Expanded SEPA Checklist Supplement

Teanaway Solar Reserve Expanded SEPA Checklist Supplement Kittitas County, Washington

Submitted to

Kittitas County, Washington

by

Teanaway Solar Reserve, LLC

February 2010

Printed on Recycled and Recyclable Paper

Contents

Attachments

Tables

Figures (*Provided in Attachment J*)

Acronyms and Abbreviations

ADT	average daily traffic
BMP	best management practice
BPA	Bonneville Power Administration
CAO	Critical Areas Ordinance
CF	Commercial Forest
Checklist	Expanded SEPA Checklist
CO	carbon monoxide
CUP	conditional use permit
cy	cubic yards
DA	Development Agreement
dBA	decibels on an A-weighted scale
Ecology	Washington Department of Ecology
F&R	Forest and Range
FAA	Federal Aviation Administration
FDCP	Fugitive Dust Control Plan
FPA	Forest Practices Act
GIS	geographic information system
I-90	Interstate 90
JARPA	Joint Aquatic Resources Permit Application
KCC	Kittitas County Code
kV	kilovolt(s)
MP	milepost
mph	miles per hour
MW	megawatt
MWdc	direct current megawatt
N/A	Information not available

NEC	National Electrical Code
NHP	Natural Heritage Program
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPDES 1200-C	National Pollutant Discharge Elimination System and State Wastewater Discharge General Permit for stormwater discharges associated with construction activities
O&M	operations and maintenance
PEM	palustrine emergent
PHS	Priority Habitats and Species
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
PV	photovoltaic
PVC	polyvinyl chloride
RCW	Revised Code of Washington
ROW	right-of-way
SEPA	State Environmental Policy Act
SR	State Route
TSR	Teanaway Solar Reserve, LLC
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WSDOT	Washington State Department of Transportation

Environmental Checklist
State Environmental Policy Act (SEPA)
WAC 197-11-960

Background

1. *Name of proposed project*:

Teanaway Solar Reserve

2. *Name of Applicant*:

Teanaway Solar Reserve, LLC ("TSR")

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

Applicant

Howard Trott
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218 E. First Street, Suite B
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(206) 972-3800

Contact Person

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Portland, OR 97201
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4. *Date checklist prepared*:

August 14, 2009; Supplement prepared February 22, 2010

5. *Agency requesting checklist*:

Kittitas County Planning Department

6. *Proposed timing or schedule*:

Project construction will occur over a period of 2 to 3 years, with 7- to 9-month construction periods (weather dependent) in each year. Table 1 presents the start and finish dates for major tasks and key milestones. The schedule will depend on time of year, ability to obtain permits, and weather and ground conditions.

Timber harvesting will be done only as necessary to facilitate construction and will be performed pursuant to the terms and conditions of a Washington Department of Natural Resources (WDNR) Forest Practices Act (FPA) permit.

The proposed project schedule is outlined in Table 1.

TABLE 1
Revised Project Schedule

Task/Milestone	Start	Finish
Obtain Necessary Permits	June 2009	June 1, 2010
Engineering	June 2009	October 2010
Construction	April 1, 2010	As early as October 2011 or as late as December 2012
Initial Operation	Fall 2010	Not applicable

Note: Two or three 7- to 9-month construction seasons are anticipated in 2010, 2011, and 2012.

7. *Do you have any plans for future additions, expansion, or further activity related to this proposal*?

Future additions, expansion, or further activities are not known at this time.

8. *List any environmental information that has/will be prepared related to this proposal.*

Contractors conducted the following supplemental environmental studies in preparation for the submittal of the Expanded SEPA Checklist on August 14, 2009:

- Sensitive Species surveys were conducted in June and July 2009 (see Attachment A)
- Wetlands and waters of the U.S. and State were delineated in June and July 2009 (see Attachment B)
- Cultural resource surveys were conducted in June and July 2009 (see Attachment C [restricted distribution])

Contractors conducted the following supplement environmental studies and activities in preparation for the submittal of the Expanded SEPA Checklist Supplement on February 22, 2010:

- Geology and soils hazards surveys were conducted in November 2009 (see Attachment D)
- Fugitive Dust Control Plan was created in January 2010 (see Attachment E)
- Hydrological analysis was conducted in January 2010 (see Attachment F)
- Vegetation Management Plan was created in January 2010 (see Attachment G)
- Wildlife mitigation efforts were developed after meetings with the resource agencies in October 2009, November 2009, December 2009, and January 2010 (see Attachment H)
- Transportation Road Plan was prepared in January 2010 (see Attachment I)
- Updated Figures (see Attachment J)

- Updated Photos (see Attachment K)
- Additional simulations and visual analysis were created as part of the updated Potential Visual Impact Assessment (see Attachment L)
- Fire Protection Agreement is currently under negotiation with Kittitas County Fire District #7 (see Attachment M)
- Economic Impact Analysis was created in October 2009 (see Attachment N - resubmitted)
- Comprehensive public outreach listing was compiled in February 2010 (see Attachment O)

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

TSR is not aware of pending approvals for any other projects directly affecting the properties involved in this application.

10. Government approvals or permits needed:

Table 2 outlines the permits and authorizations required to construct the proposed project.

TABLE 2
Required Permits and Authorizations

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
Federal Permits			
Section 404 Clean Water Act Compliance	Section 404—Nationwide Permit	May be required if road improvements impact wetlands along Loping Lane	U.S. Army Corps of Engineers
State Permits			
Historic Preservation Act Compliance	Section 106 Review	TSRs receiving a section 404 permit from the U.S. Army Corps must undergo a Section 106 review	WA Authority Delegated to State Department of Archaeology and Historic Preservation (DAHP)
State Environmental Policy Act	Chapter 197-11 Washington Administrative Code	Conditional use permit per Kittitas County	Authority Delegated to Kittitas County
Clean Water Act—Section 401 Compliance	Water Quality Certification	TSRs receiving a section 404 permit from the U.S. Army Corps are required to obtain a section 401 water quality certification	Washington Department of Ecology
National Pollutant Discharge Elimination System (NPDES)	General Construction Permit	Required for land disturbances greater than 1 acre	Washington Department of Ecology
Forest Practices Act	Forest Practices Permit	Harvesting trees from	Washington Department of

TABLE 2
Required Permits and Authorizations

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
(76.09 RCW)		onsite	Natural Resources (WDNR)
County Permits			
Land Use Review	Conditional Use Permit	Development occurring within Kittitas County	Kittitas County
Land Use Review	Development Agreement	Development occurring within Kittitas County	Kittitas County
Land Use Review	Cultural Resources	Development occurring within Kittitas County	Kittitas County
Land Use Review	Stormwater	Development occurring within Kittitas County	Kittitas County
Land Use Review	Critical Areas Ordinance	Development occurring within Kittitas County	Kittitas County
Land Use Review	Construction Permit	Development occurring within Kittitas County	Kittitas County

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.*

This section provides an overview of the project. Topics addressed include the project description, the project purpose and need, the proposed schedule, site setting, key components, permits and authorizations, summary of construction activities and components, and a summary of operations and maintenance activities and components.

Project Description

The Applicant (TSR) proposes to construct and operate the project on approximately 982 acres of private land within the Forest and Range (F&R) zoning district in an unincorporated area of Kittitas County, Washington. The project will generate up to 75 direct current megawatts (MWdc) of photovoltaic (PV) solar energy utilizing approximately 477 acres of land within the proposed project area.

Purpose and Need

The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities and communities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing importance of and need for sustainable energy sources. In 2001, Kittitas County recognized the importance of facilitating new alternative energy facilities, proclaiming that:

> Kittitas County recognizes the value of facilitating the construction and operation of both alternative and conventional energy producing facilities in reducing the disruption of commerce and governmental services caused by

> potential energy shortages, all of which adversely affect the economy, public health, safety and welfare. (Kittitas County Ordinance No. 2001-12)

In recognition of the importance alternative energy could play in the future of Kittitas County, the County amended its land use code to, among other things, allow alternative energy facilities as conditional uses in a number of zones. See Kittitas County Code (KCC) Chapter 17.61.

The State of Washington also recognizes the importance of locally produced renewable energy. For example, the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandates that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019, and 15 percent thereafter. Oregon and California have adopted similar standards. Depending on the commercial terms available for the power sales, the utilities that may buy power from the project could change over time.

The Governor of Washington has also proclaimed that renewable energy production, including the project, is integral to the economic health of Washington: "If we seize on the economic opportunities presented by the clean energy revolution…then we can achieve our other important goals: a healthier environment and more energy independence" (Speech to the Seattle Chamber of Commerce by Gov. Chris Gregoire, October 22, 2009, found at: http://www.tvw.org/media/mediaplayer.cfm?evid=2009100047C&TYPE=V&CFID=1701129&CFTOKEN=11324713&bhcp=1).

Project Schedule

The proposed project schedule is outlined in Table 1, above.

Site Setting

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Attachment J, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see Attachment J, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road (see Attachment J, Figure 3), and private roads such as Loping Lane. The site is also accessed via Wiehl Road, which is a dedicated public road but is not maintained by the County; it is maintained privately.

The proposed project area consists of 982 acres. This site was chosen for the project by TSR for a variety of reasons.

First, the property is not occupied by any threatened or endangered species, such as the northern spotted owl, nor does it contain any high quality habitats, such shrub steppe

grasslands. TSR was thus able to initially consider the entire 982 acres for potential solar placement. As explained in the attached technical reports, TSR then conducted numerous site surveys, including those for wetlands, plants and wildlife, cultural resources, and critical areas. Based on the site surveys and topography, the project will utilize approximately 477 acres within the proposed project area. Solar arrays will be placed on approximately 399 acres. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (see Attachment H, *Wildlife Mitigation Plan*). An open corridor will be maintained to allow for potential wildlife migration through the site.

Second, the site has been managed for timber harvesting and has been frequently disturbed. Currently zoned F&R (see Attachment J, Figure 6), the project area has been repeatedly selectively logged since the early 1900s. Harvests have occurred in the 1920s, 1950s, 1980s, and 2000s. Pre-commercial thinning occurred in the decades between logging. Prior to 1900, the site had a fire frequency of 9 to 12 years, indicating that a healthy understory and small trees did not exist, creating a park-like stand of larger trees that were fire resistant to low-intensity periodic fires (Wright, 1996; Agee and Wright, 1997). The site was most recently selectively logged in 2001, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees. Shrub and riparian plant communities are predominantly snowberry (*Symphoricarpos albus*) and Rose (*Rosa* spp.) bushes. Herbaceous plant communities are predominantly Lupine (*Lupinus seiceus*), yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and various grass species. Wetland plant communities are dominated by rushes (*Juncus* spp.), sedges (*Carex* spp.), wild onion (*Allium douglasii*), and various grass species. Some structural and residential developments have taken place on the site's southern boundary. Figure 5 in Attachment J shows the identified structures within the vicinity of the site boundary.

Third, the Bonneville Power Administration's (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line is in close proximity to the site, running east to west along the southern site boundary (see Attachment J, Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (see Attachment J, Figure 4). An interconnection substation with an approximate footprint of 6 acres will be located on the project site (see Attachment J, Figure 4a). Siting the project close to the existing BPA transmission line significantly minimizes the environmental impacts that could arise from using other sites further away from the line and reduces the costs associated with constructing the transmission line.

Finally, TSR proposes to develop the site described below to maximize its solar energy potential, based on its commitment to providing renewable energy and becoming the leading (in terms of energy production and environmentally sensitive development and management of its solar production site) sustainable energy production location in North America. The following factors have been analyzed to determine optimal location within the site defined below:

- Significant solar radiation (insolation)
- Site accessibility
- Avoidance of and minimization of impacts to environmentally sensitive areas

- Limited visibility from offsite locations

Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters
- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- O&M building and SCADA system
- Overhead interconnection transmission line
- Access and maintenance roads

Key components are described in the following subsections.

Solar Modules

Solar modules in a metal frame on supporting mounting structures will be used for the proposed project. Approximately 399 acres of modules will be installed within the 982-acre proposed project area. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. TSR seeks flexibility in choosing a solar array system that best suits the site conditions. A representative module is shown Attachment K, Photo 1. Each module measures 65 inches by 38 inches (5.4 feet by 3.2 feet) and is rated at 216 watts (Sharp Electronics, 2009) and will be mounted so that they are at least 4 feet above the ground surface. The solar modules are mounted in a fashion that orients the modules toward the sun.

The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A single-axis 1-MW field is illustrated in Attachment J, Figure 4e and a fixed-panel array is shown in Attachment J, Figure 4f. A representative single-axis tracking system is presented in Attachment K, Photo 2 and a fixed-tilt mounting structure is shown in Attachment K, Photo 3.

Field Inverters

Up to 80 field inverters will be needed for the project. The inverters will be placed outdoors in enclosures to attenuate noise and protect the equipment from the elements. An example inverter is shown in Attachment K, Photo 4.

Field Transformers

Up to 80 field transformers will be required for the solar field arrays. The field transformers are approximately 8 feet by 6 feet and 8 feet in height. They may be contained within prefabricated cabinets that will rest on concrete pads. A typical transformer cabinet is presented in Attachment K, Photo 5.

Electrical Conductors

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in Attachment K, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per National Electrical Code (NEC) standards.

Electrical Substation and Switchyard

TSR proposes to construct, in compliance with design and installation requirements from BPA, an electrical substation that will interconnect the solar field with the existing 345-kV BPA transmission line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line (see Attachment J, Figure 4a). The substation will require a level, fenced area of approximately 6 acres. The 6-acre area will be graveled with no vegetation. The substation will contain a small control house, transformer(s), circuit breakers and switches, steel support structures, a dead-end tower structure, and overhead electrical bus work. The control house will be up to 16 feet high, 60 feet long, and 30 feet wide. The dead-end tower structure will be up to 120 feet high. Transformers and oil-filled equipment will be underlain with appropriate containment structures. The appearance of the substation will be similar to that of many other substations throughout the Pacific Northwest.

O&M Building and SCADA System

A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet and will be located within the 6-acre fenced substation area.

A SCADA system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA-owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.

Overhead Interconnection Transmission Line

A new 345-kV transmission line is required to connect the new substation to the existing BPA line and up to 200 feet of clearance will be needed for the proposed overhead line. Similar to the substation, it has yet to be determined if certain elements of the transmission

line will be owned and constructed by BPA, but for purposes of the environmental review and of this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. TSR cannot specify the exact placement of the overhead line and the transmission structures at this time. As illustrated on Attachment J, Figure 4, TSR has delineated a 300-foot area within which the BPA transmission line could be sited. Of this 300-foot area, a maximum of 200 feet will be cleared for the transmission line. In April 2006, the North American Electric Reliability Corporation (NERC) issued mandatory standards that govern the height of vegetation growing near certain high-voltage power lines. NERC is in charge of improving the reliability and management standards for electric transmission lines. NERC has authority over eight regional entities in North America, known as regional reliability organizations, which include all segments of the electric industry: investor-owned utilities; federal power agencies; rural electric cooperatives; state, municipal and provincial utilities; independent power producers; power marketers; and end-use customers. The regional entity that has jurisdiction over Washington State is the Western Electric Coordinating Council (WECC)(Puget Sound Energy Fact Sheet, 2007)

Along with the regional reliability organizations, NERC has the legal authority to enforce compliance with NERC reliability standards. NERC achieves compliance through a rigorous program of monitoring, audits and investigations, and the imposition of financial penalties and other enforcement actions for non-compliance (Puget Sound Energy Fact Sheet, 2007).

