Final
Environmental Impact Statement
for the
Lund Hill Solar Energy Project

Prepared for:

Prepared by:

August 2019

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for the
Lund Hill Solar Energy Project

Prepared for

Avangrid Renewables

Prepared by

Tetra Tech

August 2019

Project Name

Lund Hill Solar Energy Project
Final Environmental Impact Statement

Submitted Pursuant To:

Washington State Environmental Policy Act (WAC 197-11)

Submitted By:

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Project Abstract

Aurora Solar, LLC (Applicant), a wholly owned subsidiary of Avangrid Renewables, Inc., proposes to develop and operate the Lund Hill Solar Energy Project (Project) in unincorporated Klickitat County, south of Bickleton, Washington. The Project would consist of solar panels, electrical collector lines, inverters, transformers, and a substation, generating up to 150 megawatts of solar energy. The Project would be sited on approximately 1,871 acres, within a solar siting area of 4,513 acres consisting primarily of privately-owned land. One portion of the Project area is owned by the Washington State Department of Natural Resources.

Klickitat County issued a Draft Environmental Impact Statement (EIS) on April 26, 2019, under the State Environmental Policy Act. The Draft EIS identified and evaluated potential environmental impacts from the project. Public review of the Draft EIS took place between May 1, 2019, and May 31, 2019. Klickitat County received seven comment letters.

This document, along with the Draft EIS issued on April 26, 2019, constitute the Final EIS for the Project. This Final EIS is issued under RCW 43.21C.030(2)(c).

The Final EIS includes the following components:

- **Revised Fact Sheet** – Summarizes the project description, Applicant information, schedule, and agency review

- **Corrections and Modifications to the Draft EIS** – Identifies changes made to the Draft EIS based on comments received
- **Comments and Responses to Comments** – Provides copies of all comment letters received, along with Applicant responses to all comments

Fact Sheet

Project Name

Lund Hill Solar Energy Project

Project Description

Aurora Solar, LLC (Applicant), a wholly owned subsidiary of Avangrid Renewables, Inc., proposes to develop and operate the Lund Hill Solar Energy Project (Project) in unincorporated Klickitat County, 6.5 miles southwest of Bickleton, Washington. The Project would consist of a 150-megawatt solar energy facility adjacent to several existing wind facilities (i.e., Big Horn to the north and west, Juniper Canyon to the northeast, and White Creek and Harvest Wind to the southwest). The Project area consists of approximately 1,871 acres of private and state lands located within a 4,513-acre "solar facility siting area" within the county's Energy Overlay Zone (EOZ).

The Project consists of solar photovoltaic modules (or panels), support structures, electrical inverters, power transformers, and conductors. Solar modules use photovoltaic cells (PV cells) to generate electricity by converting sunlight into direct current electrical energy, which is then converted to alternating current by the inverters. Energy generated by the solar modules would be transmitted through a system of 34.5-kilovolt (kV) underground and overhead lines to a collector substation that would step the voltage from 34.5 kV up to 230 kV. The substation would be connected by a new 230-kV transmission line to the existing Juniper Canyon Wind Farm 230-kV overhead transmission line. The Juniper Canyon transmission line runs through the Project area and connects into the Bonneville Power Administration Rock Creek Substation, located southwest of the Project.

The Project would either share use of the existing operations and maintenance (O&M) building at the Big Horn Wind Facility to the northwest, or would construct a new O&M building specific to the Lund Hill solar facility. If the existing Big Horn O&M building is used, the Applicant would work with the Klickitat County Road Department on potential repairs or upgrades to the county road that provides access to that facility. If a new O&M building is constructed, it could consist of a 5,000-square-foot building on a 10-acre lot adjacent to, or in close proximity, to the collector substation. Existing roads would be used to the extent practicable for Project construction and operation; however, new permanent gravel or dirt roads would be constructed to access facilities within the Project area. Chain-link or similar perimeter fencing would enclose the Project area. Up to eight locked gates would be installed along existing roadways to allow access to the facility.

The EIS evaluated potential environmental impacts from two alternatives: the Build Alternative and the No Build Alternative. Under the No Build Alternative, the Project would not occur. The Project area would remain in its current state and would not generate electricity. Under the Build Alternative, the Project would be constructed. Potential impacts from the Project on land use and recreation, vegetation and wildlife, wetlands and other waters, visual and aesthetic resources, cultural resources, noise, transportation, geologic hazards, land use, air quality, public health and

safety, and public services and utilities were evaluated in the EIS. The EIS also addressed potential cumulative impacts from construction of this Project in addition to other existing and known planned energy projects in the area. This FEIS includes any corrections and modifications to the Draft EIS as a result of comments received regarding the Project.

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Document Availability

Copies can be obtained at the Klickitat County Planning Department at the address above. A limited number of copies have been printed for free distribution. Additional printed and electronic copies of the EIS are available from the Klickitat County Planning Department at cost. Field survey reports used in preparation of the EIS can be obtained from the Klickitat County Planning Department on request.

Date of Issue

August 29, 2019 (to be confirmed)

Decision

A final decision regarding the EOZ application is anticipated in September 2019. Project construction is anticipated over a period of approximately 9 to 12 months from commencement to commercial operation. Pending issuance of relevant permits, the Project is anticipated to start construction in 2019.

Subsequent Environmental Review

The comment period for the Draft EIS ended May 31, 2019. Comments received during the comment period were reviewed and addressed, and incorporated into this Final EIS.

No additional review is anticipated. The EIS adopts the Klickitat County Final EOZ EIS (September 2004, amended February 2010; Klickitat County 2004). The document assesses impacts associated with the County's EOZ, which permits solar energy projects outright.

Contents

List of Tables

1.0 Corrections and Modifications to the Draft EIS

1.1 Introduction

The Draft EIS was available for public review and comment between May 1 and May 31, 2019. Seven comment letters were received. These letters are presented in Section 2, and responses to the comments are provided in Section 3. The discussion below summarizes changes that have been made to the EIS following submittal of the Draft in May 2019.

1.2 Corrections and Modifications

1.2.1 Front Matter

Make the following changes to the Acronyms and Abbreviations section

PM10 particulate matter with aerodynamic ~~radius~~ diameter of 10 microns or less

PM2.5 particulate matter with aerodynamic ~~radius~~ diameter of 2.5 microns or less

1.2.2 Changes to Section 2 – Alternatives Considered

Make the following changes to Section 2.2, Build Alternative – Power Collection System – Collector Substation (Section 2.2.3.2)

The collector substation would be constructed on a 5-acre site enclosed by approximately 2,000 feet of chain-link fencing. To comply with state requirements, the substation fence would be ~~7~~up to 8 feet tall ~~topped with 1 foot of barbed wire~~. An additional 2 acres may be temporarily disturbed during construction. The substation would include transformers to increase the voltage from the 34.5-kV collector system to 230 kV for transmission. Permanent equipment filled with oil would be installed on pedestal foundations surrounded by a moat. This equipment includes the main power transformers as well as grounding transformer(s). The moats would be designed with a minimum size capable of containing all the oil from the device concurrent with a 10-year 24-hour rainfall event. The collector substation would have sufficient spacing between equipment to prevent the spread of fire.

Make the following changes to Section 2.2, Build Alternative – Access Roads, Fencing, and Additional Construction Areas – Perimeter Fencing (Section 2.2.5.3)

Chain-link fencing would be installed around the perimeter of the Project area. The fence would likely be ~~6~~up to 8 feet tall, ~~with an additional foot of barbed wire along the top. If it is determined that barbed wire poses a risk to local wildlife such as deer, an 8-foot chain-link fence~~ without the addition of barbed wire at the top ~~may be installed~~. Approximately eight gates would be provided

along the fence line to allow for vehicle and pedestrian access. Gates for vehicles would be 16 feet wide, and pedestrian gates would be 4 feet wide.

Make the following changes to Section 2.2, Build Alternative - Decommissioning (Section 2.2.7)

Decommissioning efforts for the Project would occur in the opposite order of construction. The existing service roads would be used to allow the deconstruction contractor to separate the solar modules from the tracker system, and directly load the modules into a truck or roll-off container for off-site disposal or recycling. The contractor would then remove the tracker system, including the steel posts, from the ground and recycle all metal and other materials as possible. The transformers would be decommissioned and disposed of off site. Underground electrical collector lines would remain if they are deeper than 3 feet below grade. The overhead electrical lines and access roads would be removed, and the entire footprint of the facility would be reseeded to return the Project area to a useful, nonhazardous condition.

Before Building Permit issuance, the applicant will prepare a decommissioning plan consistent with the County's model decommissioning plan, outlining 1) methods to restore areas previously containing project facilities, and 2) methods for decommissioning the overall Project and restoring the overall site.

1.2.3 Changes to Section 3 – Affected Environment, Environmental Consequences, and Mitigation

Unless otherwise identified below, the resource evaluations presented in the Draft EIS remain valid for the revised project layout described above.

Make the following changes to Section 3.1, Noise – Impacts of the Project – Operational Impacts (Section 3.1.5.2)

Replace Table 3.1-5 with the following table:

Table 3.1-5. Acoustic Modeling Results Summary

Sound Sensitive Receptor (NSR)	Parcel	Land Owner	UTM Coordinate Easting (m)	UTM Coordinate Northing (m)	Received Sound Level, dBA L_{eq}
1	05203500000100	Vandegraaf Ranch Properties LLC	712409.86	5084014.79	45
2	04200100000200	Pine Creek Ranches, Inc.	712961.34	5082820.66	43
3	04200100000400	Hanson, Darby	713203.73	5082831.78	44
4	04211700000100	Read Family Trust	717241.98	5079241.56	20

Make the following changes to Section 3.3, Vegetation and Wildlife - Affected Environment - Vegetation - Dwarf Shrub-steppe - Native Perennial Grassland Matrix (Section 3.3.2.1)

This habitat type consists of areas of dwarf shrub-steppe vegetation interspersed with native perennial grassland vegetation. Typically, the native perennial grassland vegetation is found on mounds occurring within dwarf shrub-steppe habitat. This interspersion of shallow, rocky-soiled dwarf shrub-steppe with mounds of perennial grassland found on deeper soils is also referred to as "biscuit and swale" habitat or biscuit-swale topography. Dominant species in this habitat type are similar to those listed for dwarf shrub-steppe habitat and native perennial grassland (described below). Much of the dwarf shrub-steppe – native perennial grassland matrix habitat within the solar facility siting area is heavily disturbed and contains high cover of non-native grasses and forbs including soft brome, cheatgrass, bulbous bluegrass, ventenata, hairy vetch, and yellow salsify. Both dwarf shrub-steppe and native perennial grassland (i.e., eastside steppe) are considered priority habitats by the WDFW (WDFW 2018a). Additionally, the WDNR lists the "Bluebunch Wheatgrass – Sandberg Bluegrass Lithosol" plant community as a high conservation priority plant community in the Columbia Plateau ecoregion (WDNR 2018a). The transitional nature of this habitat typically supports a greater diversity of wildlife than the dwarf shrub-steppe or native grassland habitats alone; however, the amount of disturbance and presence of non-native grasses and forbs reduces its value to wildlife. ~~the level of habitat fragmentation from past disturbance in the solar facility siting area likely reduces its value to wildlife.~~

Make the following changes to Section 3.3, Vegetation and Wildlife - Affected Environment - Vegetation – Juniper Woodland (Section 3.3.2.1)

Two small areas of juniper woodland occur within the central-eastern portion of the solar facility siting area. Both areas of juniper woodland habitat are associated with ephemeral drainages. This habitat type consists of a relatively closed canopy of western juniper (*Juniperus occidentalis*) with a sparse cover of shrubs, grasses and forbs, including common snowberry (*Symphoricarpos albus*), bluebunch wheatgrass, cheatgrass, blue wildrye (*Elymus glaucus ssp. glaucus*), bulbous bluegrass, Kentucky bluegrass (*Poa pratensis*), bur chervil (*Anthriscus caucalis*), and common bedstraw (*Galium aparine*). Juniper woodland is considered a priority habitat by the WDFW (WDFW 2018a). Juniper woodlands provide forage, cover, and nesting habitat for raptors and several passerines (Johnson and O'Neil 2001). Small mammals and bats also use juniper woodlands. Other mammals, such as mule deer (*Odocoileus hemionus*), use juniper as thermal cover. The juniper hairstreak butterfly (*Mitoura gryneus barryi*) is also associated with this habitat type in eastern Washington.

Make the following changes to Section 3.3, Vegetation and Wildlife - Affected Environment - Vegetation – Native Perennial Grassland (Section 3.3.2.1)

Native grasslands provide nesting, cover, and foraging habitat for numerous birds and small mammals, including grasshopper sparrow, vesper sparrow, burrowing owl (*Athene cunicularia*), long-billed curlew (Pampush and Anthony 1993), and white-tailed jackrabbit (*Lepus townsendii*) (Johnson and O'Neil 2001). Mule deer commonly forage in native grasslands. Reptiles also utilize this habitat type.

Make the following changes to Section 3.3, Vegetation and Wildlife – Affected Environment – Wildlife – Big Game (Section 3.3.2.3)

WDFW considers elk (*Cervus canadensis*), deer, black bear (*Ursus americanus*), moose (*Alces alces*), pronghorn antelope (*Antilocapra americana*), mountain goat (*Oreamnos americanus*), bighorn sheep (*Ovis canadensis*), and cougar (*Puma concolor*) to be big game animals (WDFW 2018c). The solar facility siting area is on the edge of modeled distribution for black bear and cougar (Washington NatureMapping Program 2018). These species have been observed; however, ~~these species~~ they are unlikely to occur because of a lack of preferred habitat and are therefore not discussed further. Of the remaining big game animals, pronghorn antelope and mule deer are expected to occur in the solar facility siting area. Recent efforts to reintroduce pronghorn antelope on the Yakama Reservation have been successful, with animals being observed south and east of the Yakama Reservation and east of Highway 97 in Klickitat County (Oyster et al. 2017).

Make the following changes to Section 3.3, Vegetation and Wildlife – Affected Environment – Special-Status Wildlife (Section 3.3.2.4)

Add the following rows to Table 3.3-3:

Table 3.3-3. Special-status Wildlife with the Potential to Occur within the Solar Facility Siting Area

Common Name	Scientific Name	Status[1/]	Habitat Use
Invertebrate			
Juniper hairstreak	*Mitoura gryneus barryi*	SC	Associated with juniper woodlands and openings and pinyon-juniper savannah.

Make the following changes to Section 3.3, Vegetation and Wildlife – Construction and Operational Impacts of the Project – Vegetation (Section 3.3.4.1)

Construction and operation of the Project would result in ~~permanent~~ potential impacts of up to approximately 1,871 acres of vegetation. The estimate of 1,871 acres of disturbance is based on the maximum estimated area that could be enclosed by fencing, assuming Middle Road and non-participating properties are excluded from the fenced area. Steeper canyons are also excluded from this acreage calculation because the fence would only cross where the topography is more gently sloped. Actual impacts would be lower because mapped streams, wetlands, and rare plants within the fenced area would be avoided by construction activity, i.e., not all of the area enclosed by fencing would actually be disturbed, either permanently or temporarily. Table 3.3-4 summarizes the impacts to habitat types from construction and operation of the Project.

During construction, much of the area within the fence line, excluding streams, wetlands, and buffers, would be temporarily disturbed. Project construction would include clearing and/or crushing of vegetation as well as limited regrading that would remove existing vegetation entirely. Although vegetation would be allowed to grow under the solar panels following construction, this vegetation would be maintained in an early successional stage or low-stature during operations. All temporarily disturbed areas will be revegetated in accordance with the revegetation plan to be agreed upon separately with Klickitat County. The area below the panels would be vegetated with

native species. In addition to the direct loss of vegetation, removal of vegetation would also increase the potential for soil erosion and reduce the amount of available wildlife habitat. Other potential impacts to vegetation and habitat types from construction and operation of the Project include the introduction and spread of noxious weeds and invasive species, increased risk of wildfire, and increased levels of fugitive dust.

Replace Table 3.3-4 with the following table:

Table 3.3-4. Impacts to Habitat Types from the Project

Habitat Type	~~Permanent Impacts~~ Estimated Area Enclosed by Fence (Acres)	Permanent Disturbance Area (Acres)
Conservation Reserve Program/revegetated	860.0	33.0
Dwarf shrub-steppe – native perennial grassland matrix[1/]	352.9	13.6
Shrub-steppe[1/]	321.0	6.5
Upland scrub-shrub	202.5	4.6
Native perennial grassland[1/]	69.2	1.3
Dwarf shrub-steppe[1/]	57.6	1.5
Developed/disturbed	4.4	0.6
Exotic annual grassland	3.2	0.5
Total	**1,870.8**	**61.6**
1/ Listed as a High Priority Habitat or Priority Habitat Feature by the WDFW (WDFW 2018a)		

Make the following changes to Section 3.3, Vegetation and Wildlife – Construction and Operational Impacts of the Project - Wildlife - General Effects Common to All Wildlife (Section 3.3.4.3)

More mobile wildlife ~~Most wildlife~~ should be able to avoid construction and operation activities, and as a result, would be displaced from habitats that are cleared of vegetation or are adjacent to construction activity. Displacement of wildlife away from the construction activity would result in increased competition for resources with other species in adjacent habitats (WDFW 2009). Noise and human presence would cause wildlife to avoid areas of human activity. Anticipated construction and operational sound levels are discussed in Section 3.1, Noise. In general, sound levels from construction equipment are expected to be approximately 80 to 90 dBA at a distance of 50 feet from the equipment. This sound level could elicit a flee/hide response, cause distraction to normal behaviors, and mask necessary communications between individuals (Francis and Barber 2013). The level of effect depends on the species and distance from the noise source.

Make the following changes to Section 3.3, Vegetation and Wildlife – Mitigation Measures – Mitigation Measures During Design (Section 3.3.5.1)

- Perimeter fencing would be designed to minimize collision risk for wildlife. Chain-link fencing would be installed to ~~allow small mammals to~~ prevent deer from entering the area while allowing small mammals through. The fence would be ~~7 to~~ 8 feet in height (final height to be determined during final design) and would not include barbed wire at the top.

Make the following changes to Section 3.3, Vegetation and Wildlife - Mitigation Measures – Site Restoration (Section 3.3.5.4)

- Following construction, areas disturbed by construction activities that are not occupied by Project infrastructure would be restored. Restoration would include revegetation with plant species appropriate for operation of the Project. ~~A~~While a majority of revegetation would result in modification of habitat to a less diverse, low-growing vegetation community, these areas are considered a permanent impact to habitat for this analysis; however, invasive plant species would be removed and managed for the life of the Project. A Restoration and Weed Management Plan would be developed in consultation with the Klickitat County Weed Control Board. The plan would include measures designed to ensure successful revegetation, including measures for re-establishing vegetation where appropriate, controlling the establishment or spread of invasive species, weed control, and monitoring. Aurora Solar is also preparing a decommissioning plan for county approval that will describe revegetation efforts to restore the Project site following removal of project components.

Make the following changes to Section 3.6, Cultural Resources – Affected Environment - Results of Pedestrian Inventory (Section 3.6.2.5)

Replace select rows of Table 3.6-3 with the following corresponding rows ("1/" footnote denotation added), and add new table footnote:

Table 3.6-3. Cultural Resources Identified in the Project Study Area

Trinomial	Period	Site Type	Description	Previously/ Newly Recorded	Register Evaluation (NRHP/WHR)	Location in Relation to Project Area
18-249-SY003	Pre-contact	Lithic scatter	Five flakes and one flake tool, chert and petrified wood.	Newly Recorded	Not Eligible/Not Eligible1/	Solar facility siting area
18-249-SY004	Pre-contact	Lithic scatter	Three flakes and one tool around a natural rock outcrop.	Newly Recorded	Not Eligible/Not Eligible1/	Solar facility siting area
45-KL-01357	Pre-contact	Isolate	Basalt chopper.	Previously Recorded. Not Relocated.	N/A – Not Relocated1/	Solar facility siting area
45-KL-01904	Pre-contact	Lithic scatter	Four lithic artifacts.	Previously Recorded. Not Relocated.	N/A – Not Relocated1/	Solar facility siting area
45-KL-01907	Pre-contact	Lithic scatter	24 lithic artifacts, none within survey area. Some modern disturbance.	Previously Recorded. Outside Project Study Area.	Outside Project Study Area. Not evaluated1/	Solar facility siting area
IO-SB003	Pre-contact	Isolate	Single tertiary yellow CCS flake.	Newly Recorded	Not Eligible/Not Eligible1/	Solar facility siting area
IO-SY001	Pre-contact	Isolate	One secondary basalt flake.	Newly Recorded	Not Eligible/Not Eligible1/	Solar facility siting area

1/ Although some pre-contact resources are recommended as not eligible for listing on the NRHP and/or WHR, impacts to pre-contact resources are required by RCW 27.53 to be minimized or mitigated regardless of register-eligibility status.

Make the following changes to Section 3.6, Cultural Resources - Impacts of the Project (Section 3.6.4)

Impacts to NRHP- or WHR-eligible or unevaluated cultural resources, including TCPs, would be considered significant impacts. Additionally, pre-contact sites are protected under the provisions of RCW 27.53 and require a DAHP permit (see WAC 25-48) if they will be disturbed, regardless of their register eligibility. As such, impacts to pre-contact sites, regardless of eligibility, may also be considered significant.

