

January 9, 2020

VIA EMAIL [erosepa@ecy.wa.gov]  
Gwen Clear  
Washington Department of Ecology  
1250 Alder St  
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**Re: Response to State Environmental Policy Act (SEPA) Comments on the Westside Solar Project (CU-19-00003)**

Dear Gwen Clear:

Thank you for providing your review comments on the Westside Solar Project (Project). This letter is intended to provide specific responses to comments included in your letter, dated December 16, 2019.

We appreciate your input on this important renewable energy project, which will supply the equivalent to the energy demand of approximately 900 Washington homes (this is based on a production model for Westside Solar and the 2018 average monthly household energy consumption for Washington of 957 kilowatt-hours, as reported by U.S. Energy Information Administration). The clean energy produced by Westside Solar, LLC (Westside) could potentially offset up to approximately 10,000 megawatt-hours annually from existing sources, which would offset an estimated 7,092,893 pounds of carbon dioxide; 4,457 pounds of sulfur dioxide; and 6,535 pounds of nitrogen oxides annually (numbers obtained from EPA Power Profiler). The reduction of overall atmospheric carbon emissions is vital for the long-term protection and rehabilitation of wetlands and sensitive ecosystems. Current levels of greenhouse gas emissions produced by non-renewable energy sources are contributing to global climate change and have site-specific implications. Current emission levels are anticipated to impact wetland hydrology and increase temperatures, and may significantly impact these sensitive ecosystems.

The revenues generated from the sale of the electricity is necessary to offset the cost of construction, which includes the cost of upgrading the electrical grid to accept the Project's electricity. There are significant fixed costs of construction that do not scale if the Project is reduced in size. Shrinking the project size would have significant implications for the overall viability of Westside Solar and the associated ecological benefits.

Below are specific comments from your letter followed by our responses. The excerpts from your letter are italicized.

**Comment:**

*Wetland buffers act to filter surface runoff, reduce erosion, screen adjacent noise, light and activity, and protect critical habitat for wetland dependent species. Our review of available studies indicates that effective buffer widths range from 50 feet to 250 feet, depending upon the values provided by the wetland, the topography, soils, existing vegetation, and the proposed adjacent land use. In some instances, enhancement of an existing buffer, such as planting of native vegetation, or construction a fence, can improve the protection of wetland functions.*

*Wetland 2, which will not have any direct impacts, has a proposed 25 foot buffer. Ecology recommends the County to use their widest Category II wetland buffer. Solar farms are considered a high land use intensity and to properly buffer a Category II wetland with a habitat score of 7, Ecology's guidance requires a 150 foot wide buffer. The County's Critical Area Ordinance for Category II wetlands, requires between 25 to 100 feet of upland buffer. Therefore, Ecology would recommend the widest buffer the County's CAO authorizes, which is 100 feet landward of the wetland boundary.*

*Wetland 1, is a Category I wetland with special characteristics (aspen stand) and a high score of functional habitat (8). This wetland will be impacted; therefore Ecology can require our regulatory buffer guidance to be used. A Category I wetland with a Habitat Score of 8, and surrounded by a high land use intensity would require a 200' wide buffer. However, there is opportunity to reduce the buffer width if the two items in Chapter 6.6.1.1 of Wetland Mitigation in Washington State, Part 1 can be met.*

**Response:**

Per Kittitas County Code, the specific development intensity for fixed-tilt and single-axis solar systems has not yet been determined. The applicant requests further information and guidance from the Washington Department of Ecology (Ecology) on how the determination of high land use intensity was reached.

In the absence of published guidance from Kittitas County and Ecology specific to solar energy, the Project requests that Ecology consider a low-intensity classification for the proposed single-axis system, based on the following characteristics:

1. Usable Available Habitat

The National Electrical Code requires a Project like Westside Solar to have a fence around the panels, but the Project has introduced several elements to make this as favorable to wildlife as possible. It will incorporate a woven-wire, wildlife-permeable fence with 1-foot by 1-foot cutouts to allow larger animals through. The fence will be 8 feet tall with no barbed wire to prevent injury to larger game that may attempt to jump a lower fence or get caught in anti-climbing devices. In addition, the majority of the approximately 26 fenced acres will be naturally vegetated and can be overseeded

with an approved native seed mix to provide cover and, potentially, foraging habitat for small mammals and birds.

