
Permit Application

**Teanaway Solar Reserve
Conditional Use Permit
Application Supplement**

Submitted to

Kittitas County, Washington

by

Teanaway Solar Reserve, LLC

February 2010



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SECTION 1

Request

Teaway Solar Reserve, LLC (TSR) proposes to construct and operate the Teaway Solar Reserve (project), a solar farm capable of generating up to 75 direct current megawatts (MWdc) of photovoltaic (PV) solar energy. The proposed project area consists of 982 acres within the County's Forest and Range (F&R) zoning district. Based on site surveys, the project will utilize approximately 477 acres within the proposed project area. This includes 399 acres of solar panels and 78 acres of supporting facilities. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (see Expanded SEPA Checklist Supplement, Attachment H, *Wildlife Mitigation Plan*).

TSR worked with staff from Kittitas County to determine the applicable land use approvals and permits in addition to the relevant provisions from the *Kittitas County Code* (KCC). This narrative is a supplement to the application submitted to Kittitas County for a Conditional Use Permit (CUP) necessary to construct and operate the proposed project. TSR understands that the following approvals and permits are also required from Kittitas County:

- TSR must demonstrate project compliance with the State Environmental Policy Act (SEPA) through a decision rendered by Kittitas County. This application notebook also includes TSR's Expanded SEPA Checklist Supplement to demonstrate compliance with SEPA.
- The project is subject to compliance with the County's Critical Areas Ordinance (CAO). The CAO is introduced in this narrative (see Section 3), but a thorough demonstration of compliance is included in the Land Use section of the Expanded SEPA Checklist Supplement.
- Kittitas County has indicated that the size and complexity of the project generates the need for a Development Agreement (DA) between TSR and the County. To ensure mitigation consistency and jurisdictional efficiency, the requirement for the DA is expected to be a condition for approval of this CUP, and will condition and govern this CUP. As set forth in the DA, any inconsistencies between the CUP and the DA will be resolved in favor of the DA. A revised draft DA is included as Attachment E to this CUP application and will also be submitted concurrent with the other application materials described above. The Supplement to the SEPA Expanded Checklist is intended to apply to all of TSR's County proposals triggering SEPA, including this CUP and the DA.

Subsequent sections of this narrative are organized as follows:

- **Section 2, Project Description:** This section provides information about the project in general, including the purpose and need (Section 2.1), proposed project schedule (Section 2.2) site setting (Section 2.3), key components (Section 2.4), permits and authorizations (Section 2.5), summary of construction activities and features (Section 2.6), summary of operations and maintenance activities and features (Section 2.7), and decommissioning and site restoration (Section 2.8).

- **Section 3, Compliance with Kittitas County Land Use Regulations:** This section provides specific detail on how the project is consistent with the applicable provisions from the KCC. The section is organized numerically by applicable code.
- **Attachment A:** Contains figures referenced in the text of this narrative.
- **Attachment B:** Contains photographs showing examples of proposed project components.
- **Attachment C:** Contains a table identifying landowners of real property within 500 feet of the proposed project.
- **Attachment D:** Contains a legal description of the proposed project.
- **Attachment E:** Contains the Draft Development Agreement, which will be submitted to the Board of County Commissioners of Kittitas County.

SECTION 2

Project Description

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.

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

2.1 Purpose and Need

The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities 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>).

2.2 Project Schedule

The proposed project schedule is outlined in Table 2-1.

TABLE 2-1
 Proposed 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 to three 7- to 9-month construction seasons are anticipated.

2.3 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 A, 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 A, 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 A, 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. TSR then conducted numerous site surveys, as explained in the technical reports attached to the Expanded SEPA Checklist Supplement, 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 (Expanded SEPA Checklist Supplement, 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 A, 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 balsamorhiza (*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 A 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 A, Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (see Attachment A, Figure 4). An interconnection substation with an approximate footprint of 6 acres will be located on the project site. 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. Construction of transmission lines is costly; therefore, siting a project in close proximity to a transmission is economically beneficial to the project.

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

2.4 Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters
- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- Operations and maintenance (O&M) building and supervisory control and data acquisition (SCADA) system
- Overhead interconnection transmission line
- Access and maintenance roads

Key components are described in the following subsections.

2.4.1 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 in Attachment B, 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.