New NERC vegetation standards, effective June 2007, require utilities to actively manage vegetation in all transmission line corridors that operate at more than 200 kV. Vegetation that matures at a height of more than 15 feet must be removed from the areas underneath and beside transmission rights of way (ROW). These areas are known as the wire and border zones (Puget Sound Energy Fact Sheet, 2007). Per the BPA Business Plan Environmental Impact Statement (BPEIS, 1995) BPA typical ROW widths for 230-kV transmission lines are 105 to 115 feet on either side of the line, for a total of 210 to 230 feet. Typical ROW widths for 500-kV transmission lines are 120 to 170 feet on either side of the line, for a total of 240 to 340 feet (BPEIS, 1995). Typical ROW widths for 345-kV lines are not outlined in the BPEIS.

A new BPA structure will be required to replace the existing lattice tower located within the BPA easement (see Attachment J, Figure 4). The BPA replacement tower would reroute the three existing 345-kV power lines via an existing 200–foot-wide ROW within the leasehold through the substation and back to the replacement BPA tower. Two additional grounding lines may be required by BPA to bring the total number of power lines between the replacement tower and substation to eight. A visual simulation of the replacement tower is shown in Attachment L, Figure 10b). In addition to the replacement structure, two new transmission structures will be required to support the new transmission lines between the replacement BPA tower and the substation. New transmission structures, which will be steel monopole structures, are indicated on the site plan (see Attachment J, Figure 4).

Access and Maintenance Roads

The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Only the southern portion of this road will be used and no construction access or delivery vehicles will cross the Red

Bridge. TSR has easement rights over Wiehl Road, a dedicated public road maintained privately and not by the County, and Loping Lane, a private road. Loping Lane is subject to several road use and cost-sharing agreements, and TSR will comply with any such applicable agreement. Additionally, TSR will work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself. TSR will videotape the conditions of the roads prior to construction to ensure the roads are returned to the same or better than conditions once the project is decommissioned. A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. The roads will be improved pursuant to County requirements and turnarounds adequate for fire-protection-service vehicles will be established.

Per the Kittitas County Code and roadway standards (KCC, Chapter 12.01.090), Wiehl Road and Loping Lane would likely be improved to a 24–foot width to allow vehicles in both directions to pass safely at the same time. These roads could be paved, with culverts or drainage ditches constructed along the shoulders to prevent water from collecting on the roadway surface. Water could be channelized into a detention pond or catchment area, where it would be slowly released back into the ground. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during engineering. Although gravel roads would allow some drainage to occur on the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting. Attachment J, Figure 4f illustrates the proposed road improvements and turnarounds.

As set forth in the Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. Attachment J, Figure 3 shows the location of the access and maintenance roads in relation to the project site.

Summary of Construction Activities

Site preparation will consist of clearing the existing vegetation only in those areas where construction, grading, and road improvements will occur. Site preparation will be limited to maintenance roads, the O&M facility, the substation, and the solar facility. Once the site is prepared, and the materials are delivered to the staging areas within the cleared portion of the site, the installation of module foundations, field inverter pads and enclosures, field transformer pads, electrical conductors, substation switchyard foundation, overhead interconnection transmission line, and access and maintenance roads will begin. Materials and equipment used for the installation of the facilities is described below in the section titled, “Construction Materials and Equipment”.

Site Preparation

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules from shading, the risk of

fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as described below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating each construction phase of the project (Table 1). Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from WDNR and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act (FPA). Because the bottoms of the solar modules will be approximately 3 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will remain, to the maximum extent practicable, between rows and under the solar modules.

Trees within the 100-foot firebreak will be limbed up to 12 feet, as negotiated with Kittitas County Fire District 7. This minimizes the need to remove the entire tree, thus potentially decreasing the visual impact to nearby landowners. In addition, existing trees with a diameter base of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation, TSR is committed to undertaking efforts that will further the long-term sustainability of the land. These two measures will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite. A more detailed discussion on vegetation management is included in Attachment G, *Vegetation Management Plan*.

Construction equipment such as tractors, backhoes, loaders, dozers, and graders will be needed to clear brush and vegetation from the site as needed, and to grade roads and foundation locations. If the slope of the land is excessive, terracing, or retaining walls may be required.

Staging Areas

Staging areas for parts and materials such as solar modules, electric cable, and structural supports will be needed. These staging areas will be located in areas where solar arrays will eventually be constructed, and will change location throughout the duration of the project. These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Mobilization will last approximately 1 month during each phase of construction.

Construction Materials and Equipment

A concrete batch plant will not be located on site. Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible. Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary, but is typically not required.

Module Foundation Installation

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems (see Attachment J, Figure 4b). Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure (see Attachment J, Figure 4c).

The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. Pending final design, the solar module foundations will require site work and potential boring.

The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design. Attachment J, Figure 4d illustrates the footing installation methods for both the fixed tilt and single axis panels.

No concrete will be used when installing the foundations for the modules.

For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach were used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Attachment F.

Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in Attachment K, Photo 8.

Dependent upon weather conditions at the site, installation of foundations, trackers, and modules will occur over a period of approximately 7 to 9 months during two or three construction seasons.

Field Inverter Pad and Enclosure Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. Up to 80 field inverters will be needed for the project. A total of approximately 250 cubic yards of concrete, or 25 truck loads, will be needed for the 80 field inverter concrete pads.

Dependent upon weather conditions at the site, installation of field inverter pads and enclosures will occur over a period of approximately 5 to 6 months.

Field Transformer Pad Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. A total of approximately 150 cubic yards of concrete, or 15 truck loads, will be needed for the 80 field transformer concrete pads. Dependent upon weather conditions at the site, installation of field transformer pads will occur over a period of approximately 5 to 6 months.

Electrical Conductor Installation

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in Attachment K, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per NEC standards. Photos of typical trenching for underground cables are included in Attachment K, Photos 6 and 7.

Substation and Switchyard Foundation Installation

The substation will require an area of approximately 6 acres. The substation consists of a steel support structure that is 15 to 20 feet tall. The substation will be surrounded by a cyclone fence that is approximately 10 feet tall. The substation will include a small, enclosed, air-conditioned control building, approximately 1,000 square feet in area.

Approximately 135 truckloads of concrete will be necessary for the substation foundations and associated facilities. The concrete necessary for the substation includes 70 yards for the BPA control building (7 trucks), 40 yards for the switchgear buildings (4 trucks), 50 yards for the operations and maintenance building (5 trucks), 660 yards for the dead-end towers and overhead transmission line support structures (66 trucks), and 530 yards for the substation electrical equipment, including transformer, breakers, switches, and overhead bus foundations (53 trucks).

Overhead Interconnection Transmission Line Installation

Pending location of the substation, overhead electrical distribution lines may be required to connect the substation with BPA's transmission line. Two new structures supporting the overhead lines will be required from the facility to the substation and will be approximately spaced as indicated in the site plan. Spans between structures can range from 1,000 to 1,200 feet.

Access and Maintenance Road Installation

A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. Approximately 751,000 square feet of roadway may require gravel surfacing improvements. These improved roadways will be approximately 8 inches deep, and will require up to 1,900 truckloads of gravel.

Paths for new maintenance roadways will be cut from existing grades. At least half of the cut material will be spread out on site. The remaining amount of cut earthwork will be hauled off-site in approximately 950 truckloads. The roads will be improved pursuant to County requirements and turnarounds adequate for fire-protection-service vehicles will be established.

Transportation and Traffic

Materials for the project (e.g., solar modules, supporting racks, foundation materials, electrical gear) will be brought to the site by truck. The trucks will travel on Interstate 90 (I-90) and access Highway 970 by way of County roads such as Red Bridge Road (see Attachment J, Figure 3), private roads such as Loping Lane, and public roads that are privately maintained such as Wiehl Road. An existing network of maintenance roads will provide road service within the project area, although new maintenance roads or segments may be necessary. Road improvements will be conducted as needed, and are anticipated to include upgrades to local gravel and dirt roads as discussed above in "Site Clearing and Grading". Road improvements are further addressed in the DA with Kittitas County (see CUP, Attachment E). For further discussion of traffic impacts, see Attachment I, *Transportation Road Plan*.

Employment

A typical construction workforce for a multiple-megawatt solar facility consists of between 200 and 450 full-time workers during the construction period. Typically, 100 to 150 workers are involved in the site prep, and 100 to 150 are involved in installing the module footings. When the solar installation begins, the workload will peak, and will likely remain at between 300 and 450 workers for a period of up to 27 months (three 9-month construction seasons). Workers could be brought in by vanpool or bus. Workers will stay at local hotels and motels, as described in the Housing section of this document. Security crews will likely consist of up to eight workers. In addition, access control in the form of an electric gate with an associated keypad security code for entry will be installed.

Safety and Fire Protection

The fire protection needs of the site are currently served by WDNR. After the project is constructed, the site will likely be served by the Kittitas County Fire District 7, under a contractual agreement with TSR (see Attachment M). This agreement is currently pending finalization and approval. Further, the project will be bordered by a firebreak no less than 100 feet wide. Should the construction of the project require supplemental fire protection services, TSR will work with Kittitas County Fire District 7 to ensure that suitable fire suppression services are in place during the construction and ongoing operations of the project. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

A copy of the contractual agreement between TSR and Fire District 7 is included as Attachment M.

Police protection of the proposed project area is provided by the County Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise.

Water Use

Water will be needed for activities such as dust control and module cleaning. TSR proposes to truck in water from the Cle Elum area or elsewhere. Subject to any restrictions imposed by the County or the Washington Department of Ecology (Ecology), an alternative approach would be to establish a groundwater well onsite. For initial project permitting, it is assumed that water will be trucked to the site.

Sewer and Solid Waste

Sewer services are not anticipated. Portable toilets will be placed onsite during construction. The onsite toilets will require regular service visits.

Summary of O&M Activities and Components

Photovoltaic power plants typically have low O&M requirements. During the life of the plant, there will be regular O&M site activity. The actual O&M requirements will be determined by the specific plant components.

Materials and Equipment

A storage and O&M building will store spare parts (e.g., modules and fuses), equipment testing equipment, and cleaning equipment. The building will be constructed on site or pre-engineered in accordance with local and state building codes and it will have an overall footprint of approximately 1,000 square feet.

Transportation and Traffic

Routine vehicular traffic will occur along the site access roads and any maintenance roads within the PV array. One to two small to medium-duty pickup trucks will be required. Larger delivery trucks occasionally may be required if major equipment is in need of replacement such as structural elements, inverters, or large quantities of PV modules (not likely).

Employment

Personnel for system monitoring, maintenance, and troubleshooting will likely be needed onsite. The staff will work out of the O&M building and make frequent trips to the facility by way of passenger pickup truck or off-road vehicle. If issues regarding plant performance are detected, additional troubleshooting or maintenance may be required through special visits from vendors or specialty technicians.

Maintenance Activities

Routine onsite activities will consist of maintaining vegetation so that it does not interfere with operation of the plant (as often as weekly during periods of high rain and growth), and cleaning the solar modules of dirt and debris. Routine weed control will be required to ensure vegetation growth does not interfere with the operation of any equipment. For more details on noxious weed control, see Attachment G, *Vegetation Mitigation Plan*. The frequency of visits will be determined by the growth rate and density of the vegetation left

on the site once construction is complete. In a heavily vegetated area such as the proposed site, it is not anticipated that cleaning will be required on a weekly basis (as it would be in a desert environment). The firebreak will require periodic monitoring and clearing to remove vegetation buildup. It is anticipated that additional personnel may be required to monitor and secure the site.

In addition to maintaining the vegetation on site during project operations, TSR has committed to maintenance and operation of Wiehl and Loping during all seasons. That includes winter plowing of these roads.

Safety and Fire Protection

As previously discussed, separate safety or fire protection systems will not be required at the site. TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

A copy of the contractual agreement between TSR and Fire District 7 is included as Attachment M.

Police protection of the proposed project area is provided by the County Sheriff's Office. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

Water Use

The solar modules must be kept clear from dirt and debris, the presence of which can affect the performance of the PV plant. Because the proposed site is heavily vegetated and has sufficient rainfall, it is not anticipated that monthly washing will be required. Annual cleaning may be recommended based on soiling conditions. It may be possible to use special brushes in lieu of water to remove any dirt that accumulates on the solar modules. However, if it is determined that water is required for cleaning the solar modules or other purposes, a water tanker truck could be brought onsite to fill portable canisters with water to be used throughout the PV array.

Sewer and Solid Waste

Sewer services are not anticipated. If necessary, portable toilets can be placed onsite. Onsite toilets would require regular service visits.

Decommissioning and Site Restoration

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored.

At least 30 days prior to construction of the project, TSR will provide to the County for its approval an Initial project Decommissioning and Site Restoration Plan (the "Initial Plan"), prepared in sufficient detail to identify, evaluate, and resolve all major environmental

impacts, costs, and public health and safety issues reasonably anticipated by TSR at that time associated with decommissioning and restoring the project site. The Initial Plan will describe the measures that will be taken to decommission the project and restore the project site, including any measures necessary to protect the public against risks or danger resulting from decommissioning the project and restoring the project site.

Ninety days prior to decommissioning the project site, TSR shall submit a Final project Decommissioning and Site Restoration Plan ("Final Plan") to the County for its approval. The Final Plan may contain measures to decommission the project and restore the project site different from the Initial Plan, provided that TSR explains in sufficient detail the reasons for any new or substantially different measures.

Subject to the Initial and Final Plans, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, the O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "Decommissioning"). The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Decommissioning obligations.

Restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Restoration procedures would be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and would include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "Restoration"). Decommissioned roads would be reclaimed or left in place. The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Restoration obligations.

Decommissioning the project and restoring the project site will occur within 12 months following the earlier of either terminating the Agreement or when the project is no longer in substantive operation. However, if the project stops generating electricity due to *force majeure*, mechanical breakdown, or malfunction, TSR may repair rather than decommission the affected project component(s).

Prior to commencing construction, TSR will post a bond or letter of credit in favor of the County to cover decommissioning costs. The initial amount of the bond or letter of credit will be set forth in the Initial Plan. If the project were terminated, the necessary authorization from any appropriate regulatory agencies would be obtained to decommission the project and restore the project site in accordance with the approved Final Plan.

As set forth in the Initial and Final Plans, aboveground facilities would be removed from the site, and unsalvageable material would be disposed of at authorized sites.

Decommissioning would consist of removing aboveground equipment, such as inverters, substations, and their associated foundations, to a depth of 3 feet below grade. Any foundations below 3 feet would remain. The ground surface would be regraded to natural

contours and revegetated to a natural condition. For several years after decommissioning, site disturbance would likely be visible upon close examination and the visual impacts of those aboveground elements that are not removed would remain. During the decommissioning process, similar impacts to those experienced during construction would occur but to a lesser extent because less construction material would likely be removed than was delivered to the project site. To avoid environmental damage and unnecessary land disturbance, underground collector cables likely would be retired in place, and any building or structural foundations would be removed to a depth of approximately 3 feet below grade, with the remainder likely retired in place. Decommissioned roads would be reclaimed or left in place. The soil surface would be restored as close as reasonably possible to its original condition. The Initial and Final Plans shall be prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues associated with decommissioning and restoring the project site. Accordingly, no significant unavoidable adverse environmental impacts, including those to rare or sensitive plants or animals from construction, operation, decommissioning, or restoration of the proposed project are expected.

