approximately four days per year. Appendix B contains the output files of the SPM9613 model runs.

5.2 CONSTRUCTION NOISE

Construction of the Klondike III Wind Project may cause localized, short-duration noise. Such temporarily increased noise levels will result from normal construction activities. Table 5 presents noise levels for typical construction equipment.

Table 5 – Typical Construction Equipment Noise (dBA)

Activities	Equipment	Range of Noise Levels at 50 feet*
Materials Handling	Concrete mixers	75-87
	Concrete pumps	81-83
	Cranes (movable)	76-87
	Cranes (derrick)	86-88
Stationary Equipment	Pumps	69-71
	Generators	71-82
	Compressors	74-87
Impact Equipment	Pneumatic wrenches	83-88
	Rock drills	81-98
Land Clearing	Bulldozers	77-96
	Dump trucks	82-94
Grading	Scrapers	80-93
	Bulldozers	77-96
Paving	Pavers	86-88
	Dump trucks	82-94

Source: U.S. Environmental Protection Agency, 1971.

As shown in Table 5, noise levels from construction activities can be expected to range from approximately 70 to 100 dBA at a distance of 50 feet from the activities. OAR 340-035-0035(5)(g) specifically exempts construction activity. Therefore, by regulatory definition, there will be no construction noise impacts.

6.0 Mitigation

Noise levels are not projected to exceed DEQ noise impact criteria summarized in Table 2. At four properties, however, noise levels are predicted to exceed the 10 dBA increase criteria. It is important to note that the noise analysis that was conducted is conservative, resulting from assuming a low background level of 26 dBA, using maximum sound levels for the wind towers at cut out speed, and comparing the maximum expected sound levels, not the L_{10} or L_{50}, to the standard. Even with maximum expected sound levels from the wind towers, overall noise levels would be relatively low.

OAR 340-035-0035 specifies that the noise levels from a wind energy facility may increase the ambient statistical noise levels L_{10} and L_{50} by more than 10 dBA (but not above the limits specified in Table 2), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. It is therefore recommended that easements be obtained for these properties in accordance with DEQ regulations.

7.0 References

Beranek, Leo L. 1988. *Noise and Vibration Control*

International Electrotechnical Commission (IEC) 61400-14 Ed. 1, *Wind Turbines – Part 14: Declaration of apparent sound power level and tonality values of wind turbines.*

Oregon Administrative Rules, Department of Environmental Quality, Chapter 340, Division 35 – Noise Control Regulations.

Oregon Climate Center. 2005. Zone 6 Climate Data Archives. Oregon State University.
Available on internet at: http://www.ocs.oregonstate.edu/index.html

Orr, E.L., W.N. Orr, and E.M. Baldwin. 1992. *Geology of Oregon, Fourth Edition.* Kendall/Hunt Publishing. Dubuque, Iowa.

Power Acoustics, Inc., *SPM9613 Users Manual V2.x.*

U.S. Environmental Protection Agency (EPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.*

Appendix A
Klondike III Wind Project Receptor Locations

Klondike III Wind Project
Receptor Locations

R5
R4
R6
R7
R2
R3
R1

Emigrant Springs Rd
Medler Ln
N Klondike Rd
Holloway
Not Leased
Dehler Rd
Beacon Rd
Klondike Ln
McDonald Ferry Ln
Spanish Holloway
Sandon Rd
Gosson Ln
Hwy 206
Smith Ln
Not Leased
GRASS
CANYON

0 0.5 1 2
Miles

Legend

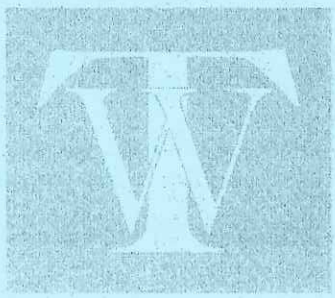
Turbines:
- Proposed Klondike III
- Klondike II
- Klondike I
- Proposed Met Tower

Collector Systems:
- Proposed Overhead T-line
- Proposed Overhead T-line and Power Supply
- Proposed Underground Collector within Road Prism
- Proposed Underground Collector not in Road Prism

- Already Permitted Road
- Proposed New Road
- Existing Road
- Existing Road Requiring Widening Upgrade
- Railroad
- Proposed Habitat Mitigation Area
- Proposed Laydown Area
- Proposed Substation and O&M Building
- Proposed Substation
- Proposed Substation (BPA)
- Existing Substation
- Existing O&M Building
- Lease Boundary
- Receptor Locations

p:/pp/me00000001/0600info/gis/arcmap/figures/fig__basemap.mxd March 18, 2005

Appendix B
SPM9613 Output for Model Runs



Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R1.prj

Project Description:
Klondike - R1
User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 20
Relative Humidity, in percent: 70

Source Files:

E:\Projects\242\SPM 9613 Model Files\R1.src // Klondike III Wind Tower
E:\Projects\242\SPM 9613 Model Files\R1_2.src // Klondike Wind Tower 2
E:\Projects\242\SPM 9613 Model Files\R1_3.src // Klondike Wind Tower 3
E:\Projects\242\SPM 9613 Model Files\R1_4.src // Klondike Wind Tower 4

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 1.obs // Receiver 1

Output Data Summary

x = 307.5 y = -817.5 z = 1.5 (in meters)

Source Component	Octave Band Center Frequency, Hz 16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	48.2	38.6	31.6	27.7	25.8	17.7	0.0	0.0	31.1	48.1
Wpt40	0.0	0.0	44.1	34.8	27.6	24.1	22.6	15.0	0.0	0.0	27.6	44.0
Wpt39	0.0	0.0	42.6	33.0	26.0	22.2	20.3	12.1	0.0	0.0	25.6	42.5
Wpt38	0.0	0.0	41.4	31.6	24.6	20.5	18.2	9.3	0.0	0.0	23.9	41.3
Wpt37	0.0	0.0	39.5	28.8	22.3	16.7	13.5	2.8	0.0	0.0	20.6	39.3

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R2.prj

Project Description:
Klondike - R2
User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 20
Relative Humidity, in percent: 70

Source Files:

E:\Projects\242\SPM 9613 Model Files\R1.src // Klondike III Wind Tower
E:\Projects\242\SPM 9613 Model Files\R1_2.src // Klondike Wind Tower 2
E:\Projects\242\SPM 9613 Model Files\R1_3.src // Klondike Wind Tower 3
E:\Projects\242\SPM 9613 Model Files\R1_4.src // Klondike Wind Tower 4
E:\Projects\242\SPM 9613 Model Files\R3_36.src // Wpt36
E:\Projects\242\SPM 9613 Model Files\R3_35.src // Wpt35
E:\Projects\242\SPM 9613 Model Files\R3_34.src // Wpt34
E:\Projects\242\SPM 9613 Model Files\R3_33.src // Wpt33

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 2.obs // R2

Output Data Summary

x = 973.5 y = 1254 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	49.1	38.6	32.0	26.9	24.1	14.1	0.0	0.0	30.6	48.8
Wpt38	0.0	0.0	41.2	31.2	24.4	20.1	17.7	8.6	0.0	0.0	23.5	41.0
Wpt39	0.0	0.0	40.6	30.4	23.7	19.0	16.3	6.7	0.0	0.0	22.5	40.4
Wpt40	0.0	0.0	40.1	29.5	23.0	17.8	14.9	4.8	0.0	0.0	21.5	39.8
Wpt33	0.0	0.0	39.9	29.2	22.7	17.4	14.4	4.1	0.0	0.0	21.1	39.6
Wpt34	0.0	0.0	39.8	29.2	22.7	17.3	14.2	3.9	0.0	0.0	21.1	39.6
Wpt35	0.0	0.0	39.7	29.0	22.5	17.1	14.0	3.5	0.0	0.0	20.9	39.4
Wpt36	0.0	0.0	39.5	28.8	22.3	16.7	13.5	2.9	0.0	0.0	20.6	39.3
Wpt37	0.0	0.0	39.3	28.4	22.0	16.3	12.9	2.0	0.0	0.0	20.2	39.0

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R3.prj

Project Description:
Klondike - R3
User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 15
Relative Humidity, in percent: 70

Source Files:

E:\Projects\242\SPM 9613 Model Files\R1.src // Klondike III Wind Tower
E:\Projects\242\SPM 9613 Model Files\R1_2.src // Klondike Wind Tower 2
E:\Projects\242\SPM 9613 Model Files\R1_3.src // Klondike Wind Tower 3
E:\Projects\242\SPM 9613 Model Files\R1_4.src // Klondike Wind Tower 4
E:\Projects\242\SPM 9613 Model Files\R3_36.src // Wpt36
E:\Projects\242\SPM 9613 Model Files\R3_35.src // Wpt35
E:\Projects\242\SPM 9613 Model Files\R4_7.src // Wpt49
E:\Projects\242\SPM 9613 Model Files\R4_8.src // Wpt48
E:\Projects\242\SPM 9613 Model Files\R4_9.src // Wpt47
E:\Projects\242\SPM 9613 Model Files\R4_10.src // Wpt46
E:\Projects\242\SPM 9613 Model Files\R3_34.src // Wpt34
E:\Projects\242\SPM 9613 Model Files\R3_33.src // Wpt33