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. 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.

The mounting system foundations could consist of embedded posts, poles, or structural steel angle. 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 is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in the Expanded SEPA Checklist Supplement, Attachment F, *Hydraulic Analysis*.

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.

The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A representative single-axis tracking system is presented in Attachment B, Photo 2. 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 B, Photo 3.

2.4.2 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 B, Photo 4.

2.4.3 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 B, Photo 5.

2.4.4 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 B, 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.

2.4.5 Electrical Substation and Switchyard

A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA 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. 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.

2.4.6 Operations and Maintenance (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.

2.4.7 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 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. As illustrated on Attachment A, 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), 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 A, 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 Expanded SEPA Checklist Supplement, Attachment L, *Potential Visual Impact Assessment*) 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 are indicated on the site plan (see Attachment A, Figure 4) and will be steel monopole structures.

2.4.8 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. The project will be served internally by a network of existing and new maintenance roads. 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 24-foot wide roads 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.

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

2.5 Permits and Authorizations

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

TABLE 2-2
 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 (76.09 RCW)	Forest Practices Permit	Harvesting trees from onsite	Washington Department of 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

2.6 Summary of Construction Activities and Components

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 are described in Section 2.6.3, "Construction Materials and Equipment".

2.6.1 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 2-1). Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from the Washington Department of Natural Resources (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, to the maximum extent practicable, remain 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 Expanded SEPA Checklist Supplement, 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.

2.6.2 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.

2.6.3 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.

2.6.3.1 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 Expanded SEPA Checklist Supplement 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 Expanded SEPA Checklist Supplement 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. Expanded SEPA Checklist Supplement 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 is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Expanded SEPA Checklist Supplement, Attachment F, *Hydrological Analysis*.

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 B, Photo 3.

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.

2.6.3.2 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.

2.6.3.3 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.

2.6.3.4 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.

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 B, Photos 6 and 7.

2.6.3.5 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).

2.6.3.6 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.

2.6.3.7 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.

2.6.4 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 A, 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 Section 2.6.1. Road improvements are further addressed in the DA with Kittitas County (Attachment E). For further discussion of traffic impacts, see the Expanded SEPA Checklist Supplement, Attachment I, *Transportation Road Plan*.

2.6.5 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 (two to three 7- to 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 the Expanded SEPA Checklist Supplement. 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.

2.6.6 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 Expanded SEPA Checklist Supplement, Attachment M, *Fire Protection Agreement*). 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.

Police protection of the proposed project area is provided by the County's 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.

2.6.7 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 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.

2.6.8 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.

2.7 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.

2.7.1 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.

2.7.2 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).

2.7.3 Employment

Personnel for system monitoring, maintenance, and troubleshooting will likely be needed on site. 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.

2.7.4 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 Expanded SEPA Checklist Supplement 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.

2.7.5 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 Kittitas County Fire District 7 is included as Attachment M to the Expanded SEPA Checklist Supplement.

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

2.7.6 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.

2.7.7 Sewer and Solid Waste

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

2.8 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 than 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.

SECTION 3

Compliance with Kittitas County Land Use Regulations

This section demonstrates compliance with the relevant provisions from the KCC. The project is proposed entirely within the Kittitas County F-R zoning district and the applicable review procedure includes approval of a CUP. The relevant provisions from the KCC are reviewed below in numerical order by title and then chapter. The KCC provisions are included in *italics* followed by TSR's response (i.e., finding of fact, or "**Finding**").

3.1 Title 17—Zoning

3.1.1 Chapter 17.56—Forest and Range Zone

17.56.020 Uses permitted.

17.56.030 Conditional uses.

Finding: The project is a "*Major alternative energy facility*" as defined in Section 17.61.010(9) and is an authorized use in the Forest and Range Zone subject to approval of a CUP per Section 17.61.020(4) & (6). Sections 17.61.010(9) and 17.61.020(4) & (6) are reviewed further later in this narrative.

17.56.040 Lot - Minimum size.

The minimum lot size in the Forest and Range Zone shall be:

- 1. Twenty acres;*
- 2. One-half acre minimum for any lot with an approved platted cluster subdivision, served by public water and sewer;*
- 3. Six thousand square feet for lots on existing municipal sewer and water systems.*

Response: The project is proposed on several existing tax parcels that all exceed the 20-acre minimum. The project does not include a request for approval of a subdivision or municipal sewer and water, and criteria 2 and 3 are not applicable. Therefore, the project complies with these criteria.