Environmental Elements

Earth

a. General description of the site:

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Attachment J, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see Attachment J, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of county roads such as Red Bridge Road, private roads such as Loping Lane, and Wiehl Road, which is a dedicated public road that is maintained privately and not by the County (see Attachment J, Figure 3). The project is located on approximately 477 acres of land within the 982-acre proposed project area.

The solar facility components and other related appurtenant improvements are described in detail in the project description above.

The ground surface elevation within the boundaries of the proposed solar facility ranges between 2,200 and 2,600 feet. The elevation along the potential transmission line varies from approximately 2,200 feet (near the location of the existing BPA transmission line) to approximately 2,300 feet (near the substation).

b. What is the steepest slope on the site and the approximate percentage of the slope?

The site would be located on a relatively flat terrace above the Teanaway River valley. Slopes on the site range from flat (0 percent) to approximately 25 percent. South-facing slopes where facilities would be constructed typically range from 10 to 20 percent. The project area does not contain steep slopes (i.e. greater than 33 percent slope) that will be impacted.

During the initial corridor selection process, TSR selected a corridor that minimized the need to site the facility components and other related appurtenant improvements in steep-slope areas. During the final design phase, TSR will conduct detailed slope evaluations to establish site gradients, and will locate structures, roads, and facilities to avoid adverse slopes.

c. *What general types of soils are found on the site (e.g., clay, sand, gravel, peat, muck)? Please specify the classification of agricultural soils and note any prime farmland.*

The majority of the soils that underlie the project site consist of clayey-, silty-, sandy-loam of the Teanaway series. The Teanaway Loam series in the vicinity have similar soil texture and characteristics, but are divided into units based on slope angles. The Teanaway Loam is divided into soils on slopes from 3 to 10 percent, and on slopes from 25 to 50 percent. The loam is described as grayish-brown, well-drained soil formed in loess over glacial drift and alluvium terrace deposits. These soils occur at both the lower and higher elevations. Some volcanic ash influence exists near the surface at higher elevations. Although the NRCS data indicates the Teanaway soils have slopes up to 50 percent (NRCS, 2009), slopes measured during an on-site evaluation (November 2009) range from 0 to 25 percent.

The Teanaway loam is used for timber production, cropland, livestock grazing, wildlife habitat, recreation, and watershed. This soil type is not traditionally used for agriculture and do not constitute prime farmland. The native vegetation is ponderosa pine and Douglas-fir.

The subsurface conditions and engineering properties of the soils across the site can influence the engineering design and construction. Each of the components of the facility requires specific design calculations, drawings, and final engineering design for successful construction and future operation. Therefore, during final design of the facility a detailed geotechnical investigation and testing program will be conducted to evaluate the engineering properties of the soils. The information from the geotechnical investigation will be used to design the foundations securing the solar modules, inverter pads, and substation; and design proper roadway sections to carry the anticipated traffic loads, as well as applicable portions of the Kittitas County Code.

The potential geologic and soils hazards and erosion potential are discussed in detail in Attachment D: *Geology and Soil Hazards Evaluation.*

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

There is no indication of unstable soils in the immediate vicinity of the project. Unstable slopes and landslides are mapped along the steep valley walls along the Teanaway River valley; but none are mapped in the site boundaries and none were observed during the geologic reconnaissance. If, during geotechnical investigation and engineering design efforts, unstable soils are found, TSR will locate the project to avoid those areas. Areas with a slope of 0 to 25 percent are considered to have a low risk of erosion and landsides.

e. *Describe the purpose, type, and approximate quantities of any filling or proposed grading. Also, indicate the source of fill.*

The construction contract may use imported gravel from a quarry located in West Cle Elum to fill the 10-acre area level-ground substation. The substation will contain a 6-inch-thick

layer of gravel, and no vegetation will be present. The overall estimated amount of gravel fill required for the substation will be 8,100 cubic yards (cy).

The construction contractor may use imported gravels or crushed rock as backfill for the transmission-structure auger holes, if required. If imported gravel is not required, the construction contractor will use native materials, removed when the auger holes are made, for backfill. If imported materials are used, the construction contractor will spread the native materials, resulting in a level area in the vicinity. The approximate quantity of fill material is 4.2 cy per structure. The project will include approximately up to four transmission line structures, which will require a total of 500 cy of fill. The construction contractor may also grade some areas to enable construction access and to create level areas for the structure locations.

The estimated transmission line-structure-related fill is no more than 500 cy. The amount of material required for surfacing the access roads is estimated to be 4,000 cy.

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

The soils onsite are rated as moderately susceptible to erosion by water. Existing vegetation helps to resist erosion, and clearing of the vegetation during construction of roads will expose the soil to a higher risk of erosion during rainfall. To alleviate potential soil erosion, the construction contractor will use a Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) to minimize erosion and sediment transport during construction activities. These are described in Section *h* below, and in Attachment D: *Geology and Soil Hazards Evaluation.*

g. What percentage of the site will be covered with impervious surfaces after the project construction (e.g., asphalt or buildings)?

An increase in impervious area on the proposed project site is expected to be generated by the following: solar modules, power inverter enclosures, concrete pads, tower and transmission lines and three buildings that include a control house, switchgear building, and operations and maintenance facility. It should be noted that the impervious area created by a solar panel is considered to be the area of the foundation of the panels, not the panels themselves. The panels are considered a disconnected impervious surface because the infiltration capability of the soil is only affected by the foundation and native vegetation will be maintained underneath the panels. These project components total 1.17 acres of impervious area, which is less than one percent of the total project site.

Other project components that include maintenance and access roads and a 6-acre substation area are planned as gravel surfaces, which will allow for some infiltration. In addition, adjacent soils will absorb stormwater runoff.

h. Proposed measures to reduce or control erosion, or other impacts to the earth include:

The construction contractor will implement erosion-control measures during construction, including the following measures from the required Ecology National Pollutant Discharge Elimination System (NPDES) Individual Permit:

1. Maintenance of vegetative buffer strips between the areas affected by construction activities and any receiving waters

2. Installation of sediment fence and straw bale barriers
3. Straw mulching at locations that have suffered impacts
4. Provision of temporary sediment traps downstream of intermittent stream crossings
5. Provision of sediment-type mats downstream of perennial stream crossings
6. Planting of designated seed mixes at affected areas
7. Installation of a sediment fence along the downslope side of pulling and tensioning areas, as appropriate

The construction contractor will reseed all areas temporarily disturbed by the construction, as agreed upon with landowners. Where installed, sediment fences and check dams will remain in place until the affected areas are well vegetated and the risk of erosion has been eliminated. The construction contractor may remove the sediment fence at that time.

The construction contractor will construct roadways so that natural surface drainage is maintained.

Additional mitigation measures for soil erosion and geologic hazards are presented in Attachment D: *Geology and Soil Hazards Evaluation.*

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no increased incidence of erosion or impacts to soil quality are anticipated as a result of project decommissioning and site restoration. BMPs will be utilized to ensure no water or wind erosion will occur as a result of the removal of the project's components. In addition, all waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential soil contamination from oil,

herbicides, or other routinely used solvents. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the Project Description for more information about decommissioning and restoration.

Air

a. What types of emissions to the air would result from this proposal (e.g., dust, automobile, odors, industrial wood smoke) during construction and after completion? Please describe and give approximate quantities.

Construction activities will produce dust and heavy-duty-vehicle emissions. These emissions, which will include nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}; dust), will be temporary in nature. Although the quantity of these emissions is unknown at this time, the small number of vehicles to be used (see the Transportation section of this checklist) and the relatively short duration of the construction period will limit such emissions. The potential for dust generation will be greatest during dry, windy weather.

When the project is operational, no emissions from any source are expected.

Burning of woody debris from land clearing will produce combustion emissions, including NO_x, CO, and PM_{10}. It is TSR's intent not to burn woody debris, slash, or logging refuse. Any woody debris chipped on site will be put to a beneficial use (e.g., chipped material will be sent to a compost facility, used for paper or ground cover). If burning is necessary, TSR will secure the necessary permits from state agencies and no more than approximately 130 consumable tons of material will be burned.

b. Are there any offsite sources of emissions or odor that may affect your proposal? If so, please describe.

None. No offsite sources of emissions will affect the proposed project.

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

A Fugitive Dust Control Plan (FDCP), to help minimize air emissions from construction-related ground disturbance and traffic, will be developed before this project begins. The FDCP will include the following BMPs:

- Vehicles and equipment will comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction will be properly maintained to minimize exhaust emissions.
- Operational measures such as limiting engine idling time, minimizing driving speeds and shutting down equipment when not in use will be implemented.
- Open soil areas and road surfaces will be watered. TSR expects to have one water truck onsite during construction to minimize fugitive dust. In addition, a chemical tacifier may be utilized at the request of Kittitas County.

- Bussing and carpooling among construction workers will be required to minimize construction-related traffic and associated emissions.
- Disturbed sites will be revegetated in a timely manner with a seed mixture consistent with local vegetation.

Because the construction equipment and vehicles will be dispersed across a large, sparsely populated area, no impacts to surrounding residences are anticipated. Because the construction is of limited duration total construction emissions will be relatively minor.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with a seed mixture consistent with local vegetation (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to the air quality are anticipated as a result of project decommissioning and site restoration. Proper BMPs will be utilized to ensure fugitive dust control. No burning of project components will occur as a result of decommissioning. There will be increased vehicle use, similar to that of construction levels. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Water

a. Surface

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

Biologists identified and delineated a total of 12 wetlands and six ephemeral streams within the site survey area (see Attachment J, Figure 5). The wetlands cover 0.97 acre within the survey area.

Wetland boundaries were determined using procedures found in *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and in *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley and Coast* (USACE, 2008). Some wetlands extend outside the proposed project area.

Eleven of the wetlands (W1 through W11) are classified as palustrine emergent (PEM) (Cowardin), depressional (HGM) wetlands. Wetlands W1 through W6 are located in the northeast portion of the project area, and W7 through W11 are located adjacent to roads. W12 is a manmade pond located near the southwest corner of the project area (see Attachment J, Figure 5) and is classified as a PEM, riverine wetland. W12 is NWI-mapped as *palustrine emergent, semi-permanently flooded.*

Six streams within the Teanaway River and Yakima River watersheds flow within the survey area (see Attachment J, Figure 5). Five streams were mapped by WDNR. All five are classified as *non-fish, seasonal*. All of the streams flow into ponds, ditches, and vegetated swales. Water from these tributaries not used for irrigation practices may eventually flow into the Yakima River several miles to the south with the following exception. One unnamed tributary (S6) flows directly into the Teanaway River, which flows into the Yakima River.

Table 3 shows the waterbody name, width, type, and eventual hydrologic connection for each drainage of the potentially jurisdictional waters.

TABLE 3
Streams Summary Table

Waterbody Name	Width (feet)	Type	Hydrologic Connection
S1	2-5	Ephemeral	Yakima River
S2	2-6	Ephemeral	Yakima River
S3	2-5	Ephemeral	Yakima River
S4	2-4	Ephemeral	Yakima River
S5	2-5	Ephemeral	Yakima River
S6	1-2	Ephemeral	Yakima River

The biologists presume that all of the investigated wetlands and waterbodies are potentially jurisdictional under federal regulations for wetlands and waters of the United States. A final determination will be made by USACE.

TSR recognizes that there are six Type-4 streams with widths greater than 2 feet within the proposed project area. These streams will contain the maximum required riparian buffer of 20 feet, pursuant to 17A.07.010 of the KCC, which will not be impacted by any permanent or temporary structure (see Attachment J, Figure 5). The proposed design of the project

incorporates a 100-150 foot buffer around wetlands W1-W11 and a 150-300 foot buffer around wetland W12 where no permanent structures are proposed.

The *Wetland Delineation Report* (see Attachment B) provides additional discussion of wetlands and drainages within the project corridor.

2. *Will the project require any work within 200 feet of the described waters? If yes, please describe and attach available plans.*

TSR will work within 200 feet of described waters but will avoid siting solar modules directly within potentially jurisdictional waters (see Attachment J, Figure 4). All wetland and stream buffers pursuant to the KCC will be followed. Impacts to all potentially jurisdictional wetlands and waters are avoided (see Attachment J, Figure 4).

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

The proposed project will not result in any fill or removal of material in surface waters or wetlands.

4. *Will the proposal require surface water withdrawals or diversions? Please provide description, purpose, and approximate quantities:*

The proposed project will not require new surface water withdrawals or diversions.

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

The proposed project does not lie within a 100-year floodplain (see Attachment J, Figure 8).

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

The proposed project does not involve any discharge of waste materials to surface waters.

b. Ground

1. *Will ground water be withdrawn, or will water be discharged to ground water? Please give description, purpose, and approximate quantities.*

The construction contractor will neither withdraw groundwater nor discharge water to groundwater during project construction. Construction of the project may involve water use for dust control. The construction contractor will arrange for delivery of water to the active construction site using water trucks from a source with an existing water right. TSR will neither withdraw groundwater nor discharge to groundwater during project operations.

2. *Describe waste material that will be discharged into the ground from septic tanks or other sources (e.g., domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the size and number of the systems, houses to be served; or, the number of animals or humans the systems are expected to serve.*

TSR does not anticipate the discharge of waste materials into the ground during construction or operation. The construction contractor will use onsite portable toilets during construction.

c. Water Runoff (Including Stormwater):

1. *Describe the source of runoff (including storm water) and method of collection and disposal. Include quantities, if known. Describe where the water will flow, and whether it will flow into other water.*

Runoff on the site will come from rainfall and snowstorm events in the project area. Impervious areas created by the construction of the proposed project are disconnected. Thus, the natural drainage of the project site is not expected to change.

There are two main drainage basins on the project site, the North Drainage Basin drains north to the Teanaway River and the South Drainage Basin drains south to a stream that flows to the Teanaway River. Existing and proposed project conditions were modeled using the Natural Resources Conservation Service Technical Release 55 Methodology. The 2-, 10- and 100- year, 6-hour and 10-year, 24-hour storms were evaluated using Type 1A storm distributions for each basin.

The largest increase in peak discharge for the 6-hour storm events occurred during the 100-year storm in the South drainage basin (9.90 cfs). At the point of discharge to the Teanaway River, the total contributing drainage basin area is 195 square miles. Using a direct proportion of drainage basin area to flow (FEMA data reports recorded the total size of the drainage basin to be 207 square miles and have a 100-year discharge of 7,350 cfs), the flow in the Teanaway River at the discharge point is expected to be approximately 6,924 cfs during a 100-year storm event. An increase of 9.90 cfs results in a 0.14 percent increase in flow during the 100-year storm event. From a flooding standpoint, this increase is determined to be negligible when compared to the contribution of the entire watershed at the point of discharge from the project site.

For the 10-year, 24-hour duration storm, the largest increase in peak discharge occurred in the South drainage basin (33.60 cfs). Again, using a direct proportion of drainage basin area to flow (FEMA data reports recorded the total size of the drainage basin to be 207 square miles and have a 10-year discharge of 5,300 cfs), the flow in the Teanaway River at the discharge point is expected to be approximately 4,993 cfs during a 10-year storm event. An increase of 33.60 cfs results in a 0.67 percent increase in flow during the 10-year storm event. From a flooding standpoint, this increase is determined to be negligible when compared to the contribution of the entire watershed at the point of discharge from the project site.

