



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Pasco District Office, Habitat Program • 2620 North Commercial Avenue, Pasco, WA 99301

March 31, 2021

Amy Moon
Washington Energy Facility Site Evaluation Council
621 Woodland Square Loop SE
PO Box 43172
Olympia, WA 98504-3172

Subject: Horse Heaven Hills Wind, Solar, and Battery Storage Project

Ms. Moon,

First and foremost, we want to emphasize the importance of renewable energy as part of a modernized energy portfolio consistent with state policy. The Washington Department of Fish and Wildlife (WDFW) fully supports Governor Inslee's goals for decarbonization in Washington State. Realizing this vision requires considerable planning and technical work to ensure renewable energy sources are sited in a manner that avoids unintended impacts on fish and wildlife resources.

We have reviewed the Application for Site Certification, Appendix K (Biological Reports), and Appendix M (Bird and Bat Conservation Strategy). We have also made use of Figure 3.4-4 (Fish and Wildlife Habitat Conservation Areas) in the Application for Site Certification (ASC), and Appendix N (Revegetation and Noxious Weed Management Plan). What follows are initial WDFW comments on the Horse Heaven Hills Wind, Solar and Battery Storage (HWSB) project, and we will continue to provide comments as we further discuss the project both internally and externally with the developer, their consultant, and EFSEC.

The HWSB project represents the largest renewable energy project in the State of Washington by far, and its' proposed solar development is over three times as large as any single solar project being constructed or proposed in the State. The HWSB covers almost 73,000 contiguous leased acres and spans nearly 27-miles just south of the Tri-Cities along the Horse Heaven Hills from above Finley on the east to above Benton City on the west. We appreciate that HWSB has sited approximately 80% of its project within, on, and over existing dryland wheat lands as well as the level of coordination over the last several years. However, the immense size of the HWSB along the Horse Hills ridgeline and the subsequent landscape-scale impact to an important habitat and ecological connectivity will be difficult if not impossible to mitigate. It is important to note that the lineal Horse Heaven Hills represent some of the last remaining functional and uninterrupted shrub-steppe and natural grasslands in Benton County. This ridge has remained largely undeveloped or converted to agriculture due to its shallower soils and steeper gradients. While some of the ridge has been altered by fire, it does retain important function and value, soils, and site potential for recovery over time with expected vegetative succession.

Development within this ridge will result in further fragmentation and isolation of shrub-steppe and grassland habitat as well as loss of function and value to wildlife.

While HWSB has sited the majority of the project over existing dryland wheat fields, the project's location and east-west orientation in the Horse Heaven Hills puts many of the turbines, micro-siting corridors, transmission lines, solar arrays, etc., in close proximity to, and crossing over, many of the draws and canyons that provide some of the only native shrubsteppe and grassland habitats in the area. These areas, as well as the entire Horse Heaven Hills ridgeline, are used seasonally and year-round by a variety of avian species, some of which are State, Priority, Candidate, and Threatened Species. In fact, the entire Horse Heaven Hills ridgeline is an important foraging area for avian species, including various raptors, and other wildlife.

We appreciate that the HWSB project acknowledged the importance of habitat connectivity and linkages in relationship to the project. On page 3-129, the north/south linkage just to the west of and parallel to the highway is referenced as well as the supporting analysis from the Statewide Connectivity Analysis. However, The Arid Lands Initiative Core Team produced a map of shared priority areas that was developed based on two scientific analyses specifically for the Columbia Plateau Ecoregion that includes the HWSB project. These two analyses are: *The Spatial Conservation Priorities in the Columbia Plateau Ecoregion – Methods and data used to identify collaborative conservation priority areas for the Arid Lands Initiative* and *The Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion*. Not only does the shared priorities map identify the north/south linkage but also identifies an important east/west linkage along the entire Horse Heaven Hills ridgeline that encompasses, very likely, the entire HWSB project site. Both linkages provide landscape connectivity, native habitats, and provide important ecological functions and values for resident and migratory wildlife in an already fairly developed landscape. The proposed construction of the HWSB project represents a significant landscape-level impact to habitat connectivity and to wildlife that will require compensatory mitigation.