17.56.050 Lot - width.

- 1. No parcel created after the adoption of the ordinance codified in this chapter shall have a length-width dimension less than five hundred feet unless the parcel is approved under provisions established in Section 17.56.040 (2) and (3).*
- 2. No platted parcel shall have dimensions in excess of a 4:1 length by width ratio.*

Finding: The proposed project does not include the creation of any new parcels nor does it modify the boundaries of existing lots. Therefore, the project complies with these criteria.

17.56.060 Yard –requirements.

1. *Front Yard.* There shall be a minimum front yard of twenty-five feet.
2. *Side Yard.* Side yard shall be ten feet, except on corner lots which shall have a fifteen-foot side yard.
3. *Rear Yard.* There shall be a rear yard with a minimum depth of ten feet to the main building.

Finding: The proposed project will not include any buildings or improvements within 25 feet of a property boundary. 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. Therefore, the project complies with these criteria.

17.56.065 Yard requirements – Zones Adjacent to Commercial Forrest Zone

Properties bordering or adjacent to the Commercial Forest zone are subject to a 200' setback from the Commercial Forest Zone. (KCC 17.57.050(1)). For properties where such setback isn't feasible, development shall comply with Kittitas County Code 17.57.050(2).

Finding: The northernmost extent of the proposed project boundary is directly adjacent to an area encompassed by the Commercial Forest (CF) zone. To achieve 75 dcMW of generating capacity, use of the entire area within the project boundary may be required, including the area within 200 feet of the adjacent CF zone. The closest structure is a PV array, which is located 100 feet from the adjacent CF property boundary. Assuming the 200-foot setback applies to the project, the TSR will seek a modification to this dimensional standard as set forth in Section 5.3 of the DA, which Attachment E to this CUP.

17.56.070 Structure height

No structure shall exceed two and one-half stories or thirty-five feet in height, whichever is greater. This limit does not apply to agricultural buildings.

Finding: The solar modules and associated structures currently proposed for the project will be less than 2-1/2 stories or 35 feet in height. The solar modules will be approximately 14 feet in height, inverter buildings 12 feet, switchgear structures 10 feet, substation 14 feet, and storage/O&M building 24 feet.

A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA 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. Support structures for the line would be steel mono-poles, and each structure will be approximately 120 feet tall. Two structures would be needed for the 3,000-foot-long line, and one 120-foot termination structure will be constructed as part of the substation. The line would be constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. A modification to 17.56.070 may be needed to address the height of the transmission line towers. More detailed information regarding this modification can be found in the DA (Attachment E).

17.56.080 Setbacks

The following setbacks shall be enforced for residential and accessory buildings constructed or placed on shorelines or floodplains under the jurisdiction of the Washington State Shoreline Management Act:

1. *One hundred feet (measured horizontally) from the ordinary high water mark or line of vegetation for lots abutting such waterways;*
2. *One hundred feet (measured horizontally) from the ordinary high water mark of line of vegetation for lots fronting on reservoirs including Keechelus, Cle Elum, Kachess, and Easton Lakes and Wanapum reservoir.*

Finding: The proposed project site and adjacent areas do not include shorelines or floodplains under the jurisdiction of the Washington State Shoreline Management Act. The proposed buildings for operation and maintenance activities will not be located in or near a regulated shoreline or floodplain. Therefore, the project complies with these criteria.

3.1.2 Chapter 17.60A—Conditional Uses

17.60A.010 Review Criteria

The Board of Adjustment, upon receiving a properly filed application or petition, may permit and authorize a conditional use when the following requirements have been met:

1. *The Board of Adjustment shall determine that the proposed use is essential or desirable to the public convenience and not detrimental or injurious to the public health, peace, or safety or to the character of the surrounding neighborhood.*

Finding: The proposed project is desirable to the public convenience. TSR proposes to develop the project site so that solar energy potential is maximized, in accordance with the commitment to establishing a leading sustainable energy production location in North America. TSR is committed to energy production and environmentally sensitive development and management of its solar production site.