Increases in rainfall runoff rates and volumes experienced by the onsite natural drainages will be managed using infiltration to the maximum extent practicable and stormwater BMPs will also be implemented if necessary.

2. *Could waste materials enter ground or surface waters? If so, please describe.*

Waste materials will not enter ground or surface waters. Waste materials stored at the staging areas will have secondary containment to prevent entrance into ground or surface waters. The construction contractor will establish buffers to prevent waste materials from entering surface waters. The construction contractor will also remove waste materials from the project area upon completion of construction activities. The construction contractor will implement the following BMPs to minimize the release of waste materials into ground or surface waters:

- During project construction, vehicle servicing and refueling will occur offsite in a temporary staging area equipped for fuel or oil spills.
- Existing roads located immediately adjacent to jurisdictional wetlands within the project area will be disused during project construction.
- Construction flagging and signage will be installed to clearly identify stream and wetland buffers within the project area so that they are avoided by project activities.
- Onsite vehicles will be monitored for petroleum leaks. Spills will be cleaned up immediately upon recovery and reported to the appropriate agency.
- Few hazardous materials will be used during project construction or operation—primarily small amounts of lubricants and cleaning solutions. Any hazardous waste material generated by project construction or operation will be disposed of in a manner specified by local and state regulations or by the manufacturer.
- Cleanup materials will be kept readily available onsite, either at the equipment storage area, O&M building or on the construction contractor's trucks.

d. Proposed Measures to Reduce or Control Surface, Ground, and Runoff Water Impacts, If Any:

A Washington Construction Stormwater Individual Permit (1200-C) administered by the Washington State Department of Ecology will regulate construction activities. This permit requires BMPs to minimize possible impacts from erosion or other impacts to soil and waterways. Increases in rainfall runoff rates and volumes will be managed by on-site infiltration to the maximum extent practicable. As required by the conditions outlined in the permit authorization, any permanent erosion-control measures will be implemented with final design of the project.

There are three basic types of stormwater BMPs that will be considered during the design and implementation of the project: source control, water quality treatment, and flow control. Source control BMPs are measures that are directed toward pollutant-generating activities that will help prevent pollution or other adverse effects of stormwater. Water quality treatment BMPs remove pollutants from stormwater by filtration, biological uptake, adsorption, and gravity settling. The need for water quality BMPs is based on the types of pollutants generated by a project and the vulnerability of the receiving waters to the pollutants of concern. Flow control BMPs control the rate, frequency, and/or flow duration of stormwater runoff through infiltration, evaporation, or detention facilities with infiltration being the preferred method wherever possible. The concept of detention is to collect runoff from a developed area and release it at a slower rate than it would typically run off the site.

Stormwater management involves careful application of source controls, site design principles, and construction techniques in order to protect a watershed. Some potential stormwater BMPs for the site include, but are not limited to, infiltration ponds; infiltration trenches; infiltration swales; large, extended-detention wet ponds; and extended-detention wetlands. Facilities will be designed in accordance with the standards outlined in the Eastern Washington Stormwater Management Manual in order to protect water quality in

the receiving waters and reduce the impacts of development on the watershed. Guidance on stormwater BMPs and Low Impact Development (LID) were provided by the Washington Department of Ecology; however, they were not included in the list of facilities above. Stormwater BMPs provided in the Eastern Washington Stormwater Management Manual were more applicable to the rural setting of the project and also account for location and climate in the project area.

Decommissioning

In the event TSR decides to terminate operation of the Project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the Project shall involve removal of the Project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, no additional adverse impacts to water quality or increased water use are anticipated as a result of project decommissioning and site restoration. Impacts to wetlands and streams are not anticipated during decommissioning through the use of avoidance measures and BMPs. BMPs will be also be utilized to ensure no water quality impacts from increased soil erosion and sedimentation. In addition, all waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential water contamination from oil, herbicides, or other routinely used solvents. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Plants

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

The following sections describe the vegetation categories found in the survey area. Detailed plant descriptions are included in Attachment A.

Results indicated five natural habitat types within the survey area. Most of these can be named by using the Chappel et al. (2001) system of vegetation classification. Project area natural vegetation types are as follows:

- Ponderosa Pine Forest and Woodlands
- Open Water—Lakes, Rivers, and Streams
- Herbaceous Wetlands
- Riparian
- Upland Aspen Forest

These habitat types are described below.

Ponderosa Pine Forest and Woodlands

Ponderosa Pine Forest and Woodlands vegetation is the dominant vegetation category found on the proposed project site. The project site has been actively managed as commercial timberlands for the past 100 years. The proposed project area was last logged in 2001-2002, leaving relatively few trees per acre and open stands of predominantly ponderosa pine (*Pinus ponderosa*). Crown cover of larger ponderosa pine, commercial grade, (greater than 8 inches diameter at breast height [dbh]) currently is approximately 10 to 15 percent across the proposed project site. Ponderosa pine stands growing on site are dominated by an overstory of 50-year-old ponderosa pine trees with a subcomponent of Douglas fir (*Pseudotsuga menziesii*) trees. Saplings of both species are present in the understory.

The understory is dominated by a mixture of native bunchgrass species, including Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), squirreltail (*Elymus elymoides*), and western wheatgrass (*Pascopyrum smithii*). Common native forbs in the understory are arrowleaf balsamroot (*Balsamorhiza sagittata),* yarrow (*Achillea millefolium*), silky lupine (*Lupinus* spp.), sticky purple geranium (*Geranium viscossimum*), and Oregon checkermallow (*Sidalcea oregana* var. *procera*).

The variety of Oregon checkermallow found on site is the more common of two varieties of this species. A second variety of this checkermallow (*Sidalcea oregana var. calva*) was federally listed under the Endangered Species Act as Endangered on December 22, 1999 (64 FR 71680). Rare plant surveys completed for the proposed project site in 2009 determined that the Oregon checkermallow variety found on site is not the endangered variety. An additional rare plant survey and habitat inventory may need to be completed in the spring of 2010, prior to construction.

Non-native species, such as bulbous bluegrass (*Poa bulbosa*), ventenata (*Ventenata dubia*), and rush skeletonweed (*Chondrilla juncea*) are abundant in many areas. Rush skeletonweed is a Class B noxious weed in Washington.

Open Water—Lakes, Rivers, and Streams

Several ephemeral streams and one artificially ponded area occur within the proposed project area. Streambeds were vegetated to varying extents and all dry at the time of the field visits (June and July 2009). Typical herbaceous grass and forb species within most dry channels include Brewer's navarretia (*Navarretia brewerii),* poverty oatgrass (*Danthonia spicata),* and small tarweed (*Madia exigua*). Other channels were dominated by dense shrub

and herb species including Woods' rose (*Rosa woodsii*), snowberry (*Symphoricarpos albus*), cinquefoil (*Potentilla* spp.), and Oregon checkermallow (*Sidalcea oregana var. procera*).

Herbaceous Wetlands

Herbaceous wetland habitats within the survey area consist of depressional wetlands dominated by herbaceous vegetation. Exposed soils were cracked, which is evident of altering drying and wetting periods. Water arrives as either snowmelt or rain. These wetlands support hydrophytic herbaceous vegetation and meet the criteria for hydric soils and wetland hydrology. Common plant species within these wetlands were creeping spikerush (*Eleochaeris palustris*), Parry's rush (*Juncus parryi*), marsh cudweed (*Gnaphalium palustre*), and several sedge (*Carex* spp.) species. The non-native, annual grass ventenata (*Ventenata dubia)* had invaded most of the depressional wetlands and dominated them as they dried. Herbaceous wetlands are located within the proposed project area boundary but will not be impacted by project activities (see Appendix A, Figure 2).

Riparian

Riparian habitat is found adjacent to some of the ephemeral stream channels in the survey area. Riparian habitat is located in the transitional area between the stream channel and ponderosa pine forest. It typically consists of a dense shrub layer composed of a mixture of oceanspray (*Holodiscus discolor*), mountain spiraea (*Spiraea betulifolia),* Woods' rose (*Rosa woodsii*), and ponderosa pine. Oregon checkermallow (*Sidalceae oregana* var. *procera*) was often found in the understory of these areas.

Upland Aspen Forest

A small grove of aspen (*Populus tremuloides*) forest occurs along one drainage and around an artificially impounded pond in the southwestern portion of the survey area. Associated species include ponderosa pine, snowberry, and wild rose. This aspen grove is within the proposed project area boundary, but will not be impacted by project activities as it is located outside of the proposed project site boundary (see Appendix A, Figure 2).

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

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules, the risk of fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as provided below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating the next construction phase of the project. Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. The Applicant will obtain a permit from WDNR and contract with a professional forester to harvest these trees in accordance with the permit. Because the bottoms of the solar modules will be approximately 3-4 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will remain, to the maximum extent practicable, between rows and under the solar modules.

The project will not affect any listed Washington Department of Fish and Wildlife (WDFW) Priority Habitat or habitats listed under the WDNR Natural Heritage Program (NHP)

database. No high-value or Category I or II habitats will be affected (see Attachment A). Any impacts to Category III habitats will be mitigated and minimized as described below.

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

No threatened or endangered plant species were identified within the survey area.

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

Detailed information on the proposed mitigation measures for vegetation is included in Attachment G. In summary, the following measures are proposed:

- Vegetation removal and disturbance during construction will be restricted to the area designated for solar modules and related facilities, and vegetation adjacent to the access roads. Soil disturbances will be reduced by seeding with an approved native seed mix once project construction is complete.
- Vegetation clearing will occur along some existing ROWs for road widening and improvement. Vegetation along existing ROWs is primarily herbaceous plant species. Some shrubs and trees may be removed for the widening of access roads; however, TSR proposes to minimize the removal of these species when possible.
- Herbaceous vegetation taller than 3 feet will be temporarily cleared for the placement of the solar modules. After construction, vegetation inspections will be performed and herbaceous vegetation growth will be allowed up to a height of 3 feet, at which time the vegetation will be trimmed. Noxious weeds such as spotted knapweed (*Centaurea stoebe*) will be controlled within the project area.
- The solar modules will contain nonvegetated buffers. These buffers will be maintained as a firebreak. To prevent shading, soiling, and damage from windthrow, no trees will be permitted within the buffer. The site will be maintained to prevent the regrowth and reestablishment of saplings or trees in these areas.
- The proposed project is designed to avoid impacts to wetlands and streams. Thus, no wetland or stream vegetation will be cleared during project development or maintenance. All impacts to wetlands and waters will be avoided.
- Vehicles will avoid riparian areas, areas within wetlands, or areas within wetland buffers by driving only on access roads. Sediment will be prevented from entering streams and wetlands through the use of BMPs. For further discussion of the BMPs that will be implemented to prevent soil erosion and stream sedimentation, please see the Earth and Water sections of this SEPA Supplement.
- Up to 200 feet of clearance will be needed for the proposed overhead line. Vegetation will be cleared for the proposed powerline route to grid interconnection. Similar to the substation, it has yet to be determined if certain elements of the transmission line will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the

project. Areas cleared of vegetation will be r maintained for noxious weed control and to prevent woody seedling growth

- Where appropriate, development will be located in already disturbed areas, including previously logged lands, existing transmission corridors, and ROWs. However, when impacts are unavoidable, alternative means of compensation mitigation will be considered.

WDFW Wind Power Guidelines

In 2003 and 2009, WDFW adopted guidelines to address fish and wildlife habitat protection, conservation and mitigation related to the development of wind energy facilities. The purpose of the WDFW Wind Power Guidelines is to provide consistent statewide guidance for the development of land-based wind energy projects that avoid, minimize and mitigate impacts to fish and wildlife habitats in Washington State. Specifically, the guidelines were largely designed to address concerns due to the unique nature of wind turbines and wind power projects, including avian and bat strikes, liability under the Migratory Bird Treaty Act, avian behavioral modification and migration displacement through the installation of tall wind turbines, and lack of research regarding avian migration and response to FAA-approved lighting configurations. Because the concerns over high wind turbines largely do not apply to solar farms, the Guidelines are not applicable to the TSR project. Nonetheless, TSR has used the same approach to species and habitat identification, and will implement the following additional measures to minimize and mitigate any impacts that may occur.

Best Management Practices

BMPs will be implemented during construction to avoid and reduce temporary and permanent impacts to the extent practicable. No state or federally listed species were observed onsite. However, in the event that a state or federally listed threatened or endangered plant or wildlife species is observed during project development, work will be halted immediately and a qualified biologist notified.

BMPS will be implemented wherever surface disturbances occur. These measures include, but are not limited to, the following:

- Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from the WDNR and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act.

- It is TSR's intent not to burn woody debris, slash, or logging refuse. Any woody debris chipped on site will be put to a beneficial use (e.g., chipped material will be sent to a compost facility, used for paper or ground cover). If burning is necessary, TSR will secure the necessary permits from the state agencies and no more than approximately 130 consumable tons of material will be burned.

- Slash production from logging will use a chipper, such as the Hydro-ax, to de-limb and process slash and small trees. This will be done in confined staging areas on or next to proposed or current roadways. The resulting chips could be used as composting chips, ground cover, or erosion control material, or taken to a mulch center for recycling. Kittitas County has a new compost center north in Ellensburg, which is approximately

25 miles from the project site. No slash or brush piles permanently left on the project site to inadvertently impact herbaceous vegetation cover.

- All trees, shrubbery, and other vegetation not designated for removal will be protected from damage caused by the project construction.
- Areas of temporary soil disturbance will be seeded with the specified temporary seed mix.
- Install filter bags, sediment fences, sediment filter fabric traps, and graveled construction accesses as necessary for erosion control, where possible.
- Cover stockpiles with impervious materials when unattended or during rainfall.
- Locate construction staging areas for storage, maintenance, and fueling of construction equipment minimum of 150 feet from creeks or wetlands. Show staging areas on the construction plans.
- Petroleum products and other harmful material will be prevented from entering wetland or waterways at all times.
- Upon completion of construction, seed or plant all areas temporarily disturbed by construction activities with native plants.
- Erect construction fencing along buffered boundaries of all wetland and riparian areas and aspen groves within the proposed project site prior to construction to avoid inadvertent impacts to these habitats.
- Monitor areas used for staging after construction to determine if impacts to these areas are temporary. If weeds invade or native plants on these sites appear dead or unhealthy the year following construction, weeds will be controlled and these areas will be overseeded with the same seeding mixture described for other disturbed areas.
- Where seeding is necessary, seeding mixture consisting of 12 pounds of PLS from a certified weed-free source will planted on this prepared surface at a ratio of 4 pounds of bluebunch wheatgrass (*Pseudoroegneria spicata*), 2 pounds of Idaho fescue (*Festuca idahoensis*), 2 pounds of prairie junegrass (*Koeleria macrantha*), 2 pounds needle-and-thread grass (*Hesperostipa comata*), 1 pound of arrowleaf balsamroot (*Balsamorhiza sagittata*), and 1 pound of silky lupine (*Lupinus sericeus*).
- Weed monitoring and any necessary control efforts will be completed annually.
- Ground application of herbicides will be with a dripless wand applicator carried over the site either on foot in a backpack sprayer or in a tank on a rubber-tired all-terrain vehicle (ATV). Herbicide(s) used will be limited to types that do not move through the soil and whose affect is immediate but short-lived. Herbicide(s) used will be approved for use near or in wetlands to avoid unintentional affects to aquatic species.
- Herbicide mixes may be colored with dye to aid in post-application monitoring.
- The first pass of each application will be made parallel to the buffer zones in such a way that chemicals cannot drift into the buffers.