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 3.obs // R3

Output Data Summary

x = 2146.5 y = 160.5 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	50.5	40.4	33.6	29.7	28.1	19.0	0.0	0.0	33.2	50.4
Wpt49	0.0	0.0	43.7	34.2	27.2	24.0	22.8	14.5	0.0	0.0	27.4	43.6
Wpt48	0.0	0.0	43.2	33.6	26.6	23.4	22.1	13.5	0.0	0.0	26.8	43.1
Wpt47	0.0	0.0	42.5	32.9	25.9	22.6	21.2	12.2	0.0	0.0	25.9	42.4
Wpt46	0.0	0.0	41.8	32.0	25.0	21.6	20.0	10.6	0.0	0.0	24.9	41.6
Wpt39	0.0	0.0	37.9	26.5	20.2	14.3	11.1	0.0	0.0	0.0	18.4	37.5
Wpt40	0.0	0.0	37.9	26.5	20.2	14.3	11.1	0.0	0.0	0.0	18.3	37.5
Wpt38	0.0	0.0	37.8	26.4	20.1	14.3	11.1	0.0	0.0	0.0	18.3	37.5
Wpt37	0.0	0.0	35.8	23.8	17.4	10.3	6.0	0.0	0.0	0.0	15.2	35.4
Wpt36	0.0	0.0	35.7	23.7	17.3	10.2	5.8	0.0	0.0	0.0	15.1	35.3
Wpt35	0.0	0.0	35.6	23.6	17.2	10.0	5.5	0.0	0.0	0.0	14.9	35.2
Wpt34	0.0	0.0	35.5	23.5	17.0	9.7	5.2	0.0	0.0	0.0	14.7	35.1
Wpt33	0.0	0.0	35.3	23.3	16.8	9.4	4.7	0.0	0.0	0.0	14.5	34.9

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R4.prj

Project Description:
Klondike- R4
User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 15
Relative Humidity, in percent: 70

Source Files:

E:\Projects\242\SPM 9613 Model Files\R5_1.src // Wpt54
E:\Projects\242\SPM 9613 Model Files\R5_2.src // Wpt55
E:\Projects\242\SPM 9613 Model Files\R5_3.src // Wpt56
E:\Projects\242\SPM 9613 Model Files\R5_4.src // Wpt57
E:\Projects\242\SPM 9613 Model Files\R5_5.src // Wpt58
E:\Projects\242\SPM 9613 Model Files\R5_6.src // Wpt59
E:\Projects\242\SPM 9613 Model Files\R5_7.src // Wpt60
E:\Projects\242\SPM 9613 Model Files\R5_8.src // Wpt61
E:\Projects\242\SPM 9613 Model Files\R5_9.src // Wpt62
E:\Projects\242\SPM 9613 Model Files\R5_10.src // Wpt63
E:\Projects\242\SPM 9613 Model Files\R5_11.src // Wpt64

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 4.obs // R4

Output Data Summary

x = 1443 y = -310 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	54.7	45.7	38.3	35.2	34.3	26.6	6.2	0.0	38.8	54.7
Wpt60	0.0	0.0	46.3	37.8	30.1	27.3	26.5	19.3	0.0	0.0	30.9	46.4
Wpt61	0.0	0.0	46.2	37.6	29.9	27.1	26.3	19.0	0.0	0.0	30.7	46.2
Wpt59	0.0	0.0	46.1	37.5	29.9	27.0	26.2	18.9	0.0	0.0	30.6	46.1
Wpt62	0.0	0.0	45.6	36.8	29.3	26.4	25.5	18.1	0.0	0.0	30.0	45.6
Wpt58	0.0	0.0	45.4	36.5	29.1	26.1	25.2	17.6	0.0	0.0	29.6	45.4
Wpt63	0.0	0.0	44.8	35.6	28.4	25.4	24.4	16.5	0.0	0.0	28.9	44.7
Wpt64	0.0	0.0	43.7	34.3	27.2	24.1	22.9	14.6	0.0	0.0	27.5	43.6
Wpt56	0.0	0.0	40.6	30.3	23.7	19.5	17.5	7.0	0.0	0.0	22.9	40.4
Wpt57	0.0	0.0	40.6	30.2	23.6	19.5	17.5	7.0	0.0	0.0	22.9	40.4
Wpt55	0.0	0.0	40.5	30.2	23.6	19.4	17.4	6.9	0.0	0.0	22.8	40.3
Wpt54	0.0	0.0	40.4	30.0	23.4	19.2	17.1	6.4	0.0	0.0	22.6	40.2

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R5.prj

Project Description:
Klondike- R5
User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 15
Relative Humidity, in percent: 70

Source Files:

E:\Projects\242\SPM 9613 Model Files\R5_1.src // Wpt54
E:\Projects\242\SPM 9613 Model Files\R5_2.src // Wpt55
E:\Projects\242\SPM 9613 Model Files\R5_3.src // Wpt56
E:\Projects\242\SPM 9613 Model Files\R5_4.src // Wpt57
E:\Projects\242\SPM 9613 Model Files\R5_5.src // Wpt58
E:\Projects\242\SPM 9613 Model Files\R5_6.src // Wpt59
E:\Projects\242\SPM 9613 Model Files\R5_7.src // Wpt60
E:\Projects\242\SPM 9613 Model Files\R5_8.src // Wpt61
E:\Projects\242\SPM 9613 Model Files\R5_9.src // Wpt62
E:\Projects\242\SPM 9613 Model Files\R5_10.src // Wpt63
E:\Projects\242\SPM 9613 Model Files\R5_11.src // Wpt64

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 5.obs // Receiver 5

Output Data Summary

x = 1674.5 y = 432.8 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	53.3	44.1	36.8	33.5	32.4	24.7	5.0	0.0	37.1	53.3
Wpt58	0.0	0.0	47.5	39.4	31.3	28.6	28.0	21.2	3.3	0.0	32.3	47.6
Wpt59	0.0	0.0	45.8	37.0	29.5	26.6	25.8	18.4	0.0	0.0	30.2	45.8
Wpt60	0.0	0.0	44.4	35.2	28.1	25.0	23.9	16.0	0.0	0.0	28.5	44.4
Wpt61	0.0	0.0	43.2	33.7	26.7	23.5	22.2	13.6	0.0	0.0	26.8	43.1
Wpt62	0.0	0.0	42.0	32.3	25.4	22.0	20.4	11.2	0.0	0.0	25.3	41.9
Wpt63	0.0	0.0	41.1	31.1	24.3	20.5	18.7	8.8	0.0	0.0	23.9	41.0
Wpt64	0.0	0.0	40.4	30.0	23.4	19.1	17.1	6.3	0.0	0.0	22.6	40.2
Wpt54	0.0	0.0	39.4	28.6	22.2	17.3	14.8	3.0	0.0	0.0	20.9	39.2
Wpt55	0.0	0.0	39.2	28.3	22.0	17.0	14.4	2.4	0.0	0.0	20.6	39.0
Wpt56	0.0	0.0	39.0	28.1	21.7	16.6	13.9	1.7	0.0	0.0	20.3	38.8
Wpt57	0.0	0.0	38.8	27.7	21.4	16.1	13.3	0.7	0.0	0.0	19.8	38.5

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R6.prj

Project Description:
Klondike - R6

User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 15
Relative Humidity, in percent: 70

Source Files:

e:\Projects\242\SPM 9613 Model Files\R7_1.src // Wpt94
e:\Projects\242\SPM 9613 Model Files\R7_2.src // Wpt93
E:\Projects\242\SPM 9613 Model Files\R7_3.src // Wpt92
E:\Projects\242\SPM 9613 Model Files\R7_4.src // Wpt91
E:\Projects\242\SPM 9613 Model Files\R7_5.src // Wpt90
E:\Projects\242\SPM 9613 Model Files\R7_6.src // Wpt102
E:\Projects\242\SPM 9613 Model Files\R7_7.src // Wpt101
E:\Projects\242\SPM 9613 Model Files\R7_8.src // Wpt100
E:\Projects\242\SPM 9613 Model Files\R8_1.src // Wpt126
E:\Projects\242\SPM 9613 Model Files\R8_2.src // Wpt127
E:\Projects\242\SPM 9613 Model Files\R8_3.src // Wpt128
E:\Projects\242\SPM 9613 Model Files\R8_4.src // Wpt129
E:\Projects\242\SPM 9613 Model Files\R8_5.src // Wpt130
E:\Projects\242\SPM 9613 Model Files\R8_6.src // Wpt131
E:\Projects\242\SPM 9613 Model Files\R8_7.src // Wpt132
E:\Projects\242\SPM 9613 Model Files\R8_8.src // Wpt136
E:\Projects\242\SPM 9613 Model Files\R8_9.src // Wpt137
E:\Projects\242\SPM 9613 Model Files\R8_10.src // Wpt138
E:\Projects\242\SPM 9613 Model Files\R8_11.src // Wpt139
E:\Projects\242\SPM 9613 Model Files\R8_12.src // Wpt140
E:\Projects\242\SPM 9613 Model Files\Wpt99.src // Wpt99
E:\Projects\242\SPM 9613 Model Files\Wpt98.src // Wpt98
E:\Projects\242\SPM 9613 Model Files\Wpt97.src // Wpt97
E:\Projects\242\SPM 9613 Model Files\Wpt96.src // Wpt96
E:\Projects\242\SPM 9613 Model Files\Wpt95.src // Wpt95
E:\Projects\242\SPM 9613 Model Files\Wpt89.src // Wpt89
E:\Projects\242\SPM 9613 Model Files\Wpt88.src // Wpt88
E:\Projects\242\SPM 9613 Model Files\Wpt87.src // Wpt87
E:\Projects\242\SPM 9613 Model Files\Wpt86.src // Wpt86
E:\Projects\242\SPM 9613 Model Files\Wpt85.src // Wpt85

