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Subject: Badger Mountain Solar Energy Project: Data Request 3 Response - Wildlife

On behalf of Aurora Solar, LLC (Applicant), this memorandum provides responses to the Energy Facility Site Evaluation Council (EFSEC) letter sent on May 11, 2023 regarding additional information requested for the Badger Mountain Solar Energy Project (Project). This memorandum provides supplemental information in response to Data Request DR-WLF-40, 42, 45, 55, and 58. There are three potential factors that may result in sensory effects to species using the landscape in and near the Project: noise, human presence, and visual (glare). Each is discussed briefly below to determine whether effects should be considered beyond the Project boundary and whether these are direct effects, which will occur at the time of construction, or indirect effects, which could occur later in time.

Noise

There is little information available on the level or type of noise that will influence animal behaviors. Different species groups respond to noise differently and animals can be acclimatized to noise if there is background noise in the environment. Further, the noise analysis that was mentioned in the data request was designed to evaluate how noise would be experienced by human receptors, not animals. So the utility of the noise analysis to assist in a sensory effects determination for wildlife is difficult. As described in the noise analysis, noise levels will be different during construction and operations.

During Construction: For periods during construction, noise will travel beyond the Project boundary, by approximately 0.1 mile and occasionally further. These periods will be intermittent, occurring on the order of minutes or hours at a time. During these periods of time there would be the potential for animals to hear increased levels of noise if they were present. The best management practices outlined in Attachment O of the ASC would minimize this potential as much as practical.

The potential sensory effects will occur during construction hours (daytime), which are outside of the time of day when most animals are moving across the landscape. Most animals are moving during the late evening, early morning, and nighttime. Project construction noise is not anticipated during those key animal movement periods. Once construction has finished, no sensory effects beyond the Project boundary is expected, as described below.

There are no Priority Core Areas or High Priority Linkages that overlap with the Project area from the Landscape Integrity Corridor Network (Washington Habitat Connectivity Working Group, Statewide Data). The Project area has a “high cost” in landscape level movement modeling, likely due to the agricultural use. A Priority Linkage Area with medium-high linkage centrality (i.e., not identified in ALI [2014] as an ALI Priority Area or WHCWG High Priority Linkage) runs northwest-southeast through the western portion of the Solar Array Micrositing Area, associated with the talus slope and shrub-steppe primarily west of the Solar Array Micrositing Area and the eastern end of the Gen-tie Micrositing Corridor (Great Northern Landscape Conservation Cooperative 2015). This area is modeled as “Lower Cost to Medium Cost” for movement. If wildlife are using this linkage area the effects would be the same as those described for wildlife generally in this section. There is a Habitat Concentration Area (HCA) south and southeast of the Solar Array Micrositing Area, associated with the canyon created by Beaver Creek and the more natural habitat types south of the Project area. The southernmost point of the Project area is adjacent to the HCA but the rest of the HCA is at least 0.5 mile from the Project area boundary. These modeled movement corridors or areas of habitat concentration will not be disproportionately affected by noise from the Project. If individual or groups of animals are present they may experience elevated levels of noise, as discussed, but the movement corridors will remain intact.

The only known fixed biological resources that could be within range of construction noise is the golden eagle nest, just west of the Project. The Project applicant will coordinate with the USFWS on methods needed to minimize noise impacts on that nest. There are no known greater sage-grouse leks close enough to experience noise from the Project. The nearest documented greater sage-grouse lek is approximately five miles away. A few greater sage-grouse pellets were discovered during a pellet survey in 2022, providing evidence that the species does occasionally use the Project area, albeit at a low rate. Those individual birds could experience higher levels of noise if they are present within the range of noise coming from construction activities. It is unknown, if the birds are present during construction, if they would change their behavior as the result of construction-related noise.

During Operations: Attachment O to the ASC includes modeling of received noise levels both inside and outside of the Solar Array Micrositing Area during operations. Attachment O, Figure 2 shows how sound levels change across the landscape. The noise levels beyond the Project boundary are characterized as “Faint” and are equivalent to a “Quiet Rural Residential Area with No Activity or a Bedroom or Quiet Living Room” (ASC, Attachment O). Therefore, during operations noise levels beyond the Project boundary will be similar to expected background levels and there would be no effect on wildlife from noise generated by the Project.

There would be no indirect effects on wildlife from noise beyond the Project boundary during operations.

Human Presence

Species most likely to react to human presence on the landscape are nesting raptor or terrestrial mammals, particularly big game species. The latter have the ability to move away from the Project during periods of high human disturbance but are likely to resume using the area once the human

presence is gone. Nesting raptors, on the other hand, experience human disturbance from a fixed point (i.e., the nest) that the nesting pair uses for the duration of the nesting cycle, as long as the nest remains active. Therefore, nesting raptors are the most likely species and life stage to be impacted by human presence. Notably, most species, including raptors, tend to react differently to vehicles than they do to a person/people walking. Species tend to be indifferent to vehicles nearby, and do not change their behavior, whereas if a person is walking around, the animal may perceive the person as a threat and move away.