Apart from the access road, the majority of the area within the fence will not be graded, compacted, filled, or paved. Therefore, we anticipate that the area will have similar ecological and hydrologic functions as does the current pasture area. The panel racking system will be supported on piles, metal posts driven into the ground without concrete footings (Photo 1).



*Photo 1. Summertime photo from a solar energy facility owned by Heelstone in Oregon. This photo is intended to demonstrate typical vegetative cover conditions—an approved native species seed mix can be used in the array area to provide cover and foraging habitat for small mammals and birds.*

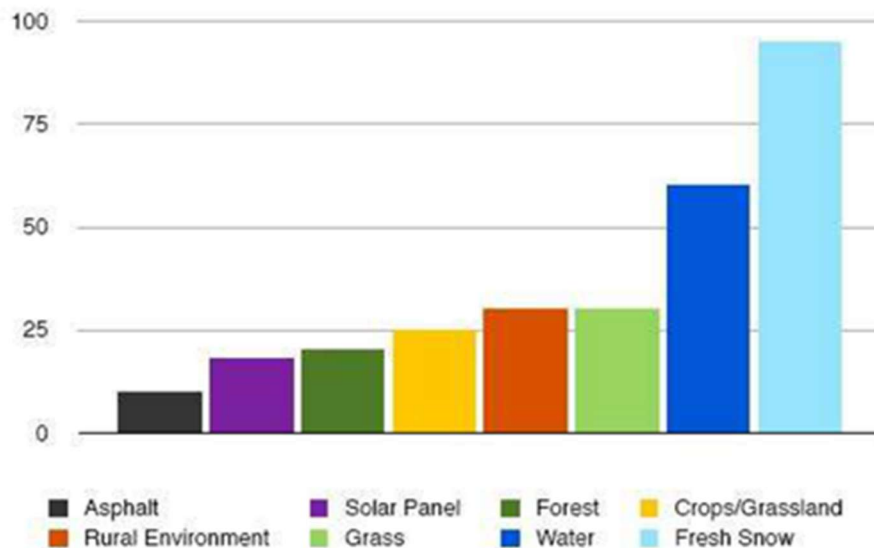
Although the Project would increase edge effects by placement of the solar array and access road, these activities would occur in areas where habitat value is relatively low—in the previously grazed/mowed pasture and previously compacted access road.

The proposed design elements would allow birds and small mammals to access and forage in these areas and, apart from infrequent maintenance activities, human activity would be restricted in the Project area. The Project would minimally impact wildlife access to and from the high-quality habitat areas resulting from the proposed mitigation activities.

2. No Permanent Lighting and Minimal Light Reflection

Once constructed, the Project itself will generate no light. Neither the Project-owned equipment nor the Puget Sound Energy-owned equipment will generate or require lighting. Where light reflection is concerned, solar panels are specifically designed to absorb as much light as possible, not reflect light. Any light reflected is a decrease in the efficiency of the system.

Several elements are incorporated into the panel to achieve maximum light absorption and, thus, decrease reflection. The first is the high transmittance glass used for solar panels, which is processed so that there are very little impurities present to reflect light. Next, the glass has a lightly dimpled surface to break up the small amount of light that is reflected and reduce direct glare. Lastly, solar panels include an anti-reflective coating to further reduce glare potential. With all these features, a solar panel has less glare potential than flat water or snow. In addition, Westside Solar is a tracking solar energy system, which has even less potential for glare than a stationary system. Because the panels are continually tracking the sun and optimizing the angle of incidence of the sun's rays as they meet the panel surface, even more is absorbed and less is reflected.



*Comparative Reflection Analysis. Adapted from "Solar Photovoltaic Energy Facilities: Assessment of Potential for Impact on Aviation" January 2011.*

The Project is not anticipated to generate enough reflected light to create a "lake effect" or "optical illusion."