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 6.obs // Receiver 6

Output Data Summary

x = 806 y = 78.5 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	57.7	48.4	41.2	37.9	36.7	28.6	7.6	0.0	41.4	57.6
Wpt102	0.0	0.0	47.1	38.8	30.9	28.2	27.5	20.5	2.2	0.0	31.8	47.2
Wpt101	0.0	0.0	46.7	38.2	30.5	27.7	26.9	19.8	0.9	0.0	31.3	46.7
Wpt100	0.0	0.0	45.6	36.8	29.4	26.5	25.6	18.1	0.0	0.0	30.0	45.7
Wpt94	0.0	0.0	45.5	36.6	29.2	26.3	25.4	17.8	0.0	0.0	29.8	45.5
Wpt93	0.0	0.0	45.4	36.5	29.1	26.2	25.3	17.7	0.0	0.0	29.7	45.4
Wpt92	0.0	0.0	44.9	35.9	28.6	25.6	24.6	16.9	0.0	0.0	29.1	44.9
Wpt99	0.0	0.0	44.6	35.5	28.2	25.2	24.2	16.3	0.0	0.0	28.7	44.6
Wpt91	0.0	0.0	44.3	35.0	27.9	24.8	23.7	15.7	0.0	0.0	28.3	44.3
Wpt90	0.0	0.0	43.5	34.1	27.0	23.9	22.6	14.2	0.0	0.0	27.3	43.5
Wpt98	0.0	0.0	43.5	34.0	27.0	23.8	22.6	14.1	0.0	0.0	27.2	43.4
Wpt89	0.0	0.0	42.8	33.2	26.2	23.0	21.6	12.8	0.0	0.0	26.3	42.7
Wpt97	0.0	0.0	42.4	32.7	25.7	22.4	21.0	11.9	0.0	0.0	25.7	42.3
Wpt126	0.0	0.0	42.3	32.6	25.7	22.4	20.9	11.8	0.0	0.0	25.7	42.2
Wpt127	0.0	0.0	41.9	32.2	25.3	21.9	20.3	11.0	0.0	0.0	25.2	41.8
Wpt88	0.0	0.0	41.8	32.0	25.1	21.7	20.1	10.7	0.0	0.0	25.0	41.7
Wpt136	0.0	0.0	41.6	31.8	24.8	21.4	19.7	10.2	0.0	0.0	24.7	41.4
Wpt96	0.0	0.0	41.4	31.6	24.7	21.2	19.5	9.8	0.0	0.0	24.5	41.3
Wpt128	0.0	0.0	41.4	31.6	24.7	21.2	19.5	9.8	0.0	0.0	24.5	41.3
Wpt87	0.0	0.0	41.1	31.0	24.2	20.4	18.6	8.6	0.0	0.0	23.8	40.9
Wpt129	0.0	0.0	41.0	31.0	24.2	20.4	18.6	8.5	0.0	0.0	23.7	40.9
Wpt137	0.0	0.0	40.9	30.7	24.0	20.0	18.1	7.9	0.0	0.0	23.4	40.7
Wpt95	0.0	0.0	40.8	30.6	23.9	20.0	18.0	7.8	0.0	0.0	23.3	40.6
Wpt86	0.0	0.0	40.5	30.1	23.5	19.3	17.2	6.6	0.0	0.0	22.7	40.2
Wpt130	0.0	0.0	40.3	29.9	23.3	19.1	17.0	6.2	0.0	0.0	22.5	40.1
Wpt138	0.0	0.0	40.2	29.7	23.2	18.8	16.7	5.8	0.0	0.0	22.3	40.0
Wpt131	0.0	0.0	39.9	29.2	22.7	18.1	15.8	4.5	0.0	0.0	21.7	39.6
Wpt85	0.0	0.0	39.8	29.1	22.7	18.0	15.7	4.3	0.0	0.0	21.5	39.5
Wpt139	0.0	0.0	39.6	28.8	22.4	17.7	15.3	3.7	0.0	0.0	21.2	39.4
Wpt132	0.0	0.0	39.4	28.6	22.2	17.3	14.9	3.1	0.0	0.0	20.9	39.2
Wpt140	0.0	0.0	39.1	28.1	21.8	16.7	14.0	1.8	0.0	0.0	20.3	38.8

Input Data Summary For:
E:\Projects\242\SPM 9613 Model Files\Klondike - R7.prj

Project Description:
Klondike - R7

User Defined Observer Positions will be calculated with the following options:

Line and 3-D sources will have 6 points per source
Sort on A-weighted sound levels (maximum to minimum)
Include ISO 9613 Ground Effects with a 10 dB Cap, re Hard groung
Barriers are NOT included in the calculation
Reflectors are NOT included in the calculation
Industrial Sites and Foliage are NOT included in the calculation

Temperature, in degrees C: 15
Relative Humidity, in percent: 70

Source Files:

e:\Projects\242\SPM 9613 Model Files\R7_1.src // Wpt94
e:\Projects\242\SPM 9613 Model Files\R7_2.src // Wpt93
E:\Projects\242\SPM 9613 Model Files\R7_3.src // Wpt92
E:\Projects\242\SPM 9613 Model Files\R7_4.src // Wpt91
E:\Projects\242\SPM 9613 Model Files\R7_5.src // Wpt90
E:\Projects\242\SPM 9613 Model Files\R7_6.src // Wpt102
E:\Projects\242\SPM 9613 Model Files\R7_7.src // Wpt101
E:\Projects\242\SPM 9613 Model Files\R7_8.src // Wpt100
E:\Projects\242\SPM 9613 Model Files\R8_1.src // Wpt126
E:\Projects\242\SPM 9613 Model Files\R8_2.src // Wpt127
E:\Projects\242\SPM 9613 Model Files\R8_3.src // Wpt128
E:\Projects\242\SPM 9613 Model Files\R8_4.src // Wpt129
E:\Projects\242\SPM 9613 Model Files\R8_5.src // Wpt130
E:\Projects\242\SPM 9613 Model Files\R8_6.src // Wpt131
E:\Projects\242\SPM 9613 Model Files\R8_7.src // Wpt132
E:\Projects\242\SPM 9613 Model Files\R8_8.src // Wpt136
E:\Projects\242\SPM 9613 Model Files\R8_9.src // Wpt137
E:\Projects\242\SPM 9613 Model Files\R8_10.src // Wpt138
E:\Projects\242\SPM 9613 Model Files\R8_11.src // Wpt139
E:\Projects\242\SPM 9613 Model Files\R8_12.src // Wpt140
E:\Projects\242\SPM 9613 Model Files\Wpt85.src // Wpt85
E:\Projects\242\SPM 9613 Model Files\Wpt86.src // Wpt86
E:\Projects\242\SPM 9613 Model Files\Wpt87.src // Wpt87
E:\Projects\242\SPM 9613 Model Files\Wpt88.src // Wpt88
E:\Projects\242\SPM 9613 Model Files\Wpt89.src // Wpt89
E:\Projects\242\SPM 9613 Model Files\Wpt95.src // Wpt95
E:\Projects\242\SPM 9613 Model Files\Wpt96.src // Wpt96
E:\Projects\242\SPM 9613 Model Files\Wpt97.src // Wpt97
E:\Projects\242\SPM 9613 Model Files\Wpt98.src // Wpt98
E:\Projects\242\SPM 9613 Model Files\Wpt99.src // Wpt99

Observer File:

E:\Projects\242\SPM 9613 Model Files\Receiver 7.obs // Receiver 7

Output Data Summary

x = 955 y = -690 z = 1.5 (in meters)

	Octave Band Center Frequency, Hz											
Source Component	16	31.5	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(C)
Total of Sources	0.0	0.0	56.4	46.6	39.7	36.2	34.7	25.7	1.0	0.0	39.6	56.3
Wpt136	0.0	0.0	44.4	35.1	28.0	24.9	23.8	15.8	0.0	0.0	28.4	44.3
Wpt137	0.0	0.0	43.8	34.4	27.4	24.2	23.1	14.8	0.0	0.0	27.6	43.8
Wpt129	0.0	0.0	43.8	34.4	27.3	24.2	23.0	14.7	0.0	0.0	27.6	43.7
Wpt128	0.0	0.0	43.6	34.2	27.2	24.0	22.8	14.4	0.0	0.0	27.4	43.6
Wpt102	0.0	0.0	43.6	34.1	27.1	23.9	22.7	14.3	0.0	0.0	27.3	43.5
Wpt130	0.0	0.0	43.6	34.1	27.1	23.9	22.7	14.3	0.0	0.0	27.3	43.5
Wpt127	0.0	0.0	43.2	33.6	26.7	23.5	22.1	13.5	0.0	0.0	26.8	43.1
Wpt131	0.0	0.0	43.1	33.6	26.6	23.4	22.1	13.4	0.0	0.0	26.7	43.0
Wpt138	0.0	0.0	43.1	33.5	26.6	23.3	22.0	13.4	0.0	0.0	26.7	43.0
Wpt132	0.0	0.0	42.6	33.0	26.0	22.7	21.3	12.4	0.0	0.0	26.0	42.5
Wpt126	0.0	0.0	42.5	32.9	25.9	22.6	21.2	12.2	0.0	0.0	26.0	42.4
Wpt101	0.0	0.0	42.4	32.7	25.7	22.4	21.0	11.9	0.0	0.0	25.7	42.3
Wpt139	0.0	0.0	42.3	32.6	25.6	22.3	20.8	11.7	0.0	0.0	25.6	42.2
Wpt94	0.0	0.0	41.8	32.0	25.1	21.7	20.1	10.7	0.0	0.0	25.0	41.7
Wpt140	0.0	0.0	41.5	31.7	24.8	21.3	19.6	10.1	0.0	0.0	24.6	41.4
Wpt100	0.0	0.0	41.2	31.2	24.4	20.7	19.0	9.1	0.0	0.0	24.1	41.1
Wpt93	0.0	0.0	41.2	31.2	24.4	20.7	18.9	9.0	0.0	0.0	24.0	41.0
Wpt92	0.0	0.0	40.6	30.3	23.7	19.6	17.6	7.2	0.0	0.0	23.0	40.4
Wpt99	0.0	0.0	40.6	30.2	23.6	19.5	17.4	6.9	0.0	0.0	22.9	40.3
Wpt91	0.0	0.0	40.1	29.6	23.1	18.7	16.5	5.5	0.0	0.0	22.1	39.9
Wpt98	0.0	0.0	39.9	29.2	22.8	18.2	15.9	4.6	0.0	0.0	21.7	39.6
Wpt90	0.0	0.0	39.6	28.9	22.5	17.7	15.3	3.8	0.0	0.0	21.3	39.4
Wpt97	0.0	0.0	39.2	28.3	22.0	17.0	14.4	2.4	0.0	0.0	20.6	39.0
Wpt89	0.0	0.0	39.2	28.3	21.9	16.9	14.3	2.3	0.0	0.0	20.6	38.9
Wpt96	0.0	0.0	38.7	27.6	21.3	15.9	13.1	0.4	0.0	0.0	19.7	38.4
Wpt88	0.0	0.0	38.6	27.5	21.2	15.8	13.0	0.2	0.0	0.0	19.6	38.3
Wpt95	0.0	0.0	38.2	26.8	20.6	14.9	11.8	0.0	0.0	0.0	18.8	37.8
Wpt87	0.0	0.0	38.1	26.8	20.5	14.8	11.7	0.0	0.0	0.0	18.7	37.8
Wpt86	0.0	0.0	37.6	26.1	19.9	13.9	10.5	0.0	0.0	0.0	18.0	37.3
Wpt85	0.0	0.0	37.1	25.4	19.2	12.8	9.2	0.0	0.0	0.0	17.1	36.7