HWSB proposes to construct solar arrays and battery storage at up to three locations within the project. For solar arrays that have any draws/canyons and or ephemeral drainages through them, these areas should be maintained as open and connected to adjacent and offsite habitats. There should be no roads, fencing, or underground utilities across these areas. Various maps in the ASC (i.e. Figure 2.3-8, 3.4-1) depict the two southern solar areas, one on the east and the other on the west, in various fenced arrays that do not appear to block any draws/canyons or ephemeral drainages. However, these same figures depict the northern solar area on the west project boundary as two fenced arrays that completely block a draw/canyon/drainage. Figure 3.3-2 identifies this area as an intermittent stream and we recommend that this array be fenced differently than what is illustrated to avoid this area to maintain some connectivity across the landscape, just as the other two solar development areas show.

Also related to the solar arrays, we consider impacts to vegetation inside the fenced area as the permanent loss of existing habitat functions and values and wildlife use. We agree with the statement on page 2-49 "... it is assumed that all areas within the fenced area would be permanently impacted...", but do not agree with statements on at least page 1-63 that states "...habitat type would become modified habitat under the solar array..." or in Table 3.4-14 footnote 2/ that states "...therefore, these impacts would be considered a modification of habitat rather than a temporary or permanent impact." Habitats within the fenced area will be permanently impacted, maintained, mowed, fenced to exclude many species of wildlife, and will experience frequent disturbance associated with operation and maintenance (cleaning panels etc.) of the associated infrastructure.

HWSB provides information related to both a 244-turbine layout for shorter turbines and a 150-turbine layout for taller turbines. We agree that table 3.4-14 *might* represent the maximum acreage of impact, but the applicant clearly states that only 44 of the up to the 244 turbine locations have been surveyed. Adding some confusion to this is the fact that it is not known if all or some of these locations are the same as for the 150-turbine layout. We recommend that all turbine locations, micro-siting corridors, and transmission corridors be surveyed to better understand project impacts and that further refinement of the micro-siting corridor and turbine locations could occur based on the findings of these surveys. For example, the transmission corridor shown in Map 6 of Figure 3.4-4 passes through shrubsteppe and across a “Waters of the State” and in Map 4 of this same figure, the micro-siting corridor passes through shrubsteppe and over “Waters of the State.” We look forward to working with HWSB to further refine the project layout to avoid and minimize impacts to these and similar areas. Since the layout presented is that for 244 turbines, we are interested in how the 150-turbine layout might avoid and minimize these impacts. Relocating turbines further south from the ridgetop and shrubsteppe would also be very helpful in avoiding avian impacts.

In contrast to the acreage values of grassland and shrubland that would be permanently and temporarily impacted by the wind and solar developments separately (page 1-163), we have calculated, based on the data in Table 3.4-14, that wind energy development would permanently impact 40.8 acres of grassland and shrubland (not 93 acres) and temporarily impact 551 acres of grassland and shrubland (not 571 acres). Solar energy development would permanently impact 944.1 acres of grassland and shrubland and temporarily impact 19.1 acres of grassland and shrubland (not 891 acres).

Overall, we have calculated 1,555 acres of temporary and permanent impacts to grassland and shrubland habitats from both wind and solar energy development. By grassland and shrubland habitat type, the temporary and permanent impacts and mitigation ratios and mitigation values are as follows:

	Wind	Solar	Total	Ratio	Mitigation
Temporary Grassland	381	12.1	393.1	0.1:1	39.3
Permanent Grassland	28	462.1	490.1	1:1	88.5
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Permanent Shrubsteppe	12.8	482	494.8	2:1	989.6
			1,555		1,607.5

Based on the direct impacts to these habitats, and not accounting for other direct and indirect impacts to the losses of habitat functions and values and the landscape-scale impact to Horse Heaven Hills connectivity that we identified earlier that would be difficult if not impossible to mitigate, we very conservatively estimate approximately 1,608 acres for mitigation.