3. Reduced Invasive Species Colonization

Kittitas County requires that solar power production facilities (SPPFs), such as Westside, submit and comply with a Noxious Weed Management Plan throughout the life of the Project. Westside's plan is attached. The intent is to prevent the spread and introduction of new weed populations. The current landowner has deemed the property

unsuitable for agriculture and left it mostly vacant and unused for decades. As such, minimal work was done to reduce the spread of noxious weeds. Please see Figure 2 of the attached Noxious Weed Management Plan for more information on the current state of the site. With the development, Westside Solar will have regular monitoring and maintenance that will include the elements in the Noxious Weed Management Plan. In addition to elements specified in the Noxious Weed Management plan, the Project can overseed areas between the arrays with an approved native seed mix. With these mitigation measures in place, the potential for invasive species colonization will decrease as a result of the proposed Project.

4. Minimal Impervious Surfaces

The Project will have very few impervious surfaces. The impervious surfaces include the road, three small inverter pads (10-foot by 20-foot), one pad for the interconnection equipment (20-foot by 50-foot), and a very small footprint for the posts which could be likened to the trellis system at a vineyard. All of this will result in less than 5% of the 46-acre property being covered in impervious surface. Please note that the solar panels are considered disconnected or ineffective impervious surfaces (as described in the *2019 Stormwater Management Manual for Eastern Washington*) that would allow precipitation to run in between and around the individual panels to infiltrate the vegetated ground underneath. As such, this area should not be considered impervious.

5. Minimal Maintenance Washes

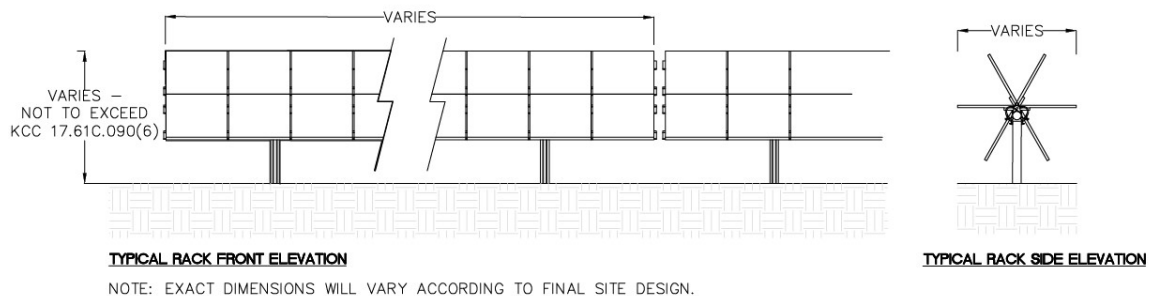
During the Project operation, panel washing is anticipated once every 2 to 3 years, depending on annual rainfall. A minimal amount of water will be used to periodically remove dust from the solar panels—no detergents or products will be used in, or generated by, panel washing. Panel washing will be conducted such that all runoff infiltrates the soil surrounding each panel. This could be compared to residential car-washing, which often occurs more frequently and uses detergents.

6. Short Construction Period Followed by Relatively Infrequent Human Activity

Land uses considered “high intensity” typically have high levels of human activity. For example, all land uses identified in Table 2 of *Wetland Mitigation in Washington State, Part I* as having “high impact” also have high levels of ongoing, daily human activity from employees, residents, and/or the public: commercial; urban; industrial; institutional; retail sales; residential (more than 1 unit/acre); conversion to high-intensity agriculture (dairies, nurseries, greenhouses, growing and harvesting crops requiring annual tilling and raising and maintaining animals, etc.); high-intensity recreation (golf courses, ball fields, etc.); and hobby farms. Westside Solar, by contrast, will have no permanent employees present on site and will be fenced to prevent public access. Westside will be mowed approximately once a year, with spot trimmings up to twice a year, unless more is required to control noxious weeds. Renewable energy projects, such as Westside Solar, should be considered similar in impact to utility corridors, since they have passively managed electrical equipment with a majority of native vegetative plantings.