EXHIBIT Y

CARBON DIOXIDE EMISSIONS
OAR 345-021-0010(1)(y)

Exhibit Y requires information about a base load gas plant, a non-base load power plant, or a non-generating energy facility that emits carbon dioxide. Exhibit Y is not required for this application because the Applicant is not proposing to construct any facilities that emit carbon dioxide.

EXHIBIT Z

COOLING TOWER
OAR 345-021-0010(1)(z)

Exhibit Z requires information about evaporative cooling towers and cooling tower plumes. Exhibit Z is not required for this application because the Applicant is not proposing to construct an evaporative cooling tower.

EXHIBIT AA

ELECTRIC TRANSMISSION LINE

OAR 345-021-0010(1)(aa)

TABLE OF CONTENTS

AA.1 INTRODUCTION

OAR 345-021-0010(1)(aa) *If the proposed facility includes an electric transmission line:*

Response: See sections AA.2 and AA.3, below.

AA.2 ELECTRIC AND MAGNETIC FIELDS

OAR 345-021-0010(1)(aa)(A) *Information about the expected electric and magnetic fields, including:*

(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way;

Response: The approximately 3.5 mile overhead collector line will be constructed within a 100-foot corridor parallel to the Klondike Road (a county road) public right-of-way. The centerline of the centerline will therefore be at least 50 feet from the edge of the public right-of-way.

(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line;

Response: There are no occupied buildings, including residences, within 200 feet on each side of the proposed centerline of the overhead collector line.

(iii) The approximate distance in feet from the proposed center line to each structure identified in (A);

Response: Not applicable.

(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line;

Response: Appendix AA-1 shows that at 200 feet on each side of the proposed centerline, the electric field is less than 0.06 kV/M and the magnetic field is less than 2.7 mG.

(v) Any measures the applicant proposes to reduce electric or magnetic field levels;

Response: No measures are proposed to reduce electric or magnetic field levels.

(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line; and

Response: Appendix AA-1 shows the assumptions used in the electric and magnetic field analysis. The BPA Corona and Field Effects Program (Version 3) was employed.

(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels; and

Response: No program for monitoring actual electric and magnetic field levels is proposed at this time.

AA.3 ALTERNATE METHODS

OAR 345-021-0010(1)(aa)(B) *An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways;*

Response: The overhead transmission line is not anticipated to cause radio interference.

AA.4 CONCLUSION

Based on above information, the Applicant has satisfied the required OAR 345-021-0010(1)(aa), and the Council may find that the standard contained in OAR 345-024-0090 is satisfied.

APPENDIX AA-1

AC Electric and Magnetic Field Analysis

PEC

CORONA AND FIELD
EFFECTS PROGRAM VER. 3
Source: Bonneville Power Administration

Date: 3/29/2005
Time: 11:51:28 AM
Engineer: PEC/PNH

PPM Energy
Klondike III 230 kV Line

INPUT DATA LIST

Units option flag (0=metric, 1=English)	1	(ENGLISH UNITS OPTION)
Gradient option flag (0=computed, 1=inputted"	0	(GRADIENTS ARE COMPUTED BY PROGRAM)
Number of phases or poles	3	
Total number of conductors (number of phases or poles + number of earth wires)	4	
For AC lines, line-line voltage in kVrms For DC lines, pole-ground voltage in kV	230.0	
Wind velocity in m/s or mi/hr	20.00	
Rain rate in mm/hr or in/hr	0.04	
Altitude, m or ft.	1000.00	

PHYSICAL SYSTEM CONSISTS OF 4 CONDUCTORS, OF WHICH 3 ARE ENERGIZED PHASES

OPTIONS: EF,MF
AN=Audio Noise
RI=Radio Noise
TV=Television interferance
OZ=Ozone concentrations
CL=Corona loss
EF=Electric Field
MF=Magnetic field
COMB=Combined output of all seven phenomena
ALL=All the above outputs

Vertical height of audibale noise microphone, m or ft	5.000
Vertical height of RI antenna, m or ft	5.000
Vertical height of TVI antenna, m or ft	10.000
Vertical height of Ozone sensor, m or ft	1.000
Frequency at which RI values are to be calculated	1.000
Frequency at which TVI values are to be calculated	75.000
Vertical height of magnetic field sensor, m or ft	3.280

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Ground conductivity, mmhos/m	4.000
Vertical height of electric field sensor, m or ft	3.280

Conductor Group	System Type Code		Horiz dist. from ref. axis (m or ft)	Midspan height (m or ft)	Number of sub-conductors in group	Sub-conductor diameter	Bundle sub-conductor spacing (mm or in)	Line-to-ground voltage (kVrms for ac lines)	Electric Phase angle in degrees	Current in kAmps	Conductor gradient (if inputted)
Phase C	A=AC, D=DC	A	12.00	40.00	1	1.545	0.000	132.79	240.00	0.70	0.00
Phase B	A=AC, D=DC	A	-12.00	50.00	1	1.545	0.000	132.79	120.00	0.70	0.00
Phase A	A=AC, D=DC	A	12.00	60.00	1	1.545	0.000	132.79	0.00	0.70	0.00
Gnd 1	A=AC, D=DC	A	1.00	80.00	1	0.500	0.000	0.00	0.00	0.00	0.00

	No. of data points	Starting point	Distance increment (m or ft)
Data set 1	41	-200.00	10.00
Data set 2	0	0.00	0.00

1.545" DIAMETER

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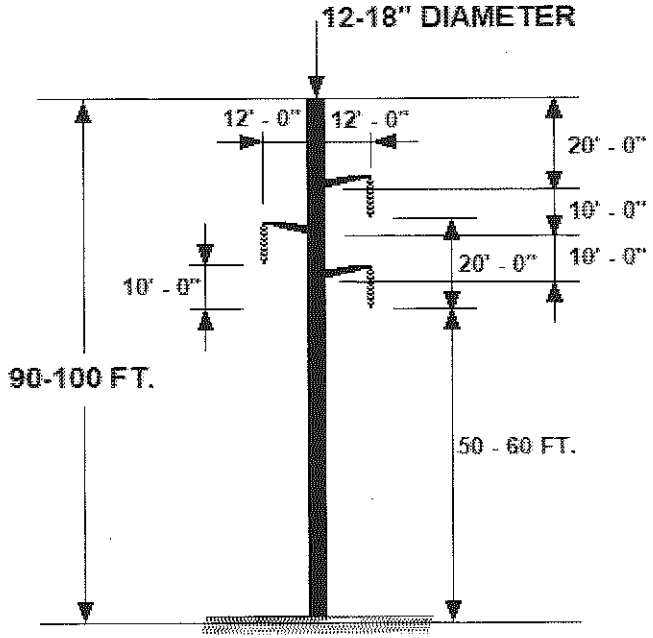
Klondike III 230 kV Line

INPUT DATA LIST



Proposed Transmission Tower Configuration

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Klondike III 230 kV Line

ELECTRIC FIELD CALCULATIONS

	DIST. FROM REFERENCE FEET	HEIGHT FEET	MAXIMUM GRADIENT (KV/CM)	SUBCON. DIAM. (IN)	NO. OF SUBCON.	PHASE ANGLE (DEGREES)
Phase C	12.00	40.00	11.77	1.55	1	240.00
Phase B	-12.00	50.00	11.26	1.55	1	120.00
Phase A	12.00	60.00	11.61	1.55	1	0.00
Gnd 1	1.00	80.00	2.55	0.50	1	0.00

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	E-FIELD (KV/METER)	THETA (DEGREES)	EY-FIELD (KV/METER)	THETAY (DEGREES)	EX-FIELD (KV/METER)	THETAX (DEGREES)	POTENTIAL (VOLTS)
-200	0.052	87.8	0.052	-92.9	0.002	-79.1	51.7
-190	0.058	87.7	0.058	-91.3	0.002	-77.6	58.3
-180	0.066	87.6	0.066	-89.5	0.003	-76	66.2
-170	0.076	87.4	0.076	-87.7	0.004	-74.3	75.7
-160	0.087	87.3	0.087	-85.8	0.004	-72.6	87.2
-150	0.101	87.1	0.101	-83.8	0.005	-70.9	101.3
-140	0.119	86.9	0.119	-81.7	0.007	-69.1	118.9
-130	0.141	86.7	0.141	-79.6	0.008	-67.2	140.9
-120	0.169	86.5	0.169	-77.3	0.011	-65.2	168.8