Make the following changes to Section 3.6, Cultural Resources – Mitigation Measures (Section 3.6.5)

The Project has been designed to avoid impacts on identified NRHP- and WHR-eligible cultural resources, as well as pre-contact resources. If the final design has facilities closer than 100 feet to protected resources identified in the confidential cultural resource survey report, eligibility testing of the resource would be conducted prior to construction. If testing determines the resource is NRHP-eligible, the resource would be avoided, or mitigation would be identified. Prior to construction, Project personnel would be advised about cultural resources and the need to stay away from significant locations. Significant archaeological sites would be identified on construction drawings as generalized "avoidance areas." Construction managers would be briefed on the locations of site(s) and the need for protection of register-eligible, unevaluated, and pre-contact resources. Although the Project is not anticipated to have significant impacts on cultural resources, the following measures are proposed to avoid inadvertently impacting resources:

Make the following changes to Section 3.9, Roads and Transportation - Affected Environment – Roadway Conditions (Section 3.9.2.3)

Replace Table 3.9-1 with the following table:

Table 3.9-1. Average Daily Traffic Volumes and Estimated Truck Percentages on Project Roadways

Roadway	Function Class	2013 ADT	2014 ADT	2015 ADT	2016 ADT	2017 ADT
SR 14, MP 100.66 after JCT SR 14 Spur at Maryhill	1	640	680	770	520	NA
SR 14, MP 102.27, at Permanent Traffic Recorder Location R077	2	1,600	1,600	1,600	1,500	1,400
SR 14, MP 121.15, before JCT Rock Creek Road	2	1,200	1,200	1,300	1,300	1,200
SR 14, MP 131.07 after JCT Old Hwy. 8	2	1,400	1,300	1,400	1,400	1,200
SR 14, MP 148.95 before JCT Alderdale Boat Launch Road	2	1,100	1,100	1,200	1,200	1,200
Roosevelt Grade Road (MP 0.00 to 6.54) Counter Location MP 0.40	~~NA~~7	~~NA~~842	~~NA~~893	~~NA~~886	~~NA~~115	~~NA~~115
Roosevelt Grade Road (MP 0.00 to 6.54) Counter Location MP 5.17	7	350	278	281	399	399
Middle Road (MP 4.32 to 15.23) Counter Location MP 4.58	~~NA~~9	~~NA~~11	~~NA~~20	~~NA~~20	~~NA~~20	~~NA~~20
Middle Road (MP 4.32 to 15.23) Counter Location MP 14.57	9	17	13	184	184	184

Notes: The 2017 SR 14 ADTs from WSDOT Traffic GeoPortal were provided at mileposts different from those used for previous data; therefore, the data in this table have been extrapolated between mileposts for 2017. Klickitat County ADT data were collected on even-numbered years; the data for odd-numbered years is extrapolated from the previous even-numbered years.

ADT = average daily traffic (number of vehicles)

MP = mile post

JCT = Junction

NA = not available

Make the following changes to Section 3.9, Roads and Transportation - Affected Environment – Roadway Hazards (Section 3.9.2.7)

Replace Table 3.9-2 with the following table:

Table 3.9-2. Traffic Accident Statistics for the Years 2016 through 2018

Location/Roads	Number of Traffic Accidents		
	2016	2017	2018
Klickitat County			
County Roads	69	83	85
State Routes	192	219	141
Statewide			
Statewide County Roads	15,099	15,149	13,272
Statewide State Routes	55,889	54,079	48,553
Source: WSDOT Collision and Analysis Branch (WSDOT 2018a) The statewide average collision rate for rural collectors is 1.55 collisions per million vehicle miles (MVM). The accidents per MVM over the last 36 months for Roosevelt Grade Road (MP 0.00 to 6.54) was 2.472 and for Middle Road (MP 4.32 to 15.23) was 2.886, both higher than the statewide average collision rate for rural collector roads.			

Make the following changes to Section 3.12, Public Service and Utilities – Affected Environment – Fire (Section 3.12.2.1)

The Project would be located within Klickitat County Fire Protection District No. 2 (i.e., Bickleton, north of the Project). Nearby fire protection districts located west, south, and east of the Project site include Fire Protection District No. 7 (i.e., Goldendale Rural), Fire Protection District No. 9 (i.e., Roosevelt), and Fire Protection District No. 10 (i.e., Alderdale), respectively. Fire Protection District No. 2 is staffed with 25 volunteer firefighters and covers an area of approximately 290 square miles. The district conducts wildland firefighting, but it does not have the equipment to fight structural fires. The district's equipment includes four brush trucks, two all-wheel-drive units, one tender, and one ambulance. The district also works with District No. 7 out of Goldendale and District No. 10 out of Alderdale, which have 37 and 14 fire trucks, respectively. District No. 7 out of Goldendale has a seasonal summer firefighting team maintained by the local Washington State Department of National Resources office. District No. 9 out of Roosevelt has 14 fire trucks. Klickitat County has developed a Draft Community Wildfire Protection Plan (Klickitat County 2018a) that identifies strategies and priorities for protecting life, property, and infrastructure. The plan designates Dot Road and East Road as ingress-egress routes serving eastern and south-central Klickitat County, connecting the Project with the Bickleton Highway and State Highway 14 along the Columbia River. These roads offer fire-escape options, which would require through-access to be maintained during Project construction and operation. Project employees would be required to familiarize themselves with the road layout within and outside the Project area.

Make the following changes to Section 3.12, Public Service and Utilities – Affected Environment – Medical Services (Section 3.12.2.3)

Klickitat Valley Hospital in Goldendale (a licensed 25-bed facility about 26 miles west of the solar facility siting area) serves central and eastern Klickitat County. The hospital ~~has a~~ collaborates with the LifeFlight medical evacuation service (local office in Dallesport, Washington) that enables air transfers of serious trauma patients to Legacy Emanuel Hospital in Portland, Oregon, the region's closest Level 1 Trauma Center with approximately 554 beds. Klickitat County Fire District No. 2 serves the study area with one ambulance. The ambulance is staffed with volunteer emergency medical technicians. In serious injury cases, the Fire District contacts an advanced life support unit. Advanced life support units that serve the area are LifeFlight, based in Portland, and Northwest MedStar, based in the Tri-Cities (Kennewick-Pasco-Richland, Washington).

Make the following changes to Section 3.12, Public Service and Utilities – Affected Environment – Schools (Section 3.12.2.4)

Most of the study area is located in Bickleton School District No. 203. This school district, which includes only Bickleton Elementary and High School (located approximately 7 miles north of the solar facility siting area), has a current enrollment of ~~86~~125 students and a capacity of about ~~120~~140 students. Three Bickleton School District bus routes use roads in the study area.

The southern portion of the study area is located within Roosevelt School District No. 403. The Roosevelt School District has one school, Roosevelt Elementary, with a current enrollment of 27 students and a capacity of 44. Roosevelt Elementary is located approximately 7 miles south of the solar facility siting area. Roosevelt School District buses do not use roads in the study area. Students in grades 7-12 who are residents in this school district, but who attend school in the Bickleton School district (due to the lack of a high school in this district), ~~are driven by their parents to the closest Bickleton School District bus stop near East Road and Six Prong Road~~ are offered direct pickup by bus.

Make the following changes to Section 3.12, Public Service and Utilities – Affected Environment – Solid Waste (Section 3.12.2.8)

~~Allied Waste~~ Republic Services of North America provides solid waste disposal services, including recycling, in the study area. Garbage is transported to the Roosevelt Regional Landfill, located within the study area near the southeast corner of the Lease Boundary. Roosevelt Regional Landfill is the fourth largest landfill in the United States and is owned and operated by ~~Allied Waste~~ Republic Services. Recycled materials are transported to the Rabanco Recycle Center in Seattle.

Make the following changes to Section 3.12, Public Service and Utilities – Impacts of the Project – Operational Impacts – Police Protection (Section 3.12.4.1)

Over the long term, the demand for police services during Project operation could increase as a result of theft, vandalism, or trespass at the Project area. Such an increase in service demand, however, is expected to be minimal because security measures would be implemented during Project operation. Such measures would include installing chain-link fencing ~~topped with barbed-~~

~~wire~~ around the Project substation and O&M facility, padlocking gates, and pad-mounting transformers.

Make the following changes to Section 3.12, Public Service and Utilities – Impacts of the Project – Mitigation Measures (Section 3.12.5)

- The Applicant would coordinate with the local fire district throughout the operational life of the Project. To minimize demand for police services during construction and operation, the Applicant would discourage trespassing and vandalism by installing chain-link fencing ~~topped with barbed wire~~, padlocked gates around the Project, and pad-mounted transformers. Potential effects on fire services during Project construction and operation would be mitigated using the following measures:

2.0 Comments Received Regarding the Lund Hill Wind Energy Project

This section presents the following comment letters received in response to the Draft Environmental Impact Statement:

- Comment letters received during the comment period ending May 31, 2019:
  - Washington State Department of Natural Resources (5/29/19)
  - State of Washington Department of Archaeology & Historic Preservation (4/29/19)
  - State of Washington Department of Ecology (5/28/19)
  - State of Washington Department of Fish and Wildlife (5/31/19)
  - Klickitat County Public Works Department (5/31/19)
  - Confederated Tribes and Bands of the Yakama Nation (5/3/19)
  - Darby S. Hanson (5/31/19)
  - Federal Aviation Administration (5/1/19)
- Letters received after the formal comment period ended:
  - Washington State Department of Natural Resources (7/31/19)
  - Darby S. Hanson (7/31/19)

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Comment Letters Received During the Comment Period Ending May 31, 2019

DEPARTMENT OF
NATURAL RESOURCES

ENVIRONMENTAL & LEGAL
AFFAIRS – SEPA CENTER
PO BOX 47015
OLYMPIA, WA 98504-7015

360-902-1739
SEPACENTER@DNR.WA.GOV
WWW.DNR.WA.GOV

May 29, 2019

Klickitat County Planning Department
228 W. Main Street, MS: CH-17
Annex 1
Goldendale, WA 98620

Subject: Comments on the Lund Hill Solar Energy Project Draft EIS

Dear Ms. Linblad,

Please accept the following comments for the Lund Hill Solar Energy Project Draft EIS dated April 2019 from the Washington State Department of Natural Resources (DNR) as an interested party and an agency with jurisdiction:

Generally, the mitigation measures should be more specific, ensuring input from experts with solar experience and knowledge of lessons learned.

DNR proposes the following mitigation measures:

- Buffering drinking sites and all riparian areas during all phases of the project including prior to construction.
- Creating and implementing a plan for moving wildlife out of the fenced area over the course of the project, or measures for allowing wildlife to move in and out of the fenced area, like culverts or wildlife crossings.
- If all wildlife are fenced out of the area, ensure a plan is in place for when they do enter, including animals digging under the fences.
- Provide mitigation for wildlife that will not be able to avoid construction activities such as small mammals and reptiles. Will they be exterminated or is there a plan to move these species?
- Provide for the abandonment of temporary roads, revegetation and subsequent control of weeds.
- As mitigation for the fenced area, acquisition of an area outside the fenced location to be improved for habitat with vegetation and nesting platforms.
- Provide mitigation to respond to injured and dead wildlife.
- Monitoring of the reseeded area after decommissioning to ensure the reseeding to native plants is successful. Monitoring may be required for several years to ensure establishment.
- Within the project area, there is a population of a G2 (threatened with extinction within its global range) plant that had previously been unknown to occur in Washington. There are also populations of two other threatened plant species within the project area. These species are all associated with vernal pools, drainages, and wetlands; the avoidance measures and mitigation measures for the sensitive plant species (including buffering the wetlands) should provide sufficient protection for these species. There is a chance the solar development will disrupt the hydrology of the area and introduce exotic plant species, thus eventually negatively impacting the rare plant species. Clarify that the buffers shown on the Appx. A: Delineated Wetland and Waters Mapbook are mitigation and will be implemented. DNR Natural Heritage Program

requests monitoring of the rare plant populations to determine declines and, if observed, an adaptive management plan be implemented.

- Include mitigation requiring proponent to prepare and implement a noxious weed control plan which includes controlling and preventing the introduction and spread of noxious weeds on the project area and to adjacent areas from the project area.
- Some permits acquired by the proponent can result in long-term mitigation requirements for the landowner after the project has ended. Require proponent to ensure DNR reviews and consents to permits on DNR-managed lands.

DNR requests the following additional analysis:

- Impacts to wildlife that will not have access to drinking sites and riparian areas. Page 3-22 discusses bats, but what about larger species like deer, coyote, badger… How important are these riparian areas to other species? Please provide a multi-year study where remote cameras are used to detect species using these sites.
- Because this is located within the Pacific Flyway and waterbirds and waterfowl have been observed, please address lake effects and provide mitigation.
- References to information on the statement about current fragmentation from past disturbance likely reducing value to wildlife (3-17).
- Additional years of surveys need to occur, one year is not enough to make decisions with this level of impact.
- More information is needed to explain how "most wildlife should be able to avoid construction and operation activities" (page 3-27).

The following information appears misleading, incomplete or incorrect:

- It appears that nearly half of this project isn't actually taking land out of agricultural use, but taking it out of conservation. 3.3.2.1
- Please include Juniper hairstreak butterfly in Juniper Woodland discussion on page 3-18 and reptiles in native grassland discussion on page 3-19.
- Include owls, badgers and squirrels in affected wildlife species.
- Page 3.27 says "Most wildlife should be able to avoid construction and operation activities." Using the word "most" seems optimistic when the numbers of small mammals, inverts, and reptiles are not known.
- There is inconsistency in addressing cultural resources. Until the section (under 3.6.5) entitled Potential Impacts Through Redesign, it appears the proponent considered impact to all known sites "not significant" if they were not eligible for listing on a register. This is inconsistent with state law. However, in the Potential Impacts section (page 3-61), it clearly spells out that "pre-contact sites are protected under RCW 27.53 and require a DAHP permit if they will be disturbed, regardless of their register eligibility."

Thank you for this opportunity to comment.

Sincerely,

Todd Welker

Todd Welker
Washington State Department of Natural Resources

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 29, 2019

Ms. Kimberly Johnson
PaleoWest Archaeology
34346 NE Electric Road,
Corvallis, OR. 97333

In future correspondence please refer to:
Project Tracking Code: 2018-09-07135
Property: 18-249 Lund Hill Solar Project
Re: SEPA – Review Comments

Dear Ms. Johnson:

Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP). The above referenced project has been reviewed on behalf of the SHPO under Washington State law. Our review is based upon documentation contained in your communication.

First, Site 45KL1907 was not reviewed as it is outside of the project area. We agree that the following properties are NOT ELIGIBLE for the National Register of Historic Places (NRHP) under any criteria:

- 45KL549
- 45KL740
- 45KL1312
- 45KL1313
- 45KL1314
- 45KL1325
- 45KL1327
- 45KL1332
- 45KL1339
- 45KL1356
- 45KL1376
- 45KL1377
- 45KL1484
- 45KL1485
- 45KL1891
- 45KL1892
- 45KL1893
- 45KL1894
- 45KL1901
- 45KL1903
- 45KL1904
- 45KL1905
- 45KL2404
- 45KL2407
- 45KL2412
- 45KL2408

- 45KL2414
- 45KL2409
- 45KL2410
- 45KL2416
- 45KL2415
- 45KL2417
- 45KL2419
- 45KL2421
- 45KL2413
- 45KL2422
- 45KL2423
- 45KL2424
- 45KL2427
- 45KL2426
- 45KL2427

However, at this time we do not agree time that the following sites are not eligible for inclusion in the NRHP:

- 45KL1333
- 45KL1351
- 45KL1357
- 45KL2405
- 45KL2406
- 45KL2411
- 45KL2418
- 45KL2420

The prehistoric isolates listed above have not been evaluated using subsurface testing and therefore it cannot be demonstrated that they are single artifacts with no subsurface component. The prehistoric sites have also not been tested for subsurface deposits. While the potential is low, subsurface deposits, if present, could contribute to their eligibility under Criteria D. The historic sites listed do also have potential for subsurface deposits, as noted in their evaluations. Further evaluation of the historic sites can address their eligibility under Criteria D.

It is important to note that prehistoric sites, including 45KL1904, are protected under Washington State law (see RCW 27.53). If the prehistoric sites cannot be avoided then an archaeological excavation permit will be necessary (see WAC 25-48).

Thank you for the opportunity to review and comment. Please ensure that the DAHP Project Number (a.k.a. Project Tracking Code) is attached to any communications or submitted reports. If you have any questions, please feel free to contact me.
Sincerely,

Dennis Wardlaw
Transportation Archaeologist
(360) 586-3085
dennis.wardlaw@dahp.wa.gov

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

May 28, 2019

Mo-chi Lindblad
Klickitat County Planning
228 W. Main MS: CH-17
Goldendale, WA 98620

Re: SEP2018-22, EOZ2018-01

Dear Mo-chi Lindblad:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for Lund Hill Solar Project, proposed by Aurora Solar, LLC. We have reviewed the documents and have the following comments.

WATER QUALITY

Project with Potential to Discharge Off-Site
If your project anticipates disturbing ground with the potential for stormwater discharge off-site, the NPDES Construction Stormwater General Permit is recommended. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit may take 38-60 days.

The permit requires that a Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) shall be prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water and storm drains by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading, or construction.

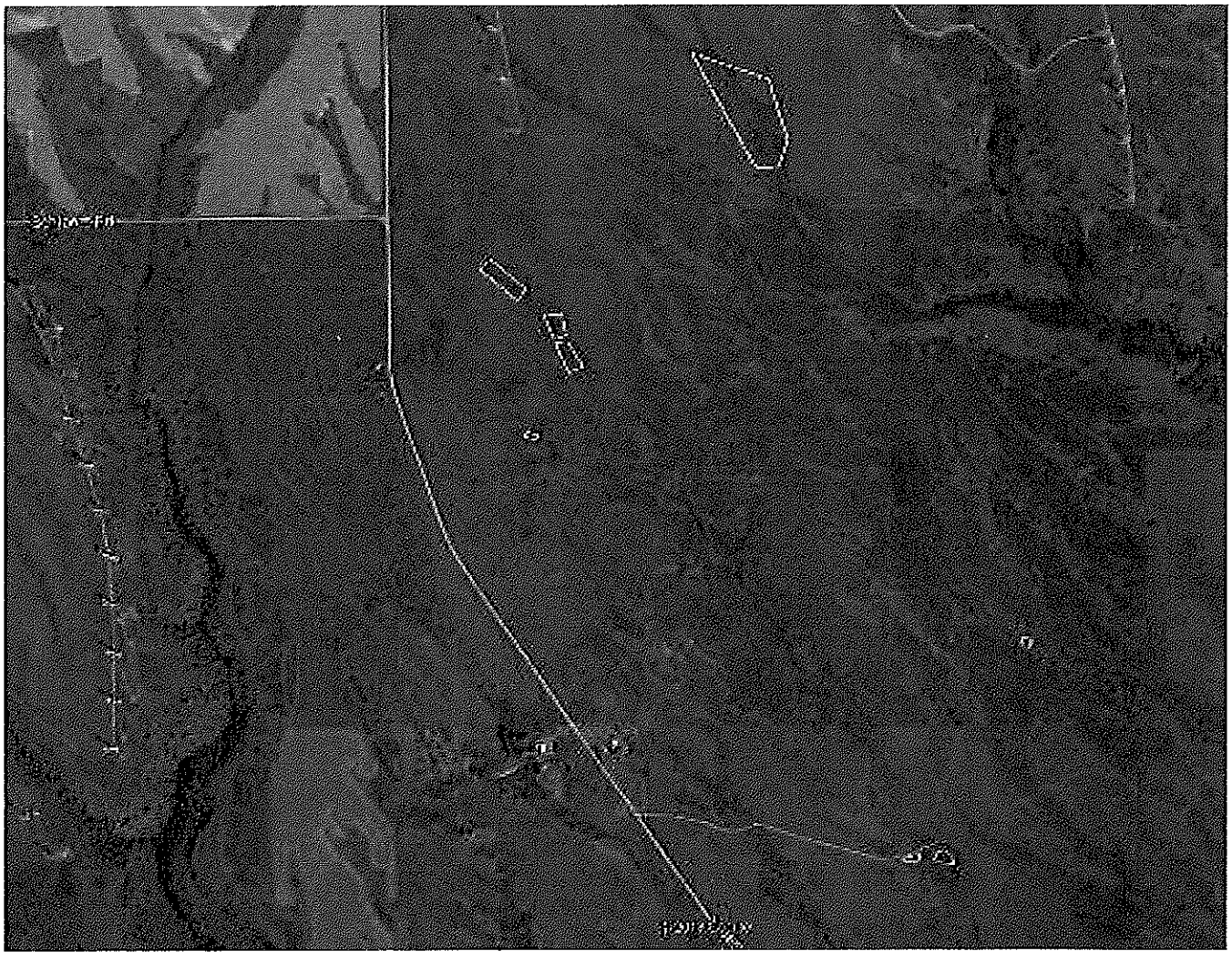
In the event that an unpermitted Stormwater discharge does occur off-site, it is a violation of Chapter 90.48 RCW, Water Pollution Control and is subject to enforcement action.