7. Single-axis Tracking Design

In recent years, technology, such as single-axis racking systems, have rapidly advanced, which may render guidance based on fixed-tilt systems obsolete. Westside Solar's design is a single-axis tracking design. The diagram below depicts the panel design at Westside and shows the various positions the panels would rotate through during a day. In addition to increasing the energy production of the facility, the single-axis tracking design of Westside Solar decreases the ecological impacts associated with fixed tilt systems. Because the panels are constantly rotating during the day, the infiltration and microclimate effects are reduced. The slow movement of the panels means that there is no fixed drip line off the panels during precipitation events which will better preserve the water flow and infiltration patterns present prior to the solar project. The daily movement of the panels also means that the shadow created by the panels is constantly moving throughout the day and no one area is permanently shielded from the sun's rays.



*Single Axis Solar Typical Details, excerpted from the Westside Site Development Plan submitted with the Conditional Use Permit Application and SEPA application.*

In addition to these aforementioned design and operational measures that reduce land use intensity, the Project has committed to the mitigation elements proposed in the Wetland Delineation and Conceptual Mitigation Plan. These measures would increase buffer and wetland functions of Wetland 2. The proposed buffer enhancement area would add approximately 1.71 acres of functional forest (multi-strata) by planting native trees and shrubs and removing invasive and weedy species in areas where overall buffer function is low. Moreover, the Project proposes to improve approximately 0.57 acres of wetland functions by directly enhancing seasonally ponded areas. Invasive species would be removed, and these areas would be planted with facultative and obligate wetland species. In addition to directly enhancing the functions of Wetland 2, the proposed vegetated wildlife corridor would allow for habitat connectivity between Wetlands 1 and 2, preserving the habitat functions of the property.

As described in specific elements of the mitigation plan, the proposed Project would increase the habitat, hydrologic, and water quality functions of Wetland 1 by restoring an area that appears to have been previously graded and filled. The Project would restore more than 1.0 acre of a Category I wetland via minor excavation, invasive species removal, and installation of native facultative and obligate wetland plants. Moreover, the Project

would directly enhance approximately 2.17 acres of low-functioning areas in Wetland 1 by removing invasive species and planting native species. Additionally, 2.75 acres of the Wetland 1 buffer would be enhanced using the above methods.

**Regardless of development intensity, the Project requests that Ecology and Kittitas County consider allowing the proposed buffer widths in consideration of the overall benefit of this solar project as Washington transitions to renewable energy. The proposed buffers, in conjunction with the additional proposed wetland enhancement measures included in the Wetland Delineation and Conceptual Mitigation Plan, are intended to adequately protect the wetlands and preserve their functions and values.**

**Comment:**

*Ecology would recommend access through Alternative A with the use of a culvert to provide hydrologic connectivity.*

**Response:**

Following submittal of the Conditional Use Permit (CUP) Application, Westside Solar has continued to refine the driveway design alternatives, including a conceptual grading design to determine the amount of fill needed to construct a fire code-compliant driveway at each of the alternative locations. The Project has concluded Alternative B would be the most appropriate access option from both a financial and impact perspective.

The Project requests that Ecology consider supporting Alternative B for the following reasons:

1. Further analysis during the conceptual grading design shows that while the footprint of Alternative A is indeed smaller, the volume of fill placed in the wetland is greater for Alternative A. This was documented in the Conceptual Layout Drawings provided to Ecology in advance of the site visit on 11/12/2019.
2. Kittitas County Public Works has granted preliminary approval to reduce the width of Alternative B from 26 feet to 20 feet, further reducing the footprint and volume of fill required to construct Alternative B.
3. The east-west portion of the driveway within the main portion of the site is required to provide vehicle access to all inverters and interconnection equipment areas, regardless of which Alternative is constructed. As a result, the total length of driveway required for Alternative A is similar to that of Alternative B.
4. The depth of fill required to construct a fire code-compliant driveway at Alternative A (20 feet above existing grade at its deepest point) could potentially create a barrier to wildlife movement through Wetland 1.