- Wetland buffers will be maintained and are described in detail in Attachment B, *Wetland Delineation Report*.

Mitigation

Possible avoidance and mitigation measures may include the following:

- Implement micrositing: slight relocations of project facilities to avoid rare plant populations.
- Remove and conserve plants; replant following construction.
- Replant disturbed area with seed obtained from a qualified cultivator of rare plants.
- Mitigate by seeding an approved offsite area with the same species.

Mitigation will require approval of the agencies, as well as monitoring for a defined period of time.

Specific Mitigation Measures

Existing trees with a diameter at breast height (dbh) of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation TSR is committed to undertaking efforts that will further the long term sustainability of the land. This measure will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite.

TSR proposes to form a TAC to address mitigation for tree replacement. Stakeholders invited to participate in TAC include TSR, Kittitas County, Kittitas County Fire District 7, WDNR, and WDFW at a minimum. At this time, Kittitas County, WDFW, and WDNR have agreed to participate (see Appendix C to Attachment G). Once plantings are in place, the success of plantings will be monitored annually for 3 years by TSR by installing monitoring plots. Plots will be monitored for seedling survival for the duration of 3 years. If the viable seedlings meet or exceed 150 stems 3 years post planting, the site is considered fully stocked and WDNR will close the FPA permit. An annual monitoring report will be sent to Kittitas County, WDNR, and WDFW, at a minimum.

Areas temporarily disturbed by construction activities, including the areas under solar arrays, will be revegetated with native species. Annual revegetation monitoring will be undertaken to ensure that all seeded revegetation sites meet a minimum cover standard of 70 percent cover composed of predominantly native species within 3 years. A general seeding mixture consisting of 12 pounds per acre of pure live seed (PLS) from a certified weed-free source will be planted on disturbed sites at a ratio of 4 pounds of bluebunch wheatgrass (*Pseudoroegneria spicata*), 2 pounds of Idaho fescue (*Festuca idahoensis*), 2 pounds of prairie junegrass (*Koeleria macrantha*), 2 pounds needle-and-thread grass (*Hesperostipa comata*), 1 pound of arrowleaf balsamroot (*Balsamorhiza sagittata*), and 1 pound of silky lupine (*Lupinus sericeus*).

Several small roads segments located near wetlands will be abandoned during construction of the project to avoid impacts to the wetland resource.

Decommissioning

In the event TSR decides to terminate operation of the project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the Project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to vegetation onsite are anticipated as a result of project decommissioning and site restoration. Disturbed areas will be restored through replanting with a native seed mixture. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see project Description for more information about decommissioning and restoration.

Animals

No federal- or state-listed threatened or endangered species were found during field surveys. CH2M HILL biologists conducted reconnaissance-level field surveys on June 16 through June 19 and on July 9, 2009. Surveys were conducted by walking transects spaced 30 meters apart. Both audible and visual observations of avian and mammal species were recorded. Attachment A, *Sensitive Species Surveys* report (see Attachment A), further discusses the results of the wildlife field survey. Measures designed to avoid, minimize, or mitigate impacts to wildlife are as provided above.

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

   Birds – hawks, heron, eagle, songbirds, other

The Priority Habitat and Species (PHS) database identifies three species that are *candidates* for federal or state listing with some, however unlikely, potential to occur within the proposed project area (see Attachment A, Tables 3 and 4). The database includes potential occurrences of both black-backed woodpecker and mountain quail approximately 1.0 mile from the project area. In addition, several occurrences of northern goshawk are documented

approximately 1.5 to 1.8 miles from the northern edge of the proposed project area. The black-backed woodpecker occurrence is approximately 1 mile from the project area's southernmost boundary.

Field biologists did not observe any federal- or state-listed threatened or endangered wildlife species within the survey area. A state candidate species, the white-headed woodpecker (*Picoides albolarvatus*), was observed in the northwest portion of the survey area. Biologists observed both male and female woodpeckers close to the main access road. The male was observed foraging in a stand of adult ponderosa pine, while the female was located excavating a nest in a snag approximately 10 feet from the road.

It is unlikely that any black-backed woodpeckers will be affected by project development because activities relating to this project will not involve the documented area. Black-backed woodpeckers require habitat with stands of mature conifers that have experienced a burn event within the last 5 years. No stands of burned, mature conifer trees exist in the project area. In addition, the proposed project is unlikely to affect any mountain quail or northern goshawk habitat, as no activities related to this project will occur near the PHS listing.

Mammals – deer, bear, elk, beaver, other

The PHS database was queried for elk and mule deer habitat regions. Priority habitats for these large mammals do not occur within the proposed project area. According to the PHS database, the closest elk wintering habitat is across the Teanaway River, approximately 0.8 to 1.5 miles from the proposed project area.

During the course of field surveys, a small herd of roughly six elk cows and two mule deer with fawns was identified in the northwest portion of the proposed project area. This area is used as a calving and fawning area during spring and summer. During fall, the herds travel east to the PHS regions located along the Teanaway River.

TSR will propose both onsite mitigation in accordance with WDFW guidelines to avoid and minimize impacts to wildlife habitat. Payment in lieu will be implemented to offset additional impacts to potential wildlife habitat. Please see Attachment H-Wildlife Mitigation Plan for detailed information about mitigation for impacts to wildlife habitat.

A study of cougars conducted by WDFW biologists from 2001 to 2007 estimates the total population density at 4.97 cougars per 100 square kilometers in the area surrounding the Teanaway River, with 1.50 adult males and 1.15 adult females per 100 square kilometers respectively (Cooley et al., 2009a). The remaining estimate consists of juveniles (younger than 24 months) and kittens. The population is composed primarily of older animals, indicating the population is stable. Cooley et al. (2009a) determined the mean age of adult cougars in the area surrounding the Teanaway River based on 65 known specimens. The mean age of males was 60 months (5 years), while the mean age of females was 69 months (5.4 years). A separate study found the average annual survival rate was 0.71 percent for adults (Cooley et al., 2009b), with approximately 1.12 kittens maturing per female each year (Cooley et al., 2009b).

Based on the available data, it is unlikely that any grizzly bears occur within the proposed project area. Currently, bears are only known to occur in one 100-mile area in the Okanogan

Highlands. No evidence of the sight being used by grizzly bear was observed during 2009 field surveys. In addition, there are no occurrences listed in the WDFW or USFWS databases, verified or unverified, of bears in the surrounding region.

Fish – bass, salmon, trout, herring, shellfish, other

The project area contains several ephemeral streams. Project construction will not disturb vegetation within these waterbodies. Although the project area contains no fish-bearing streams, the construction contractor will implement BMPs adequate to protect fish habitat. Because no in-water work is anticipated as a project activity, TSR did not conduct any fish field surveys.

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

The survey team did not find any threatened or endangered species in or near the survey area.

Prior to field surveys, biologists searched the WDFW PHS and WDNR NHP databases for any documented occurrences of listed species within 3 miles of the project area. Agency data did not show any threatened or endangered species occurring within the project area. The PHS database documented occurrences of northern goshawk, black-backed woodpecker, northern spotted owl, and mountain quail occurring within 3 miles of the project area. Because of a lack of suitable habitat, it is unlikely that any of these species occur within the project area. Moreover, the survey team did not observe these species in the survey area.

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

Because of this seasonal migration, portions of the project area may be used as a migratory corridor for large, migrating ungulates. However, this route was not identified during the 2009 field survey effort. Portions of the project area include an upland ponderosa pine forest stand, which may provide habitat for several species of wildlife. During spring, elk and mule deer typically use this type of habitat as a calving and fawning ground.

The PHS data identified regions of elk and mule deer habitat across the Teanaway River, north of the proposed project area. The nearest known PHS regions occur between 0.8 and 1.5 miles from the proposed project area

TSR has considered impacts to potential elk movements and migration during the design of the proposed project layout. TSR proposes onsite mitigation to preserve potential migration corridors and elk habitat in the northeast and southwest portion of the project area. In addition, micrositing of solar arrays will result in a wide access corridor between solar arrays to allow for elk movement between these areas. Please see Attachment H-Wildlife Mitigation Plan for detailed information about mitigation for impacts to wildlife habitat. No fencing will occur along the property boundary. Such fencing is not required to be installed, per the National Electrical Code (NEC).

Decommissioning

In the event TSR decides to terminate operation of the Project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the Project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to wildlife or wildlife habitat are anticipated as a result of project decommissioning and site restoration. No threatened or endangered species are present onsite, and thus no listed species will be affected. Temporary impacts in the form of increased noise levels and human activity may occur during project decommissioning; however, these are expected to be temporary in nature and will not result in permanent impacts to wildlife. Please see project Description for more information about decommissioning and restoration.

Energy and Natural Resources

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

Minimal amounts of energy will be used to meet the completed project's energy needs; the completed project will produce electricity. A minimal amount of energy will be used to heat and light the O&M facility; however, this energy will be derived from the solar energy facility.

b. *Would your project affect the potential use of solar energy by adjacent properties?*

The Project will not affect the potential use of solar energy by adjacent properties. Any shadows from transmission line-structures would have minimal, if any, effect on adjacent properties. The shadows from the solar facility components and other related appurtenant improvements will not interfere with the potential use of solar energy by adjacent properties.

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

Minimal amounts of energy will be used to meet the completed project's energy needs. No energy conservation features are included in the plans of this proposal.

Decommissioning

In the event TSR decides to terminate operation of the Project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the Project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to energy or natural resources are anticipated as a result of project decommissioning and site restoration. The decommissioning effort will not require additional energy consumption and will not affect the potential solar energy use of adjacent properties. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Environmental Health

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

Once the project is completed, there will be minimal exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste. In addition, a letter from REC Solar (see Appendix G to Attachment H) states, "the modules are silicon based and do not contain hazardous materials such as cadmium which is used in some other types of solar modules. The modules do contain a small amount of lead solder which is fully encapsulated. Even in the event of damage to the modules, there is no potential for the lead to be released into the environment." At the end of this 25-year life cycle, the solar modules will be recycled by the manufacturer.

During construction, the construction contractor may use small amounts of lubricants and solvents and will follow appropriate measures to prevent spills and contamination. Except for fuel and oil used in construction equipment, the construction contractor will use no combustible materials. During construction activities, the potential for fires and accidents may exist. However, the construction contractor will construct the project in accordance

with applicable federal, state, and County regulations that pertain to fire prevention, presuppression, and suppression. In addition, a letter from REC Solar (see Appendix G to Attachment H) states, "the photovoltaic modules, manufactured by REC Solar AS, which would be utilized on this project are constructed of glass, aluminum and silicon with PTE foil backsheet and EVA encapsulate. In addition, all other materials used on the solar arrays are steel, aluminum, and copper. As the primary materials are non-flammable we do not anticipate that modules would be considered a fire hazard during a forest fire."

1) Describe special emergency services that might be required.

This project does not require any special emergency services related to environmental health.

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

TSR will construct the project to comply with applicable federal, state, and industry standards that address environmental health standards, such as clearances, grounding, lightning protection, and fire protection.

During construction, the construction contractor will implement standard safety measures to reduce or control environmental health hazards. The construction contractor will employ the following BMPs to reduce or control the potential for environmental health hazards:

- Monitoring onsite vehicles for petroleum leaks; the construction contractor will clean up spills immediately upon recovery and report such spills to the appropriate agency
- Disposing of hazardous waste material generated by project construction and operation in a manner specified by local and state regulations or by the manufacturer
- Keeping cleanup materials readily available onsite, either at the equipment storage area or on the construction contractor's trucks

PV arrays will be set back 100 feet from the perimeter of the property to allow for proper firebreaks. In addition, spacing between PV arrays will be 10 feet, to provide for adequate maintenance and fire prevention space.

During operation, TSR will continue to implement applicable BMPs to reduce or control environmental health hazards.

b. Noise

1) What types of noise exist in the area which may affect your project (e.g., traffic, equipment, operation, other)?

The nature of the project is such that it is unaffected by noise.

2) What types and levels of noise are associated with the project on a short-term or a long-term basis (e.g., traffic, equipment, operation, other)? Indicate what hours the noise would come from the site.

During construction, the project will expose nearby residences to increased noise from construction equipment. Typical equipment the construction contractor is likely to use during construction includes pickup trucks, line trucks, graders and bulldozers, backhoes, boring equipment, tractor-trailers, cranes, drum pullers and tensioners, harrows, and

broadcast seeders. Construction equipment typically produces noise levels of 75 to 90 decibels on an A-weighed scale (dBA) at a distance of 50 feet from the construction activity. Noise levels from construction equipment will vary and will be temporary in nature. Construction will occur during daylight hours (7 a.m. to 7 p.m.) and is anticipated to last for several weeks at a given location for up to 9 months over a period of 2 to 3 years.

Sources of potential noise during construction include vehicular traffic noise and equipment noise such as chainsaws, rollers, bulldozers, pile drivers, and diesel engines. Sources of noise during operations include solar tracking devices, transformer and switchgear noise from substations, corona noise from transmission lines, vehicular traffic noise, and maintenance facility noise.

A detailed noise study was not conducted as part of the Teanaway Solar Reserve project. The closest inhabited structure is located 290 feet from project facilities.

A noise analysis performed for a proposed solar facility of a similar size (60 MW) in Sarnia, Ontario, indicated that the potential daytime and nighttime operational noise footprint of an approximately 60-MW solar project is not discernable at more than 100 feet from the project boundary. The noise sources for the project, the transformers and inverters, located in each PV block, will be at least 290 feet from the nearest noise receptors, including any residences.

The closest residence will be approximately 290 feet from the transmission line. There are two types of noise associated with transmission lines: corona noise and aeolian noise. The corona noise is breakdown of air into charged particles caused by the electrical field at the surface of conductors. In close proximity to the transmission line, such as at the edge of the ROW, noise levels are approximately 40 dBA to 50 dBA. A whisper is approximately 30 dBA and the ambient noise in a home is approximately 50 dBA.

Aeolian noise is the noise created from wind blowing from the transmission structures. This type of noise is usually infrequent and depends on wind velocity and direction (Aspen Environmental Group, 2009). Research by the Electric Power Research Institute has shown that the fair-weather aeolian noise from transmission lines to be generally indistinguishable from background noise at the edge of a ROW of 100 feet or more.

Per Kittitas County's Noise Ordinance (Chapter 9.45, Sections 9.45.010), "it is unlawful to create, or to allow property in one's possession or control to be used so as to create any loud, unpleasant, or raucous noise which unreasonably disturbs the peace, comfort, or repose of others" (Ord. 99-09, 1999; Ord. 95-14 § 1, 1995). In addition, noise disturbances referred to in KCC 9.45.010 may include, but are not limited to, continuous or repetitive sound from the following sources:

1. Operating motors, engines, motorcycles and snowmobiles in a capricious manner, to be plainly audible within any dwelling unit which is not the source or is generated within 200 feet of any dwelling unit
2. Playing amplified or otherwise loud music and voice amplification either live or recorded
3. Yelling or shouting at a continuous loud level of sound

4. Allowing domestic animals to bark, howl, or otherwise make noise either on private or commercial premises for extended periods of time

5. Use of noise-making fireworks except for duly authorized or approved public displays (Ord. 99-09, 1999; Ord. 95-14 § 2, 1995).