More information on the stormwater program may be found on Ecology's stormwater website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/. Please submit an application or contact **Lloyd Stevens, Jr.** at the Dept. of Ecology, (509) 574-3991, with questions about this permit.

SHORELANDS/ENVIRONMENTAL ASSISTANCE

The provided wetland delineation report determined 30 wetlands and 22 streams occur within the Lund Hill Solar Project site.

A few additional areas of interest was observed during Ecology's review of the wetland delineation. The areas of interest did not have data sheets provided. Ecology would like to inquire if the areas highlighted below were investigated and if a data sheet could be provided. If they were not previously sampled, could they be?



Ecology recommends the County request additional investigation of the areas identified below. In addition, wetland habitats located within 300 feet of the project site boundary should be rated

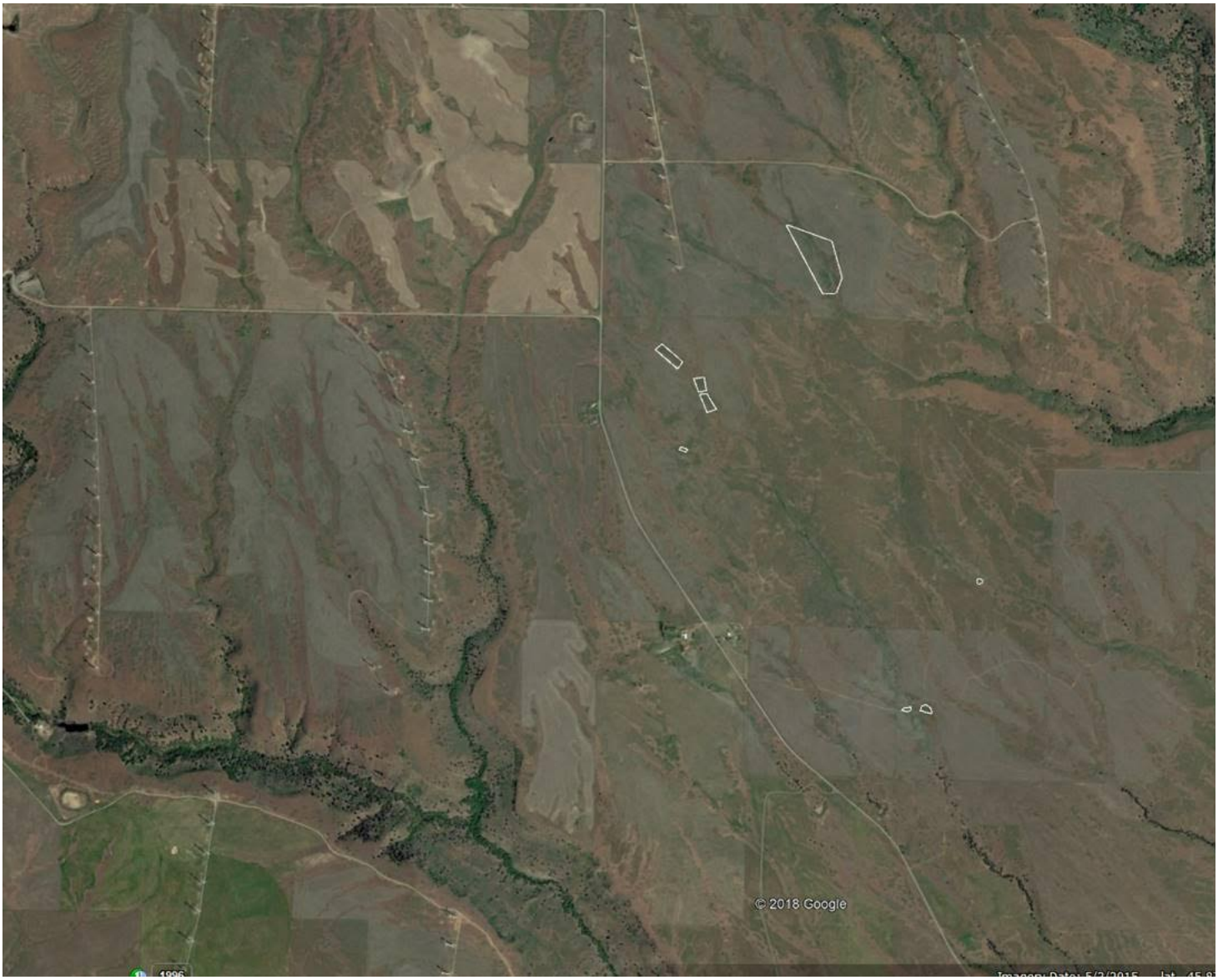
Mo-chi Lindblad <mo-chil@klickitatcounty.org>

Fwd: Comments for SEPA2018-22, EOZ2018-01

White, Lori (ECY) <lowh461@ecy.wa.gov>
To: Mo-chi Lindblad <mo-chil@klickitatcounty.org>

Good Morning Mo-chi,

Below is a screen shot. Maybe it will be helpful? They areas of interest are east of Middle Road.



Lori B White

Shoreland & Wetland Specialist

Department of Ecology ● 1250 W Alder Street ● Union Gap, WA 98903 ● lori.white@ECY.WA.GOV ● 509-575-2616

[Quoted text hidden]

per Klickitat County Code Ordinance No. O080613 to determine the extent of required wetland buffer habitat.

Solar panels should be sited outside wetland and buffer habitats. Solar farms are currently considered as a high land use intensity, as they reduce and degrade habitat, while producing a large amount of heat. Maintaining appropriate buffer widths from wetland and stream habitats will be imperative in preventing degradation of these habitats.

Avoid and minimize impacts to wetland habitat to the greatest extent possible.

In the event wetland or wetland buffer habitats occur in the area and impacts cannot be avoided a mitigation plan must be submitted for review.

Placement of fill in wetlands may require an individual or general (nationwide) permit from the U.S. Army of Corps of Engineers (Corps). We advise the applicant to contact the Corps to determine if a permit is needed.

Ecology recommends a joint site visit be conducted with the applicant, Klickitat County, WA Department of Fish and Wildlife, Corps, and Ecology once the site location has been determined. Ecology staff is available to provide technical assistance to the County by reviewing wetland delineations, ratings, and verifying wetland delineations in the field.

Please contact **Lori White**, at (509) 575-2616 or lori.white@ecy.wa.gov, should you have any questions regarding the above comments.

Sincerely,

Gwen Clear

Gwen Clear
Environmental Review Coordinator
Central Regional Office
(509) 575-2012
crosepacoordinator@ecy.wa.gov

201902329

State of Washington
Department of Fish and Wildlife
Habitat Program
2620 North Commercial Avenue, Pasco, WA 99301
Phone: (509) 543-3319, E-mail, Michael.Ritter@dfw.wa.gov

MWR-08-19

May 31, 2019

Mo-chi Lindblad
Planning Director
Klickitat County Planning Department
228 West Main Street
Goldendale, WA 98602

Subject: **Draft Environmental Impact Statement (DEIS) comments, Lund Hill Solar Project, EOZ2018-01 & SEP2018-22**

Dear Ms. Lindblad,

The Washington Department of Fish & Wildlife (WDFW) has reviewed the DEIS for Avangrid's 150 megawatt Lund Hill solar project (LHSP) in Klickitat County. We offer the following comments for your consideration.

General Comments

The proposed LHSP encompasses 1,871 acres and is located at the northern end of the greater 4,513-acre solar facility siting area and adjacent to the Big Horn and Juniper Canyon I wind projects on the north and north east, respectively. The natural resources of this entire area was previously characterized in 2008 as part of the proposed Juniper Canyon II wind project, but was not constructed. This data, as well as that collected from the nearby and proposed, but not constructed, Lund Hill wind project (2010) form the basis for providing biological information concerning the LHSP, potential impacts, and mitigation measures. However, several data updates for raptors, vegetation, and wetlands were provided in the DEIS to give a better understanding of the present day biological resources within the solar facility siting area, including the project site.

Specific Comments

Avian
The lack of current bird data for the project site is concerning since without it, impacts to shrub-steppe and grassland bird species within the project site cannot be addressed. In fact, in our December 2018 EIS scoping comment letter, we recommended pre-project avian surveys. While it might be reasonable to assume that similar species have and are continuing to use this landscape as the DEIS states, the

relative numbers are lacking. Had this information been collected, then the project could have assessed avian responses to solar development and provided useful information for future solar projects and could have developed an adaptive management plan as a best management practice.

For other solar projects in the state we have recommended at least two surveys during the spring (April and May) to record bird species and plants species with a special emphasis on WDFW PHS plant and animal species and DNR Heritage plant data, as well as on deeper soils for burrowing owl and ground squirrel. The type of survey methodology was not specifically addressed but we recommended walking transects of approximately 60 meters apart during good weather conditions (low-moderate wind and little-no rain). All PHS species locations, DNR Heritage, and nest sites should be recorded (GPS). A comprehensive wildlife list should also be kept of all species seen. The entire project site should be surveyed, with focus on deeper soil community areas. If species are identifiable via scat or tracks, they should also be noted.

Raptor

Raptor nest data from 2008 and 2010 were collected within 2 miles of the wind project boundaries and include the solar facility siting area, including the project site. Approximately 60 nests were recorded with more than half being raven or inactive. These nests are monitored as part of risk management associated with the adjacent and operational wind projects so there is suitable data for the LHSP. A raptor nest survey is scheduled for 2019 within 2 miles of the solar facility siting area to provide current raptor nest data.

For other solar projects in the state, we have recommended that raptor nest surveys would occur within one-mile of the project sites to assess nesting activity and to implement nest buffers if needed during construction. Buffers could be up to 0.5 miles for Ferruginous hawk and up to 0.25 miles for other raptors, not including eagles.

Stream and Wetlands

Both streams and wetlands were recorded within the larger solar facility siting area with 0.433 acres of stream and 5.039 acre of wetland habitats in the project area. All stream and wetland habitats occur within slightly steeper draws and canyons, will not have solar development in or through them, and will have the appropriate buffers per Klickitat CAO.

Vegetation

We appreciate the thoroughness of the vegetation survey for the entire solar facility siting area since vegetation impacts are likely to occur at LHSP. These surveys recorded two state threatened species, hot-rock penstemon (*Penstemon deustus var. variabilis*) and foxtail mousetail (*Myosurus calvicaulis*) and a likely state endangered species, vernal pool mousetail (*Myosurus sessilis*), since this is the only occurrence of vernal pool mousetail in Washington State. However, the location(s) of these plant species was only given as within the larger solar facility siting area and without a better idea of their location(s) we cannot make recommendations for protection.

The previous surveys in 2008 also identified woven-spore lichen (*Texosporimu sancti-jacobi*), a state threatened species, in the present-day solar facility siting area. Due to the limited distribution and state listing of this plant and the ones listed above, we recommend that additional pre-construction surveys be conducted within the smaller project site. If any of these plants are documented in the project site, then we recommend full avoidance and protection.

Additionally, as described in Section 3.3.5.4. of the DEIS, we fully support the development of a Restoration and Weed Management Plan, to include monitoring, for the restoration of the site through noxious weed control and native plant re-establishment that may include reseeding.

There is little scientific data for the suitability of native plant species and types, restoration practices, and vegetation management within an operational solar facility. Therefore, we look forward to collaboratively working with the project developer to better understand how to promote and manage diverse shrub-steppe habitat within an operational solar facility.

Project Layout and Impacts

Based on information in Table 3.3-4 of the DEIS all 1,871 acres of habitat will be permanently impacted, including 731 acres shrub-steppe (40%), 860 acres CRP (46%), and 272 acres scrub/shrub and grasslands (14%). Using the mitigation strategies in the WDFW Wind Power Guidelines, almost 2,600 acres would be required for mitigation. Yet, information gathered from the site visit on May 9 regarding the steeper canyons and draws and the type, arrangement, and installation of the solar panels leads us to question if all acres will be impacted.

Figure 2-2, Project Layout, shows that the slightly steeper canyons/draws that generally run NW-SE through the site will not be impacted or fenced and this was confirmed during the site visit. These areas would remain open providing some semblance of habitat connectivity across the local landscape. In essence, the larger project becomes a series of fenced solar arrays separated by open and connected canyons/draws. Figure 2-2 does indicate that in at least two areas there are "dead end" canyons/draws within the solar array. We recommend that the arrays in these areas be redesigned to connect these areas with existing pass through canyons/draws. Finally, these acreage within the canyons/draws could be calculated thereby reducing the overall habitat impacts.

The discussions at the LHSP site and the site visit to Avangrid's Wy'East solar facility east of Wasco, Oregon was useful in understanding how the type, arrangement, and installation of solar panels may or may not negatively impact native vegetation. Presently there is considerable uncertainty regarding the type and arrangement of solar panels for the LHSP and this could significantly affect the amount of habitat that is impacted. We were told at the Wy'East facility that the spacing between the rows was the minimum that would occur for the LHSP. Based on our calculations, the distance between the rows (pile to pile) at Wy'East was 30 feet. Subtracting some for the panels on each row results in about 24 feet of open space between rows with a panel shadow zone on each side. Virtually none of the ground that is under the rows of panels is in complete shadow all day due to the panels that track the sunlight throughout the day. We understand that some disturbance will occur to habitats between and underneath rows during construction, but once operational, the open areas between rows could continue to support native habitat.

Wy'East uses 3' x 6' panels placed side by side by side creating long 6'-wide rows. However, if two panels are aligned in portrait creating a 3' x 12' panel, row spacing would increase due to shadow affects from adjacent rows. Additionally, if bifacial (collect solar energy on both sides) panels are used then row spacing may also have to increase to account for shadowing influences from adjacent rows, but the terrain and vegetation underneath may need more "adjustment" to provide correct reflective slope and vegetation type and height. Because of this we recommend that the LHSP not use bifacial panels since this would likely result in more land disturbance and additional loss of existing native habitats.

Also at Wy'East, the rows of panels followed the contours of the land and there appeared to be very little grading. Granted, it was once a dryland wheat field with gentle contours, but earthwork can be expensive, disrupts moisture absorption and drainage, and usually negatively impacts native vegetation and wildlife. At the LHSP site we recommend that these same principles of none to minimal earthwork and following contours be used for constructing the rows of solar panels. This will maintain more of the existing and natural ecology of the site and reduce overall project impacts.

Fencing in an entire solar facility represents a loss of habitat for many medium to large terrestrial animals that are unable to pass through the openings in the fence. We provided fencing considerations in our December EIS scoping comments and the discussions we had during the site visit indicate that fencing options are possible to include larger openings, elevated off the ground, and greater height without barb wire.

The DEIS identifies that there will be approximately 33 miles of collector lines installed mostly underground, and above ground/ overhear where they cross the slightly steeper canyons/draws. We recommend that any trenching operations first retain topsoil in a separate pile and when back filing, top off the trench with the topsoil. Additionally, since the canyons/draws will not be developed, it would be ideal if the collector lines did not cross them and the collector line system could be designed to run more south to north and avoid these open spaces.

The DEIS also identifies 22 miles of 16-ft wide gravels roads within the facility. Similar to what was stated for collector lines, roads should not cross canyons/draws. Road crossings would result in the loss of native habitat, likely disrupt drainage patterns, and impact the open nature of these land features that provide habitat connections to adjacent landscapes.

Mitigation

Throughout the Columbia Basin, loss of shrub-steppe habitats have been mitigated at least 2:1 for residential, agricultural, and wind energy development. Based on the information above, we believe that there are less than 1,871 acres of impacts that must be mitigated for the loss of habitats at the LHSP. We recommend that canyon/draw habitat be subtracted out, as well as total acreage between rows.

Additionally, nation-wide there is a lack of science related to solar energy development impacts on native habitats and impacts to and responses of wildlife, birds, and raptors. We discussed the applicability of research-based studies as mitigation at the LHSP as one way to gain information on impacts and responses to inform future decisions related to solar development. While the WDFW Mitigation Policy supports no net loss of habitat functions and values it also allow for studies to determine impacts and mitigation.

Summary

In closing, the LHSP will result in the direct loss of habitat and wildlife impacts within and adjacent to the 1,871-acre project site. The open canyons/draws will provide some connectivity corridors through the project and across the local landscape, and "open" fence designs will permit some animal movement though the site.

We believe that not all 1,871 acres in the project site will be permanently impacted and that panel type and arrangement could further reduce impacts. Therefore, we recommend that only mono-facial panels

be used and that land work be kept to a minimum to retain the existing topography and vegetation.

To better understand the mitigation requirements, we recommend that the project developer recalculate impacts to vegetation by subtracting the canyon/draw acreage, as well as the acreage between rows. Once this is determined, there will be a reasonable starting point for mitigation discussions.

Thank you for the opportunity to provide these comments. We look forward to working with all interested parties on the proposed LHSP. Please contact me with any questions at Michael.ritter@dfw.wa.gov or at 509-543-3319.

Sincerely,

Michael Ritter
Habitat Biologist

cc: Nicole Czarnomski , WDFW Major Projects and Restoration Division Manager, Olympia
Dave Howe, Region 5 Habitat Program Manager, Ridgefield
Perry Harvester, Region 3 Habitat Program Manager, Yakima
Elizabeth Torrey, Region Assistant Habitat Program Manager, Ellensburg
Scott Downes, Habitat Biologist, Region 3, Yakima
Amber Johnson, Habitat Biologist, Region 5, White Salmon
Stefanie Bergh, Wildlife Biologist, Region 5, White Salmon

KLICKITAT COUNTY

PUBLIC WORKS DEPARTMENT

228 WEST MAIN STREET, MAIL STOP, CH-19, GOLDENDALE, WASHINGTON 98620 • FAX 509 773-5713 • VOICE 509 773-4616
GORDON J. KELSEY, P.E. - PUBLIC WORKS DIRECTOR

DATE: May 31, 2019

TO: Mo-chi Lindblad, Planning Director
SEPA Responsible Official

FROM: Gordon Kelsey, P.E.
County Engineer/Public Works Director

RE: Lund Hill Solar Energy Project, Draft EIS Review

Public Works has the following comments:

Section 1.1.2 Operations and Maintenance Facility

The EIS States that the O&M building would be located at the intersection of Schrantz and Middle Roads or use the existing Big Horn O&M facility. Big Horn Road is currently classified as a Primitive road and would need to be upgraded. If the Big Horn O&M facility is used then it shall be upgraded by the applicant to meet a minimum fire access road standard per Title 12 of the Klickitat County Code and be a minimum of 22 ft. in width.

Table 1.1 Construction Schedule

The schedule shows road construction in December 2019 thru January 2020. Typically, Klickitat County experiences freezing temperatures during these months and compaction of the soil and crushed rock for road building requires the addition of water to obtain maximum compaction. How does the applicant plan to obtain compaction of their materials during these times?

Section 3.4.2.5, Stormwater:

The applicant is required to prepare a Stormwater Report per the Washington State Department of Ecology's (DOE) Stormwater Management Manual for Eastern Washington State.

Section 3.9 Traffic

The Lund Hill Solar project will create a significant increase in traffic on county roads. There will be over-width and over-length loads. There will be overweight loads and legal loads they will want to move at times when the existing roads are not strong enough to support the traffic Public Works still needs a geotechnical report which analyzes pavement and subsurface conditions to adequately evaluate the Lund Hill Solar Project proposal and its potential impacts to county roads. We recognize that the project manager is working with their consultants to prepare reports based on the attached Geotechnical guidelines and await their submission.

The developer needs to analyze the adequacy of county roads, i.e., the routes proposed to be used as Haul Routes for materials such as gravel, concrete, water, etc. and solar parts to determine if they will support the proposed traffic loads. The analysis shall be performed by a licensed geotechnical engineer who specializes in pavement analysis and design.
The EIS should identify the anticipated source location for products used in the construction, maintenance, including aggregate sites, concrete batch sites, and water to be used for the project and identify the anticipated haul routes to the Project.

Any mitigation necessary to support this project's traffic impacts shall be performed prior to the start of any hauling operations.

If mitigation work occurs on county roads as a result of the Geotechnical Evaluation, the applicant shall reimburse the county for reasonable road inspection costs.

All materials used on county roads shall meet the requirements for materials and placement in the most current version of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction.

It will be required that a formal road haul agreement with financial security be developed and agreed to prior to construction to address road maintenance issues and damages that may arise during construction.

The report states that roads may need to be closed during construction of the project. All road closures must be approved by Klickitat County prior to implementation.

Any new or existing driveways used for this project will need permits.

Section 3.9.2.2 & Table 3.9-1
No data was provided for Klickitat County roads. Data for these roads is available through the Klickitat County Public Works office, 509-773-4616.

The other county roads proposed to be used by this project had no reported collisions during the same time period. The report accurately states that the statewide average collision rate for rural collectors is 1.55 collisions per MVM. The two primary roads which have been proposed for use as haul routes have collision rates that far exceed State Averages.

Table 3.9-2 Traffic Accident Statisics
Collision rates should be used as they offer a better comparison between roads with drastically different traffic volumes. What will likely be shown is that County collision rates exceed the State collision rates.