The project is desirable as it will have the capacity to generate up to 75 MWdc of PV solar energy for distribution to utilities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing interest in and need for sustainable energy sources and the State of Washington's Renewable Electricity Standard, RCW Title 19, mandate 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. Therefore, the project will provide a clean energy source and assist utilities in achieving the Renewable Electricity Standard.

Construction and operation of the project is desirable as it will benefit the local and regional economies. When the solar installation begins, the workload will peak at 450 workers for a period of up to 27 months (two to three 7- to 9-month construction seasons). The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is

estimated to be \$97.5 million. Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits. Operation of the project will employ up to eight O&M and security staff. For a more detailed analysis of the economic benefits provided by the construction and operation of the proposed project, please see the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N), which has been prepared at the County's request.

The project will not be injurious to the public health, peace, or safety or to the character of the surrounding neighborhood. The proposal involves a clean energy source without emissions to air or water for the life of the project.

The solar modules do not present a health or safety hazard. Contact with the modules will not lead to electrocution or contamination (see Expanded SEPA Checklist Supplement Attachment H, *Wildlife Mitigation Plan*, Appendix G). No combustible materials will be used except for fuel and oil used in construction equipment. The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures would be implemented to reduce the risk of hazards and accidents. The project is proposed in a rural area with a limited existing neighborhood character and a limited number of surrounding residences. In addition, it is being designed and sited to minimize its visibility from all surrounding areas and will result in a minimal increase in noise and odors.

For the reasons stated above, the project complies with this criterion.

- The Board of Adjustment shall determine that the proposed use at the proposed location will not be unreasonably detrimental to the economic welfare of the county and that it will not create excessive public cost for facilities and services by finding that (1) it will be adequately serviced by existing facilities such as highways, roads, police and fire protection, irrigation and drainage structures, refuse disposal, water and sewers, and schools; or (2) that the applicant shall provide such facilities or (3) demonstrate that the proposed use will be of sufficient economic benefit to offset additional public costs or economic detriment.*

Finding: The proposed project will not be unreasonably detrimental to the economic welfare of the county and will not create excessive public cost for facilities and services for the following reasons:

- Construction and operation of the project is desirable as it will benefit the local and regional economies. Construction will employ approximately 450 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be \$97.5 million.
- Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits.
- Operation of the project will employ up to eight O&M and security staff. Fifty (50) percent of the onsite peak construction workforce of 450 is assumed to be from the local labor market (within Kittitas County) while the remaining 50 percent, or 225 peak period

workers could come from outside the County and are assumed to relocate to Kittitas County for the duration of the construction period or phase.

- The project will be adequately served by existing facilities, as discussed below, and the economic benefits summarized above and in the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (Expanded SEPA Checklist Supplement, Attachment N) will exceed any minor public costs..

The project's use of existing facilities is summarized as follows:

Highways and Roads. The site will be accessible via Kittitas County and private roads that interconnect with Highway 970 (see Figure 3). The major County access road is Red Bridge Road. Loping Lane is a private road and Wiehl Road is a public road over which TSR has easement rights. Loping Lane is subject to several road use and cost sharing agreements, and TSR will be subject to those agreements. TSR will additionally work with neighbors who use Loping Lane to identify improvements that will minimize disruption to their use during construction and to the roadway itself. The project will be internally served by a network of existing and/or new maintenance roads. These maintenance roads, along with Wiehl Road and Loping Lane, consist of gravel and dirt and may need improvements pursuant to County requirements. As set forth in attached Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. Figure 3 shows the location of the maintenance and access roads in relation to the project site.

Police Protection. Police protection of the project area is provided by the County's Sheriff's Office. The project will include security staff on site around the clock. As a result of proposed project security measures and personnel, it is not anticipated that the project will generate any new demand for police services. The construction contractor will notify the 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 police services in the event of an emergency.

Fire Protection. The project area is currently subject to the fire suppression services of the Washington Department of Natural Services. After the project is constructed, it will be served by the Kittitas County Fire District 7 (see Expanded SEPA Checklist Supplement, Attachment M). Further, the project will be bordered by a firebreak no less than 100 feet wide.

The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures will be implemented to reduce the risk of hazards and accidents. 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.