The project is expected to be well within the compliance standards of the Kittitas County Noise Ordinance.

3) Proposed measures to reduce or control noise impacts:

Noise levels during construction of the solar facility components and other related appurtenant improvements will depend on the specific construction methods used. Construction noise will be localized and temporary.

To minimize noise impacts, the construction contractor will limit construction activities to daylight hours (7 a.m. to 7 p.m.), and all equipment will have sound-control devices.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to environmental health are anticipated as a result of project decommissioning and site restoration. All waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential hazard of human exposure from oil, herbicides, or other routinely used solvents.

It is unlikely that emergency services will be necessary during the decommissioning and restoration effort; however, the Kittitas County Planning Department and Kittitas County Fire District 7 will be notified prior to the engaging in decommissioning and restoration.

Noise levels during decommissioning of the solar facility components and other related appurtenant improvements will be similar to construction levels. This noise will be localized and temporary. To minimize noise impacts, the decommissioning and site restoration efforts will be limited to daylight hours (7 a.m. to 7 p.m.), and all equipment will have sound-control devices. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Land and Shoreline Use

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

The site is currently zoned Forest and Range (F&R) (Figure 5). The site was most recently selectively logged in 2001–2002, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees.

The adjacent properties are zoned as Commercial Forest (CF), Rural 3, and F&R (Figure 6).

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

No, the proposed project site has not been used for agriculture. The site is currently zoned F&R and was most recently logged in 2001–2002.

c. Describe any structures on the site.

No structures are currently present on the proposed project site. TSR selected the proposed project site to maximize significant insulation capacities and sunlight, optimize slopes for year-round energy production, provide adequate site accessibility, avoid environmentally sensitive areas, and minimize visibility from offsite locations.

d. Will any structures be demolished? If so, please describe.

TSR is not proposing to demolish any structures as part of this project.

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

The proposed project site is located within the F&R zone in Kittitas County.

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

The current comprehensive plan designation of the proposed project site is Rural.

f. What is the current shoreline master program designation of the site?

The proposed project will not be located within 200 feet of any rivers designated under the shoreline master program. The closest river with such a designation under Washington Administrative Code (WAC) 173-18-230 is the Teanaway River, which is located approximately 1.0 mile from the proposed project site (see Attachment J, Figure 8).

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

Section 17A.02.060 of the Kittitas County Code (KCC) designates the following habitats and ecosystems as critical areas consistent with state statute (RCW 36.70A.030[5]):

1. *Wetlands;*
2. *Areas with a critical recharging effect on aquifers used for potable water;*
3. *Fish and wildlife habitat conservation areas;*
4. *Frequently flooded areas; and*
5. *Geologically hazardous areas.*

The following subsections further define these designated "critical areas." TSR will mitigate the critical areas that the project affects in accordance with the KCC, Critical Areas Ordinance (CAO), and federal and state requirements. The Critical Areas permit application is included as part of the Kittitas County conditional use permit.

Wetlands

CH2M HILL conducted a wetlands and other waters delineation in June and July 2009 for the proposed project.

The proposed project is located in the Teanaway River and Yakima River watersheds within the Yakima River basin and Upper Yakima subbasin. Tributaries within the project site flow into ponds, ditches, and vegetated swales. Water from these tributaries not used for irrigation practices eventually flows into the Yakima River with the exception of one unnamed tributary (S6), which flows directly into the Teanaway River. Wetlands within the project site are hydrologically connected to these tributaries.

Twelve wetlands were delineated (see Table 4). They total 0.97 acre within the survey area (see Attachment J, Figure 8). All of the wetlands were determined to be PEM (Cowardin) depressional (HGM) wetlands except wetland W12, which was determined to be a riverine (HGM) wetland. Table 4 lists the separate wetlands within the proposed project area. (See *Environmental Elements: Water a. Surface* in this checklist for more details.*)*

TABLE 4
Wetlands Summary Table

Wetland ID	Wetland Acreage	Cowardin Type	HGM Type	Wetland Adjacent to RPW	Wetland Adjacent to Non-RPW	USACE Jurisdiction	State Jurisdiction
W1	0.010	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W2	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W3	0.030	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W4	0.067	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W5	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES

TABLE 4
Wetlands Summary Table

Wetland ID	Wetland Acreage	Cowardin Type	HGM Type	Wetland Adjacent to RPW	Wetland Adjacent to Non-RPW	USACE Jurisdiction	State Jurisdiction
W6	0.253	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W7	0.231	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W8	0.027	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W9	0.013	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W10	0.019	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W11	0.006	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W12	0.312	PEM	Riverine	NO	YES	Potentially – if significant nexus to TNW	YES

The survey team delineated wetlands within the proposed project area in accordance with *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2006), and distinguished buffers based on 17A.04.020 of the KCC. The *Wetland Delineation Report* (see Attachment B) provides a detailed analysis of the stream classifications for the streams/jurisdictional waters in the project area.

There will be no impacts to wetlands or waters in Washington from the construction of solar PV arrays, transformers, the O&M building, switchgear structures, or the powerline route to the grid.

TSR recognizes that there are three Category III wetlands greater than 10,000 square feet within the proposed project area. Wetlands W1, W3, W5, W6, and W7 will contain a buffer of 80 feet, which will not be impacted by any permanent or temporary structure and wetlands W2, W4, W8, W9, W10, and W11 will have a 25-foot buffer (see Attachment D, Figure 5) pursuant to Section 17A.04.020 of the KCC.

Wetland functional assessments showed moderate to high potential and opportunity to provide amphibian habitat and high potential and opportunity to provide invertebrate habitat. However, no evidence of amphibians or invertebrates (burrows, casings, shells, water, mating calls, etc.) were observed in wetlands W1-W11 on the surface or within the upper 20" of soil pits. Wetland W12 is the only wetland with likely habitat for invertebrates or amphibians. The eastern Washington wetland-rating system was not tested on wetlands less than 1/10 acre (only wetlands W6, W7, and W12 are greater than 0.10 acre in size); therefore, more focus was placed on field observations and best professional judgment to determine wetland functions. Most of the delineated wetlands were also sparsely vegetated

or dominated by non-native species (*Ventenata dubia*) providing poor habitat for aquatic wildlife. Based on WDFW functional assessment data and field observations, wetlands W1-W7 exhibit low habitat function due to an absence of invertebrates, amphibians, aquatic birds, aquatic mammals, and low to moderate native plant diversity. Buffers for these wetlands should therefore be between 25 and 75 feet. Based on WDFW functional assessment data and field observations, wetlands W8-W11 exhibit low habitat functions due to an absence of invertebrates, amphibians, aquatic birds, aquatic mammals, and little or no native plant diversity. Buffers for these wetlands should therefore be between 25 and 75 feet. Wetland W12 exhibits moderate to high habitat functions based on habitat suitability for a variety of aquatic species. Buffers for this wetland should be between 150 and 300 feet.

The proposed project also incorporates a 100-150 foot buffer around all potential wetlands within the project area where no permanent structures are proposed to further avoid and/or minimize impacts on wetland habitat. Wetland W12 has a 150-foot buffer with all proposed permanent structures sited 150-300 feet from the wetland.

TSR will revegetate temporarily disturbed areas with an appropriate seed mix consisting of native shrubs, forbs, and grasses developed using applicable state and federal guidelines and plant lists. Permanently disturbed areas will be maintained to prevent the occurrence of noxious weeds (see Attachment G.)

Critical Aquifer Recharge Areas

Section 17A.02.020 of the KCC defines areas with a critical recharging effect on aquifers used for potable water as *"areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water (WAC 365-190-030[2])."*

This project will not have an impact on critical aquifer recharge areas (see Attachment J, Figure 8). Per Section 17A.08.010 of the KCC, no critical aquifer recharge areas have been identified by the County. All nearby wells have been identified (see Attachment J, Figure 8) and will be avoided. No hazardous materials that may contaminate the ground or surface water will be utilized or stored on site. The solar modules are silicon based and do not contain hazardous materials such as cadmium which is used in some other types of solar modules. The modules do contain a small amount of lead solder that is fully encapsulated. Even in the event of damage to the modules, there is no potential for the lead to be released into the environment.

During construction, the construction contractor may use small amounts of lubricants and solvents and will follow appropriate measures to prevent spills and contamination.

Fish and Wildlife Habitat Conservation Areas

Section 17A.02.090 of the KCC defines fish and wildlife habitat conservation areas as follows:

1. *Those lands in Kittitas County owned or leased by the Washington State Department of Fish and Wildlife;*
2. *Those lands donated to or purchased by Kittitas County for corridors pursuant to RCW 36.07A.160;*
3. *Wetlands;*
4. *Big game winter range;*
5. *Riparian habitat;*

6. Habitats for species of local importance.

There are no lands owned or leased by WDFW within the project area. Also, there are no lands purchased by Kittitas County pursuant to RCW 36.017A.160, which requires the County to designate "open space corridors within and between urban growth areas." Because no such corridors are located in the project area, they are not affected by the proposed project.

The project area contains wetlands. However, impacts to wetlands will be avoided. All category-specific buffers will be observed and BMPs will be in place to avoid impacts to wetlands and riparian habitat, where practicable. Please see the Wetlands section directly above and Waters section for a more detailed discussion of these areas.

There are no areas of important wildlife habitat within the project area. This includes big game winter habitat and habitats for species of local importance. The project will not affect any listed WDFW Priority Habitat or habitats listed under the WDNR NHP database. The nearest PHS habitat is between 0.8 and 1.5 miles from the site.

The Animals section Attachment H, *Wildlife Mitigation Plan* in this checklist discusses detailed wildlife, habitat, and proposed mitigation measures.

Frequently Flooded Areas

Section 17A.02.140 of the KCC defines areas of special flood hazard as "*the one-hundred year floodplain, which are lands subject to a one percent or greater chance of flooding in any given year as designated by the Federal Emergency Management Federal Insurance Rate Map for Kittitas County.*"

The project area does not contain or affect any 100-year floodplains according to the Federal Emergency Management Agency floodplain areas (see Attachment J, Figure 9). The nearest 100-year floodplain is adjacent to the Teanaway River and is approximately 450 feet from the project area.

Geologically Hazardous Areas

Section 17A.02.150 of the KCC defines geologically hazardous areas as "*areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suitable to the siting of major commercial, residential or industrial development consistent with public health or safety concerns without proper engineering consideration and design. The term commercial shall not be construed to include natural resource activities.*"

The proposed project is not "commercial, residential, or industrial development" as defined by the KCC. TSR will select the placement and locations of the facility components to minimize susceptibility to erosion, sliding, earthquakes, and other geological events, consistent with proper engineering consideration and design.

Based literature review, soil data, site geologic reconnaissance, and published geologic information, the project can be designed, constructed, and operated safely to minimize or avoid adverse geologic and soil impacts. No direct impacts from geologic hazards such as landslides or earthquakes are anticipated from design, construction, and operation of the project. The potential for soil erosion during and after project construction and operation will be minimized by adherence to an erosion control plan, BMPs, and the mitigation

measures. Site grading, roads, and stable cut slopes will be incorporated into final design to minimize or avoid potential impacts that could endanger the project components.

No areas of slopes steeper than 33 percent were observed during on-site field work (November 2009). Slopes of this steepness are primarily present along the edges of the Teanaway River valley, outside the project boundaries. No roads, structures, or other facilities would be constructed on slopes steeper than 33 percent. Therefore, it is not anticipated that slopes will pose a potential hazard nor interfere with the performance of new roads or structures.

Potential geological hazards and soil limitations are discussed in further detail in the Earth section of this checklist and Attachment J, Figure 10, Designated Critical Areas: Erosion-Prone Soils and Geologic Hazards. Soil data, geologic features, site photos, and an in-depth discussion of geology and soils are presented in detail in Attachment D.

h. How many people would reside or work in the completed project?

The project will not result directly in any people residing in the project area.

i. How many people would the completed project displace?

The project will not result in the displacement of any people.

j. Please list proposed measures to avoid or reduce displacement impacts:

The project will not create displacement impacts.

k. List proposed measures to ensure the proposal is compatible with existing and projected land uses and plans:

The proposed project is compatible with the existing and projected land uses and plans with the approvals and permits described in the following subsections. This includes compatibility with the *Kittitas County Comprehensive Plan* (Kittitas County, 2006), and the Kittitas County Code.

TSR will submit all necessary applications for local land use approvals and permits in Washington to ensure that the project is compatible with existing and projected land uses and plans. These land use approvals and permits include those described below.

Forest Practices Act Permit

The FPA permit will be obtained through WDNR. Trees will be removed from the site only as necessary to install facilities. Trees will be left onsite wherever practicable.

Conditional Use Permits

TSR will submit a conditional use permit (CUP) application to Kittitas County consistent with the comprehensive plans and zoning ordinances for both jurisdictions.

The project is defined as a "*Major alternative energy facility*" in KCC Section 17.61.010(9) and may be authorized in the F-R zoning district through approval of a CUP per KCC Section 17.61.020(4).

Kittitas County has indicated that the size and complexity of the project generate the need for a Development Agreement (DA) between TSR and the County. A Draft DA is provided as Attachment E to the CUP. The DA will condition and govern the CUP.

Critical Areas Permit

The proposed project site includes wetlands, which are critical areas as defined in Section 17A.02.060 of KCC and are described in more detail in item (*g*). Therefore, TSR has applied for a Critical Areas Permit as part of the Kittitas County CUP.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to land use, shoreline areas, or critical areas are anticipated as a result of project decommissioning and site restoration. All wetlands and streams will be avoided during decommissioning. The Applicant will adhere to the construction buffers of 150 feet for each wetland and 20 feet for each stream.

Critical aquifer recharge areas will not be affected, as all water required for decommissioning and site restoration will be arranged for delivery to the active decommissioning site using water trucks from a source with an existing water right. The Applicant will neither withdraw groundwater nor discharge to groundwater during project operations.

No construction will take place in a fish and wildlife habitat conservation area or in a floodplain, thus the decommissioning and site restoration efforts will avoid these areas as well.

BMPs will be utilized to ensure no water or wind erosion associated with the removal of the project's components and site restoration. Geologically hazardous areas will be avoided to

further reduce potential impacts. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Housing

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

The proposed project involves the construction and operation of the Teanaway Solar Reserve on private land in an unincorporated area of Kittitas County, and does not include the development of any new housing units.

The direct average employment in during each of the 7- to 9-month construction periods is estimated at 450 workers (see Attachment N *Economic Impact Analysis for the Teanaway Solar Reserve, Kittitas County, Washington*). TSR is committed to utilizing a local workforce and thus, the number of construction workers expected to be transient to Kittitas County will be small enough that adequate temporary housing provided by hotels and motels is available to meet project needs. No housing units will be developed as part of the proposed project.

According to the 2005–2007 American Community Survey 3-Year Estimates, Kittitas County has 9,180 estimated housing units, including 5,464 owner-occupied units and 2,729 renter-occupied units (U.S. Census Bureau, 2009). The vacancy rate is estimated to be 8.8 percent.