Thanks for the opportunity to comment.

Sincerely,

Gordon Kelsey, PE
County Engineer

Guidelines for Geotechnical Evaluation of Klickitat County Roads

Several large capital developments have been and are currently being constructed in various areas of Klickitat County (County). The construction of these facilities requires transportation of heavy equipment and materials to remote areas of the County using its roads that are not generally designed to handle such traffic loading. This increased loading has a negative impact on the roadway pavement or traffic bearing surface resulting in reduced service life and, in some instances, pavement distress or premature failure. Accordingly, the County requires means of assessing what the potential near and long-term impacts these large development projects are likely to have on its roadway infrastructure. With this information in hand, the County can then determine what mitigation measures will be necessary to be implemented in advance and/or follow-up to completion of any given project.

For each proposed large development project, the impacted roads should be identified, analyzed and their structural capacity should be determined in the context of anticipated additional loading conditions that the project(s) will impose. If and as necessary the structural capacity of the roadway sections being impacted should be increased to accommodate the anticipated traffic loading associated with the specific development project. Alternatively, post-project completion reconstruction of roadway sections should be performed on section-specific basis, as identified with follow-up studies.

This document is intended to serve as a general guideline for geotechnical investigations or studies directed at determination of the structural condition and adequacy of existing Klickitat County roads for purposes of handling increased traffic related to construction of large capital developments within County boundaries. The following should be included in such investigative studies but it is not intended to preclude or limit provision of other information that may be relevant to the structural assessment.

A. IDENTIFICATION OF PROJECT LOCATION AND POTENTIALLY IMPACTED ROADWAYS

For a given large development project, all key components of the project, including building and facility sites, temporary lay down and materials supply (i.e. concrete and roadway construction aggregates) and storage areas, should be located on suitable mapping, and the project transport routes that utilize any and all portions of County roads clearly identified. Concrete batch plant and asphaltic pavement processing facilities should also be located relative to the proposed project development. Traffic loading conditions and frequency, in terms of project-duration equivalent single axle loadings (EASLs), should be established for each roadway route segment affected. Special traffic loading conditions, such as exceptionally heavy equipment and/or materials transporters should be identified specifically, as may be appropriate.

B. GEOTECHNICAL INVESTIGATION

A geotechnical investigation should be performed on a representative portion of the County roadway system that will be impacted by the traffic that will be associated with the development project. This investigation should be performed and submitted to the County and its agents for

review sufficiently in advance of the project to permit the County to adequately assess the potential impacts and formulate plans related to determination of mitigation measures that it may deem necessary. It is recommended that such investigation include but not necessarily limit themselves to addressing the following aspects.

1. Site Geology

Site geology should be identified and its relevance or otherwise to the proposed project development and County roadway system discussed. This discussion should include information on local/regional ground water conditions and potential influence on the roadways and their utilization. For example, are there any ground water discharge areas along the routes that may influence roadway embankment and pavement structure performance?

2. Climatological and Terrain Conditions

Climatological factors such as precipitation and freeze-thaw characteristics prevalent to the project area and influencing the County roadways should be identified and discussed in respect to potential impacts on roadway performance and serviceability. For example, is there a need to seasonally restrict pavement loading due to frost dissipation conditions. Terrain conditions should be identified, both on a regional and localized basis, in respect to potential impact of precipitation runoff and any significant areas of ponding adjacent to portions of the roadway embankment, or within the pavement structural layer, should be identified and flagged for potential mitigation measures.

3. Non-Destructive Testing of Existing Roads.

Non-destructive testing of the roadway pavement, such as performed with a Falling Weight Deflectometer (FWD), should be conducted on identified routes that will be used to truck in all necessary equipment and materials to build the development project. FWD testing can be used to identify any isolated irregularities in existing pavement structures. FWD testing results can also be used to back-calculate the resilient modulus of existing subgrade soils.

4. Subsurface Investigation.

A subsurface investigation program of the identified routes should include advancing an adequate number of shallow (7.5 feet to 10 feet deep) boreholes to investigate the composition and the geometry of the existing pavement sections. The frequency and spacing of the boreholes should be sufficient to adequately identify both pavement structural conditions and subgrade characteristics. Typically, a maximum spacing of the order of 500 to 600 feet is recommended, but this may need to be reduced where significant variability is apparent in the subgrade soils, or may be increased where uniformity is identified. Results from the FWD testing may serve as an initial indicator to borehole spacing requirements.

In general, SPT testing and soil sampling should be performed at 2.5-feet depth intervals to assess the consistency and characteristic nature of the subgrade soils. The cuttings from borehole drilling of subgrade soils should also be sampled, as necessary to augment the SPT samples for purposes of proper classification of subsurface soil materials. Groundwater conditions should also be noted. Logs of all boreholes should be prepared which includes SPT results and sufficient descriptions of subsurface materials and conditions encountered to permit assessment of subgrade characteristics.

5. Laboratory Testing of Soils.

Laboratory testing should be conducted on selected representative soil samples to characterize relevant engineering properties of the on-site soils. Laboratory tests should include, but not necessarily limited to, moisture content determinations, grain size distributions, Atterberg Limits, and any other tests that are needed to characterize the subsurface soils. Soil samples obtained from cuttings should be aggregated into representative bulk specimens to be used to identify Modified Proctor moisture-density relationships, and for CBR testing. CBR testing samples should be reasonably distributed along the entire routes in order to yield representative values of CBR ratio. Alternatively, or in addition to, resilient modulus testing of representative soil specimens may be performed to augment the CBR results and confirm back-calculated modulus values based on the FWD testing results.

6. Pavement Analyses

The subsurface soil exploration results should be used to identify existing 'typical' pavement structures. Reasonable structural coefficients need to be assumed for each material encountered in these pavement sections, and Structural Number (SN) values are to, accordingly, be assigned to the existing 'typical' pavement sections.

FWD testing results should be used to check if any substantial irregularities exist along the identified routes, and whether additional subsurface explorations will be warranted. Resilient modulus values for existing subgrade soils shall be estimated either from FWD testing results or using CBR ratios obtained from laboratory testing of various soils.

7. Calculation of Estimated Traffic Loading.

The traffic loading to be considered for any given roadway section should include all traffic generated during construction and commissioning of the proposed development project. This loading should be expressed in terms of Equivalent Single, Axle Load (ESAL) and should include at least the following components:

- ESALs associated with the transportation of all gravel.
- ESALs associated with the transportation of all cranes needed to erect the infrastructure.
- ESALs associated with the transportation of concrete and steel reinforcement needed to cast the foundations of all structures.

- ESALs associated with the transportation of cement or asphalt and aggregates to the proposed batch plant locations.
- ESALs associated with the transportation of electrical equipment associated with re-assembling of all the infrastructure.
- ESALs resulting from the rehabilitation of the existing routes, as well as, those associated with the building of all new needed temporary roads.
- ESALs associated with the transportation of water needed in the concrete batch plant and water used in the construction of new and rehabilitated roads.
- ESALs associated with any other activity that is not indicated above.

Various relevant components of anticipated traffic loading should be summed together for different sections of the existing roads and these are to be used to establish the degree of pavement rehabilitation needed.

8. Design of Road Rehabilitation

AASHTO 93 pavement design method should be used to estimate the design SN needed to accommodate anticipated traffic loading related to the building of the development. To determine the existing SN of 'typical' pavement sections, data from boring logs should be used to determine the depth of each layer and an adequate structural coefficient should be selected for each existing pavement layer. This existing SN shall be subtracted from the design SN and the resulting SN will thereby serve as the basis for recommendations or measures to rehabilitate pavements of all route sections. The pavement rehabilitation design should be performed in such a way that the resulting post-construction pavement sections will still have at least the current remaining service life.

9. Geotechnical Reporting

The geotechnical engineering report should include all relevant data acquired in the investigation process, as discussed above, in a format that is concise and clearly laid out. Methods and means used in the investigation and exploration program, as well as laboratory testing, should be identified and any anomalies in any of the data/results should be explained sufficiently in respect to conclusions reached.

Conclusions should be provided in a clear and concise manner regarding existing pavement conditions and their serviceability or design life prior to proposed development construction activities.

Proposed mitigation measures should be identified from available viable alternatives and reasons given for selection of a specific mitigation or remediation alternative. A section of the report should include detailed construction recommendations for the proposed mitigation or rehabilitation measure proposed.

Confederated Tribes and Bands of the Yakama Nation
Established by the Treaty of June 9, 1855

Post Office Box 151
Toppenish Washington 98948

Kimberly Johnson
PaleoWest Archaeology
34346 NE Electric Road
Corvallis, OR 97333

May 3, 2019

Dennis Wardlaw
Washington State Department of Archaeology and Historic Preservation
PO Box 48343
Olympia, WA 98504

RE: Lund Hill Solar Project Survey Report
DAHP# 2018-09-07135

Dear Ms. Johnson and Mr. Wardlaw,

Our office was recently notified that the Lund Hill Solar Project Survey report was available for review. In general, the Yakama Nation remains concerned that most of this coordination has been conducted by the archaeological consultant, with whom we prefer not to share sensitive data. Without the careful attention of the Department of Archaeology and Historic Preservation, our office would not be aware of this report or associated comment periods. We continue to request Klickitat County's active engagement pursuant to our previous letter. We further ask PaleoWest to use discretion in its documentation of "no response" from Yakama Nation. Yakama Nation, in general, prefers to be contacted by the appropriate government agency and asks that contractors not imply that they have any delegated consultation authority.

We have reviewed the archaeological survey report and have the following comments:

- (Page 22) the author states that the Lund Hill Region "was not a center of habitation", and represents "temporary and transitory" use. This is incorrect. Two village location are located just north of the Lund Hill project. The area contains many TCPs as well. The landscape was an integral part of Native American lifeways at this location.

- Sites must be tested for extent in order to determine site boundaries needed for avoidance and project planning. Isolates need to be tested to determine if they are truly isolates.

- Eligibility criteria should not be applied to precontact sites under state law jurisdiction (see RCW 27.53). State law protects all precontact resources. Borrowing federal terminology for state-level projects confuses the regulatory compliance process. We ask that the report be edited to conform with state law (i.e. remove reference to eligibility for all precontact resources). Yakama Nation CRP dose not concur with eligibly recommendations/evaluations for precontact resources.

- We request full avoidance of all precontact archaeological sites with a minimum 30 meter buffer once subsurface testing is completed to determine site extent.

In response, please feel free to contact Yakama Nation Archaeologist, Jessica Lally at 509-865-5121 x4766.

Sincerely,

Casey Barney

for Johnson Meninick,
Yakama Nation Cultural Resources Program Manager

CC: Mo-Chi Lindblad, Klickitat County Planner's Office

Darby S. Hanson

1130 Middle Road • Bickleton, WA 99322 • (509) 384-9432 • darby@gorge.net

May 31, 2019

Klickitat County Planning Department
228 W. Main Street, MS: CH-17
Goldendale, WA 98620

Subject: Comments on the Draft EIS for the Lund Hill Solar Energy Project

I have reviewed the Draft Environmental Impact Statement for the proposed Lund Hill Solar Energy Project to be constructed around our house, and I have a few comments to be addressed in the Final EIS.

First, a nit pick in the Acronyms and Abbreviations section, page xiv. For PM_{10} & $PM_{2.5}$, it should state that these are particulate matter with the corresponding aerodynamic radii.

In several sections, beginning in 1.2, they say that repair work on the county road to their Big Horn O&M facility "could be required", but I did not find a description of what those repairs might entail. I drove by that facility a few weeks ago, and the road from there to Schrantz Road, and over to Middle Road, were all roughly the same condition. I seem to remember that they were going to replace a bridge or two on Schrantz road during the Big Horm project construction, but that didn't happen. If road improvements are performed, then who is paying for the work?

On page 1-4, reference is made to a portable rock crusher. Unless I missed it, the document didn't state whether they planned to use an existing rock pit or if a new pit needed to be developed. A new pit needs to be shown on the maps. If an existing pit, then perhaps it should be shown, also, so I can know which way all the truck traffic will be going and plan accordingly.

Section 2.2.2.1 says that up to about 2.5 million gallons of water a year might be used for panel washing. That works out to about 6849 gallons per day average for a 365 day year. Section 3.4.2.3 mentions the Department of Ecology's water right exemption for less than 5000 gal/day groundwater withdrawals. How would anyone know the panel wash water was trucked in from a commercial well mentioned elsewhere, or if it came out of an exempt well such as proposed for any new O&M facility (sec. 2.2.4)?

Section 2.2.2.2 mentions the possibility of blasting for the support structures. The blasting plan must include testing of our well water before (and probably a few months after) any blasting is performed. We had an issue with excessive silt in our well after Big Horn construction that might have been caused by blasting.

Section 3.1.5.2 discusses the operational impacts of various noises (or sounds) from the project equipment. Table 3.1-5 lists 4 sound sensitive receptors. If these are the nearby residences, then why don't they state it in the text? Is our house "NSR 1"? (I don't know our UTM coordinates.) How far from our house is the nearest inverter bank? (I couldn't tell from the maps, but it could

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be just a few hundred feet.) At 93 dBA, these are on a par with listening to a heavy truck (or a Harley), all day, that doesn't go past until sunset. That won't be nice on a calm summer evening out on the porch. Those are the types of days when sound caries a long way out here.

Section 3.2.2.2 lists various air quality monitors in the region, none of which are very close to the Project. I know that the Roosevelt Regional Landfill maintains air quality monitors as part of their Title V Air Operating Permit. I do not remember the parameters they monitor, but they do monitor fugitive dust. Construction activity just a few miles away with a North or Northwest wind might affect their on-site monitoring.

Table 3.2-1 shows estimated air emissions for a hypothetical 150MW natural-gas-fired combustion turbine power plant. I am not sure that you can scale down from the 1300 MW reference plant, depending on the size of those combustion turbines and type of emissions control measures required. The Goldendale facility contains a similarly sized CT and would be a better reference.

Section 3.3.2.3 erroneously states that "black bear and cougar … are unlikely to occur" in the project area. Both species have been sited at various times in the past within the project area.

I only see one snake species mentioned in Table 3.3-3. There are several more. Most importantly to the operating personnel will be the two types of rattlesnakes. The fatter green ones are very aggressive! Also, we have seen several varieties of toads and frogs, not just the one mentioned.

Section 3.7 discusses aesthetics and glare issues that will most certainly affect us. All of the visual contrast evaluations and related text section impact discussions were downgraded merely due to the fact that the wind turbines exist out here. Yes, they dominate the skyline, but they do not cover hundreds of acres of the predominate landscape. These large-scale solar projects are not merely "noticeable" in their words. They will not just be " a thin dark line on the horizon" from a mile away, since they track the sun and will continuously change throughout the day. Out here, a mile is nowhere near the horizon. The large dark patch will stick out like a sore thumb from the more distant viewpoints. They will be almost all you can see from the close viewpoints. They will be a dominate feature out almost every window of our house, especially once a presumed phase 2 is built to the south.

By the way, shouldn't an obviously planned phase 2 be included in the EIS? I seem to remember other major projects in the past that included such discussions, usually a bit more limited due to all the unknowns.

In section 3.7.2.2, under Local Residents, it says they "may be more sensitive to changes in their specific views and may have adverse reactions to views of the Project facilities." It would be more accurate to say "Local residents that do not directly benefit from the Project ***will*** be highly sensitive to changes in their specific views and ***will*** have adverse reactions to views of the Project facilities." Again, they downplay the obvious negative impacts to the landscape.

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It would have been a better representative viewpoint number 1 if it had been about 1 mile south of Schrantz road. That picture shows one of the residences from a point at least a half mile closer than the other two nearby residences and doesn't really depict our normal view.

Regarding glare impacts, there will be some, but quantifying it is difficult due to the moving panels. I noticed the project going into Pendleton had to install signage on I-84 to warn drivers of the potential glare. During research, I learned that the signage was added after numerous complaints by motorists. Those panels appeared to be stationary, but I am not sure. Regardless, we will be very annoyed when the inevitable glare hits our house each morning and evening.

The document mentions several times that the panels are designed to absorb light and will have anti-reflective coatings. Nowhere does it state the actual index of refraction. This specification is required in order to calculate the potential reflected power.

Section 3.8.5, last bullet, says that site personnel will be issued cell phones in order to call emergency services when necessary. I suggest they have radios to call their office, since cellular service is very erratic here. Then, the office person can call 911 with a more reliable land line.

Section 3.9.4.1 estimates 380 one-way trips per day for the 9 to 12 month construction period. My guess is that would be an increase of at least 20 times the current rate. Middle road will turn into a long washboard a few days after grading during dry periods.

Then, there will be the wet and muddy periods. It was during such periods during Big Horn construction when our school bus ended up in the ditch with children aboard. Please require that large truck traffic be delayed on the gravel roads for the 30-40 minutes twice a day that the school bus is on this part of the route. Coordinate with the Bickleton School Superintendent. The road shoulders cannot handle a large vehicle much of the time, just ask the gravel truck driver and the crane driver who wrecked on their way up here during past construction.

Several items in section 3.12 seem to be out of date and/or wrong. For instance, Republic Services has owned the RRLF for several years now, not Allied Waste. I think the DNR office in Goldendale maintains firefighting crews during the typical fire season. Lifeflight is a separate entity from KVH. The Bickleton School has been running closer to 100 or so students and began direct pick-up of 7-12 graders in Roosevelt. Many (most?) new Diesel engines now have catalytic converters, but I do not know if they operate as hot as those on gasoline engines. Regardless, Diesel exhaust can still cause a fire when people park a hot vehicle in the tall, dry, grass.

Sincerely,

Darby Hanson

Darby Hanson

Mo-chi Lindblad <mo-chil@klickitatcounty.org>

Lund Hill Solar Energy Project - Notice of Application Administration Conditional Use ACE 2017-005

2 messages

robyn.mulenga@faa.gov <robyn.mulenga@faa.gov> Wed, May 1, 2019 at 10:32 AM
To: planning@klickitatcounty.org
Cc: Bill.Seth@faa.gov, Michelle.Leach@faa.gov

Hi Mo-Chi,

Per our phone conversation, I received your notice with the DRAFT Environmental Impact Statement for the Lund Hill Solar Energy Project (Reference SEP 2019-15). I've attached a form that FAA requires to be filled out and submitted for proposed constructions and alterations . Instructions are included in the form.

Thanks,

Robyn Mulenga

Real Estate & Utilities Branch

Western Logistics Service Area, ALO-820

Federal Aviation Administration

Phone: 206-231-3061

FAA_Form_7460-1_AJV-1-050117.pdf
347K

Mo-chi Lindblad <mo-chil@klickitatcounty.org> Wed, May 1, 2019 at 10:46 AM
To: robyn.mulenga@faa.gov

Received, will forward the form to the applicant. Thank you.

Mo-chi Lindblad | Director
Klickitat County Planning Department
Voice: 509.773.5703 | www.klickitatcounty.org

[Quoted text hidden]

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460–1, Notice of Proposed Construction or Alteration. FAA Form 7460–1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460–1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177
Fax: (817) 222-5920

Website: https://oeaaa.faa.gov

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High Intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held G P S instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.
ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.
ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 17'3" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at "http://store.usgs.gov". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.
- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

Please Type or Print on This Form

Form Approved OMB No.2120-0001
Expiration Date: 10/31/2017

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY

Aeronautical Study Number

1. Sponsor *(person, company, etc. proposing this action):*

Attn. of:

Name:

Address:

City: State: Zip:

Telephone: Fax:

2. Sponsor's Representative *(if other than #1):*

Attn. of:

Name:

Address:

City: State: Zip:

Telephone: Fax:

3. Notice of: ☐ New Construction ☐ Alteration ☐ Existing

4. Duration: ☐ Permanent ☐ Temporary (___ months, ____days)

5. Work Schedule: Beginning End

6. Type: ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☐ Other

7. Marking/Painting and/or Lighting Preferred:
☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity
☐ White-Medium Intensity ☐ Dual - Red and high Intensity
☐ White -High Intensity ☐ Other

8. FCC Antenna Structure Registration Number *(if applicable)*:

9. Latitude: 0 , , "

10. Longitude: 0 , ,

11. Datum: ☐ NAD 83 ☐ NAD 27 ☐ Other

12. Nearest: City: State

13. Nearest *Public-use* *(not private-use)* or Military Airport or Heliport:

14. Distance from #13. to Structure:

15. Direction from #13. to Structure:

16. Site Elevation *(AMSL)*: ft.

17. Total Structure Height *(AGL)*: ft.

18. Overall Height (#16 + #17) *(AMSL)*: ft.

19. Previous FAA Aeronautical Study Number *(if applicable)*:

-OE

20. Description of Location: *(Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey)*

21. Complete Description of Proposal:

Frequency/Power (kW)	

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a)

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date	Typed or Printed Name and Title of Person Filing Notice	Signature

Letters Received After the Formal Comment Period Ended

HILARY S. FRANZ
COMMISSIONER OF PUBLIC LANDS

DEPARTMENT OF
NATURAL RESOURCES

SOUTHEAST REGION
713 BOWERS ROAD
ELLENSBURG, WA 98926

509-925-8510
TRS 711
SOUTHEAST.REGION@DNR.WA.GOV
WWW.DNR.WA.GOV

July 31, 2019

Mo-Chi Lindblad
Klickitat County Planning Department
228 W. Main Street, M.S: CH-17
Annex 1
Goldendale, WA 98620

Subject: Comments on the Lund Hill Solar Project Draft Environmental Impact Statement (EIS)

Dear Ms. Lindblad:

The Washington State Department of Natural Resources (DNR) commented on the above referenced project by letter dated May 29, 2019. Avangrid Renewables has since contacted DNR requesting that we revise some of the comments made in that letter.