Irrigation and Drainage. The project will be adequately served by existing drainage and will not need to utilize Kittitas County irrigation and drainage services. The project will maximize existing pervious surface on the site by maintaining natural ground cover wherever possible including areas under solar modules. In addition, TSR will maintain

existing contours whenever possible during grading and site preparation. Therefore, site runoff and drainage will remain largely unchanged. During construction, TSR will implement Best Management Practices (BMPs) to minimize erosion and sediment release.

Refuse. Construction workers will be directed to dispose of all refuse in defined containers. Following construction, the only refuse generated by the project will be from the O&M staff. This limited refuse will be disposed of as required by the County.

Water and Sewers. The project does not need any water rights. TSR proposes to truck in water from the surrounding area or elsewhere, if and as needed, for dust control during construction and module cleaning for operation.

The need for sewer services is not anticipated. Portable toilets will be placed onsite during construction and as necessary during operation. Service visits to the onsite toilets will occur on a regular basis.

Schools. The project will not be detrimental to or cause an increased burden on local school resources.

17.60A.020 Conditions

1. *In permitting such uses the board of adjustments may impose in addition to the regulations specified herein, such conditions as it deems necessary to protect the best interests of the surrounding property or neighborhood or the county as a whole.*
2. *Uses subject to conditions which exist in an R or S zone on the effective date of the ordinance codified herein shall not be changed, expanded nor structures used in connection therewith altered without first applying to the board of adjustment for review and under provisions of this chapter.*
3. *Any change, enlargement or alternation in such use shall require a review by the board of adjustment and new conditions may be imposed where finding requires.*

Finding: TSR further intends this CUP to be conditioned and governed at a minimum by the attached Draft DA once it is approved by the County (per KCC Chapter 15A.11).

3.1.3 Chapter 17.61—Utilities

17.61.010 Definitions.

2. *“Special utility” or “special utilities” shall mean the following:*
 - b. Electrical transmission lines exceeding 115,000 volts*
 - c. Electrical substations*

Finding: A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA 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 support structures for the line would be steel mono-poles, and each structure will be approximately 120 feet tall. A maximum of two structures would be needed for the 3,000-foot-long line, and a 120-foot termination structure will be constructed as part of the substation. The line would be

constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. 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 placement of the BPA transmission line. Final design and placement of the transmission line will be determined by BPA.

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.

9. *“Major alternative energy facility” means a hydroelectric plant, solar farm, or wind farm that is not a minor alternative energy facility.*
11. *“Minor alternative energy facility” or “minor alternative energy system” means a fuel cell or a facility for the production of electrical energy that:*
 - a.
 - i. *Uses as its fuel either solar, wind, or hydropower;*
 - ii. *Is located on the power beneficiary’s premises;*
 - iii. *Is intended primarily to offset part or all of the beneficiary’s requirements for electricity;*
and
 - iv. *Is secondary to the beneficiary’s use of the premises for other lawful purpose(s)*

Finding: The proposed project is a major alternative energy facility. It does not qualify as a minor alternative energy facility because the production of electrical energy is not intended to primarily offset part of all of the beneficiary’s requirements for electricity per KCC Section 17.61.010(11)(a)(iii). Instead, the solar energy will be distributed to the existing electrical grid.

17.61.020 Permitted and conditional uses.

4. *Major alternative energy facilities may be authorized in the Agriculture-20, forest and range, commercial agriculture, and commercial forest zone as follows:*
 - b. *All other major alternative energy facilities may be authorized by the board of adjustments as a conditional use.*

Finding: TSR understands this provision and requests approval of a CUP for the proposed project from the board of adjustments.

17.61.030 Review criteria – Special utilities and associated facilities.

1. *The board of adjustment shall determine that adequate measures have been undertaken by the proponent of the special utility and/or associated facility to reduce the risk of accidents caused by hazardous materials.*

The proposed project includes a primary transmission line and substation, both of which are required to connect the project with the existing BPA transmission network. These are dedicated facilities, serving no other electrical purpose. The risk of exposure to hazardous materials will be minimal. The transmission line will contain no hazardous materials. The substation will contain oil-filled equipment; however, it will be designed to provide

containment for any spills or leaks in accordance with a Spill Prevention Control and Countermeasures (SPCC) Plan 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.