We appreciated the analysis of mean exposure indices for potential avian impacts within the rotor swept height (RSH) for both the shorter and taller turbines. Based on the data in table 3.4-9, use of the tall GE 5.5 turbine would result in lower exposure indices for many of the 66 bird species recorded on the HWSB site, with the exception of snow and Canada geese. Additionally, use of the taller turbines would result in 94 fewer machines on the landscape and we look forward to working with HWSB to microsite these further away from documented raptor nesting or foraging areas than is shown in the 244-turbine layout. For example, Map 4 of Figure 3.4-4 (Fish and Wildlife Habitat Conservation Areas)

shows turbine locations adjacent to Webber and Sheep Canyons and along the ridge between these canyons. We realize that there is already a 350' disturbance buffer around the turbines and micro-siting corridors, but removing turbines from the this ridge and canyon rims or from crossing the canyon (Sheep) would provide additional buffer and habitat for the variety of raptors that have utilized these areas for nesting and foraging for decades. Additionally, these canyons are important nesting and foraging habitat for Ferruginous Hawk, a State Threatened Species that is in the process of being uplisted to Endangered. Maintaining sufficient foraging area to support successful territories and nesting for Ferruginous Hawks and other raptors that use thermals and air currents associated with the Horse Heaven Hills seems particularly challenging with current proposed structure orientation.

We are in general agreement with the Revegetation and Noxious Weed Management Plan (Appendix N) in terms of stockpiling topsoil, weed treatments, seed mixes, planting methodologies, and 3-year monitoring for grasslands and 5-year monitoring for shrublands.

Finally, the Horse Heaven Hills ridge line from the east near the Columbia River to the west and beyond Prosser provides important shrubsteppe habitats and landscape connectivity. In fact, we have worked closely with Benton County and private developers to mitigate previous projects in a way that conserves native habitats and connectivity in this area. Constructing the HWSB would result in the loss of ecological connectivity and impacts to and losses of wildlife species. To reduce the landscape-scale impact of the HWSB and maintain connectivity we recommend that the project focus on solar development only on agricultural and grasslands in the southern edge of the HWSB lease area and to the southwest. This includes transmission corridors and all supporting infrastructure. This would preserve the integrity of the Horse Heaven Hills ridge line as the only documented and scientifically-validated east/west ecological corridor supporting native habitats and wildlife in Benton County.

Please contact me at 509-380-3028 or at Michael.Ritter@dfw.wa.gov with any questions.

Sincerely,

A handwritten signature in black ink that reads "Michael Ritter". The signature is written in a cursive, flowing style.

Michael Ritter
Area Habitat Biologist
Statewide Technical Lead: Wind and Solar



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While HWSB has sited the majority of the project over existing dryland wheat fields, the project's location in the Horse Heaven Hills puts many of the turbines, micro-siting corridors, transmission lines, solar arrays, etc., in close proximity to, and crossing over, many of the draws and canyons that provide some of the only native habitats in the area. These areas, as well as the entire Horse Heaven Hills ridgeline, are used seasonally and year-round by a variety of avian species, some of which are State, Priority, Candidate, and Threatened Species. In fact, the entire Horse Heaven Hills ridgeline is an important area for avian species and other wildlife. In the mid-1990s in Washington State, it was recognized that more than 60% of the shrubsteppe that historically occurred here no longer exists. This habitat decline has continued over the last 25 years. What remains is fragmented, occurs primarily on shallow soil locations and has been impacted by fire and weed infestation. Opportunities for mitigation are extremely limited. Some locations are highly strategic and have characteristics that are not found elsewhere. The Horse Heaven Hills ridgeline is such a location. In a three state analysis, The Arid Lands Initiative (ALI) recognized the strategic importance of this area.