DNR's comments focused on three subjects: mitigation measures, request for further analysis, and information which appeared to be misleading, incomplete, or incorrect.

DNR's comments can be proprietary or regulatory. DNR programs such as fire, forest practices, surface mining, and/or others, have jurisdiction and regulatory responsibilities in both private and public lands according to the State Statutes which granted these authorities.

Looking through the comments in the May 29, 2019, letter, most comments were intended to be proprietary in nature, which means our comments are limited to the State's ownership. Additionally, DNR acknowledges there is no requirement to mitigate for loss of species not listed under the Endangered Species Act and other protections.

Avangrid Renewables provided a line by line response to DNR's comments on the Lund Hill Draft EIS which are attached to this letter. DNR generally agrees with all the responses provided in the "Draft Response" column.

Once again, thank you for the opportunity to comment on this EIS.

Sincerely,

for TW

Todd Welker,
Southeast Region Manager
Washington State Department of Natural Resources

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Washington Department of Natural Resources (DNR)/Todd Welker	DNR-001	General mitigation	Generally, the mitigation measures should be more specific, ensuring input from experts with solar experience and knowledge of lessons learned.	Comment noted. The DEIS was prepared by scientists and engineers experienced with the development of solar energy facilities. The FEIS will incorporate additional input from agencies on specific mitigation measures as applicable.
DNR/Todd Welker	DNR-002	Water	DNR proposes the following mitigation measures: • Buffering drinking sites and all riparian areas during all phases of the project including prior to construction.	Wetlands and their buffers, as defined in county regulations, will be avoided by the project. Erosion and sediment control BMPs will be implemented in order to avoid transporting sediment into riparian areas.
DNR/Todd Welker	DNR-003	Wildlife	[DNR proposes the following mitigation measures:] • Creating and implementing a plan for moving wildlife out of the fenced area over the course of the project, or measures for allowing wildlife to move in and out of the fenced area, like culverts or wildlife crossings. • If all wildlife are fenced out of the area, ensure a plan is in place for when they do enter, including animals digging under the fences.	There is no need to create a plan for moving wildlife. Wildlife that can get over, through, or under the fence can come in and out of the project area of their own volition. The perimeter fencing will be 8 feet in height, which is industry standard for excluding species such as mule deer. In the rare event that a mule deer is CCable to get into the fenced area, all reasonable attempts will be made by personnel to guide the animal to an open gate.
DNR/Todd Welker	DNR-004	Wildlife	[DNR proposes the following mitigation measures:] • Provide mitigation for wildlife that will not be able to avoid construction activities such as small mammals and reptiles. Will they be exterminated or is there a plan to move these species?	Numerous mitigation measures are proposed for anticipated project impacts to species and habitat types that are protected under Washington state or federal law. However, there is no legal requirement to mitigate specifically for the loss of species that are not listed under the Federal ESA, Bald and Golden Eagle Protection Act, or as threatened or endangered by the State of Washington. Revegetation of temporary disturbances and compensatory habitat mitigation will replace or improve habitat to support non-listed species affected by construction activities. Small mammals and reptiles will not be intentionally exterminated and there is no plan to move wildlife. Mitigation measures described in Section 3.3.5 are intended to avoid and minimize effects on wildlife, such as construction vehicle speed limits and environmental training for construction workers.

DNR/Todd Welker	DNR-005	Vegetation	[DNR proposes the following mitigation measures:] • Provide for the abandonment of temporary roads, revegetation and subsequent control of weeds.	Section 3.3.5.3 provides for a Restoration and Weed Management Plan to be developed in consultation with Klickitat County.
DNR/Todd Welker	DNR-006	Wildlife	[DNR proposes the following mitigation measures:] • As mitigation for the fenced area, acquisition of an area outside the fenced location to be improved for habitat with vegetation and nesting platforms.	Avangrid is working with WDFW to develop a habitat mitigation plan that will mitigate for project impacts including those resulting from fencing off the project site.
DNR/Todd Welker	DNR-007	Wildlife	[DNR proposes the following mitigation measures:] • Provide mitigation to respond to injured and dead wildlife.	See habitat mitigation response 004. Also, Section 3.3.5 of the EIS provides for construction and operation personnel to report injured or dead wildlife detected on site.
DNR/Todd Welker	DNR-008	Vegetation	[DNR proposes the following mitigation measures:] • Monitoring of the reseeded area after decommissioning to ensure the reseeding to native plants is successful. Monitoring may be required for several years to ensure establishment.	Avangrid is preparing a decommissioning plan for county approval that will describe revegetation efforts to restore the project site. Text describing this plan will be added to the EIS.
DNR/Todd Welker	DNR-009	Vegetation/T&E	[DNR proposes the following mitigation measures:] • Within the project area, there is a population of a G2 (threatened with extinction within its global range) plant that had previously been unknown to occur in Washington. There are also populations of two other threatened plant species within the project area. These species are all associated with vernal pools, drainages, and wetlands; the avoidance measures and mitigation measures for the sensitive plant species (including buffering the wetlands) should provide sufficient protection for these species. There is a chance the solar development will disrupt the hydrology of the area and introduce exotic plant species, thus eventually negatively impacting the rare plant species. Clarify that the buffers shown on the Appx. A: Delineated Wetland and Waters Mapbook are mitigation and will be implemented. DNR Natural Heritage Program requests monitoring of the rare plant populations to determine declines and, if observed, an adaptive management plan be implemented.	The buffers shown in Appendix A of the EIS will be avoided during construction and operation. Section 3.4.4.2 provides for project adherence to wetland and stream buffer setbacks required by Klickitat County as well as implementation of a SWPP and BMPs associated with the NPDES. No additional mitigation is necessary because impacts to streams and wetlands would be avoided. Project facilities would not be sited within any documented populations of special-status plant species and therefore would have no direct impacts. Indirect impacts would be avoided and minimized by implementation of the measures discussed in Section 3.3.5. Avangrid is not proposing to monitor special status plant populations identified during baseline studies.

DNR/Todd Welker	DNR-010	Vegetation	[DNR proposes the following mitigation measures:] • Include mitigation requiring proponent to prepare and implement a noxious weed control plan which includes controlling and preventing the introduction and spread of noxious weeds on the project area and to adjacent areas from the project area.	Section 3.3.5.3 provides for a Restoration and Weed Management Plan to be developed in consultation with Klickitat County.
DNR/Todd Welker	DNR-011	Land Use	[DNR proposes the following mitigation measures:] • Some permits acquired by the proponent can result in long-term mitigation requirements for the landowner after the project has ended. Require proponent to ensure DNR reviews and consents to permits on DNR-managed lands.	Avangrid currently does not anticipate any permits will be required for construction on DNR lands other than the county EOZ permit. Avangrid does not object to this requirement.
DNR/Todd Welker	DNR-012	Wildlife	DNR requests the following additional analysis: • Impacts to wildlife that will not have access to drinking sites and riparian areas. Page 3-22 discusses bats. but what about larger species like deer, coyote, badger... How important are these riparian areas to other species? Please provide a multi-year study where remote cameras are used to detect species using these sites.	During years of normal precipitation, surface water may be present between late fall and early spring in the streams and wetlands that were identified in the study area. Most of the delineated streams are ephemeral, while a few segments are intermittent, such that their use as a water source coincides with the time period when most other water sources would also be available. The primary surface water sources for larger species of wildlife would generally be the nearby Big Horn and Pine Creek streams, which will not be impacted by the project. The project will fence off a total of 2.5 acres of wetlands and 0.127 acre of ephemeral or intermittent streams, out of a total of approximately 5.04 acres of wetlands and 0.433 acre of streams that were delineated within the overall study area. This calculation does not include larger nearby features such as Big Horn and Pine Creek and their associated wetlands, which were not delineated as part of this study. Because the quantity of streams and wetlands that will be fenced off from access by big game is small relative to the total quantity of streams and wetlands available in the vicinity, and because these features do not contain surface water during the majority of the year, and larger water bodies are in close proximity, fencing off these features from access by big game will not significantly alter the availability of drinking sites.
DNR/Todd Welker	DNR-013	Wildlife	[DNR requests the following additional analysis:] • Because this is located within the Pacific Flyway and waterbirds and waterfowl have been	Currently, available data on this project is limited to information from projects in California. Because of this lack of data, it is unknown what landscape factors correlate with the presence of waterbirds at PV solar

			observed, please address lake effects and provide mitigation.	facilities. Thus, it cannot be assumed that waterbirds are at risk of collision at the Project. Project potential impacts on all birds will be minimized and mitigated by the measures described in Section 3.3.5 of the DEIS.
DNR/Todd Welker	DNR-014	Wildlife	[DNR requests the following additional analysis:] • References to information on the statement about current fragmentation from past disturbance likely reducing value to wildlife (3-17).	Text discussing habitat fragmentation will be removed from this section of the EIS. Change sentence to read "…; however, the amount of disturbance and presence of non-native grasses and forbs reduces its value to wildlife."
DNR/Todd Welker	DNR-015	Wildlife	[DNR requests the following additional analysis:] • Additional years of surveys need to occur, one year is not enough to make decisions with this level of impact.	The comment is not clear what exactly is being requested. One year of baseline data is adequate to describe habitat, rare plants, and wetlands.
DNR/Todd Welker	DNR-016	Wildlife	[DNR requests the following additional analysis:] • More information is needed to explain how "most wildlife should be able to avoid construction and operation activities" (page 3-27).	The DEIS currently describes how less mobile species might be affected. More mobile species would avoid construction and displaced individuals would have to compete for resources with other species in adjacent habitats (WDFW 2009). The EIS text will be changed to read "more mobile wildlife" instead of "most wildlife".
DNR/Todd Welker	DNR-017	Vegetation	The following information appears misleading, incomplete or incorrect: • It appears that nearly half of this project isn't actually taking land out of agricultural use, but taking it out of conservation. 3.3.2.1	Comment noted. The Affected Environment section for Vegetation describes how agriculture and grazing has influenced the existing conditions. Section 3.3.2.1 does not state that the project is taking land out of agricultural use; rather, it indicates that although the majority of the area has been heavily modified by agriculture and grazing, former agricultural fields within the area are no longer in active cultivation. Section 3.3.2.1, Table 3.3-1 discloses that a majority (47%) of the Solar Facility Siting Area is formerly agricultural fields that are currently revegetated (and possibly in the CRP). Information on which, any, of these lands are actively enrolled in the Conservation Reserve Program is not readily available. The entire area is currently grazed. It should be noted that the Solar Facility Siting Area is a much larger area than will actually be impacted by the project.

DNR/Todd Welker	DNR-018	Wildlife	[The following information appears misleading, incomplete or incorrect:] • Please include Juniper hairstreak butterfly in Juniper Woodland discussion on page 3-18 and reptiles in native grassland discussion on page 3-19. • Include owls, badgers and squirrels in affected wildlife species. • Page 3.27 says "Most wildlife should be able to avoid construction and operation activities." Using the word "most" seems optimistic when the numbers of small mammals, inverts, and reptiles are not known.	Juniper hairstreak butterfly will be added to Juniper Woodlands description. We note that there is limited information on this species occurrence but it is predominately tied to juniper woodlands; although present in a small portion of the solar facility siting area, this habitat will not be impacted by the project. Reptiles will be added to native grassland description. Owls are included in descriptions of the affected environment. Short-eared owl and great horned owl are included in Section 3.3.2.3 Raptor Nests. Owls are included in the description of Developed Habitat. Burrowing owl is included in the description of Native Grassland Habitat and is also listed in Table 3.3-3. Badgers are included in Section 3.3.2.3 Other Terrestrial Wildlife. Ground squirrels are included in Section 3.3.2.3 Other Terrestrial Wildlife. California ground squirrels are included in the description of Escarpment/Talus habitat. Townsend's ground squirrel is discussed throughout and included in Table 3.3-3. The Final EIS will note a text change to read "more mobile wildlife" instead of "most wildlife".
DNR/Todd Welker	DNR-019	Cultural	[The following information appears misleading, incomplete or incorrect:] • There is inconsistency in addressing cultural resources. Until the section (under 3.6.5) entitled Potential Impacts Through Redesign, it appears the proponent considered impact to all known sites "not significant" if they were not eligible for listing on a register. This is inconsistent with state law. However, in the Potential Impacts section (page 3-61), it clearly spells out that "pre- contact sites are protected under RCW 27.53 and require a DAHP permit if they will be disturbed, regardless of their register eligibility."	This inconsistency will be corrected in the Final EIS. The proponent understands that pre-contact sites are protected under state law and has avoided disturbance to these resources by project design.

Darby & Mary Jo Hanson

1130 Middle Road • Bickleton, WA 99322 • (509) 384-9432 • darby@gorge.net

July 31, 2019

Mo-chi Lindbald
Klickitat County Planning Department
228 W Main St #17
Goldendale, WA 98620
509-773-5703

Dear Mrs. Lindbald,

I am writing this letter as a follow up regarding my comments submitted on May 31, 2019 to the Lund Hill Draft EIS. Since providing my comments, the applicant contacted me regarding my concerns. At this time, the following concerns related to my personal property have been addressed to my satisfaction:

- Well testing prior to start of construction and after completion
- Operational impacts of the project such as noise and glare

I am formally asking to withdraw the two aforementioned comments contained within my letter.

If you would require any clarity on this matter, please contact me via email or phone.

Best regards,

Darby Hanson

3.0 Responses to Comments Received Regarding the Lund Hill Wind Energy Project

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Responses to Comments Received Regarding the Lund Hill Wind Energy Project

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Washington Department of Natural Resources (DNR)/ Todd Welker	DNR-001	General mitigation	Generally, the mitigation measures should be more specific, ensuring input from experts with solar experience and knowledge of lessons learned.	Comment noted. The DEIS was prepared by scientists and engineers experienced with the development of solar energy facilities. The FEIS will incorporate additional input from agencies on specific mitigation measures as applicable.
DNR/Todd Welker	DNR-002	Water	DNR proposes the following mitigation measures: • Buffering drinking sites and all riparian areas during all phases of the project including prior to construction.	Wetlands and their buffers, as defined in county regulations, will be avoided by the project. Erosion and sediment control BMPs will be implemented in order to avoid transporting sediment into riparian areas.
DNR/Todd Welker	DNR-003	Wildlife	[DNR proposes the following mitigation measures:] • Creating and implementing a plan for moving wildlife out of the fenced area over the course of the project, or measures for allowing wildlife to move in and out of the fenced area, like culverts or wildlife crossings. • If all wildlife are fenced out of the area, ensure a plan is in place for when they do enter, including animals digging under the fences.	There is no need to create a plan for moving wildlife. Wildlife that can get over, through, or under the fence can enter and exit the project area of their own volition. The perimeter fencing will be 8 feet in height, which is industry standard for excluding species such as mule deer. In the rare event that a mule deer is able to get into the fenced area, all reasonable attempts will be made by personnel to guide the animal to an open gate.
DNR/Todd Welker	DNR-004	Wildlife	[DNR proposes the following mitigation measures:] • Provide mitigation for wildlife that will not be able to avoid construction activities such as small mammals and reptiles. Will they be exterminated or is there a plan to move these species?	Numerous mitigation measures are proposed for anticipated project impacts to species and habitat types that are protected under Washington state or federal law. However, there is no legal requirement to mitigate specifically for the loss of species that are not listed under the Federal ESA, Bald and Golden Eagle Protection Act, or as threatened or endangered by the State of Washington. Revegetation of temporary disturbances and compensatory habitat mitigation will replace or improve habitat to support non-listed species affected by construction activities. Small mammals and reptiles will not be intentionally exterminated, and there is no plan to move wildlife. Mitigation measures described in Section 3.3.5 are intended to avoid and minimize effects on wildlife, such as construction vehicle speed limits and environmental training for construction workers.
DNR/Todd Welker	DNR-005	Vegetation	[DNR proposes the following mitigation measures:] • Provide for the abandonment of temporary roads, revegetation and subsequent control of weeds.	Section 3.3.5.3 provides for a Restoration and Weed Management Plan to be developed in consultation with Klickitat County.
DNR/Todd Welker	DNR-006	Wildlife	[DNR proposes the following mitigation measures:] • As mitigation for the fenced area, acquisition of an area outside the fenced location to be improved for habitat with vegetation and nesting platforms.	Avangrid is working with Klickitat County, in consultation with WDFW, to develop a habitat mitigation plan that will mitigate for project impacts including those resulting from fencing off the project site.
DNR/Todd Welker	DNR-007	Wildlife	[DNR proposes the following mitigation measures:] • Provide mitigation to respond to injured and dead wildlife.	See response to DNR-004. Also, Section 3.3.5 of the EIS provides for construction and operation personnel to report injured or dead wildlife detected on site.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
DNR/Todd Welker	DNR-008	Vegetation	[DNR proposes the following mitigation measures:] • Monitoring of the reseeded area after decommissioning to ensure the reseeding to native plants is successful. Monitoring may be required for several years to ensure establishment.	Avangrid is preparing a decommissioning plan for county approval that will describe revegetation efforts to restore the project site. Text describing this plan will be added to the EIS.
DNR/Todd Welker	DNR-009	Vegetation/T&E	[DNR proposes the following mitigation measures:] • Within the project area, there is a population of a G2 (threatened with extinction within its global range) plant that had previously been unknown to occur in Washington. There are also populations of two other threatened plant species within the project area. These species are all associated with vernal pools, drainages, and wetlands; the avoidance measures and mitigation measures for the sensitive plant species (including buffering the wetlands) should provide sufficient protection for these species. There is a chance the solar development will disrupt the hydrology of the area and introduce exotic plant species, thus eventually negatively impacting the rare plant species. Clarify that the buffers shown on the Appx. A: Delineated Wetland and Waters Mapbook are mitigation and will be implemented. DNR Natural Heritage Program requests monitoring of the rare plant populations to determine declines and, if observed, an adaptive management plan be implemented.	The buffers shown in Appendix A of the EIS will be avoided during construction and operation. Section 3.4.4.2 provides for project adherence to wetland and stream buffer setbacks required by Klickitat County as well as implementation of a SWPP and BMPs associated with the NPDES. No additional mitigation is necessary because impacts to streams and wetlands would be avoided. Project facilities would not be sited within any documented populations of special-status plant species and therefore would have no direct impacts. Indirect impacts would be avoided and minimized by implementation of the measures discussed in Section 3.3.5. Avangrid is not proposing to monitor special status plant populations identified during baseline studies.
DNR/Todd Welker	DNR-010	Vegetation	[DNR proposes the following mitigation measures:] • Include mitigation requiring proponent to prepare and implement a noxious weed control plan which includes controlling and preventing the introduction and spread of noxious weeds on the project area and to adjacent areas from the project area.	Section 3.3.5.3 provides for a Restoration and Weed Management Plan to be developed in consultation with Klickitat County.
DNR/Todd Welker	DNR-011	Land Use	[DNR proposes the following mitigation measures:] • Some permits acquired by the proponent can result in long-term mitigation requirements for the landowner after the project has ended. Require proponent to ensure DNR reviews and consents to permits on DNR-managed lands.	Avangrid currently does not anticipate any permits will be required for construction on DNR lands other than the county EOZ permit, the NPDES Construction Stormwater General Permit, and building permits. Avangrid does not object to this requirement.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
DNR/Todd Welker	DNR-012	Wildlife	DNR requests the following additional analysis: • Impacts to wildlife that will not have access to drinking sites and riparian areas. Page 3-22 discusses bats. but what about larger species like deer, coyote, badger... How important are these riparian areas to other species? Please provide a multi-year study where remote cameras are used to detect species using these sites.	During years of normal precipitation, surface water may be present between late fall and early spring in the streams and wetlands that were identified in the study area. Most of the delineated streams are ephemeral, while a few segments are intermittent, such that their use as a water source coincides with the time period when most other water sources would also be available. The primary surface water sources for larger species of wildlife would generally be the nearby Big Horn and Pine Creek streams, which will not be impacted by the project. The project will fence off a total of 2.5 acres of wetlands and 0.127 acre of ephemeral or intermittent streams, out of a total of approximately 5.04 acres of wetlands and 0.433 acre of streams that were delineated within the overall study area. This calculation does not include larger nearby features such as Big Horn and Pine Creek and their associated wetlands, which were not delineated as part of this study. Because the quantity of streams and wetlands that will be fenced off from access by big game is small relative to the total quantity of streams and wetlands available in the vicinity, and because these features do not contain surface water during the majority of the year, and larger water bodies are in close proximity, fencing off these features from access by big game will not significantly alter the availability of drinking sites.
DNR/Todd Welker	DNR-013	Wildlife	[DNR requests the following additional analysis:] • Because this is located within the Pacific Flyway and waterbirds and waterfowl have been observed, please address lake effects and provide mitigation.	Currently, available data on this project is limited to information from projects in California. Because of this lack of data, it is unknown what landscape factors correlate with the presence of waterbirds at PV solar facilities. Thus, it cannot be assumed that waterbirds are at risk of collision at the project. Project potential impacts on all birds will be minimized and mitigated by the measures described in Section 3.3.5 of the DEIS.
DNR/Todd Welker	DNR-014	Wildlife	[DNR requests the following additional analysis:] • References to information on the statement about current fragmentation from past disturbance likely reducing value to wildlife (3-17).	Text discussing habitat fragmentation will be removed from this section of the EIS. Change sentence to read "…; however, the amount of disturbance and presence of non-native grasses and forbs reduces its value to wildlife."
DNR/Todd Welker	DNR-015	Wildlife	[DNR requests the following additional analysis:] • Additional years of surveys need to occur, one year is not enough to make decisions with this level of impact.	The comment is not clear what exactly is being requested. One year of baseline data is adequate to describe habitat, rare plants, and wetlands.
DNR/Todd Welker	DNR-016	Wildlife	[DNR requests the following additional analysis:] • More information is needed to explain how "most wildlife should be able to avoid construction and operation activities" (page 3-27).	The DEIS currently describes how less mobile species might be affected. More mobile species would avoid construction, and displaced individuals would have to compete for resources with other species in adjacent habitats (WDFW 2009). The EIS text will be changed to read "more mobile wildlife" instead of "most wildlife".