2. The board of adjustment, as required by existing statutes, shall determine that the proposed special utility and/or associated facilities are essential and desirable to the public convenience and/or not detrimental or injurious to the public health or safety, or to the character of the surrounding neighborhood.

The proposed project is both essential and desirable to the public convenience. Renewable resources, such as the project, are essential to efforts to reduce greenhouse gases and to fulfill the legislative mandate of State of Washington's Renewable Electricity Standard, RCW Title 19. The project will provide a clean energy source and assist utilities in serving retail electric load with renewable electricity. TSR proposes to develop the project site so that solar energy potential is maximized, in accordance with the commitment to establishing a leading sustainable energy production location in North America. TSR is committed to energy production and environmentally sensitive development and management of its solar production site.

The project will have the capacity to generate up to 75 MWdc of PV solar energy for distribution to utilities in need of renewable and sustainable energy sources.

Construction and operation of the project will also benefit the local and regional economies. Construction will employ 150 to 250 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be \$97.5 million. Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits. Operation of the project will employ a minimum of two to four O&M staff and potentially more for security and other functions. For a more detailed analysis of the economic benefits provided by the construction and operation of the proposed project, please see the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N), which has been prepared at the County's request.

The project will not be injurious to the public health, peace, or safety or to the character of the surrounding neighborhood. The proposal involves a clean energy source without emissions to air or water for the life of the project.

The solar modules do not present a health or safety hazard. Contact with the modules will not lead to electrocution or contamination. No combustible materials will be used except for fuel and oil used in construction equipment. The project will be constructed in accordance with applicable federal, state and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures would be implemented to reduce the risk of hazards and accidents. The project is proposed in a rural area with a limited existing neighborhood character and a limited number of surrounding residences. In addition, it is being designed and sited to minimize its visibility from all surrounding areas and will not result in any noise or odors.

For the reasons stated above, the project complies with this criterion.

3. *The board of adjustment shall determine that the proposed special utility and/or associated facilities will not be unreasonably detrimental to the economic welfare of the county and /or it will not create excessive public cost for the public services by finding that:*

a. It will be adequately serviced by existing services such as highways, roads, police and fire protection, emergency response, and drainage structures, refuse disposal, water and sewers, and schools; or

b. The applicant shall provide such services or facilities.

Finding: The proposed project will not be unreasonably detrimental to the economic welfare of the county and will not create excessive public cost for facilities and services for the following reasons:

- Construction and operation of the project is desirable as it will benefit the local and regional economies. Construction will employ 150 to 250 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be \$97.5 million.
- Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits.
- Operation of the project will employ a minimum of two to four O&M staff and potentially more for security and other functions. Fifty (50) percent of the onsite peak construction workforce of 450 is assumed to be from the local labor market (within Kittitas County) while the remaining 50 percent, or 225 peak period workers could come from outside the County and are assumed to relocate to Kittitas County for the duration of the construction period or phase.
- The project will be adequately served by existing facilities, as discussed below, and the economic benefits summarized above and in the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N) well exceed any minor public costs.

The project's use of existing facilities is summarized as follows:

Highways and Roads. The site will be accessible via Kittitas County and private roads that interconnect with Highway 970 (see Figure 3). The major County access road is Red Bridge Road. Loping Lane is a private road and Wiehl Road is a public road over which TSR has easement rights. Loping Lane is subject to several road use and cost sharing agreements, and TSR will be subject to those agreements. TSR will additionally work with neighbors who use Loping Lane to identify improvements that will minimize disruption to their use during construction and to the roadway itself. The project will be internally served by a network of existing and/or new maintenance roads. These maintenance roads, along with Wiehl Road and Loping Lane, consist of gravel and dirt and may need improvements pursuant to County requirements. As set forth in attached Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department.

Figure 3 shows the location of the maintenance and access roads in relation to the project site.

Police Protection. The project will include periodic visits by security staff. As a result of proposed project security measures and personnel, it is not anticipated that the project will generate any new demand for police services.

Fire Protection. The fire protection needs of the site are currently served by WDNR. After the project is constructed, it will be served by the Kittitas County Fire Protection District #7 (see Expanded SEPA Checklist Supplement, Attachment M). Further, the project will be bordered by a firebreak no less than 100 feet wide.

The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures will be implemented to reduce the risk of hazards and accidents. 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.