Human presence will be highest during construction and effects from human presence are only expected during construction. Post-construction, during operations, there will be minimal human presence at the site, outside of occasional operations and maintenance personnel on site to address an issue that cannot be addressed remotely. During construction human presence may influence nesting raptors for one or two nesting seasons, depending on when construction starts and ends if they are within the line of site to construction activity. Prior to construction raptor nest surveys will be conducted within 0.5 miles of the Project boundary. If active raptor nests are observed prior to construction, the Project applicant will coordinate with WDFW on methods to minimize effects on nesting raptors, in order to avoid changes in behavior that may result in nest failure or the mortality of nestlings.

Glint and Glare

Tetra Tech conducted a glare analysis of the proposed Project (Attachment P to the ASC). Solar panels are designed to convert solar radiation into electricity by absorbing light onto poly or mono-crystallin cells, and the high-efficiency solar panels installed at utility-scale projects use a special type of glass coating (an anti-reflective coating) intended to increase absorption of solar radiation and decrease reflection. As a result, the solar glare from photovoltaic modules can have less glare than standard glass windows or water. In certain situations, the glass surfaces of solar photovoltaic systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration); but these situations are rare and limited to occasions when the sun is low in the sky (i.e., early morning and evening). The potential impact of glare from solar modules was assessed for human receptors, not for wildlife. Information is provided from the glare analysis in an attempt to infer whether it may influence how wildlife use habitat around the Project.

The glare impact analysis was conducted for the three analysis scenarios below, which included 9 vehicular traffic route locations and 31 observation points.:

- Scenario 1 (average first floor residential/commercial structure and typical commuter car)
- Scenario 2 (average second floor residential/commercial structure and typical semi-tractor-trailer truck)
- Scenario 3 (2-mile final approach paths for the Pangborn Memorial Airport)

The analysis provides a quantitative assessment of when and where glare has the potential to occur throughout the year for a defined solar array polygon. Scenario 1 is most representative of how wildlife might view the Project. No glare was predicted for Analysis Scenario 1 or Analysis Scenario 3. Analysis

Scenario 2 predicted 35 minutes of “green glare” for PV Array 18 experienced at the approximate height of a second floor residential/commercial structure and typical semi-tractor-trailer truck. Green glare is defined as having a low potential to cause after-image. The green glare was limited to one receptor route, 9 Road SW, which is directly south of the potential PV Array 18 located on DNR land, and only for a total aggregate of 35 minutes over an entire year. This is considered a negligible amount. In addition, the modeling does not account for varying ambient conditions (i.e., cloudy days, precipitation); atmospheric attenuation; screening due to existing topography not located within the defined array layouts; or existing vegetation or structures (including fences or walls); therefore, the predicted results are considered to be conservative.

As a result, no indirect effects are expected on wildlife from glare and no sensory effects beyond the Project boundary are expected to occur.

Summary

The only Project related element that may have sensory effects on wildlife beyond the Project boundary is construction related noise. Construction related noise is expected to occur beyond the Project boundary, depending on construction phase and the types of activities being performed. The sensory effect would be limited to animals near the Project boundary during construction. This would be an occasional occurrence, not a continuous one. The potential effect would occur during daytime hours and would therefore avoid the most critical movement periods for wildlife, which include late evening through the night and into the early morning hours. Standard best management practices will be employed to control and minimize noise during construction, as summarized in Appendix O of the Application for Site Certification. Once construction has been completed and the Project is operational, no indirect effects beyond the Project boundary are expected for the duration of the Project.

Taken as a worst-case scenario, the Project could affect how some wildlife (i.e., those that are highly mobile such as big game species and birds) use the landscape around the Project during construction. This effect is discrete even in a worst case scenario would occur on the order of hours or days during one breeding season, for many of these species, and does not warrant additional mitigation. The application of best management practices is warranted, to minimize noise from the Project and specifically manage construction activities around known fixed resources, such as active raptor nests. Beyond that, no additional minimization or mitigation measures are recommended.

References

- ALI (Arid Lands Initiative). 2014. Spatial Conservation Priorities in the Columbia Plateau Ecoregion: Methods and data used to identify collaborative conservation priority areas for the Arid Lands Initiative. Available at <https://www.sciencebase.gov/catalog/folder/52050595e4b0403aa6262c64>.
- WHCWG. 2015. Final Report. Great Northern Landscape Conservation Cooperative (GNLCC) Habitat Occupancy and Movements by Greater Sage-Grouse in Washington State. Available online at: [GNLCCF14AP01042_Final-Report_2015.pdf \(wacconnected.org\)](#).