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PPM Energy
Klondike III 230 kV Line

ELECTRIC FIELD CALCULATIONS

	DIST. FROM REFERENCE FEET	HEIGHT FEET	MAXIMUM GRADIENT (KV/CM)	SUBCON. DIAM. (IN)	NO. OF SUBCON.	PHASE ANGLE (DEGREES)
Phase C	12.00	40.00	11.77	1.55	1	240.00
Phase B	-12.00	50.00	11.26	1.55	1	120.00
Phase A	12.00	60.00	11.61	1.55	1	0.00
Gnd 1	1.00	80.00	2.55	0.50	1	0.00

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	E-FIELD (KV/METER)	THETA (DEGREES)	EY-FIELD (KV/METER)	THETAY (DEGREES)	EX-FIELD (KV/METER)	THETAX (DEGREES)	POTENTIAL (VOLTS)
-110	0.205	86.3	0.204	-75	0.014	-63.1	204.5
-100	0.251	86.1	0.25	-72.6	0.017	-60.9	250.6
-90	0.31	85.9	0.31	-70.1	0.023	-58.5	310.2
-80	0.388	85.8	0.387	-67.5	0.029	-55.6	387.4
-70	0.487	85.7	0.485	-64.6	0.037	-51.9	486.1
-60	0.609	85.9	0.608	-61.5	0.045	-46.5	608.1
-50	0.75	86.4	0.748	-57.9	0.05	-36.9	747.9
-40	0.887	87.5	0.886	-52.9	0.05	-15.1	883.3
-30	0.973	89.2	0.973	-45.2	0.059	31.9	968.1

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PPM Energy
Klondike III 230 kV Line

ELECTRIC FIELD CALCULATIONS

	DIST. FROM REFERENCE FEET	HEIGHT FEET	MAXIMUM GRADIENT (KV/CM)	SUBCON. DIAM. (IN)	NO. OF SUBCON.	PHASE ANGLE (DEGREES)
Phase C	12.00	40.00	11.77	1.55	1	240.00
Phase B	-12.00	50.00	11.26	1.55	1	120.00
Phase A	12.00	60.00	11.61	1.55	1	0.00
Gnd 1	1.00	80.00	2.55	0.50	1	0.00

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	E-FIELD (KV/METER)	THETA (DEGREES)	EY-FIELD (KV/METER)	THETAY (DEGREES)	EX-FIELD (KV/METER)	THETAX (DEGREES)	POTENTIAL (VOLTS)
-20	0.964	91.1	0.964	-30.7	0.113	68.4	957.6
-10	0.932	89.1	0.932	-2.7	0.185	82.8	929.1
0	1.126	84.8	1.121	31.1	0.204	92.3	1115.7
10	1.417	87.2	1.416	52.1	0.138	112.7	1402.3
20	1.468	91.3	1.468	64.1	0.091	175.4	1455.7
30	1.254	94.3	1.251	73.9	0.116	-143	1246.1
40	0.955	95.6	0.95	84.1	0.11	-127.8	950.7
50	0.7	95.8	0.697	95.1	0.084	-117.5	698.1
60	0.519	95.4	0.517	106.2	0.058	-107.6	518

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PPM Energy
Klondike III 230 kV Line

ELECTRIC FIELD CALCULATIONS

	DIST. FROM REFERENCE FEET	HEIGHT FEET	MAXIMUM GRADIENT (KV/CM)	SUBCON. DIAM. (IN)	NO. OF SUBCON.	PHASE ANGLE (DEGREES)
Phase C	12.00	40.00	11.77	1.55	1	240.00
Phase B	-12.00	50.00	11.26	1.55	1	120.00
Phase A	12.00	60.00	11.61	1.55	1	0.00
Gnd 1	1.00	80.00	2.55	0.50	1	0.00

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	E-FIELD (KV/METER)	THETA (DEGREES)	EY-FIELD (KV/METER)	THETAY (DEGREES)	EX-FIELD (KV/METER)	THETAX (DEGREES)	POTENTIAL (VOLTS)
70	0.396	94.8	0.395	116.5	0.04	-97.4	396
80	0.312	94.2	0.311	125.4	0.027	-87.2	311.9
90	0.252	93.8	0.251	132.9	0.02	-77.5	251.6
100	0.207	93.5	0.207	139.1	0.014	-68.8	206.8
110	0.173	93.3	0.172	144.3	0.011	-61.3	172.5
120	0.146	93.1	0.145	148.7	0.009	-54.8	145.6
130	0.124	92.9	0.124	152.5	0.007	-49.3	124.1
140	0.107	92.7	0.107	155.8	0.005	-44.6	106.8
150	0.093	92.6	0.093	158.7	0.004	-40.5	92.6

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PPM Energy
Klondike III 230 kV Line

ELECTRIC FIELD CALCULATIONS

	DIST. FROM REFERENCE FEET	HEIGHT FEET	MAXIMUM GRADIENT (KV/CM)	SUBCON. DIAM. (IN)	NO. OF SUBCON.	PHASE ANGLE (DEGREES)
Phase C	12.00	40.00	11.77	1.55	1	240.00
Phase B	-12.00	50.00	11.26	1.55	1	120.00
Phase A	12.00	60.00	11.61	1.55	1	0.00
Gnd 1	1.00	80.00	2.55	0.50	1	0.00

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	E-FIELD (KV/METER)	THETA (DEGREES)	EY-FIELD (KV/METER)	THETAY (DEGREES)	EX-FIELD (KV/METER)	THETAX (DEGREES)	POTENTIAL (VOLTS)
160	0.081	92.5	0.081	161.2	0.004	-36.9	81
170	0.071	92.3	0.071	163.6	0.003	-33.8	71.3
180	0.063	92.2	0.063	165.7	0.003	-31	63.1
190	0.056	92.1	0.056	167.6	0.002	-28.5	56.2
200	0.05	92	0.05	169.4	0.002	-26.2	50.4

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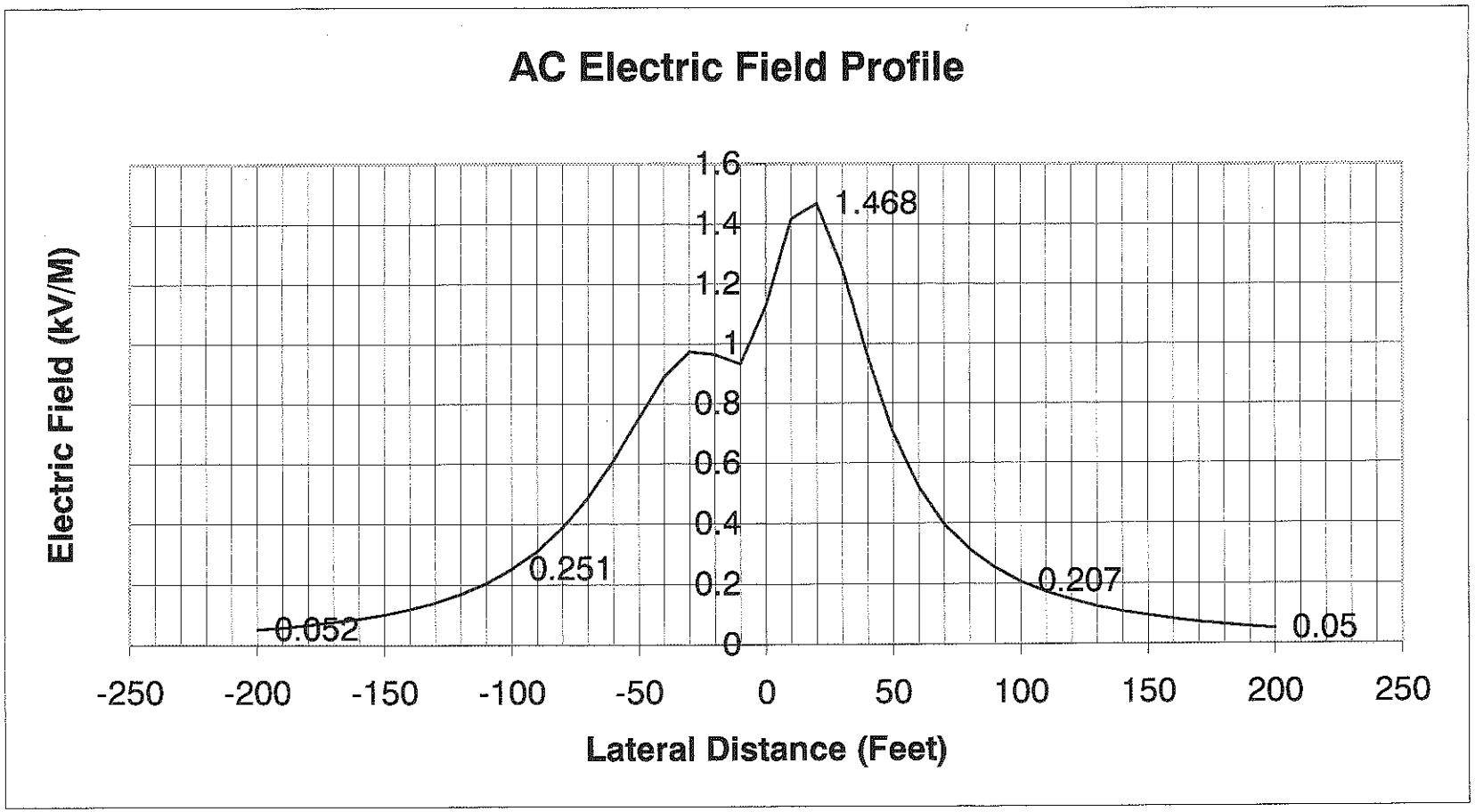

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PPM Energy
Klondike III 230 kV Line