Irrigation and Drainage. The project will be adequately served by existing drainage. The project will maximize existing pervious surface on the site by maintaining natural ground cover wherever possible including areas under solar modules. In addition, TSR will maintain existing contours whenever possible during grading and site preparation. Therefore, site runoff and drainage will remain largely unchanged. During construction, TSR will implement Best Management Practices (BMPs) to minimize erosion and sediment release.

Refuse. Construction workers will be directed to dispose of all refuse in defined containers. Following construction, the only refuse generated by the project will be from the two to four O&M staff. This limited refuse will be disposed of as required by the County.

Water and Sewers. The project does not need any water rights. TSR proposes to truck in water from the Cle Elum area or elsewhere as needed for activities such as fugitive dust control during construction and module cleaning for operation.

The need for sewer services is not anticipated. Portable toilets will be placed onsite during construction and as necessary during operation. Service visits to the onsite toilets will occur on a regular basis.

Schools. The project will not be detrimental or cause an increased burden on local school resources.

4. Special utilities and/or associated facilities as defined by this chapter shall use public rights-of-way or established utility corridors when reasonable. Although Kittitas County may map utility corridors, it is recognized and reaffirmed that the use of such corridors is subject to conditional use and approval and just compensation to the landowner for the use of such corridor. While a utility corridor may be used for more than one utility or purpose, each utility or use should be negotiated with the landowner as a separate easement, right-of-way, or other agreement, or other arrangement between the landowner and all owners of interests in the property. Any county map which shows utility corridors shall designate such corridors as "private land closed to trespass and public use" where

such corridors are on private land. Nothing in this paragraph is intended to conflict with the right of eminent domain.

Finding: The project is sited near an existing utility corridor (BPA 345-kV line) and no new transmission lines are needed to provide transmission services to the project. A 3,000-foot tap line (or primary transmission line dedicated to the project) will be constructed to connect the project to the grid. Support structures for this line will be steel mono-poles, and each structure will be approximately 120 feet tall. A maximum of three structures would be needed for the 3,000-foot-long line, and a 120-foot termination structure will be constructed as part of the substation. The line will be constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. The real property required for the line has been acquired from the underlying property owner. However, because this line can and will serve no electrical purpose other than connecting the project to the grid, there is no intention to develop the right-of-way as a utility corridor that could be used for more than one utility or purpose. This limited purpose, and the structure types, span lengths, and other physical characteristics of the line also keep it in character with surrounding existing and future land uses.

5. The board of adjustment shall consider industry standards, available technology, and proposed design technology for special utilities and associated facilities in promulgating conditions of approval.

Finding: The line and substation will be built and operated in accordance with current industry standards. As noted above, the design of the line employs locational criteria and physical characteristics that minimize its visibility and ensure compatibility with other land uses. The line and the substation are envisioned to utilize the most recent readily available technology for these type of structures.

6. The construction and installation of utilities and special utilities may necessitate the importation of fill material which may result in the displacement of native material. The incidental generation of earthen spoils resulting from the construction and/or installment of a utility or special utility, and the removal said material from the development site shall not require a separate zoning conditional use permit.

Finding: TSR understands the criteria listed under KCC 17.61.030(6) and intends to comply with this provision. Native fill will be used for the structure foundations and the substation. To the extent that any additional fill material is required for these facilities, TSR expects to obtain this material from local sources.

7. The operation of some utilities and special utilities identified within this chapter may necessitate unusual parcel configurations and/or parcel sizes.

Finding: TSR is not proposing to reconfigure or resize any parcels.

3.2 Title 17A—Critical Areas

3.2.1 Chapter 17A.02—Critical Areas Ordinance Definitions

17A.02.060 Critical areas.

“Critical areas” are (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 area; and (5) geologically hazardous areas.

Finding: All five critical areas are discussed in the Land Use section of the Expanded SEPA Checklist. In addition, the following technical reports have been prepared and are attached to the Expanded SEPA Checklist Supplement:

Attachment A: *Sensitive Species Report*

Attachment B: *Wetland Delineation Report*

Attachment D: *Geology and Soils Hazards Evaluation*

Attachment H: *Wildlife Mitigation Plan*

Chapter 17.A.03 – Critical Areas Administration

17A.03.015 Land use activities to which this chapter applies.