5. Although restoring the existing driveway at Alternative B would be considered a mitigation area, the existing functions provided by the undisturbed forested wetland that would be impacted by Alternative A far outweigh the functions of the previously disturbed wetland/buffer areas that would be impacted by Alternative B. The existing dirt access road at Alternative B has been previously impacted, consisting of compacted bare ground, generally free of herbaceous vegetation, and provides a low level of function.

**Comment:**

*Mitigation sequencing must be used to avoid and minimize direct and indirect impacts (such as those resulting from the access road) to wetlands.*

*In order to protect the wetland and buffer from the construction impacts, Ecology recommends installation and maintenance of a fence at the wetland buffer perimeter prior to and during all clearing/construction activities. If a fence is not appropriate, Ecology recommends that the wetland buffer be conspicuously flagged in the field to clearly define the area in which no work should occur.*

*In the event impacts to wetlands and wetland buffers are unavoidable, a compensatory mitigation and monitoring plan must be submitted to the County, Ecology, and the U.S. Army of Corps of Engineers (Corps) for review and consideration.*

*Discharges into Waters of the State (includes wetlands) are regulated by the State under the Water Pollution Control Act, RCW 90.48 and Section 401 of the Clean Water Act and could require Ecology's review and authorization.*

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

**Response:**

The Project has incorporated mitigation sequencing during development and will continue to do so as the Project moves forward.

The wetlands and associated buffers will be demarcated in the field with temporary fencing, flagging, or a combination of both.

The Project has begun preparing a Joint Aquatic Resources Permit Application for the access driveway. A compensatory mitigation and monitoring plan will be submitted to the County, Ecology, and the U.S. Army of Corps of Engineers (Corps) that addresses the impacts associated with the driveway.



**Comment:**

*Within the northwest corner of the proposed project area, an unnamed creek runs through a wetland/pond (identified as "Wetland 2" in Attachment A, the Wetland Delineation and Conceptual Mitigation Plan). This creek is a tributary of the Yakima River. Additionally, note that the Washington Dept. on Natural Resources' Forest Practices Application Mapping Tool identifies this portion of the unnamed creek as a fish-bearing waterway.*

*Two total maximum daily load (TMDL) water quality improvement programs protect both the wetland and the unnamed creek: the Upper Yakima River Basin Suspended Sediment, Turbidity, and Organochlorine Pesticide TMDL and the Upper Yakima River Tributaries Temperature TMDL.*

*Erosion of the project site has the potential to add sediment and turbidity to the protected waters and to adjacent wetlands. Care must be taken, both during and after development of this site, to prevent the entry of sediment and turbidity into the unnamed stream and adjacent wetlands. All existing riparian and wetland vegetation should also be protected and maintained. Project planning, development, and use of the site needs to include water quality protection.*

**Response:**

The Project will incorporate Ecology guidance regarding potential water quality impacts into the Wetland Delineation and Conceptual Mitigation Plan and Construction Plans. The Project does not propose mass grading, impervious surfaces, or pesticide use, and, therefore, will not represent a significant source of sediment, turbidity, temperature, or organochlorine pesticides to downstream waterbodies during construction and operation. Ecology guidance on the use of best management practices to control erosion and sedimentation during construction and operation will be implemented. Heelstone has designed the Project to meet the Kittitas County ordinance requirements for critical areas while following mitigation sequencing.

In the absence of any clear and codified guidance on land use intensity and buffer requirements associated with single-axis solar systems, Heelstone took a comprehensive approach to wetland protection at the site that focuses not only on buffers, but also on wetland and buffer enhancements. By increasing buffer widths beyond those required by Kittitas County (per KCC 17A.04.020 and 17A.04.025), the Project would lose 9.5 acres and, therefore, reduce the energy production by 40%, which equates to a loss of clean energy. Furthermore, increased buffer widths will impede the Project's ability to fulfill its total energy production commitment to Puget Sound Energy. We kindly ask Ecology to review the additional information provided in this letter as it relates to land use intensity, buffer requirements, and overall protection of the wetlands and work with us on obtaining a solution that provides for the successful completion of this Project.

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Sincerely,



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