MAGNETIC FIELD CALCULATIONS

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	B-FIELD (MILIGAUSS)	THETA (DEGREES)	BY-FIELD (MILIGAUSS)	THETAY (DEGREES)	BX-FIELD (MILIGAUSS)	THETAX (DEGREES)
-200	2.66618	117.7	2.48654	-43.5	1.93908	67.9
-190	2.9407	119.2	2.72045	-42.7	2.15668	69.7
-180	3.25887	120.8	2.9862	-41.8	2.41366	71.5
-170	3.63018	122.6	3.28905	-40.8	2.71999	73.6
-160	4.06679	124.6	3.6351	-39.7	3.08887	75.7
-150	4.58435	126.8	4.03125	-38.4	3.53799	78.1
-140	5.20331	129.4	4.48505	-37	4.09126	80.6
-130	5.9506	132.3	5.00423	-35.2	4.78139	83.3
-120	6.86209	135.6	5.59565	-33.1	5.65338	86.1
-110	7.98599	139.5	6.26333	-30.5	6.76938	89.2
-100	9.38756	144	7.00519	-27.1	8.21482	92.4
-90	11.15536	149.3	7.80892	-22.7	10.10467	95.8
-80	13.40893	155.7	8.65223	-16.4	12.58574	99.4
-70	16.30593	163.4	9.53067	-7.2	15.82166	103.1
-60	20.04258	172.8	10.59632	7	19.92689	107
-50	24.83035	-175.6	12.58215	27.5	24.77686	111.1
-40	30.8135	-161.4	17.29392	51.3	29.59453	116

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PPM Energy
Klondike III 230 kV Line

MAGNETIC FIELD CALCULATIONS

SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	B-FIELD (MILIGAUSS)	THETA (DEGREES)	BY-FIELD (MILIGAUSS)	THETAY (DEGREES)	BX-FIELD (MILIGAUSS)	THETAX (DEGREES)
-30	37.87992	-144	26.59766	70.8	32.40069	122.9
-20	45.37402	-123	39.74716	83.5	30.42563	136
-10	51.90011	-98.7	51.4297	92	25.2557	168
0	55.51581	-71.8	53.40296	100.5	30.89873	215.6
10	54.52124	-43.6	42.85089	115.4	44.04347	240.5
20	48.86013	-16.5	30.09968	145.2	47.5047	253.2
30	40.64729	7.2	25.81524	181.1	40.45563	264.3
40	32.40689	26.2	24.53929	203.8	30.6822	-83.2
50	25.4701	40.6	21.87355	217.2	22.87582	-69.8
60	20.08111	50.9	18.45895	226.5	17.57447	-57.2
70	16.02182	57.5	15.23029	234.1	13.98724	-46.4
80	12.98278	61.3	12.53598	240.6	11.42421	-37.8
90	10.69295	63	10.39432	246.2	9.49376	-31
100	8.94473	63.4	8.71512	251.1	7.98838	-25.5
110	7.58743	63.4	7.39505	255.4	6.78964	-21.1
120	6.51474	63.3	6.34705	259.2	5.82195	-17.5
130	5.65259	63.5	5.50456	262.5	5.03268	-14.4

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MAGNETIC FIELD CALCULATIONS

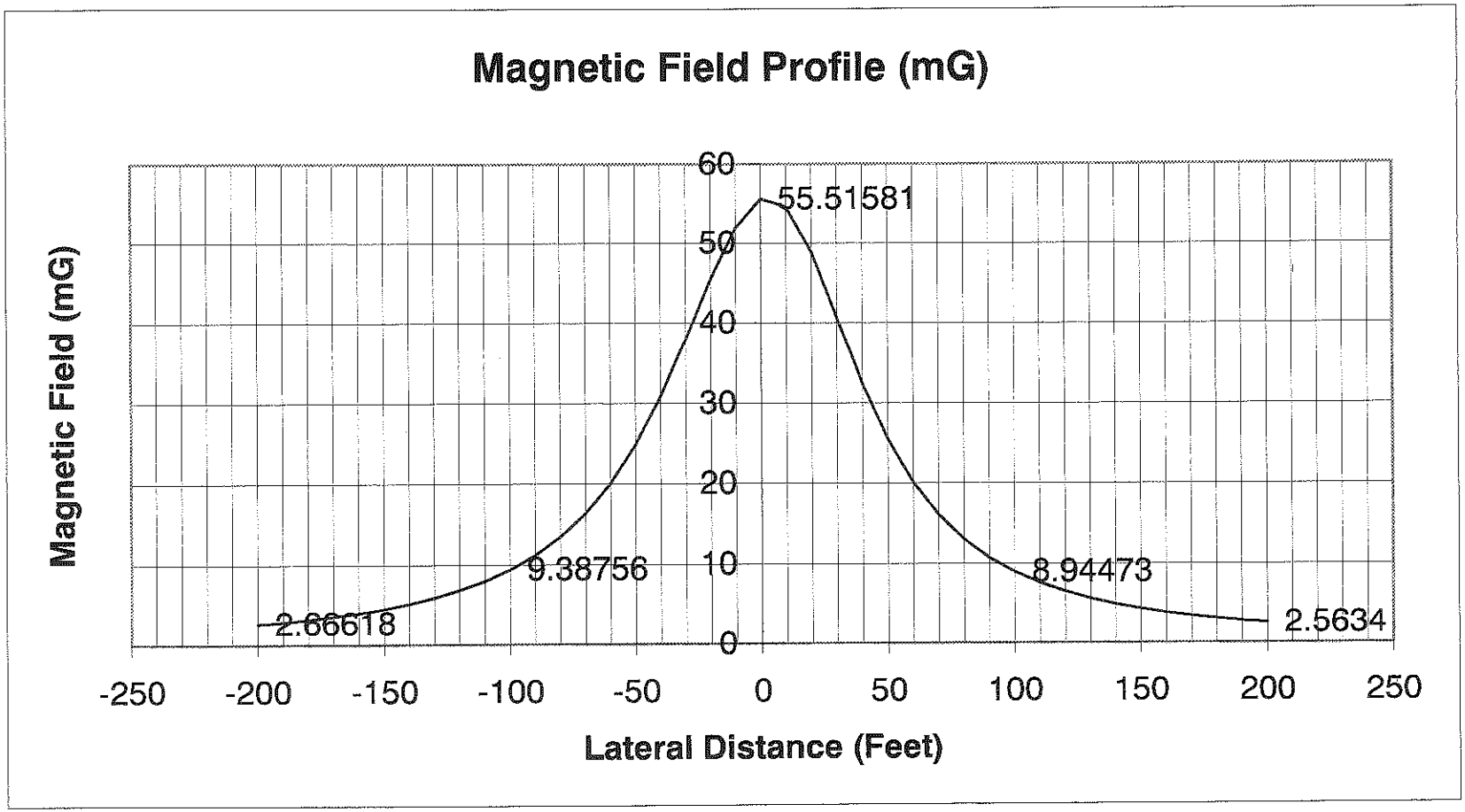
SENSOR HT. = 3.3 FEET

DIST FROM REFERENCE FEET	B-FIELD (MILIGAUSS)	THETA (DEGREES)	BY-FIELD (MILIGAUSS)	THETAY (DEGREES)	BX-FIELD (MILIGAUSS)	THETAX (DEGREES)
140	4.9492	63.8	4.81843	265.4	4.38321	-11.7
150	4.36785	64.3	4.25268	267.9	3.84438	-9.4
160	3.88191	65	3.78084	-89.9	3.39388	-7.3
170	3.4717	65.7	3.38322	-87.9	3.01443	-5.5
180	3.12238	66.4	3.04503	-86.2	2.69254	-3.8
190	2.82256	67.1	2.75497	-84.6	2.41765	-2.3
200	2.5634	67.9	2.5043	-83.2	2.18138	-1

PEC

CORONA AND FIELD
EFFECTS PROGRAM VER. 3
Source: Bonneville Power Administration

Date: 3/29/2005
Time: 11:51:28 AM
Engineer: PEC/PNH



Appendix BB-1

Letter from John White

Oregon
Theodore R. Kulongoski, Governor

OREGON DEPARTMENT OF ENERGY
625 Marion St. NE
Salem, OR 97301-3737
Phone: 503-378-4040
Toll Free: 1-800-221-8035
FAX: 503-373-7806
www.oregon.gov/energy

March 28, 2005

Mr. Jesse Gronner
PPM Energy
1125 NW Couch, Suite 700
Portland OR 97209

Re: Klondike III

Dear Jesse:

We received your request for expedited review on February 17 and payment of the applicable filing fee on February 24, 2005. Under OAR 345-015-0300(4), the Council grants expedited review for a proposed energy facility with an average electric generating capacity of less than 100 megawatts if the Oregon Department of Energy determines that the request satisfies the requirements of OAR 345-015-0300(2). We have made the following determinations about the request:

(a) Has the applicant included a description of the facility and the proposed site?

Yes. As described in the request for expedited review, the proposed wind energy facility would consist of not more than 165 turbines, each with a peak generating capacity of not more than 1.65 megawatts. The turbine towers would be about 265 feet tall at the turbine hub and would have an overall height of about 400 feet including the radius swept by the turbine blades. The turbines would be spaced 400 to 600 feet apart in approximately twenty-three strings. Turbines would be mounted on tubular steel towers. Concrete turbine pads would cover a surface area of about 2,000 square feet each.

The power output from the turbines would be transmitted by underground cables to two new substations (related or supporting facilities). A 230 kV transmission line would be built along Klondike Lane (related or supporting facility) to carry power from one part of the project to the location of the other substation (near Schoolhouse), where there would be a junction with a proposed new Bonneville Power Administration (BPA) 230 kV transmission line. Other related or supporting facilities would include new access roads and a new operations and maintenance building.