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
DNR/Todd Welker	DNR-017	Vegetation	The following information appears misleading, incomplete or incorrect: • It appears that nearly half of this project isn't actually taking land out of agricultural use, but taking it out of conservation. 3.3.2.1	Comment noted. The Affected Environment section for Vegetation describes how agriculture and grazing has influenced the existing conditions. Section 3.3.2.1 does not state that the project is taking land out of agricultural use; rather, it indicates that although the majority of the area has been heavily modified by agriculture and grazing, former agricultural fields within the area are no longer in active cultivation. Section 3.3.2.1, Table 3.3-1 discloses that a majority (47%) of the Solar Facility Siting Area is formerly agricultural fields that are currently revegetated (and possibly in the CRP). Information on which, if any, of these lands are actively enrolled in the Conservation Reserve Program is not readily available. The entire area is currently grazed. It should be noted that the Solar Facility Siting Area is a much larger area than will actually be impacted by the project.
DNR/Todd Welker	DNR-018	Wildlife	[The following information appears misleading, incomplete or incorrect:] • Please include Juniper hairstreak butterfly in Juniper Woodland discussion on page 3-18 and reptiles in native grassland discussion on page 3-19. • Include owls, badgers and squirrels in affected wildlife species. • Page 3.27 says "Most wildlife should be able to avoid construction and operation activities." Using the word "most" seems optimistic when the numbers of small mammals, inverts, and reptiles are not known.	Juniper hairstreak butterfly will be added to Juniper Woodlands description. We note that there is limited information on this species occurrence, but it is predominately tied to juniper woodlands; although present in a small portion of the solar facility siting area, this habitat will not be impacted by the project. Reptiles will be added to native grassland description. Owls are included in descriptions of the affected environment. Short-eared owl and great horned owl are included in Section 3.3.2.3 Raptor Nests. Owls are included in the description of Developed Habitat. Burrowing owl is included in the description of Native Grassland Habitat and is also listed in Table 3.3-3. Badgers are included in Section 3.3.2.3 Other Terrestrial Wildlife. Ground squirrels are included in Section 3.3.2.3 Other Terrestrial Wildlife. California ground squirrels are included in the description of Escarpment/Talus habitat. Townsend's ground squirrel is discussed throughout and included in Table 3.3-3. The Final EIS will note a text change to read "more mobile wildlife" instead of "most wildlife".
DNR/Todd Welker	DNR-019	Cultural	[The following information appears misleading, incomplete or incorrect:] • There is inconsistency in addressing cultural resources. Until the section (under 3.6.5) entitled Potential Impacts Through Redesign, it appears the proponent considered impact to all known sites "not significant" if they were not eligible for listing on a register. This is inconsistent with state law. However, in the Potential Impacts section (page 3-61), it clearly spells out that "pre- contact sites are protected under RCW 27.53 and require a DAHP permit if they will be disturbed, regardless of their register eligibility."	This inconsistency will be corrected in the Final EIS. The proponent understands that pre-contact sites are protected under state law and has avoided disturbance to these resources by project design.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Washington Department of Archaeology & Historic Preservation (DAHP)/ Dennis Wardlaw	DAHP-001	Cultural	First, Site 45KL1907 was not reviewed as it is outside of the project area.	Comment noted.
DAHP/Dennis Wardlaw	DAHP-002	Cultural	We agree that the following properties are NOT ELIGIBLE for the National Register of Historic Places (NRHP) under any criteria: • 45KL549 • 45KL740 • 45KL1312 • 45KL1313 • 45KL1314 • 45KL1325 • 45KL1327 • 45KL1332 • 45KL1339 • 45KL1356 • 45KL1376 • 45KL1377 • 45KL1484 • 45KL1485 • 45KL1891 • 45KL1892 • 45KL1893 • 45KL1894 • 45KL1901 • 45KL1903 • 45KL1904 • 45KL1905 • 45KL2404 • 45KL2407 • 45KL2412 • 45KL2408 • 45KL2414 • 45KL2409 • 45KL2410 • 45KL2416 • 45KL2415 • 45KL2417 • 45KL2419 • 45KL2421 • 45KL2413 • 45KL2422 • 45KL2423 • 45KL2424 • 45KL2427 • 45KL2426	Comment noted.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
DAHP/Dennis Wardlaw	DAHP-003	Cultural	However, at this time we do not agree time that the following sites are not eligible for inclusion in the NRHP: • 45KL1333 • 45KL1351 • 45KL1357 • 45KL2405 • 45KL2406 • 45KL2411 • 45KL2418 • 45KL2420 The prehistoric isolates listed above have not been evaluated using subsurface testing and therefore it cannot be demonstrated that they are single artifacts with no subsurface component. The prehistoric sites have also not been tested for subsurface deposits. While the potential is low, subsurface deposits, if present, could contribute to their eligibility under Criteria D. The historic sites listed do also have potential for subsurface deposits, as noted in their evaluations. Further evaluation of the historic sites can address their eligibility under Criteria D.	Understood. If the final design has facilities closer than 100 feet to any of the resources listed in the comment, eligibility testing of the resource would be conducted prior to construction. If testing determines the resource is NRHP-eligible, the resource would be avoided, or mitigation would be identified. The prehistoric sites are protected under Washington State law (see RCW 27.53). If the prehistoric sites cannot be avoided, then an archaeological excavation permit will be necessary (see WAC 25-48).
DAHP/Dennis Wardlaw	DAHP-004	Cultural	It is important to note that prehistoric sites, including 45KL1904, are protected under Washington State law (see RCW 27.53). If the prehistoric sites cannot be avoided then an archaeological excavation permit will be necessary (see WAC 25-48).	Understood. At this time no impacts to prehistoric sites are anticipated, but if the design is modified prior to construction and impacts to prehistoric sites may occur, an archaeological excavation permit will be requested.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Washington State Department of Ecology (DOE)/Gwen Clear	DOE-001	Water	If your project anticipates disturbing ground with the potential for stormwater discharge off-site, the NPDES Construction Stormwater General Permit is recommended. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit may take 38-60 days. The permit requires that a Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) shall be prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water and storm drains by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading, or construction. In the event that an unpermitted Stormwater discharge does occur off-site, it is a violation of Chapter 90.48 RCW, Water Pollution Control and is subject to enforcement action. More information on the stormwater program may be found on Ecology's stormwater website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/. Please submit an application or contact Lloyd Stevens, Jr. at the Dept. of Ecology, (509) 574-3991, with questions about this permit.	Understood. An NPDES Construction Stormwater General Permit will be obtained prior to construction as described in Section 3.4 of the DEIS. A Stormwater Pollution Prevention Plan will be developed in accordance with applicable regulations.
DOE/Gwen Clear	DOE-002	Wetlands	The provided wetland delineation report determined 30 wetlands and 22 streams occur within the Lund Hill Solar Project site. A few additional areas of interest were observed during Ecology's review of the wetland delineation. The areas of interest did not have data sheets provided. Ecology would like to inquire if the areas highlighted below were investigated and if a data sheet could be provided. If they were not previously sampled, could they be? [see map: DOE 05282019_map screenshot.pdf] Ecology recommends the County request additional investigation of the areas identified below. In addition, wetland habitats located within 300 feet of the project site boundary should be rated per Klickitat County Code Ordinance No. 0080613 to determine the extent of required wetland buffer habitat.	Highlighted additional areas that were noted in DOE's map screenshot from 5/28/2019 were part of the overall wetland survey. Descriptions of data gathered at the specific identified locations, and references to the locations where this information can be found in the wetland delineation report as appropriate, are provided in the separate accompanying response table. Because all identified areas were included in the wetland survey, no additional investigation is warranted. All delineated wetlands were delineated per guidance in the USACE Arid West Supplement. The USACE Regulatory Guidance Letter 05-05: Ordinary High Water Mark Identification was used for assessing and delineating potential streams. All delineated wetlands were categorized using Ecology's 2014 Washington State Wetland Rating System for Eastern Washington. Wetland buffer widths were determined based on the wetland categories and are consistent with buffer widths in the Klickitat County Code Ordinance No. 0080613. See the accompanying supporting documents: wetland rating forms (prepared as part of the project wetland delineation report), and summary table with wetland ratings and buffer widths (summarizing information prepared for the wetland delineation report).

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DOE/Gwen Clear	DOE-003	Wetlands	Solar panels should be sited outside wetland and buffer habitats. Solar farms are currently considered as a high land use intensity, as they reduce and degrade habitat, while producing a large amount of heat. Maintaining appropriate buffer widths from wetland and stream habitats will be imperative in preventing degradation of these habitats. Avoid and minimize impacts to wetland habitat to the greatest extent possible. In the event wetland or wetland buffer habitats occur in the area and impacts cannot be avoided a mitigation plan must be submitted for review.	All project facilities are sited outside of delineated wetlands and their respective buffers as described in Section 3.4.4.1 of the DEIS (p. 3-38). Therefore, no impacts will occur to these resources, and no mitigation plan is needed.
DOE/Gwen Clear	DOE-004	Wetlands	Placement of fill in wetlands may require an individual or general (nationwide) permit from the U.S. Army of Corps of Engineers (Corps). We advise the applicant to contact the Corps to determine if a permit is needed.	No fill will be placed in wetlands.
DOE/Gwen Clear	DOE-005	Wetlands	Ecology recommends a joint site visit be conducted with the applicant, Klickitat County, WA Department of Fish and Wildlife, Corps, and Ecology once the site location has been determined. Ecology staff is available to provide technical assistance to the County by reviewing wetland delineations, ratings, and verifying wetland delineations in the field.	Klickitat County will request additional assistance from Ecology as needed.
Washington Department of Fish and Wildlife (WDFW)/ Michael Ritter	WDFW-001	Vegetation and Wildlife; Wetlands	The natural resources of this entire area were previously characterized in 2008 as part of the proposed Juniper Canyon II wind project, but was not constructed. This data, as well as that collected from the nearby and proposed, but not constructed, Lund Hill wind project (2010) form the basis for providing biological information concerning the LHSP, potential impacts, and mitigation measures. However, several data updates for raptors, vegetation, and wetlands were provided in the DEIS to give a better understanding of the present-day biological resources within the solar facility siting area, including the project site.	Comment noted.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
WDFW/Michael Ritter	WDFW-002	Wildlife	The lack of current bird data for the project site is concerning since without it, impacts to shrub-steppe and grassland bird species within the project site cannot be addressed. In fact, in our December 2018 EIS scoping comment letter, we recommended pre-project avian surveys. While it might be reasonable to assume that similar species have and are continuing to use this landscape as the DEIS states, the relative numbers are lacking. Had this information been collected, then the project could have assessed avian responses to solar development and provided useful information for future solar projects and could have developed an adaptive management plan as a best management practice.	Pre-project avian survey information is available and referenced in the EIS to the extent available. Raptor nest surveys have been conducted in proximity to the site since 2003. Most recently, WesternEcoSystems, Inc completed an aerial raptor survey inclusive of a 2-mile buffer in 2019. Avian point count surveys were previously conducted in 2008 and included in the DEIS to provide a reference point of avian species which have historically occurred aerially in the vicinity of the project. Potential adverse impact to avian species would primarily occur as a result of habitat removal or modification, which is addressed separately. Therefore, an update to avian point count surveys to document current use would not likely provide any significant additional benefit relating to analyzing potential risk to avian species. Aurora Solar is committed to protecting all migratory birds and will ensure compliance with the intent of the MBTA (i.e., avoiding direct take of a migratory bird) through the avoidance and minimization of direct impacts to migratory birds. Project construction could disturb nesting habitat for grassland nesting birds. To avoid impacts to these species, Aurora Solar will prepare a migratory bird management plan, which may include clearing vegetation outside of the breeding season or conducting pre-disturbance nest surveys to identify avoidance areas if construction activities must occur during the nesting season. Any pre-disturbance nest surveys are anticipated to be valid for up to 7 days. If an active nest is documented, it will be appropriately marked, buffered, and monitored to determine nesting success.

WDFW/Michael Ritter	WDFW-003	Vegetation and Wildlife	For other solar projects in the state we have recommended at least two surveys during the spring (April and May) to record bird species and plants species with a special emphasis on WDFW PHS plant and animal species and DNR Heritage plant data, as well as on deeper soils for burrowing owl and ground squirrel. The type of survey methodology was not specifically addressed but we recommended walking transects of approximately 60 meters apart during good weather conditions (low-moderate wind and little-no rain). All PHS species locations, DNR Heritage, and nest sites should be recorded (GPS). A comprehensive wildlife list should also be kept of all species seen. The entire project site should be surveyed, with focus on deeper soil community areas. If species are identifiable via scat or tracks, they should also be noted.	Tetra Tech conducted two rounds of special-status plant surveys within the Project study area. The first survey was conducted May 8–12, 2018, and focused on early blooming special-status plant species with potential to occur in the Project study area, such as species that occur in vernal pool habitats. The second survey was conducted June 11–15, 2018, and was focused on later blooming special-status plant species. A team of two biologists familiar with the target special-status plant species conducted the surveys. The May and June survey periods were chosen to coincide with the identification period for the majority of the state-listed special-status plant species with potential to occur at the Project. A single Townsend's ground squirrel observation was observed within the project area during surveys for adjacent wind facilities (NWC 2008). The vast majority of ground squirrel observations occurred to the east of the siting area. Burrowing owl was not observed in the project area during prior surveys. Surveys for ground squirrel and burrowing owl were not conducted in 2018. Because Townsend's ground squirrels dig extensive burrows, soil type and depth are important habitat factors. Although little information regarding soils for this species is available, information from studies of Washington ground squirrels (*Urocitellus washingtoni*) was used because they are closely related and generally utilize similar habitats. Soil types associated with occupied sites can be characterized as deep or moderate depth and well or excessively drained. Soils information summarized in WHCWG (2012) indicate that suitable burrowing habitat contains limited clay, higher silt, and lower sand content at occupied versus unoccupied sites. In other similar species, nest burrows are primarily constructed in areas of well-drained soils greater than 1 meter in depth. As described in Section 3.5 of the EIS, soil maps for this area indicate a patchwork of silt loams with rocky outcrops and relatively shallow soils. In most areas, soil is mapped to a depth of no more than approximately 38 inches, overlying unweathered bedrock (NRCS Soils Survey Series-Klickitat County Area 2017). Test pit observations during wetland delineation efforts found soil depths between 4 and 12 inches. As stated above, previous surveys documented the majority of the burrows east of the project site with a smaller number of observations south of the project site location. Based on the soil depths alone, the project site provides little suitable burrowing habitat for ground squirrels or burrowing owl, and therefore, additional protocol-level surveys were not conducted. Aurora Solar will conduct a preconstruction reconnaissance survey prior to earth-disturbing activities and will avoid any identified burrows or burrow systems. If, during pre-disturbance reconnaissance surveys, a burrow is documented, it will be treated as occupied and avoided. Citation: Washington Wildlife Habitat Connectivity Working Group (WHCWG). 2012. Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion. Appendix A.5: Habitat Connectivity for Townsend's Ground Squirrel (*Urocitellus townsendii*) in the Columbia Plateau Ecoregion. Washington's Department of Fish and Wildlife, and Department of Transportation, Olympia, WA. Available online at: http://www.waconnected.org.

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WDFW/Michael Ritter	WDFW-004	Wildlife	Raptor nest data from 2008 and 2010 were collected within 2 miles of the wind project boundaries and include the solar facility siting area, including the project site. Approximately 60 nests were recorded with more than half being raven or inactive. These nests are monitored as part of risk management associated with the adjacent and operational wind projects so there is suitable data for the LHSP. A raptor nest survey is scheduled for 2019 within 2 miles of the solar facility siting area to provide current raptor nest data. For other solar projects in the state, we have recommended that raptor nest surveys would occur within one-mile of the project sites to assess nesting activity and to implement nest buffers if needed during construction. Buffers could be up to 0.5 miles for Ferruginous hawk and up to 0.25 miles for other raptors, not including eagles.	Noted.
WDFW/Michael Ritter	WDFW-005	Wetlands/Water	Both streams and wetlands were recorded within the larger solar facility siting area with 0.433 acres of stream and 5.039 acre of wetland habitats in the project area. All stream and wetland habitats occur within slightly steeper draws and canyons, will not have solar development in or through them, and will have the appropriate buffers per Klickitat CAO.	Agreed.
WDFW/Michael Ritter	WDFW-006	Vegetation	We appreciate the thoroughness of the vegetation survey for the entire solar facility siting area since vegetation impacts are likely to occur at LHSP. These surveys recorded two state threatened species, hot-rock penstemon (*Penstemon deustus var. variabilis*) and foxtail mousetail (*Myosurus calvicaulis*) and a likely state endangered species, vernal pool mousetail (*Myosurus sessilis*), since this is the only occurrence of vernal pool mousetail in Washington State. However, the location(s) of these plant species was only given as within the larger solar facility siting area and without a better idea of their location(s) we cannot make recommendations for protection.	Populations of the identified species will be avoided by the project design. A copy of the confidential rare plant and habitat survey report was provided under separate cover to WDFW via email on June 26, 2019.
WDFW/Michael Ritter	WDFW-007	Vegetation	The previous surveys in 2008 also identified woven-spore lichen (*Texosporimu sancti-jacobi*), a state threatened species, in the present-day solar facility siting area. Due to the limited distribution and state listing of this plant and the ones listed above, we recommend that additional pre-construction surveys be conducted within the smaller project site. If any of these plants are documented in the project site, then we recommend full avoidance and protection.	Biologists conducting rare plant surveys in 2018 included a search for woven-spore lichen, but none was identified. It should be noted, however, that prior surveys conducted for the Juniper Canyon wind facility and associated transmission line did not identify this species in the current Lund Hill solar facility siting area. According to the Juniper Canyon resource report and EIS, this species was only documented along the White Creek transmission line corridor, to the west/southwest of the Lund Hill solar facility.