According to the Cle Elum Roslyn Chamber of Commerce (2009), approximately 20 hotels and motels are available in the Cle Elum Roslyn area.

For a review of the 14 closest hotels and motels, see Table 5. TSR spoke with employees at each hotel and motel listed in Table 5 (Dinges, 2010). During the summer months, when construction will occur, the number of vacant rooms ranges from 102 to 417 rooms. This will provide enough temporary housing for many of the estimated 450 workers.

TABLE 5
Hotel and Motel Vacancy Rates near the Proposed Project Site

Hotel Name	Address	Contact Number	Room Rate[(1)]	Vacancy Rate*	Total Rooms	Rooms Available	Distance to project (miles)
Best Western Snow Cap Lodge	809 W Davis St Cle Elum, WA	(509) 674-0200	$89	50-30%	50	15-25	8
Stewart Lodge	805 West 1st Street, Cle Elum, WA	(509) 674-4548	$74 - $84	0-100%	37	up to 37	8
Cascade Mountain Inn	906 East 1st Street, Cle Elum, WA	(877) 747-8713	$79 - $109	0 - 50%	43	up to 22	6
Timber Lodge Inn-Motel	301 West 1st Street, Cle Elum, WA	(509) 674-5966	$47 - $66	25%	35	9	8
Chalet Motel	800 East 1st Street, Cle Elum, WA	(509) 674-5434	$65 - $75	25%	11	3	8
Aster Inn	521 East 1st Street, Cle Elum, WA	(509) 674-2551	$45 - $55	25 - 90%	10	up to 9	8

TABLE 5
Hotel and Motel Vacancy Rates near the Proposed Project Site

Hotel Name	Address	Contact Number	Room Rate[(1)]	Vacancy Rate*	Total Rooms	Rooms Available	Distance to project (miles)
Cle Elum Traveler's Inn	1001 East 1st Street, Cle Elum, WA	(877) 747-8713	$68 - $72	0 - 50%	33	up to 17	6
Holiday Inn Express	1620 S Canyon Rd. Ellensburg, WA	(509) 962-9400	$129 - $159	0 - 70%	66	up to 46	24
Comfort Inn	1722 Canyon Rd, Ellensburg, WA	(509) 925-7037	$93 - $110	30 - 55%	52	16-29	24
I-90 Inn Motel	1390 North Dolarway Road, Ellensburg, WA	(509) 925-9844	$63 - $68	20 - 25%	70	14-18	22
Inn at Goose Creek	1720 Canyon Rd, Ellensburg, WA	(800) 533-0822	$100 - $150	20 - 30%	10	3	24
Hampton Inn	2705 Triple L Loop, Ellensburg, WA	(509) 933-1600	$109 - $200	25 - 75%	80	20-60	22
Best Western	211 W. Umptanum Rd, Ellensburg, WA	(509) 925-4244	$89 - $219	0 - 75%	55	up to 41	24
Quality Inn	1700 Canyon Rd, Ellensburg, WA	(509) 925-9800	$70 - $140	20 - 95%	105	up to 100	24
				TOTAL	**657**	**102-417**	

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

The proposed project will not eliminate any housing units in Washington.

c. List proposed measures to reduce or control housing impacts.

No housing impacts will occur as a result of the proposed project.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no need for housing units to be developed as part of the decommissioning and site restoration phases of the project. The number of decommissioning and restoration workers expected to be transient to Kittitas County will be small enough that adequate temporary housing provided by hotels and motels is available to meet project needs. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see project Description for more information about decommissioning and restoration.

Aesthetics

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

The tallest structures associated with the proposed project will be structures associated with the proposed powerline route to interconnect with the grid. The three structures of the transmission line would need to be a height of approximately 150 feet. An A-frame dead-end structure at the project substation that the transmission line would connect to would be 120-feet high. The length of the transmission line between the substation and the BPA transmission line will be approximately 3,000 feet long. A geographic information system (GIS)-based zone of potential visual influence assessment was conducted for the project (see Attachment L). It indicated that the proposed project transmission line would be similar in terms of potential visibility as the portion of the existing BPA transmission line that passes south of the project site. This project transmission line will be constructed in the portion of the project site with the lowest elevation which will help reduce its visibility.

Within the project area, the tallest structures, other than those associated with the transmission line, will be components associated with the O&M building. The O&M building will be approximately 24 feet in height.

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

Nine GIS-based visibility assessments were conducted to determine the potential visibility of the project components (see Attachment L, *Teanaway Solar Reserve Potential Visual Impact Assessment*). The visibility assessments, along with the rest of Attachment L, were developed to provide background documentation for the conclusions discussed below. Attachment L was updated after County review of the original submittal In order to better assist the County in evaluating potential visual impacts associated with the proposed project.

The assessment indicates that because the proposed site is located on a sloping "bench," above Cle Elum and the Teanaway Valley, it would not be visible from many important nearby viewing locations within the immediate vicinity (considered to be within one-mile of

the project boundary). These locations include parts of the Teanaway Valley (from north to east to south around the project site); U.S. 97 (a state-designated Scenic and Recreational Highway); and the City of Cle Elum.

There are residences within 1 mile of the project site, but due to existing trees and topography (the residences would look uphill at the site) views of the project from most residences within these areas will be very limited. Attachment L includes conceptual illustrations from residential areas looking towards the project that depict how the viewed landscape would likely change. The main change will be that trees within the project site that form part of the forested backdrop of views from some nearby residences and roads will be removed; in some locations (such as from residences on the bench south of the project site) this will change the appearance of the tree-lined backdrop. Some of these residences will have obstructed views (between trees) of some of the panels and possibly other project components. Impacts to the viewed landscape from these locations are considered to range from minor to low.

In addition to the "immediate vicinity," the project site is also visible from some residences farther than 1 mile away. Among the closest residences beyond 1 mile away are those found southeast of the site on the northwest-facing slopes of Lookout Mountain. Several residences are located between 1 and 2 miles from the project site at elevations that are higher than, or similar to, the project site. Views from these locations look down upon or are even with parts of the project site. However, based on several site visits and discussions with one resident in the area (personal communication between M. Greenig [CH2M HILL] and Tom Lambert, property owner, July 26, 2009), many, if not most, of the residences on the northwest-facing slopes of Lookout Mountain that have views toward the project site have their views obscured, or at least partially screened, by trees.

Conceptual illustrations in Attachment L from two areas on the slopes of Lookout Mountain depict how the viewed landscape will likely change with the project. The project will alter the viewed landscape in that dark solar modules will be visible in areas that now have the appearance having been selectively harvested for timber. Most of the remaining or replanted trees at the project site that are visible from these two locations will be removed for the project and replaced with a series of parallel solar module rows. New trees will be planted at visually strategic locations around the perimeter of the site to screen views or help "soften" views of the project. Although views of Mt. Stewart and other peaks that are visible from these two locations will not be blocked or obscured by the project, the presence of the project will alter the appearance of the viewed landscape. The viewed landscape seen from the pasture above the residence used to depict impacts in Attachment L will change enough to be considered a moderately negative impact. The appearance of the landscape seen from Ridgewater Drive will change enough to be considered a negative impact, but not enough to be considered a moderate impact the drivers who briefly see it. The negative impact of the project on drivers traveling on Ridgeway Drive is considered to be low.

The site is also potentially visible within the 1- to 2-mile distance zone from part of the Teanaway Valley north of the project site. From some locations, people looking south toward the project site may notice changes in the tree line along the ridge near the north end of the project, although most trees north of the project site will remain in place. If necessary, trees can be planted along selected parts of the north edge of the project area to reestablish the forested ridgeline as well as screen potential views of the site from the part of the valley

from which is potentially visible. Impacts to the viewed landscape from the projects to this part of the Teanaway Valley are considered to range from negligible to low.

The project site is also potentially visible from areas beyond 2 miles away. It will be seen from some residential areas on hillsides south of I-90. The distance between these areas and the closest part of the project site varies from approximately 3.5 to 7 miles. Conceptual depictions of how the project will change existing views toward the project site from two locations in the 3.5- to 4-mile range areas are provided in Attachment L. These conceptual illustrations show that parts of the project will be visible as low-lying darker areas on the slopes of the ridge the project will be sited on, but that the project would not block or obscure views of the mountains behind it. Impacts to the viewed landscape from areas south of I-90 from which the project site could be seen are considered to range from minor to low.

The closest part of I-90 (a National Scenic Byway) to the project site is approximately 3 miles away. Because the part of I-90 from which the project will be visible is laid out in a generally southeast-to-northwest direction, drivers likely will not notice the project in their peripheral vision as they drive I-90 with their attention on the freeway ahead of them. Passengers looking at the landscape may notice the project site as a darker area on the ridgeline for brief periods of time as they traverse I-90. However, because of the project site's distance from I-90 and the gentle slope of the terrain on which much of it will be located, the project will not block or obscure views of mountains to the north. It will cause little alteration to landscape viewed from these areas, and its impact when viewed from those segments of I-90 from which will be visible will range from minor to low.

The project site will be most visible in terms of contrasting with its adjoining landscape during the construction phase of the project. The site's color contrast will be greatest after site clearing and before the solar modules have been installed. This will occur because the color of the disturbed earth will contrast with nearby vegetation. After the dark solar modules have been installed and the vegetation underneath them has become established, the visibility of the project site, particularly from areas south of I-90 will greatly decrease.

c. Proposed measures to reduce or control aesthetic impacts:

The tallest and potentially most visible project components (the transmission structures) will be treated at the factory to create a dulled finish that will reduce light reflection from the structures. In addition, nonspecular (nonreflecting) material will be used for the conductors. Nonspecular conductors and insulators made of materials that do not reflect light will also be used for the proposed substation. As with the transmission structures, the metal frames for the solar modules will be treated at the factory to create a dull finish that will reduce reflection. The solar modules themselves require no measures to reduce or control light or glare impacts. Lighting specified for the substation and inverters will be the minimum required to meet safety and security standards. Light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required. The finish of the inverters will be dull so as not to reflect glare.

These measures will limit the reflectivity of the project components and greatly reduce or eliminate the potential for the proposed project to be a source of daytime glare or create nighttime lighting impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse aesthetic impacts are anticipated as a result of project decommissioning and site restoration. For several years after decommissioning, site disturbance would likely be visible upon close examination; however, replanting and restoration efforts will take place as part of the decommissioning efforts and the natural vegetation will be restored to pre-construction conditions. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Light and Glare

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

The proposed solar modules are monochromatic with a dull finish, which minimizes the production of glare. Additionally, the photovoltaic modules proposed are designed (and have antireflective coatings) to absorb and capture sunlight rather than reflect it. Design features such as textured glass further reduce reflectivity. Other project components such as the substation, transmission line, and inverter buildings could potentially create glare, but the measures described in item *(d)* below explain how that potential has been addressed. Lights associated with the substation and inverter buildings will potentially be seen from some areas for irregular periods of time. Item *(d)* below explains how that potential has been addressed. During construction, onsite and offsite staging areas will have temporary lights that will be used at times. Because most of the project will occur during daylight hours, use

of the lights will be limited. During the construction period, construction lights might be noticed by observers from various vantage points, but would like not be noticed by nearby residences south of the project site due to topography and screening by trees.

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

No. See previous item *(a)*.

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

None. There are very few residences and buildings near the project site and none within the site. Some lighting from residences may be seen below the project site, and some light or glare from vehicles traveling on roads near the project site (but rarely through the project site due to locked gates blocking public access) may be seen from some viewing areas. These offsite sources of light or glare will not affect the proposed project.

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

The tallest and potentially most visible project components (the three transmission structures) will be galvanized and treated at the factory to create a dulled and darkened finish that will reduce light reflection from the structures. In addition, nonspecular (nonreflecting) material will be used for the conductors. Nonspecular conductors and insulators made of materials that do not reflect light will also be used for the proposed substation. As with the transmission structures, the metal frames for the solar modules will be galvanized and treated at the factory to create a dull finish that will reduce reflection. The solar modules themselves require no measures to reduce or control light or glare impacts. Lighting specified for the substation and inverted buildings will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required. The finish of the inverter buildings' walls and roofs will be dull so as not to reflect glare.

These measures will limit the reflectivity of the project components and greatly reduce or eliminate the potential for the proposed project to be a source of daytime glare or create nighttime lighting impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts due to light and glare are anticipated as a result of project decommissioning and site restoration. Since all above ground facilities will be removed entirely there will be no possibilities for glare. The restored area will not contain any lighting. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Recreation

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

The proposed project site and immediate vicinity do not contain any designated or informal recreational opportunities. The proposed project site traditionally has been used as commercial forest, and public access has been prohibited.

Although some hunting or hiking occurs on private land near the proposed project site, there are no designated parks, wildlife refuges, or recreational areas in the immediate vicinity, according to data provided by *National Atlas of the United States* (U.S. Department of the Interior, 2007). The proposed project is not visible from the Indian John Hill rest stop and may be minimally visible from the summit. Three lakes occur approximately 2 miles from the proposed project area (Table 6). No impacts to the lakes are anticipated.

TABLE 6
Potential Locations for Recreational Opportunities Near the Proposed Project Area

Name	Distance to Proposed project Area
Big Lake	1.95 miles
Cabin Lake	2.16 miles
Little Lake	2.42 miles

Source: U.S. Department of the Interior, 2007.

The majority of the land near the proposed project area is privately owned. Bird watching and hunting are the only types of recreational opportunity to exist on these private lands. There are no known planned future recreational sites or opportunities in or near the proposed project area.

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

The project may minimally affect the existing hunting uses. Public access of the primary access point is already restricted by the subject landowners and will continue to be restricted in accordance with easement agreements. TSR does not have the authority to grant

permission to third party recreationists, including hunters and campers, to access the proposed project area, but may grant permission to such parties on a case-by-case basis provided such parties secure written permission from all of the applicable landowners along Loping Lane.

Public recreation, such as orienteering, has been allowed on the site by the landowner on a case-by-case basis. TSR is willing to work with local landowners who have used the property for recreation in the past. The proposed project will be built on private land, which will be leased to TSR.

Historically, the landowner has allowed responsible uses of the land by anyone lawfully accessing the site; however, the use of motorized vehicles has been prohibited on the property. In addition, the road to the proposed project site traditionally has been gated to prevent access. TSR does not intend to change these policies. Responsible access through the proposed project site will be allowed subject to conflicting requirements beyond TSR's control (such as insurance or fire protection), provided that individuals do not interfere with the construction, operation, or maintenance of the project. Gating will continue to regulate motorized vehicles, but a fence restricting access is not proposed.

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

Because no significant impacts on important recreational opportunities will occur, TSR does not propose any measures to avoid, reduce, or otherwise mitigate project impacts. TSR will reduce potential impacts on unimportant recreational opportunities through measures already in use to reduce other project impacts. These measures may include the use of existing roads. Also, because there will be no significant impacts on important recreational resources, no monitoring program is proposed.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project

site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to recreation are anticipated as a result of project decommissioning and site restoration since the proposed project site and immediate vicinity do not contain any designated or formal recreational opportunities. The proposed project site traditionally has been used as commercial forest, and public access has been prohibited. Historic recreations uses of the site will be permitted to the maximum extent practicable.. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Historic and Cultural Resources

a. Are there any places or objects on or near the site which are listed or proposed for national, state, or local preservation registers? If so, please describe.