We considered whether the new BPA transmission line should be considered a related or supporting facility. The transmission line would connect a new BPA substation (near Schoolhouse) with a new substation in John Day. The 12-mile 230-kV transmission line could be designed to accommodate new generation in addition to the Klondike III project. According to BPA, the transmission line would be a "network addition" designed for the benefit of several customers and not solely to

integrate Klondike III, or any other, generating facility. In addition, the transmission line would relieve congestion on the existing 115-kV system that carries power from the Klondike I project. Based on these factors and other considerations, we have concluded that the BPA transmission line and related substations should not be considered related or supporting facilities. We will make that recommendation to the Council.

The applicant included a site map in the request for expedited review. The site is in Sherman County, east of Wasco and about 5 miles south of the Columbia River. Approximately 49 Klondike III turbines would be built to the southwest and approximately 116 Klondike III turbines would be built to the northeast of Klondike I and II turbines.

Although the proposed facility may be spoken of informally as "an expansion" of the existing Klondike I and II, we have considered very carefully the question whether Klondike III, for the purposes of the site certificate requirement, may be treated as a facility that is separate and independent of Klondike I and II. We asked for your response to a list of questions on this matter. These questions addressed a range of factors that we believe the Council would consider in interpreting the law and deciding whether to treat Klondike III as a separate facility. Based on the totality of the information, we have concluded that proposed Klondike III is a separate facility, and we will make that recommendation to the Council.

To be eligible for expedited review, the average electric generating capacity of the proposed facility must be less than 100 MW. For a wind energy facility, "average electric generating capacity" means peak generating capacity divided by a factor of 3.00. "Peak generating capacity" means nominal electric generating capacity as defined in OAR 345-001-0010(35). The proposed Klondike III facility would have a peak generating capacity of not more than 272.25 MW (165 turbines x 1.65 MW maximum generating capacity = 272.25 MW). Therefore, the average electric generating capacity of the proposed facility is not more than 90.75 MW.

(b) Has the applicant included the applicant's name and address?

Yes. The applicant is Klondike Wind Power III LLC, c/o PPM Energy, Inc., 1125 NW Couch St, Suite 700, Portland, OR 97209.

(c) Has the applicant included a schedule stating when the applicant expects to submit an application for a site certificate?

Yes. The applicant expects to submit the application on or before April 1, 2005.

(d) Has the applicant included a list of all statutes, rules and ordinances applicable to the facility?

Yes. The applicant's list of applicable statutes, rules and ordinances is attached to the request for expedited review as Exhibit D. The Department will include a list of

applicable statutes, rules and ordinances in its project order and may modify or add to the list the applicant has included in the request for expedited review.

(e) Has the applicant included a statement indicating whether the applicant intends to satisfy the Council's land use standard by obtaining local land use approval or by seeking a Council determination?

Yes. The applicant intends to seek a Council determination under ORS 469.504(1)(b).

(f) Has the applicant included the reason and justification for any request for exception to an analysis area?

In an expedited review, the analysis areas for the purpose of preparing an application for a site certificate are the "study areas" defined in OAR 345-001-0010(53). An applicant can request an exception (a modified analysis area), as described in OAR 345-015-0300(3).

The request for expedited review states: "Pursuant to OAR 345-001-0010(53)(g), the usual five-mile distance for air and water quality impacts does not apply to the Project because it uses wind energy exclusively. Therefore, Klondike III proposes the analysis areas for impacts to these resources to be limited to the site boundary."

There is no analysis area for air quality impacts. Facilities that have regulated air emissions must obtain appropriate permits from the Oregon Department of Environental Quality.

No exception to the analysis area for surface water and groundwater quality and availability impacts is needed. Under paragraph (g) of the study area definition, the distance described in OAR 345-001-0010(53)(a) does not apply to wind energy facilities. The applicable study area, therefore, includes "all the area within the site boundary." The rule defines "site boundary" as "the perimeter of the site of the proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and, for a facility that is a pipeline or a transmission line, all corridors proposed by the applicant."

To clarify what is included within the facility "site" and the "site boundary," the applicant should include a definition of these areas in the site certificate application and a map showing both the "site" and "site boundary" for the proposed facility.

The request for expedited review acknowledges the need to provide information about potential impacts to threatened or endangered species: "Klondike III recognizes that although the Project's impacts on threatened or endangered avian species would take place only on the Project site, assessing the potential for such impacts necessarily requires a broader-ranging study of the habitat, presence, and migratory behavior of these species. Klondike III is conducting such a study and will use the results for purposes of analyzing potential Project impacts." This statement does not appear to

request an exception to the study area for impacts to threatened and endangered species, and we do not find that any modification of the study area is needed.

We have discussed with ODFW the "Biological Protocol: Klondike III Wind Power Project: February 8, 2005." We and ODFW agree that this protocol outlines an acceptable level of ground survey work for the purposes of Exhibit P (OAR 345-021-0010(1)(p)) and "appropriate" field study for the purposes of potential impacts on threatened or endangered fish and wildlife species under exhibit Q (OAR 345-021-0010(1)(q)).

The protocol suggests a database search for threatened or endangered plant species "within two miles of the project boundary" and "if suitable habitat exists…ground surveys will be conducted within a 300-foot corridor along the turbine strings, transmission lines and new roads and within 150 feet of other, non-linear, project components." We believe that the database search should cover the whole area within the "site boundary" and the area within a distance of five miles from the site boundary, as required by the study area definition. Ground surveys should be conducted within the distances proposed in the protocol but should also include the entire area inside the "site boundary" where suitable habitat exists. Under OAR 345-001-0010(53), all temporary laydown and staging areas are included within the "site boundary."

Based on the applicant's request for expedited review and the information summarized above, the Department concludes that the applicant's request satisfies the requirements of OAR 345-015-0300(2). Accordingly, expedited review is granted under the Council's rule.

If you have any questions about preparation of the site certificate application, please contact me. I encourage you to work directly with the reviewing agencies to better identify their information requirements and to ensure that you include that information in the application. Please let me know who you have contacted, so that I can include all appropriate agency staff on our mailing list.

We have prepared an estimate of the anticipated costs that the Department and the Energy Facility Siting Council expect to incur in processing the application, as required under ORS 469.421(3). We provide this estimate so that you will know the amount of the fee to submit with the site certificate application. We estimate that the full cost of application review will be $122,000, based on the following anticipated budget:

Completeness Phase	$ 36,400
Substantive Review Phase	63,900
Hearing Phase	14,500
Council Decision Phase	7,200
Total Estimated Costs	$ $122,000

In making this estimate, we assumed a time line of four months for the completeness phase, three months for the substantive review phase, two months for the hearing phase (assuming no

substantial contested case) and six weeks for the Council decision phase (this will depend on scheduling the Council meeting, which further depends on what else is on the Council's agenda at the time). This is a fairly ambitious time line. The actual time it takes to complete each phase could vary from these assumptions. Therefore, the actual review cost could be substantially different than estimated. Applicants are required to pay the actual costs. As required by statute, we will notify you if it appears to us that the costs would exceed 110 percent of this fee estimate.

Under ORS 469.421, the applicant must pay 25 percent of the estimated costs upon submission of the application. After those funds are expended, you will be required to make periodic payment as costs are incurred. We have enclosed a Cost Reimbursement Agreement. If you have any comments or questions about the fee arrangements, please call me at 503-378-3194. If the Agreement is acceptable, please have the document signed by an authorized signer for the applicant and return it to me as soon as possible. After our agency director has signed it, I will return a copy to you.

We look forward to working with you during the application review process and will anticipate receiving the application by April 1. The review process could take a year to complete, but we will conduct the review as efficiently as possible. You can help move the process forward by preparing an application that fully addresses the information requirements listed in OAR 345-021-0010 and, thereafter, by responding as soon as possible to any further requests for information that we may have.

Please contact me by telephone at (503) 378-3194 or e-mail (john.white@state.or.us) if you have any questions.

Sincerely,

John G. White
Senior Analyst

Encl.

cc: Paul Koehler

EXHIBIT BB

OTHER INFORMATION
OAR 345-021-0010(1)(bb)

TABLE OF CONTENTS

Appendix

BB.1 INTRODUCTION

OAR 345-021-0010(1)(bb) *Any other information that the Office requests in the project order;*

Response: This is an application for a site certificate in an expedited review. The Oregon Office of Energy (OOE) has confirmed in writing that the Applicant has satisfied the requirements of OAR 345-015-0300(2), and has thus granted expedited review under this standard. See Appendix BB-1, Letter from John White. With this determination, the OOE will not be issuing a project order. Nevertheless, the Applicant discusses in this Exhibit the additional criteria for wind energy facilities at OAR 345-024-0015.

BB.2 SITING STANDARDS FOR WIND ENERGY FACILITIES

OAR 345-024-0015 *To issue a site certificate for a proposed wind energy facility, the Council must find that the applicant:*

Response: See sections BB.2.1 through BB.2.3, below.

BB.2.1 Reduce Visual Impacts

OAR 345-024-0015(1) *Can design and construct the facility to reduce visual impact by methods including, but not limited to*:

(a) Not using the facility for placement of advertising, except that advertising does not include the manufacturer's label or signs required by law;

Response: The Applicant will not allow any advertising to be used on any part of the facility. Turbine components may be printed with the manufacturer's logo. No advertising sign will be posted at the facility. There are likely to be nonadvertising signs for traffic instructions and warning signs posted on or near any necessary equipment. These postings will be limited to those required by law and/or for health and safety purposes.

(b) Using the minimum lighting necessary for safety and security purposes and using techniques to prevent casting glare from the site, except as otherwise required by the Federal Aviation Administration or the Oregon Department of Transportation, Transportation Development Branch, Aeronautics Section; and

Response: The Applicant will use only the minimum lighting on its turbine strings as required by the FAA including any revised guidelines. The O&M building will have a small amount of low impact (focused downward) exterior lighting for safety and security purposes.