<table>
<tr><th>Agency/Commenter</th><th>Comment Number</th><th>Resource Topic</th><th>Comment Text</th><th>Draft Response</th></tr>
<tr><td>WDFW/Michael Ritter</td><td>WDFW-008</td><td>Vegetation</td><td>Additionally, as described in Section 3.3.5.4. of the DEIS, we fully support the development of a Restoration and Weed Management Plan, to include monitoring, for the restoration of the site through noxious weed control and native plant re-establishment that may include reseeding.</td><td>The weed management plan, and the decommissioning plan describing actions to be taken at the time of facility decommissioning, will be developed for concurrence by Klickitat County</td></tr>
<tr><td>WDFW/Michael Ritter</td><td>WDFW-009</td><td>Vegetation/ Mitigation</td><td>Based on information in Table 3.3-4 of the DEIS all 1,871 acres of habitat will be permanently impacted, including 731 acres shrub-steppe (40%), 860 acres CRP (46%), and 272 acres scrub/shrub and grasslands (14%). Using the mitigation strategies in the WDFW Wind Power Guidelines, almost 2,600 acres would be required for mitigation. Yet, information gathered from the site visit on May 9 regarding the steeper canyons and draws and the type, arrangement, and installation of the solar panels leads us to question if all acres will be impacted.</td><td>The estimate of 1,871 acres of disturbance is based on the maximum estimated area that could be enclosed by fencing, assuming Middle Road and non-participating properties are excluded from the fenced area. However, the comment is correct that not all of the area enclosed by fencing would actually be disturbed, either permanently or temporarily. Steeper canyons are excluded from this acreage calculation because the fence would only cross where the topography is more gently sloped. In addition, no permanent or temporary disturbance would occur within wetlands, streams, or their respective buffers. The table below represents the area that would be permanently physically disturbed by the facility based on the preliminary layout provided with the EIS. Permanent disturbance would consist of roads, substation, O&M building, inverter block pads, and posts. Up to 15 acres will be occupied by the substation and potential new O&M building and adjacent parking areas. In addition, new permanent gravel access roads will extend approximately 22 miles. At an average of 16 feet width, permanent disturbance from roads will be approximately 42.7 acres. Each post supporting the panels would permanently disturb up to 2 square feet, for a total of 3.2 acres. At 388 square feet each, inverters would disturb a total of 0.66 acre.
During construction, much of the area within the fence line, excluding streams, wetlands, and buffers, could be temporarily disturbed. Temporary disturbance could include activities such as crushed vegetation from vehicles driving over the surface, to limited regrading that would remove existing vegetation entirely. All temporarily disturbed areas will be revegetated in accordance with the revegetation plan to be agreed separately with Klickitat County.
The “shaded area” (total area of solar panels, equal to shaded area at solar noon) would be approximately 289 acres. The area below the panels would be vegetated with native species and various locations under and near the panels would be shaded for portions of the day as the panels are tilted to track the progression of the sun.
<table>
<tr><th>Structure</th><th>Number of units</th><th>Area per unit</th><th>Total area (acres)</th></tr>
<tr><td>Posts</td><td>Up to 69,000</td><td>2 sq ft</td><td>3.2</td></tr>
<tr><td>Roads</td><td>22 miles</td><td>16 ft width</td><td>42.7</td></tr>
<tr><td>O&M building</td><td>1</td><td>10 acres</td><td>10</td></tr>
<tr><td>Substation</td><td>1</td><td>5 acres</td><td>5</td></tr>
<tr><td>Inverters</td><td>75</td><td>388 sq ft</td><td>0.66</td></tr>
<tr><td>TOTAL PERMANENT DISTURBANCE</td><td></td><td></td><td>61.6</td></tr>
<tr><td>Shaded area (solar panels)</td><td></td><td></td><td>289</td></tr>
</table>
This information will be added to the EIS for clarification. Please note that these calculations are estimates based on a preliminary layout and may shift somewhat when the final layout is completed.</td></tr>
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WDFW/Michael Ritter	WDFW-010	Wildlife/ Mitigation	Figure 2-2, Project Layout, shows that the slightly steeper canyons/draws that generally run NW-SE through the site will not be impacted or fenced and this was confirmed during the site visit. These areas would remain open providing some semblance of habitat connectivity across the local landscape. In essence, the larger project becomes a series of fenced solar arrays separated by open and connected canyons/draws. Figure 2-2 does indicate that in at least two areas there are "dead end" canyons/draws within the solar array. We recommend that the arrays in these areas be redesigned to connect these areas with existing pass through canyons/draws. Finally, these acreage within the canyons/draws could be calculated thereby reducing the overall habitat impacts.	As shown in Figure 2-2, the steeper areas of these canyons would not be fenced and are not included in the calculation of area within the fence line. The current design anticipates crossing shallow drainages (generally ephemeral or intermittent streams) with fences where the topography allows. However, although delineated streams and their buffers would be protected and would not be temporarily or permanently impacted, there would not be any full-length "open and connected canyons" through the length of the project.
WDFW/Michael Ritter	WDFW-011	Vegetation and Wildlife	The discussions at the LHSP site and the site visit to Avangrid's Wy'East solar facility east of Wasco, Oregon was useful in understanding how the type, arrangement, and installation of solar panels may or may not negatively impact native vegetation. Presently there is considerable uncertainty regarding the type and arrangement of solar panels for the LHSP and this could significantly affect the amount of habitat that is impacted. We were told at the Wy'East facility that the spacing between the rows was the minimum that would occur for the LHSP. Based on our calculations, the distance between the rows (pile to pile) at Wy'East was 30 feet. Subtracting some for the panels on each row results in about 24 feet of open space between rows with a panel shadow zone on each side. Virtually none of the ground that is under the rows of panels is in complete shadow all day due to the panels that track the sunlight throughout the day. We understand that some disturbance will occur to habitats between and underneath rows during construction, but once operational, the open areas between rows could continue to support native habitat.	The statements and assumptions here are generally accurate. Up to approximately 289 acres within the 1,871-acre project area would be "shaded" by panels at solar noon, and with the exception of access roads, substation, O&M building, tracker system support posts, and inverter pads, to the extent construction activities may disturb or remove existing vegetation, the remainder of the area would be revegetated with low-growing native vegetation. The ground surface shaded by panels would shift in size and location throughout the day as the panels are tilted to track the position of the sun. See response to WDFW-009 above.
WDFW/Michael Ritter	WDFW-012	Vegetation and Wildlife; BMPs	Wy'East uses 3' x 6' panels placed side by side by side creating long 6'-wide rows. However, if two panels are aligned in portrait creating a 3' x 12' panel, row spacing would increase due to shadow affects from adjacent rows. Additionally, if bifacial (collect solar energy on both sides) panels are used then row spacing may also have to increase to account for shadowing influences from adjacent rows, but the terrain and vegetation underneath may need more "adjustment" to provide correct reflective slope and vegetation type and height. Because of this we recommend that the LHSP not use bifacial panels since this would likely result in more land disturbance and additional loss of existing native habitats.	If bifacial panels are selected, this would not result in a significant change to terrain and vegetation from the approach with monofacial panels. Therefore, potential impacts to vegetation and habitat from construction of either monofacial or bifacial panels are substantially the same and there should not be a restriction on selection of bifacial technology.

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WDFW/Michael Ritter	WDFW-013	Vegetation/ BMPs	Also, at Wy'East, the rows of panels followed the contours of the land and there appeared to be very little grading. Granted, it was once a dryland wheat field with gentle contours, but earthwork can be expensive, disrupts moisture absorption and drainage, and usually negatively impacts native vegetation and wildlife. At the LHSP site we recommend that these same principles of none to minimal earthwork and following contours be used for constructing the rows of solar panels. This will maintain more of the existing and natural ecology of the site and reduce overall project impacts.	Aurora Solar will limit earthwork to the minimum needed to optimize energy production.
WDFW/Michael Ritter	WDFW-014	Wildlife/BMPs	Fencing in an entire solar facility represents a loss of habitat for many medium to large terrestrial animals that are unable to pass through the openings in the fence. We provided fencing considerations in our December EIS scoping comments and the discussions we had during the site visit indicate that fencing options are possible to include larger openings, elevated off the ground, and greater height without barb wire.	To maintain safety and prevent public access to electrical equipment, chain-link fence will be installed. To reduce the potential for wildlife entanglement in barbed wire, fences will be 8 feet tall with no barbed wire. Other than mule deer and antelope, terrestrial animals found in this area generally will be able to either pass through the fence, or burrow under it.
WDFW/Michael Ritter	WDFW-015	Soils and Vegetation/ BMPs	The DEIS identifies that there will be approximately 33 miles of collector lines installed mostly underground, and above ground/overhead where they cross the slightly steeper canyons/draws. We recommend that any trenching operations first retain topsoil in a separate pile and when back filing, top off the trench with the topsoil. Additionally, since the canyons/draws will not be developed, it would be ideal if the collector lines did not cross them and the collector line system could be designed to run more south to north and avoid these open spaces.	Comment noted. Topsoil will be segregated where feasible based on topsoil thickness and soil depth. The design is not yet finalized; collector lines will avoid crossing draws where possible, but it likely will not be possible to avoid this everywhere. No deeper canyons are expected to be crossed by collector lines.
WDFW/Michael Ritter	WDFW-016	Vegetation and Wildlife; Roads and Transportation	The DEIS also identifies 22 miles of 16-ft wide gravels roads within the facility. Similar to what was stated for collector lines, roads should not cross canyons/draws. Road crossings would result in the loss of native habitat, likely disrupt drainage patterns, and impact the open nature of these land features that provide habitat connections to adjacent landscapes.	No disturbance to delineated streams or wetlands will occur. All roads will be designed to manage stormwater flow as closely as practical to the original drainage patterns.

WDFW/Michael Ritter	WDFW-017	Vegetation and Wildlife/ Mitigation	Throughout the Columbia Basin, loss of shrub-steppe habitats have been mitigated at least 2:1 for residential, agricultural, and wind energy development. Based on the information above, we believe that there are less than 1,871 acres of impacts that must be mitigated for the loss of habitats at the LHSP. We recommend that canyon/draw habitat be subtracted out, as well as total acreage between rows.	See response to WDFW-009 above. Approximately 289 acres within the 1,871-acre area would be shaded by panels; permanent footprint of roads, inverter pads, posts, substation, and O&M building would be approximately 61.6 acres. In absence of Solar Guidelines, Aurora Solar understands that WDFW prefers to rely on the 2009 WDFW Wind Power Guidelines document in establishing habitat mitigation. These wind guidelines were developed using input from regulatory agencies, environmental groups, and wind developers, with the goal of providing consistent direction for mitigating for impacts *from wind energy project development*. The 2009 guidelines were meant to be revisited after 5 years, but this has not yet occurred, and the guidelines have not been assessed for suitability in developing mitigation for other types of project development such as solar facilities. In assessing potential habitat mitigation packages for the proposed Lund Hill Solar Energy project, we note that the guidance document itself states that it "*should not be viewed as preventing or discouraging WDFW, the permitting authority and wind project developers from negotiating 'customized' or 'alternative' mitigation packages"* (p. 8). Because the aggregate impacts on wildlife and habitat from development of a solar project are different from a wind project, we believe it is appropriate to consider alternatives to the straight mitigation ratios outlined in the 2009 guidance document. Aurora Solar understands that WDFW may seek data to help inform future Solar Guidelines. As part of a mitigation package, Aurora Solar is willing to consider providing research opportunities at the site to help inform future Guidance. Additionally, solar projects in nearby states have implemented mitigation strategies which are not straight mitigation ratios. Some such alternatives may include approaches used in neighboring states. • In Oregon, ODFW habitat classification takes into account habitat quality, not just category. For example, shrub-steppe can be Category 2, 3, or 4 depending on its location relative to wildlife resources and/or its relative quality based on percent cover of native species. A degraded shrub-steppe habitat that is heavily grazed with a dominant understory of cheatgrass could be a Category 3 or Category 4 habitat. ODFW establishes a mitigation goal of "no net loss" in quantity or quality for Category 3 or 4, and "net benefit" in quality or quantity for Category 2. Use of this approach acknowledges the current status of the habitat rather than what the habitat could potentially be (e.g., if not used for the proposed project, it likely would continue to be grazed or otherwise be degraded; the developer is not required to compensate for a status that does not exist). • Loss of migration corridors for elk and deer at the Northern Water Integrated Supply Project in Colorado was mitigated by designing a wildlife underpass to facilitate migration. Other in-lieu fee mitigation actions might include:

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				• Fire Prevention Programs (reduce the risk of wildfire or provide funding to rural fire districts and/or federal/state fire prevention teams) • Upland Habitat Enhancement • Road closures/decommissioning if applicable • Stream Habitat Enhancement (Culvert Removal / Replacement) • Fencing off sensitive resources (e.g., wetlands, rare plant populations) • Wildlife guzzlers • Reduce or remove noxious weeds and invasive species (in areas not affected by the Project) • Conservation Easements or Land Grants
WDFW/Michael Ritter	WDFW-018	Wildlife/ Mitigation	Additionally, nation-wide there is a lack of science related to solar energy development impacts on native habitats and impacts to and responses of wildlife, birds, and raptors. We discussed the applicability of research-based studies as mitigation at the LHSP as one way to gain information on impacts and responses to inform future decisions related to solar development. While the WDFW Mitigation Policy supports no net loss of habitat functions and values it also allows for studies to determine impacts and mitigation.	Aurora Solar would be willing to conduct certain studies to add to the available science on the identified topics as part of an overall habitat mitigation strategy. However, mitigation costs, including any study costs, need to be verified prior to construction in order to support project financing.
WDFW/Michael Ritter	WDFW-019	Vegetation and Wildlife	In closing, the LHSP will result in the direct loss of habitat and wildlife impacts within and adjacent to the 1,871-acre project site. The open canyons/draws will provide some connectivity corridors through the project and across the local landscape, and "open" fence designs will permit some animal movement though the site.	Noted.
WDFW/Michael Ritter	WDFW-020	Vegetation and Wildlife/ BMPs	We believe that not all 1,871 acres in the project site will be permanently impacted and that panel type and arrangement could further reduce impacts. Therefore, we recommend that only mono-facial panels be used and that land work be kept to a minimum to retain the existing topography and vegetation.	See response to WDFW-012 above. Use of bifacial panels would not result in any significant change to project impacts and should not be restricted.
WDFW/Michael Ritter	WDFW-021	Vegetation/ Mitigation	To better understand the mitigation requirements, we recommend that the project developer recalculate impacts to vegetation by subtracting the canyon/draw acreage, as well as the acreage between rows. Once this is determined, there will be a reasonable starting point for mitigation discussions.	See response to WDFW-009 above. Permanent impacts from facility footprint would be approximately 61 acres. Shading from solar panels would be up to approximately 289 acres.

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Public Works Department (PWD)/Gordon Kelsey	PWD-001	Roads and Transportation	The EIS States that the O&M building would be located at the intersection of Schrantz and Middle Roads or use the existing Big Horn O&M facility. Big Horn Road is currently classified as a Primitive road and would need to be upgraded. If the Big Horn O&M facility is used, then it shall be upgraded by the applicant to meet a minimum fire access road standard per Title 12 of the Klickitat County Code and be a minimum of 22 ft. in width	Understood. Aurora Solar will continue to work with Klickitat County to identify and implement appropriate measures to improve the condition of Big Horn Road should use of that facility be indicated during final design.
PWD/Gordon Kelsey	PWD-002	Roads and Transportation	The schedule shows road construction in December 2019 thru January 2020. Typically, Klickitat County experiences freezing temperatures during these months and compaction of the soil and crushed rock for road building requires the addition of water to obtain maximum compaction. How does the applicant plan to obtain compaction of their materials during these times?	Compaction of soil and crushed rock will take place during appropriate weather conditions and will be tested and verified prior to final use.
PWD/Gordon Kelsey	PWD-003	Water	The applicant is required to prepare a Stormwater Report per the Washington State Department of Ecology's (DOE) Stormwater Management Manual for Eastern Washington State.	Understood.
PWD/Gordon Kelsey	PWD-004	Roads and Transportation	The Lund Hill Solar project will create a significant increase in traffic on county roads. There will be over-width and over-length loads. There will be overweight loads and legal loads they will want to move at times when the existing roads are not strong enough to support the traffic.	Aurora Solar has separately provided to Public Works a copy of a traffic study identifying anticipated truck traffic levels during construction.
PWD/Gordon Kelsey	PWD-005	Roads and Transportation	Public Works still needs a geotechnical report which analyzes pavement and subsurface conditions to adequately evaluate the Lund Hill Solar Project proposal and its potential impacts to county roads. We recognize that the project manager is working with their consultants to prepare reports based on the attached Geotechnical guidelines and await their submission.	A geotechnical study will begin in summer 2019, and the results will be shared with Public Works in support of an eventual road use agreement, which we understand must be executed prior to issuance of building permits.
PWD/Gordon Kelsey	PWD-006	Roads and Transportation	The developer needs to analyze the adequacy of county roads, i.e., the routes proposed to be used as Haul Routes for materials such as gravel, concrete, water, etc. and solar parts to determine if they will support the proposed traffic loads. The analysis shall be performed by a licensed geotechnical engineer who specializes in pavement analysis and design.	A geotechnical study will begin in summer 2019, and the results will be shared with Public Works in support of an eventual road use agreement.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
PWD/Gordon Kelsey	PWD-007	Roads and Transportation	The EIS should identify the anticipated source location for products used in the construction, maintenance, including aggregate sites, concrete batch sites, and water to be used for the project and identify the anticipated haul routes to the Project.	Gravel pit locations likely will be the same as those considered for construction of the adjacent Juniper Canyon Wind Facility. See attached figure (Attachment 1). Transporter routes were identified in Section 3.9. Section 3.12 states that water for the project would be acquired from an on-site well. Concrete batch sites will be determined by the construction contractor, and any needed permits will be obtained as needed. The geotechnical analysis will address all of the roads that could be impacted from either potential batch plant/rock pit location (Whitmore & Grabner) to the project site. In the unlikely event that an EPC contractor would choose to source and truck in cement from a different location, Aurora Solar would then require the contractor to complete supplemental geotechnical analysis and enter into a new road haul agreement with the county. Rock pit and batch plant locations will be confirmed prior to pulling building permits.
PWD/Gordon Kelsey	PWD-008	Roads and Transportation	Any mitigation necessary to support this project's traffic impacts shall be performed prior to the start of any hauling operations.	A road haul agreement will be worked out separately with Public Works, to include mitigation for road impacts as appropriate.
PWD/Gordon Kelsey	PWD-009	Roads and Transportation	If mitigation work occurs on county roads as a result of the Geotechnical Evaluation, the applicant shall reimburse the county for reasonable road inspection costs.	Aurora Solar understands that any needed road upgrades or repairs as a result of project construction would be addressed as part of a separate road haul agreement to be negotiated with Klickitat County prior to issuance of building permits.
PWD/Gordon Kelsey	PWD-010	Roads and Transportation	All materials used on county roads shall meet the requirements for materials and placement in the most current version of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction.	Agreed.
PWD/Gordon Kelsey	PWD-011	Roads and Transportation	It will be required that a formal road haul agreement with financial security be developed and agreed to prior to construction to address road maintenance issues and damages that may arise during construction.	A formal road haul agreement will be negotiated with Klickitat County prior to issuance of building permits.
PWD/Gordon Kelsey	PWD-012	Roads and Transportation	The report states that roads may need to be closed during construction of the project. All road closures must be approved by Klickitat County prior to implementation.	Comment noted.
PWD/Gordon Kelsey	PWD-013	Roads and Transportation	Any new or existing driveways used for this project will need permits.	Comment noted.
PWD/Gordon Kelsey	PWD-014	Roads and Transportation	No data was provided for Klickitat County roads. Data for these roads is available through the Klickitat County Public Works office, 509-773-4616.	Klickitat County Public Works was contacted and provided data for Klickitat County Roads. This information has been added to Table 3.9-1 as shown in Attachment 2. Citation: Klickitat County. 2019b. Public Works Department. Personal Communication between Gordon Kelsey and Tetra Tech. July 3, 2019.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
PWD/Gordon Kelsey	PWD-015	Roads and Transportation	The other county roads proposed to be used by this project had no reported collisions during the same time period. The report accurately states that the statewide average collision rate for rural collectors is 1.55 collisions per MVM. The two primary roads which have been proposed for use as haul routes have collision rates that far exceed State Averages.	Supplemental collision information provided by Klickitat County is summarized in the attached revised Table 3.9-1. Citation: Klickitat County. 2019b. Public Works Department. Personal Communication between Gordon Kelsey and Tetra Tech. July 3, 2019.
PWD/Gordon Kelsey	PWD-016	Roads and Transportation	Collision rates should be used as they offer a better comparison between roads with drastically different traffic volumes. What will likely be shown is that County collision rates exceed the State collision rates.	The following statement will be added to Table 3.9-2: "The statewide average collision rate for rural collectors is 1.55 collisions per million vehicle miles (MVM). The accidents per MVM over the last 36 months for Roosevelt Grade Road (MP 0.00 to 6.54) was 2.472 and for Middle Road (MP 4.32 to 15.23) was 2.886, both higher than the statewide average collision rate for rural collector roads."
Yakima Nation (YN)/ Johnson Meninick	YN-001	Cultural	In general, the Yakama Nation remains concerned that most of this coordination has been conducted by the archaeological consultant, with whom we prefer not to share sensitive data. Without the careful attention of the Department of Archaeology and Historic Preservation, our office would not be aware of this report or associated comment periods. We continue to request Klickitat County's active engagement pursuant to our previous letter.	Comment noted.
YN/Johnson Meninick	YN-002	Cultural	We further ask PaleoWest to use discretion in its documentation of "no response" from Yakama Nation. Yakama Nation, in general, prefers to be contacted by the appropriate government agency and asks that contractors not imply that they have any delegated consultation authority.	Comment noted.
YN/Johnson Meninick	YN-003	Cultural	(Page 22) the author states that the Lund Hill Region "was not a center of habitation" and represents "temporary and transitory" use. This is incorrect. Two village location are located just north of the Lund Hill project. The area contains many TCPs as well. The landscape was an integral part of Native American lifeways at this location.	The DEIS notes the potential for TCPs in Section 3.6: "Avangrid is aware of TCPs in the region based on their work (under the former name of Iberdrola Renewables) on the nearby Lund Hill Wind Farm (not constructed) location where Avangrid worked with the Yakama Nation to produce a TCP study (Camuso and Rau 2012) for that project. Avangrid used the study results to site the Project away from the TCPs identified therein."