No places, objects, or sites located in the project area are listed or proposed for listing in the national, state, or local preservation registers. See Attachment C, *Cultural Resources Report* (restricted distribution), for a more complete analysis and field methodology. State law exempts cultural records from public disclosure pursuant to RCW 42.56.300. A copy of the *Cultural Resources Report* was sent to the Yakama Nation and the Washington State Department of Archaeology & Historic Preservation on September 1, 2009 for review. To date, no comments from the Yakama Nation have been received.

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

The project site is located on privately owned industrial forestlands. No landmarks or other evidence of historic, archaeological, scientific, or cultural importance are known to be on or adjacent to the site.

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

Archaeological surveys did not identify any cultural sites in the project area. Should previously unidentified sites be discovered during the course of construction, TSR will halt work in that area until a qualified archaeologist can assess the site and determine whether protective measures should be implemented. See Attachment C, *Cultural Resources Report* (restricted distribution), for a more detailed description of measures to reduce or control impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet

below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts historical and cultural resources are anticipated as a result of project decommissioning and site restoration. As summarized in the above section and the Cultural Resources Report (see Attachment C-*restricted distribution*) no places, objects, or sites located in the project area are listed or proposed for listing in the national, state, or local preservation registers. Decommissioning efforts will not take place outside of previously surveyed areas. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Transportation

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

Figure 3, *Site Access Map,* shows the local streets and major state highways serving the proposed project. The construction contractor will access the project site primarily from I-90 eastbound to State Route (SR) 970 northbound to Red Bridge Road, which is a local County roadway. From Red Bridge Road, project traffic likely will take Wiehl Road northbound for approximately 0.2 mile to Loping Lane, where traffic will turn left and continue westbound on Loping Lane to the project site, as shown in Attachment J, Figure 3. Loping Lane is a private roadway and Wiehl Road is a public roadway, but neither road is maintained by Kittitas County.

From the main proposed project access off Loping Lane, proposed project traffic may use private and County roads to access the project site. Use of these roads will depend on weather conditions and on load and size restrictions. Most of these other access routes are privately owned. Table 7 describes the roads that will directly access the project corridor or provide a critical regional transportation link to the project corridor.

TABLE 7
Key Roads Providing Access to the Proposed Project Area

Facility	Description
I-90	Interstate 90 within the vicinity of the proposed project is classified as a rural interstate roadway with rolling terrain, according to the Washington State Department of Transportation (WSDOT) road classification system. This roadway has two lanes in each direction, and has a posted speed limit of 70 miles per hour (mph) outside city limits. Interstate 90 is anticipated to be the major haul route from Seattle, Washington.
US 970	US 970 begins in Cle Elum, Washington, where the speed limit is posted at 55 mph inside city limits. It continues eastbound and then northbound as a two-lane road with a posted speed limit of 60 mph. This facility is classified as a rural principal arterial with level terrain, according to the WSDOT road classification system. This rural principal arterial would provide the main access between the interstate and local County roadways serving the proposed project area.
Red Bridge Road	Red Bridge Road (also known as Masterson Road) is a paved two-lane road with a posted speed limit of 25 mph. It is classified as a rural local access road by Kittitas County. This roadway, south of the intersection with Wiehl Road, will serve as the main connection between the state highway facility and private access roads. Construction-related traffic, especially truck traffic, will not be permitted to access the site by using Red Bridge Road north of the intersection with Wiehl Road..
Wiehl Road	Wiehl Road is an unpaved, two-lane, privately maintained road without a posted speed limit. It is within a public right-of-way but is not maintained by Kittitas County. This rural privately maintained roadway likely experiences very little daily traffic, and likely will be able to provide access to the project site without affecting existing traffic operations.
Loping Lane	Loping Lane is an unpaved, two-lane private road without a posted speed limit. It is a private roadway, and is not maintained by Kittitas County. This rural private roadway likely experiences very little daily traffic, and likely will be able to provide access to the project site without affecting existing traffic operations.

To evaluate the possible impacts resulting from construction traffic associated with the proposed powerline route to the grid, the analysts obtained traffic volumes for state highways that are part of the expected construction transportation routes. The study team consulted the WSDOT and Kittitas County for traffic volumes and roadway characteristics.

Table 8 shows the average daily traffic (ADT) volumes between 2005 and 2008, the roadway functional classifications, the jurisdiction, and estimated truck percentages on state-maintained roadways in the project area. These volumes are based on available traffic data in *Annual Traffic Report,* published by WSDOT in 2008; the report provides annual traffic volumes for at least the last 4 years.

TABLE 8
Average Daily Traffic (ADT) Volumes, Roadway Functional Classification, and Estimated Percentage of Trucks

Roadway	State/ Jurisdiction	Functional Classification	2005 ADT	2006 ADT	2007 ADT	2008 ADT	Estimated Truck %
I-90 (MP 82.70)[a]	Washington State Dept of Transportation	Rural Interstate	27,000	27,000	28,000	27,000	23
I-90 (MP 84.61)[a]	Washington State Dept of Transportation	Rural Interstate	24,000	25,000	27,000	25,000	N/A

TABLE 8
Average Daily Traffic (ADT) Volumes, Roadway Functional Classification, and Estimated Percentage of Trucks

Roadway	State/ Jurisdiction	Functional Classification	2005 ADT	2006 ADT	2007 ADT	2008 ADT	Estimated Truck %
SR 970 (MP 2.69 west of SR 10)	Washington State Dept of Transportation	Rural Principal Arterial	5,600	5,800	5,800	5,400	N/A
SR 970 (MP 2.69 east of SR 10)	Washington State Dept of Transportation	Rural Principal Arterial	4,700	4,900	4,800	4,500	N/A
Red Bridge Road [b]	Kittitas County	Rural Local Access	260	230	250	200	N/A
Wiehl Road	Private	N/A	N/A	N/A	N/A	N/A	N/A
Loping Lane	Private	N/A	N/A	N/A	N/A	N/A	N/A

[a] WSDOT, 2008.
[b] Wollman, 2009.
N/A = Information not available.

Traffic data along Red Bridge Road were provided by Kittitas County. No traffic data are available for Wiehl Road or Loping Lane because they are privately owned, and they are not monitored or maintained by the County.

The project will be served internally by a network of existing and new maintenance roads. The existing maintenance roads, along with Wiehl Road and Loping Lane, generally consist of gravel and dirt and will be improved pursuant to County requirements.

Loping Lane is subject to several road use and cost-sharing agreements, and TSR will be subject to those agreements. Additionally, TSR is responsible for any improvements to these roads, and will first submit a plan detailing any such improvement for review and approval by the Kittitas County Public Works Department. These roads typically do not have posted speed limits, and ADT volumes are likely not available for these locations.

Transport of major equipment and materials to the site for construction likely will span 7to 9 months for each of the two or three construction seasons. Truck deliveries are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. The average daily truck volume will be approximately 100 trips per day (50 trucks with one inbound trip and one outbound trip). No more than 50 vehicles are expected to either enter or leave the site during the peak hour of construction.

Assuming construction is completed over a period of two years, the daily truck volume will be approximately 34 trips per day (17 trucks with one inbound trip and one outbound trip).

Construction worker traffic is also expected during the construction seasons. The expected peak workforce could include up to 450 construction workers during the peak months of construction each year. Assuming 30 percent of construction workers carpool to the site each day and 70 percent are bused in via project-provided transportation, approximately 75 worker vehicles (or 150 worker trips) can be expected to enter the project site in the morning and leave the site during the evening peak hour. During construction with an average workforce, worker trips would be approximately half that during the peak.

Note: Quantities for water are still being determined and are not included in the above estimate..

There is one permanent load restriction on I-90 between Seattle and the project site. This restriction prohibits loads taller than 16 feet 2 inches high from entering the snow shed near Hyak (MP 54-62 on westbound I-90). This restriction is not anticipated to affect truck- and construction-related traffic because any project-related trucks will be empty (no loads) heading westbound. Construction vehicles are expected to be of legal size and legal weight for Washington highways; therefore, no special permitting for transport of materials and equipment will be necessary.

There are no permanent restrictions on SR 970 in the vicinity of the project site.

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

The project site is not currently served by public transit.

The nearest public transportation system is in Ellensburg, Washington. Central Transit is a general public transportation system that operates a fixed route serving mainly Central Washington University. It includes bus stops, operates on a schedule, and does not require advance reservations. It is operated by HopeSource. (Source: *Kittitas County Long Range Transportation Plan, 2008*)

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

TSR anticipates 20 permanent parking stalls with the completion of this project. These parking stalls will be reserved for vehicles related to project maintenance.

d. Will the proposal require new roads or streets, or improvements to existing roads or streets, not including driveways? If so, please describe and indicate whether they are public or private.

TSR and the construction contractor will use existing roads as much as possible. Because project-generated and local traffic volumes are fairly low, TSR does not anticipate requiring any improvements to existing paved roads or streets accessing the project.

TSR and the construction contractor will also use unimproved, unpaved, private roadways to access the project site. Based on current conditions, these roadways will need improvements (such as paving, gravel surfacing, and/or widening) to transport large or heavy equipment and materials to the site during construction.

Wiehl Road and Loping Lane are privately maintained roadways that could be improved with pavement. The paved area would likely be at least 24 feet wide to allow vehicles in both directions to pass safely at the same time, per the Kittitas County Road Standards for rural, low-volume, low-speed roads. Culverts or drainage ditches could be constructed along the roadway to drain any potential runoff into a detention pond or catchment area, where it would be slowly released back into the ground. The design of these culverts or catchment areas would be developed during the engineering stage of the project and would follow requirements as specified in the Washington State Ecology Manual for Eastern Washington.

An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during the engineering stage of the project. Although gravel roads would allow some drainage to occur from the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting on the shoulders.

Whether paving or graveling, roadway widening may be necessary to improve access roads. Widening of these roads may require clearing or grading of the earth slopes on either side of the travel path, which may affect erosion. In order to prevent erosion, retaining walls could be implemented to stabilize the adjacent slope and channel runoff away from the roadway to a catchment or detention pond area.

In addition, as previously discussed, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department to ensure compliance with County requirements. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. Loping Lane would need to be surveyed prior to any improvements.

The number of new access roads will be kept to a minimum to avoid disrupting existing land use.

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

TSR does not anticipate that the proposed project will use rail, water, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? Indicate when peak traffic volumes would occur.

Once the project has been completed, there will be virtually no traffic (less than five trips per day) for operations and maintenance. Given the low traffic volumes within the project area, these minor added trips will not cause traffic impacts during project operations.

Traffic impacts during decommissioning are expected to be similar to those described for construction. If some of the access roads constructed or improved as part of the project remain in place, there would be fewer trips associated with workforce, materials, and equipment during decommissioning, and there would likely be fewer traffic impacts than expected during construction. Truck trips are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. Workforce trips during decommissioning are expected to increase compared to workforce trips during project operation, but no significant unavoidable adverse impacts from decommissioning or restoration of the proposed Project are expected.

Mitigation at the time of decommissioning would be implemented and would likely be similar to that recommended for construction.

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

Because project transportation impacts are limited, TSR will not pursue specific permanent measures to reduce traffic impacts on local residents during the construction process.

In general, temporary measures could be taken to manage changes in traffic patterns:

- Provide proper advance road signage and warnings of "Equipment on Road," "Truck Access," or "Road Crossings."
- Encourage carpooling for the construction workforce to reduce traffic volume.
- Employ flagpersons as necessary to direct traffic if equipment is exiting or entering public roads to minimize risk of accidents.

Advance warning signage could be placed along the access route to alert motorists to delivery vehicles entering or exiting SR 970 or Red Bridge Road. Flagpersons may also be used to facilitate these turning vehicles, or to monitor traffic so that motorists are not in conflict with construction vehicles.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, traffic impacts during decommissioning are expected to be similar to those described for construction. If some of the access roads constructed or improved as part of the project remain in place, there would be fewer trips associated with workforce, materials, and equipment during decommissioning, and there would likely be fewer traffic impacts than expected during construction. Truck trips are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. Workforce trips during decommissioning are expected to increase compared to workforce trips during project operation, but no significant unavoidable adverse impacts from decommissioning or restoration of the proposed project are expected.

Mitigation at the time of decommissioning would be implemented and would likely be similar to that recommended for construction. Please see the project Description for more information about decommissioning and restoration.

Public Services

a. Would the project result in an increased need for public services (e.g., fire protection, police protection, health care, schools, other)? If so, please describe.

The proposed project area is currently subject to the fire-suppression protection services of WDNR. TSR is currently negotiating a fire protection agreement with Kittitas County Fire District #7 (see Attachment M) to ensure that suitable fire suppression protection services are in place during the construction and ongoing operations of the project.

TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Trees located in this firebreak will be limbed up to 12 feet. Small shrubs and herbs less than three feet in height will be left in place where possible to reduce the potential stormwater runoff.

Police protection of the proposed project area is provided by the County Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

TSR does not anticipate that health care and school needs will increase during construction or operation of the proposed project.

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

TSR does not propose any measures to reduce or control direct impacts on public services.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional need for public services are anticipated as a

result of project decommissioning and site restoration. It is unlikely that emergency services will be necessary during the decommissioning and restoration effort; however, the Kittitas County Planning Department, the County Sherriff's Office, and Kittitas County Fire District 7 will be notified prior to the engaging in decommissioning. The Applicant does not anticipate that health care and school needs will increase during the decommissioning of the proposed project. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Utilities

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

The proposed project will include electricity, telephone, and data service for the O&M facility.

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

TSR does not anticipate any utility use during construction. The construction contractor will provide mobile utilities such as portable toilets, cellular telephones, and water trucks. During operation, electricity generated from the solar arrays will be utilized for the O&M building.

Telephone and data lines will be installed during construction for operational uses at the O&M building. These lines will be used for general telephone, internet, and SCADA information reporting TSR will use a local service provider if possible for telephone and data lines. If no local service provider exists, TSR will contract with Quest Communications International, Inc.

TSR will remove refuse from the proposed project site.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific

requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no need for any utilities are anticipated as a result of project decommissioning and site restoration. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

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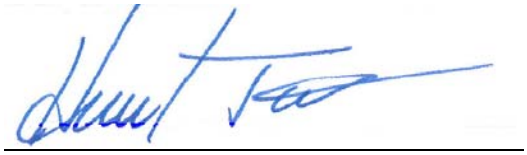
Signature

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

Signature: 

Date Submitted: February 22, 2010

ATTACHMENT A

Sensitive Species Report

ATTACHMENT B

Wetland Delineation Report

ATTACHMENT C

Cultural Resources Report (*privileged and confidential*: *restricted distribution*)

ATTACHMENT D

Geology and Soil Hazards Evaluation

ATTACHMENT E

Fugitive Dust Control Plan

ATTACHMENT F

Hydrologic Analysis

ATTACHMENT G

Vegetation Management Plan

ATTACHMENT H

Wildlife Mitigation Plan

ATTACHMENT I

Transportation Road Plan

ATTACHMENT J

Figures Referenced in the Text

ATTACHMENT K

Photographs of Solar Equipment

ATTACHMENT L

Potential Visual Impact Assessment

ATTACHMENT M

Fire Protection Agreement (pending approval)

ATTACHMENT N

Economic Impact Analysis

ATTACHMENT O

Public Outreach