(c) Using only those signs necessary for facility operation and safety and signs required by law.

Response: As discussed above in (a), signs will not be posted at the facility except for those required for traffic movement and facility operation identification, and safety.

BB.2.2 Restrict Public Access

OAR 345-024-0015(2) *Can design and construct the facility to restrict public access by the following methods:*

(a) For a horizontal-axis wind energy facility with tubular towers, using locked access sufficient to prevent unauthorized entry to the interior of the tower;

Response: The facility will not be a horizontal-axis wind energy facility.

(b) For a horizontal-axis wind energy facility with lattice-type towers:

Response: The facility will not use lattice-type towers.

(A) Removal of wind facility tower climbing fixtures to 12 feet from the ground;

Response: Not applicable.

(B) Installation of a locking, anti-climb device on the wind facility tower; or

Response: Not applicable.

(C) Installation of a protective fence at least 6 feet high with a locking gate; or

Response: Not applicable.

(c) For a vertical-axis wind energy facility, installation of a protective fence at least 6 feet high with a locking gate.

Response: The turbines will be located on private lands and therefore public access would be restricted. The towers feature a locked entry door at ground level and an internal access ladder with safety platforms for access to the nacelle.

BB.2.3 Reduce Cumulative Adverse Environmental Impacts

OAR 345-024-0015(3) *Can design and construct facility to reduce cumulative adverse environmental impacts in the vicinity to the extent practicable by measures including, but not limited to, the following, where applicable:*

(a) Using existing roads to provide access to the facility site, or if new roads are needed, minimizing the amount of land used for new roads and locating them to reduce adverse environmental impacts;

Response: Transportation to and from the site will follow a route that includes access via Interstate, State, and County Roads. A final transportation plan will be approved as required prior to the commencement of construction. Improvements will be made to some access roads to include grading and regraveling. The construction of new roads will be limited to within the lease boundary. Potential adverse environmental impacts were considered and analyzed in locating the proposed new roads. Road construction will not significantly impact any wetlands, other waters of the state, or fish and/or wildlife habitat. Further discussions of the impacts of roadways can be found in several other Exhibits.

(b) Combining transmission lines and points of connection to local distribution lines;

Response: A network of underground power lines will be installed within the prism of new and existing roads at the project to collect power generated by the individual wind turbines and route the power to collector substations for delivery to the BPA Klondike Schoolhouse Substation, and from there, delivery into the grid. The power collection system will operate at 34.5 kV. Power from the eastern section of the project will be routed to a collector substation about 0.75 miles west of Webfoot. From this collector substation, aboveground power lines, hung on single wood or steel poles of a type similar to other power lines in the area, will carry the power approximately 3.5 miles to the BPA Klondike Schoolhouse Substation. All poles will conform to raptor protection guidelines.

(c) Connecting the facility to existing substations, or if new substations are needed, minimizing the number of new substations; and

Response: See response to (b), above.

(d) Avoiding, to the extent practicable, the creation of artificial habitat for raptors or raptor prey. Artificial habitat may include, but is not limited to:

(A) Above-ground portions of foundations surrounded by soil where weeds can accumulate;

Response: The typical turbine pad layout is depicted in Appendix BB-1. As that figure indicates, all above-ground portions of the foundation will be graveled to reduce the potential for weed infestation and raptor use. The Applicant will implement an ongoing weed control plan at the facility in consultation with the appropriate agencies and with minimal adverse environmental impacts.

(B) Electrical equipment boxes on or near the ground that can provide shelter and warmth; and

Response: A GSU transformer will be installed at the base of each wind turbine to increase the output voltage of the wind turbine to the voltage of the power collection system (typically 34.5 kilovolts [kV]). There is no evidence at this time to suggest these transformers will be used by raptors as perches. If required as a result of mortality monitoring, anti-perching devices will be installed to limit perching opportunities.

(C) Horizontal perching opportunities on the towers or related structures.

Response: The facility will have only 3.5 miles of overhead collector line. Electrocution from transmission lines is very rare because the distances between conductors, and between conductors and grounded hardware, are greater than the wingspan of any raptor (APLIC 1996). The 230-kV transmission line proposed in this application does not represent an electrocution risk for raptors. The turbines will use tubular towers (rather than lattice towers), which provide no horizontal perching opportunities. Meteorological towers will be free-standing lattice-type with no guy wires.

BB.3 REFERENCES

APLIC (Avian Powerline Interaction Committee). 1996. Suggested practices for raptor protection on powerline: the state of the art in 1996. Edison Electric Institute/Raptor Research Fund. Washington D.C.

EXHIBIT CC

ADDITIONAL STATUTES, RULES AND ORDINANCES
OAR 345-021-0010(1)(cc)

TABLE OF CONTENTS

APPENDICES

CC.1 ADDITIONAL STATUTES, RULES AND ORDINANCES

OAR 345-021-0010(1)(cc) *Identification, by legal citation, of all state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate, other than statutes, rules and ordinances identified in Exhibit E, and identification of the agencies administering those statutes, administrative rules and ordinances. The applicant shall identify all statutes, administrative rules and ordinances that the applicant knows to be applicable to the proposed facility, whether or not identified in the project order. To the extent not addressed by other materials in the application, the applicant shall include a discussion of how the proposed facility meets the requirements of the applicable statutes, administrative rules and ordinances.*

Response: All of the state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate are identified in Exhibit E. The agencies administering those statutes, administrative rules, and ordinances, along with contact information for individuals at these agencies, are also identified in Exhibit E. In addition, numerous local government ordinances are identified in Exhibit K, along with the agencies administering those ordinances. Rather than repeat those local government ordinances and administering agencies here, please refer to Exhibit K.

CC.1.1 Spill Response Statutes and Rules

Response: The state and federal release reporting requirements are contained in the following statutes and rules: ORS 466.635, OAR Chapter 340, Divisions 45, 47, 108, 122, 150, 160; 33 CFR part 153; 40 CFR parts 110, 122, 262, 265, 280, 302, 355, 761. These provisions include requirements for responding to, and/or reporting, spills or releases of various hazardous materials under a variety of circumstances or conditions. Depending on the nature of the particular spill or release, Oregon agencies that may be notified of a spill or release include the Oregon Emergency Management Division, the Oregon Department of Environmental Quality, and the Oregon Department of State Police.

CC.2 AFFIDAVIT

OAR 345-021-0010(1)(cc)(2) *The applicant shall submit an affidavit with the original application that, to the applicant's best knowledge and belief, the information in the application is true and accurate. If the applicant is not an individual, the affidavit must be signed by an individual authorized to act on behalf of the applicant. The applicant shall include a copy of the affidavit in each copy of the application.*

Response: The required affidavit is provided as Appendix CC-1. The affidavit is signed by Peter C. van Alderwerelt, Vice President of the Applicant.

CC.3 DOCUMENTS PREPARED IN CONNECTION WITH ENVIRONMENTAL ASSESSMENT OR ENVIRONMENTAL IMPACT STATEMENT

OAR 345-021-0010(1)(cc)(3) *Documents prepared in connection with an environmental assessment or environmental impact statement for the proposed facility under the National Environmental Policy Act of 1970, if any, may contain some of the information required under section (1) of this rule. The applicant may copy relevant sections of such documents into the appropriate exhibits of the site certificate application. The applicant may otherwise submit full copies of those documents and include, in the appropriate exhibits of the site certificate application, cross-references to the relevant sections of those documents. The applicant may use such documents only to avoid duplication. The applicant shall include additional information in the site certificate application as needed to meet the requirements of section (1) of this rule.*

Response: There are no documents being prepared in connection with an environmental assessment or environmental impact statement for the proposed facility under the National Environmental Policy Act of 1970 (NEPA). NEPA documentation for the proposed facility is not required because there are no federal approvals or authorizations that are required to construct and operate the project.

CC.4 INDEX OR TABLE OF CONTENTS FOR ALL EXHIBITS REQUIRED BY THIS RULE

OAR 345-021-0010(1)(cc)(4) *In each application for a site certificate submitted to the Office of Energy, the applicant shall include an index or table of contents clearly identifying by page number the location of each exhibit required by this rule. The applicant shall submit the original application for a site certificate and ten copies to the Office and shall prepare and distribute additional copies of the application as required by OAR 345-021-0050. In addition to the printed copies, the applicant shall submit the text (including appendices and graphical information to the extent practical) of the application in electronic format suitable to the Office.*

Response: A table of contents clearly identifying by tab letter the location of each exhibit required by OAR 345-021-0010 is included at the beginning of the Application. The original application for a site certificate and ten copies are being submitted to the Oregon Office of Energy. Additional copies are being distributed as required by OAR 345-021-0050. A copy of the text (including appendices and graphical information to the extent practical) of the application is also being submitted in electronic format suitable to the Oregon Office of Energy.

APPENDIX CC-1

Affidavit of Authenticity

AFFIDAVIT OF AUTHENTICITY

STATE OF OREGON,)
) ss.
County of Multnomah,)

I, Peter C. van Alderwerelt, being first duly sworn, depose and say as follows:

1. I am Vice President of Klondike Wind Power III LLC and am authorized to act on behalf of Klondike Wind Power III LLC.

2. Klondike Wind Power III LLC is submitting this Application for Site Certificate for the Klondike III Wind Project. To my best knowledge and belief, the information in this Application is true and accurate.

KLONDIKE WIND POWER III LLC

By: _____
Peter C. van Alderwerelt, Vice President

SUBSCRIBED AND SWORN TO before me this 11th day of May, 2005.

_____
Notary Public for Oregon
My Commission Expires: Jan 8 2008

OFFICIAL SEAL
JULIE L HENSEL
NOTARY PUBLIC-OREGON
COMMISSION NO. 376087
MY COMMISSION EXPIRES JAN. 8, 2008