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
YN/Johnson Meninick	YN-004	Cultural	Sites must be tested for extent in order to determine site boundaries needed for avoidance and project planning. Isolates need to be tested to determine if they are truly isolates.	All identified precontact sites will be avoided by 100 feet or greater. If the final design places facilities closer than 100 feet to any sites or isolates identified during the cultural resource survey, eligibility testing of the resource would be conducted prior to construction. If testing determines the resource is NRHP-eligible, the resource would be avoided, or mitigation would be identified. In general, we consider it to be best practice to avoid archaeological sites whenever it is possible and consider digging into them as a disturbance to the integrity of the site. That disturbance may be necessary in some cases, but in this case it was not for two reasons. The first is that the project proponent is planning on avoiding all precontact archaeological sites and isolates with a sufficiently large buffer. The second is that prior research into the geology and soil formation of the survey area demonstrated low probability of buried deposits in the survey area, thus limiting the usefulness of subsurface investigations. The sediments surrounding all identified precontact artifacts date to the Pleistocene, and previous investigations in the region have shown little potential for buried archaeological deposits. Based on these factors, we decided the risk of impacting sites from conducting subsurface investigations outweighed the need to excavate to either determine if isolated artifacts are the surface expression of a buried site or to identify any subsurface deposits associated with recorded sites.
YN/Johnson Meninick	YN-005	Cultural	Eligibility criteria should not be applied to precontact sites under state law jurisdiction (see RCW 27.53). State law protects all precontact resources. Borrowing federal terminology for state-level projects confuses the regulatory compliance process. We ask that the report be edited to conform with state law (i.e. remove reference to eligibility for all precontact resources). Yakama Nation CRP dose not concur with eligibility recommendations/evaluations for precontact resources.	We appreciate and understand the concern of the Yakama Nation regarding use of the NRHP eligibility criteria to evaluate the significance of precontact sites in the project survey area, as well as the WHR areas of significance. The SEPA checklist guidance, Section B, Element 13: Historic and Cultural Preservation, specifically asks in Question A "Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in *or eligible for listing in national, state, or local preservation registers*?" (emphasis ours). In order to provide an adequate answer for this question, any sites over 45 years of age must then be evaluated under both the NRHP eligibility criteria and the WHR significance areas. While on federal lands, the lack of NRHP eligibility may exclude a precontact resource from any further consideration, Washington state law includes additional protections for precontact resources, as pointed out by the Yakama Nation. However, the evaluation of resources under either the NHPA eligibility criteria or the WHR areas of significance do not only serve to demonstrate significance, but also to identify the types of effects or impacts that may occur to the resource and how those impacts can be resolved. Impacts to a site that is eligible under Criterion A may come in different forms than impacts to a site eligible under Criterion D. The mitigation or avoidance of these impacts could also be very different. By providing such evaluations, we comply with SEPA and can provide the appropriate recommendations for any necessary mitigation. As specified in Section 8.2 of the cultural resources report, any disturbance to precontact sites require a permit from DAHP and we recommended avoidance of all precontact sites, regardless of any eligibility for listing on the NRHP or WHR.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
YN/Johnson Meninick	YN-006	Cultural	We request full avoidance of all precontact archaeological sites with a minimum 30-meter buffer once subsurface testing is completed to determine site extent.	All identified pre-contact sites, plus a buffer of at least 100 feet (30.5 meters), will be avoided by project construction.
Darby S. Hanson (Hanson)	DSH-001	EIS Front Matter	First, a nitpick in the Acronyms and Abbreviations section, page xiv. For PM10 & PM2.5, it should state that these are particulate matter with the corresponding aerodynamic radii.	The Acronyms and Abbreviations section will be updated.
Hanson	DSH-002	Roads and Transportation	In several sections, beginning in 1.2, they say that repair work on the county road to their Big Horn O&M facility "could be required", but I did not find a description of what those repairs might entail. I drove by that facility a few weeks ago, and the road from there to Schrantz Road, and over to Middle Road, were all roughly the same condition.	Any repairs needed for Big Horn Road or other roads related to facility construction will be agreed with Klickitat County public works department through a road haul agreement prior to construction.
Hanson	DSH-003	Roads and Transportation	I seem to remember that they were going to replace a bridge or two on Schrantz road during the Big Horn project construction, but that didn't happen. If road improvements are performed, then who is paying for the work?	Road upgrades or repairs required as part of project construction would be paid by Aurora Solar under a road haul agreement to be negotiated with Klickitat County prior to issuance of a building permit.
Hanson	DSH-004	Roads and Transportation	On page 1-4, reference is made to a portable rock crusher. Unless I missed it, the document didn't state whether they planned to use an existing rock pit or if a new pit needed to be developed. A new pit needs to be shown on the maps. If an existing pit, then perhaps it should be shown, also, so I can know which way all the truck traffic will be going and plan accordingly.	See attached map identifying gravel pit sites under consideration for use by this project.
Hanson	DSH-005	Water	Section 2.2.2.1 says that up to about 2.5 million gallons of water a year might be used for panel washing. That works out to about 6849 gallons per day average for a 365-day year. Section 3.4.2.3 mentions the Department of Ecology's water right exemption for less than 5,000 gallons per day groundwater withdrawals. How would anyone know the panel wash water was trucked in from a commercial well mentioned elsewhere, or if it came out of an exempt well such as proposed for any new O&M facility (sec. 2.2.4)?	Aurora Solar will comply with water right regulations.
Hanson	DSH-006	Build Alternative/ Water	Section 2.2.2.2 mentions the possibility of blasting for the support structures. The blasting plan must include testing of our well water before (and probably a few months after) any blasting is performed. We had an issue with excessive silt in our well after Big Horn construction that might have been caused by blasting.	This issue has been addressed separately with the landowner.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Hanson	DSH-007	Noise	Section 3.1.5.2 discusses the operational impacts of various noises (or sounds) from the project equipment. Table 3.1 5 lists 4 sound sensitive receptors. If these are the nearby residences, then why don't they state it in the text? Is our house "NSR l"? (I don't know our UTM coordinates.) How far from our house is the nearest inverter bank? (I couldn't tell from the maps, but it could be just a few hundred feet.) At 93 d.BA, these are on a par with listening to a heavy truck (or a Harley), all day, that doesn't go past until sunset. That won't be nice on a calm summer evening out on the porch. Those are the types of days when sound caries a long way out here.	Section 3.1.5.2 will be amended to clearly state that the NSRs are nearby residences. The house in question, for Hanson, is referred to as NSR 3 in the text. Thus, the Hanson house (i.e., NSR 3) is approximately 5,700 feet from the substation. The noise modelling resulted in a noise level of 44 dBA at the Hanson house (i.e., at NSR 3). This level would successfully comply with the most restrictive WAC Class A maximum permissible nighttime sound level of 50 dBA Leq.
Hanson	DSH-008	Air Quality	Section 3.2.2.2 lists various air quality monitors in the region, none of which are very close to the Project. I know that the Roosevelt Regional Landfill maintains air quality monitors as part of their Title V Air Operating Permit. I do not remember the parameters they monitor, but they do monitor fugitive dust. Construction activity just a few miles away with a North or Northwest wind might affect their on-site monitoring.	We used readily available data from Washington State Department of Ecology ambient monitoring program. This program is established to determine general background concentrations among other objectives (industrial and high population density assessments, regional pollutant transport, etc.) and to ensure the collection of adequate, representative, and useful air quality data on which to base policy decisions. The objective of assessing background concentrations is representative of the rural nature of this proposed site. Therefore, we used Department of Ecology data rather than data from an industrial source such as a landfill. Source: Washington State Department of Ecology 2019 Ambient Air Monitoring Network Plan.
Hanson	DSH-009	Air Quality	Table 3.2-1 shows estimated air emissions for a hypothetical 150MW natural-gas-fired combustion turbine power plant. I am not sure that you can scale down from the 1300 MW reference plant, depending on the size of those combustion turbines and type of emissions control measures required. The Goldendale facility contains a similarly sized CT and would be a better reference.	We evaluated the Goldendale Generating Station (GGS), a 297-MW combined-cycle natural gas-fired generating facility. Scaling the GGS permitted emissions from 297 MW to 150 MW results in the following emissions: Nitrogen oxides = 39 tpy Carbon monoxide = 42 tpy Particulate matter = 25 tpy Sulfur dioxide = 16 tpy Volatile organic compounds = 8 tpy Source: Washington State Department of Ecology, Central Regional Air Quality Section 2019. Accessed online at: https://ecology.wa.gov/DOE/files/a5/a58ff23e-88e2-48c0-97e6-f2e6ba7c711f.pdf. The values listed above are consistent with those presented in Table 3.2-1 and provide additional information on the representative emissions that would be avoided if the project were not constructed.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Hanson	DSH-010	Wildlife	Section 3.3.2.3 erroneously states that "black bear and cougar ... are unlikely to occur" in the project area. Both species have been sited at various times in the past within the project area.	Text will be added to clarify that the species have been observed; however, preferred habitat is absent and further analysis is not warranted due to lack of impacts to preferred habitat.
Hanson	DSH-011	Wildlife	I only see one snake species mentioned in Table 3.3-3. There are several more. Most importantly to the operating personnel will be the two types of rattlesnakes. The fatter green ones are very aggressive. Also, I have seen several varieties of toads and frogs, not just the one mentioned.	Table 3.3-3 is specific to "Special-status Wildlife" that have some state or federal wildlife agency designation (see text preceding the table in the DEIS). Rattlesnakes are not considered a special-status wildlife species. Western toad is the only special-status toad/frog with potential to occur. Construction and operations personnel will take appropriate avoidance measures.
Hanson	DSH-012	Aesthetics, Light, and Glare	Section 3.7 discusses aesthetics and glare issues that will most certainly affect us. All of the visual contrast evaluations and related text section impact discussions were downgraded merely due to the fact that the wind turbines exist out here. Yes, they dominate the skyline, but they do not cover hundreds of acres of the predominate landscape. These large-scale solar projects are not merely "noticeable" in their words. They will not just be " a thin dark line on the horizon" from a mile away, since they track the sun and will continuously change throughout the day. Out here, a mile is nowhere near the horizon. The large dark patch will stick out like a sore thumb from the more distant viewpoints. They will be almost all you can see from the close viewpoints. They will be a dominate feature out almost every window of our house, especially once a presumed phase 2 is built to the south.	The contrast ratings were developed consistent with the methodology presented in Section 3.7.1.4 in the DEIS, and with accepted practice to evaluate the impacts of a proposed action in the context of existing sources of contrast (i.e., wind turbines) in the visual setting. Although the Project would occupy a large area, it would not be seen in its entirety unless the viewer is at an elevated viewing location, which are limited within the visual study area. From most viewing locations, the viewer would have level viewing conditions and would most likely see only the first few rows of the PV panels. This is demonstrated in the visual simulation from East Road which is included in Appendix D of the DEIS. The viewpoint is located approximately 0.7 mile east of the Project area at the closest point, and the simulation shows that the solar modules would appear as a thin, dark line on or near the horizon. A simulation from Middle Road adjacent to the Project area was also included in Appendix D of the DEIS. The viewpoint is located approximately 200 feet from the nearest PV panel. As illustrated in the simulation, the Project is: 1) not seen in its entirety and 2) even though the viewer is close to the Project, the low profiles of the panels mimic the horizontal element of the landscape and contrast less than the multiple turbines, with spinning blades, that tower over the panels.
Hanson	DSH-013	Build Alternative	By the way, shouldn't an obviously planned phase 2 be included in the EIS? I seem to remember other major projects in the past that included such discussions, usually a bit more limited due to all the unknowns.	The project is not currently planned to be constructed in phases, nor is there a plan for additional construction at this site in the future.
Hanson	DSH-014	Aesthetics, Light, and Glare	In section 3.7.2.2, under Local Residents, it says they "may be more sensitive to changes in their specific views and may have adverse reactions to views of the Project facilities." It would be more accurate to say "Local residents that do not directly benefit from the Project will be highly sensitive to changes in their specific views and will have adverse reactions to views of the Project facilities." Again, they downplay the obvious negative impacts to the landscape.	The DEIS statement in question is valid and appropriate. Use of the phrase "...may have adverse reactions…" was intentional because there is not an objective basis for predicting that all members of a specific viewer group will respond in the same way to the introduction of the Project facilities to the landscape setting. As noted in the DEIS, the addition of the Project facilities into a view may be detrimental to one viewer's enjoyment but may have a negligible effect for another viewer.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Hanson	DSH-015	Aesthetics, Light, and Glare	It would have been a better representative viewpoint number 1 if it had been about 1 mile south of Schrantz road. That picture shows one of the residences from a point at least a half mile closer than the other two nearby residences and doesn't really depict our normal view.	The objective in selecting the set of viewpoints presented in the DEIS was to document conditions for a set of points that reflect the applicable range of viewer groups and viewing locations and distances. The six viewpoints used in the visual assessment meet that objective. It is not practical or necessary to visit, photograph, and access points that cover every potential viewer and viewing location. The set of points that were selected include viewers along roadways and at residences who have views toward the Project ranging from very close (i.e., adjacent to the Project site) to viewers located near the end of the middleground distance zone (approximately 5 miles). The viewpoints also represent different viewer positions, including level (same elevation as the Project) and elevated (viewer situated above the Project).
Hanson	DSH-016	Aesthetics, Light, and Glare	Regarding glare impacts, there will be some, but quantifying it is difficult due to the moving panels. I noticed the project going into Pendleton had to install signage on I-84 to warn drivers of the potential glare. During research, I learned that the signage was added after numerous complaints by motorists. Those panels appeared to be stationary, but I am not sure. Regardless, we will be very annoyed when the inevitable glare hits our house each morning and evening.	This issue has been addressed separately with the landowner.
Hanson	DSH-017	Aesthetics, Light, and Glare	The document mentions several times that the panels are designed to absorb light and will have anti-reflective coatings. Nowhere does it state the actual index of refraction. This specification is required in order to calculate the potential reflected power.	The index of refraction of a certain material is defined as the speed of light in a vacuum divided by the speed of light in a certain material. As it pertains to solar panels, ambient air has one index of refraction and the solar panel will have a different index of refraction. The indices of refraction of the two materials are used to determine the angles at which the light will refract. For example, ultraviolet light from the sun passes through the air at a certain speed and changes speed (and thus angle) as it enters the solar panel. When light passes through the panel, the angle at which the light originates (incidence angle) is changed to the refractive angle when that light passes through the solar panel. The specific solar panels being used for this project are not yet determined; however, the panels will be placed on a tracking system, which is designed to keep the incidence angle at or near 90 degrees, minimizing the angle of refraction during peak sunlight hours. By minimizing the angle of refraction during peak sunlight hours, the amount of light reflected back off the panels will be minimized such that the semiconductors absorb the majority of the light and convert it to electrical energy.
Hanson	DSH-018	Public Safety and Environmental Health	Section 3.8.5, last bullet, says that site personnel will be issued cell phones in order to call emergency services when necessary. I suggest they have radios to call their office, since cellular service is very erratic here. Then, the office person can call 911 with a more reliable land line.	Site personnel will use the same methods for contacting emergency personnel as currently used by personnel operating the nearby Juniper Canyon and Big Horn wind facilities.

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Hanson	DSH-019	Roads and Transportation	Section 3.9.4.1 estimates 380 one-way trips per day for the 9 to 12-month construction period. My guess is that would be an increase of at least 20 times the current rate. Middle road will tum into a long washboard a few days after grading during dry periods.	Aurora Solar will enter into an agreement with Klickitat County regarding any needed road maintenance or upgrades.
Hanson	DSH-020	Roads and Transportation	Then, there will be the wet and muddy periods. It was during such periods during Big Horn construction when our school bus ended up in the ditch with children aboard. Please require that large truck traffic be delayed on the gravel roads for the 30-40 minutes twice a day that the school bus is on this part of the route. Coordinate with the Bickleton School Superintendent. The road shoulders cannot handle a large vehicle much of the time, just ask the gravel truck driver and the crane driver who wrecked on their way up here during past construction.	The single substation transformer will be the only oversized load. Its delivery will be scheduled such that it does not disrupt school bus traffic. The construction contractor will have a traffic control plan which will be shared with the county.
Hanson	DSH-022	Public Service and Utilities	Several items in section 3.12 seem to be out of date and/or wrong. For instance, Republic Services has owned the RRLF for several years now, not Allied Waste.	Confirmed. All references to Allied Waste will be removed and replaced with Republic Services. Two references total, located in Section 3.12.2.8, Solid Waste.
Hanson	DSH-023	Public Service and Utilities	I think the DNR office in Goldendale maintains firefighting crews during the typical fire season.	Noted and confirmed. The following text will be added to Section 3.12.2.1, Fire: "The district also works with District No. 7 out of Goldendale and District No. 10 out of Alderdale, which have 37 and 14 fire trucks, respectively. District No. 7 out of Goldendale has a seasonal summer firefighting team maintained by the local Washington State Department of National Resources office. District No. 9 out of Roosevelt has 14 fire trucks."
Hanson	DSH-024	Public Service and Utilities	Life Flight is a separate entity from KVH.	Noted and confirmed. Adjust wording of Section 3.12.2.3, Medical Services: "Klickitat Valley Hospital in Goldendale (a licensed 25-bed facility about 26 miles west of the solar facility siting area) serves central and eastern Klickitat County. The hospital collaborates with the LifeFlight medical evacuation service (local office in Dallesport, Washington) that enables air transfers of serious trauma patients to Legacy Emanuel Hospital in Portland, Oregon, the region's closest Level 1 Trauma Center with approximately 554 beds."
Hanson	DSH-025	Public Service and Utilities	The Bickleton School has been running closer to 100 or so students and began direct pick-up of 7-12 graders in Roosevelt.	Noted and confirmed. Adjust wording of two paragraphs in Section 3.12.2.4, Schools: "This school district, which includes only Bickleton Elementary and High School (located approximately 7 miles north of the solar facility siting area), has a current enrollment of 125 students and a capacity of about 140 students." "Students in grades 7-12 who are residents in this school district, but who attend school in the Bickleton School district (due to lack of a high school in this school district), are offered direct pickup by bus."

Agency/Commenter	Comment Number	Resource Topic	Comment Text	Draft Response
Hanson	DSH-026	Public Service and Utilities	Many (most?) new Diesel engines now have catalytic converters, but I do not know if they operate as hot as those on gasoline engines. Regardless, Diesel exhaust can still cause a fire when people park a hot vehicle in the tall, dry, grass.	Understood. Construction and operation crews will be diligent about fire prevention and understand the risk of hot vehicles in dry grass.

ATTACHMENT 1

Lund Hill Solar Energy Project

Potential Gravel Pit Locations

KLICKITAT COUNTY, WASHINGTON

Hooker Rd
Grabner Gravel Pit
Big Horn Rd
Dot Rd
Hale Rd
Van Nostern Rd
East Rd
6 Prong Ext
Gadeberg Rd
Brannon Rd
Schrantz Rd
Whitmore Rd
Ward Rd
Middle Rd
Six Prong Rd
Newell Rd
Whitmore Gravel Pit

Solar Facility Siting Area
Potential Gravel Pit

TETRA TECH
AVANGRID RENEWABLES

1:60,000 NAD 1983 StatePlane Washington South FIPS 4602 Feet

0 0.5 1 2 Miles

Data Sources

Avangrid-Project Boundary, Components; USDA-NAIP Imagery

Reference Map

WA
OR
ID

R:\PROJECTS\AVANGRID_LUND_HILL_SOLAR_6574\EIS\MAPS\LH_Potential_Gravel_Pits.mxd

ATTACHMENT 2

Revised Table 3.9-1. Average Daily Traffic Volumes and Estimated Truck Percentages on Project Roadways

Roadway	Function Class	2013 ADT	2014 ADT	2015 ADT	2016 ADT	2017 ADT
SR 14, MP 100.66 after JCT SR 14 Spur at Maryhill	1	640	680	770	520	NA
SR 14, MP 102.27, at Permanent Traffic Recorder Location R077	2	1,600	1,600	1,600	1,500	1,400
SR 14, MP 121.15, before JCT Rock Creek Road	2	1,200	1,200	1,300	1,300	1,200
SR 14, MP 131.07 after JCT Old Hwy. 8	2	1,400	1,300	1,400	1,400	1,200
SR 14, MP 148.95 before JCT Alderdale Boat Launch Road	2	1,100	1,100	1,200	1,200	1,200
Roosevelt Grade Road (MP 0.00 to 6.54) Counter Location MP 0.40	~~NA~~7	~~NA~~842	~~NA~~893	~~NA~~886	~~NA~~115	~~NA~~115
Roosevelt Grade Road (MP 0.00 to 6.54) Counter Location MP 5.17	7	350	278	281	399	399
Middle Road (MP 4.32 to 15.23) Counter Location MP 4.58~~Middle Road~~	~~NA~~9	~~NA~~11	~~NA~~20	~~NA~~20	~~NA~~20	~~NA~~20
Middle Road (MP 4.32 to 15.23) Counter Location MP 14.57	9	17	13	184	184	184

Notes: The 2017 SR 14 ADTs from WSDOT Traffic GeoPortal were provided at mileposts different from those used for previous data; therefore, the data in this table have been extrapolated between mileposts for 2017. Klickitat County ADT data were collected on even-numbered years; the data for odd-numbered years is extrapolated from the previous even-numbered years.

ADT = average daily traffic (number of vehicles)

MP = mile post

JCT = Junction

NA = not available