1. *The following land use activities shall be subject to and coordinated with the requirements of this chapter:*
 - a. *Any activity which is not exempt from a threshold determination under the State Environmental Policy Act, as subject to the threshold exemptions established by the county SEPA ordinance;*
 - b. *Any activity which requires approval through a public hearing process under the county ordinance;*
 - k. *Conversion of forest land to nonforest land uses.*

Finding: The Critical Areas Ordinance applies as part of the proposed project review and approval.

17A.03035 Critical area checklist and required information.

An applicant is required to submit a checklist of critical area information before commencement of all land use activities which are subject to this chapter. This information shall be used in processing all other site related development permits and approvals. Development may be required to be modified or may be conditioned to meet the requirements of this chapter. The checklist shall contain the following information:

1. *Legal description of the land, and assessor’s parcel number.*

Finding: The legal description of the land is located in Attachment D to this CUP application. The assessor’s parcel numbers are as follows: 20-16-22000-0001, 20-16-23000-0002, 20-16-22000-0002, 20-16-27000-00025, and 20-16-27000-0009.

2. *As defined herein, the location of the following, if applicable:*
 - a. *Wetlands;*
 - b. *Erosion hazard areas;*
 - c. *Floodplains and floodways;*
 - d. *Riparian habitat;*
 - e. *Geologically hazardous areas;*
 - f. *Landslide hazard areas;*
 - g. *Mine hazard areas;*
 - h. *Seismic hazard areas;*
 - i. *Streams and rivers*

Finding: The proposed project site does not include any of the critical areas defined in KCC Section 17A.02.060 except for wetlands. Impacts to wetlands will be avoided through project design. Minimal impacts to wetlands will occur. See the Land Use section of the Expanded SEPA Checklist Supplement for additional discussion.

3. *Any voluntary methods or activities anticipated by the applicant pertaining to critical areas, including incentives being offered by local or state government.*

Finding: TSR has coordinated with all applicable local and state agencies. TSR will comply with all associated regulations and apply for all applicable licenses and permits.

4. *Duplicate plans drawn to scale showing the nature, location, dimensions and elevations of the area in question, including existing or proposed structures, estimated amounts of fill material, drainage facilities, significant natural features, and the location of the above items, if applicable. Survey quality documents will not normally be required.*

Finding: Plans showing the nature, location, dimensions, and elevations of the area in question are contained in Attachment A to this CUP application. Additional figures are included in the Expanded SEPA Checklist Supplement, Attachment J, *Figures*.

5. *The requirement for delineating the location of possible critical areas will be waived if field investigation by county staff indicates the following:*
 - a. *Sufficient information exists for staff to estimate the boundaries of any critical areas without a delineation by the applicant; or*
 - b. *No structures and uses, except for exempt activities, are proposed to be located within the possible critical areas.*
6. *Subject to field investigation by county staff, or other reliable and relevant information, the information submitted by the applicant shall be presumed valid for all purposes under this chapter.*

Finding: TSR conducted significant research and field surveys for critical areas located within or directly adjacent to the project site (Attachment A, Figure 5). The Land Use section of the Expanded SEPA Checklist provides additional discussion of critical areas and the various technical reports attached to the Expanded SEPA Checklist Supplement demonstrate the research and field surveys. The wetlands located within the proposed project area have been delineated by professional wetland scientists. A full description of the wetland boundaries is included in Expanded SEPA Checklist Supplement Attachment B, *Wetland Delineation Report*.

17A.03.045 Coordination with the State Environmental Policy Act and other concurrent permitting.

The director shall coordinate application of the critical areas ordinance with any required SEPA review and the processing of any other associated permits. Any required critical areas mitigation shall be separate from SEPA conditions imposed as part of a threshold determination. The objective is to provide a concurrent, coordinated, and consistent review of development activities within critical areas, without creating another regulatory review or appeal process.

Finding: TSR understands this criterion. A detailed discussion of critical areas is provided in the Land Use section of the Expanded SEPA Checklist Supplement.

ATTACHMENT A
Figures

ATTACHMENT B
Photos

ATTACHMENT C
**Landowners Adjacent to Proposed Site
Boundary**

ATTACHMENT D
Legal Description

ATTACHMENT E
Development Agreement