We appreciate that the HWSB project acknowledged the importance of habitat connectivity and linkages in relationship to the project. On page 3-129, the north/south linkage just to the west of and parallel to the highway is referenced as well as the supporting analysis from the Statewide Connectivity Analysis. However, The Arid Lands Initiative Core Team produced a map of shared priority areas that was developed based on two scientific analyses specifically for the Columbia Plateau Ecoregion that includes the HWSB project. These two analyses are: *The Spatial Conservation Priorities in the Columbia Plateau Ecoregion – Methods and data used to identify collaborative conservation priority areas for the Arid Lands Initiative* and *The Washington Connected Landscapes Project: Analysis of the Columbia Plateau Ecoregion*. Not only does the shared priorities map identify the north/south linkage but also identifies an important east/west linkage along the entire Horse Heaven Hills ridgeline that encompasses, very likely, the entire HWSB project site. Both linkages provide landscape connectivity, native habitats, and provide important ecological functions and values for resident and migratory wildlife in an already fairly developed landscape. The proposed construction of the HWSB project represents a significant landscape-level impact to habitat connectivity and to wildlife that will require mitigation. ALI is an analysis that looked at the entire Columbia Plateau across three states, Washington, Oregon and Idaho. This vast three state analysis resulted in a conservation network of core areas and linkages. Fracturing this network by developing in key locations is a significant concern.

HWSB proposes to construct solar arrays and battery storage at up to three locations within the project. For solar arrays that have any draws/canyons and or ephemeral drainages through them, these areas should be maintained as open and connected to adjacent and offsite habitats. There should be no roads, fencing, or underground utilities across these areas. Various maps in the ASC (i.e. Figure 2.3-8, 3.4-1) depict the two southern solar areas, one on the east and the other on the west, in various fenced arrays that do not appear to block any draws/canyons or ephemeral drainages. However, these same figures depict the northern solar area on the west project boundary as two fenced arrays that completely block a draw/canyon/drainage. Figure 3.3-2 identifies this area as an intermittent stream and we recommend that this array be fenced differently than what is illustrated to avoid this area to maintain some connectivity across the landscape, just as the other two solar development areas show.

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Overall, we have calculated 1,555 acres of temporary and permanent impacts to grassland and shrubland habitats from both wind and solar energy development. By grassland and shrubland habitat type, the temporary and permanent impacts and mitigation ratios are as follows:

Grassland Temporary	=	393.1 (0.1:1)
Grassland Permanent	=	490.1 (1:1)
Shrubland Temporary	=	177.0 (0.5:1)
Shrubland Permanent	=	494.8 (2:1)

Based on the direct impacts to these habitats, and not accounting for other direct and indirect impacts to the losses of habitat functions and values and the landscape-scale impact to Horse Heaven Hills connectivity that we identified earlier that would be difficult if not impossible to mitigate, we very conservatively estimate approximately 1,608 acres for mitigation.

We appreciated the analysis of mean exposure indices for potential avian impacts within the rotor swept height (RSH) for both the shorter and taller turbines. Based on the data in table 3.4-9, use of the tall GE 5.5 turbine would result in lower exposure indices for many of the 66 bird species recorded on the HWSB site, with the exception of snow and Canada geese. Additionally, use of the taller turbines would result in 94 fewer machines on the landscape and we look forward to working with HWSB to micro-site these further away from documented raptor nesting areas than is shown in the 244-turbine layout. For example, Map 4 of Figure 3.4-4 (Fish and Wildlife Habitat Conservation Areas) shows turbine locations adjacent to Webber and Sheep Canyons and along the ridge between these canyons. We

realize that there is already a 350' disturbance buffer around the turbines and micro-siting corridors, but removing turbines from the this ridge and canyon rims or from crossing the canyon (Sheep) would provide additional buffer and habitat for the variety of raptors that have utilized these areas for nesting and foraging for decades. Additionally, these canyons are important nesting and foraging habitat for Ferruginous Hawk, a State Threatened Species that is in the process of being uplisted to Endangered. Prey base and food web are an important consideration for species recovery such as the listed ferruginous hawk. Ferruginous hawks move around the continent based in part on the availability of food resources. Townsends ground squirrels are commonly found in the proposed project location. This important food source attracts these and other species that are then susceptible to collision with proposed turbines. Micro-siting does not ameliorate this impact.

Species recovery efforts avoid locations in the vicinity of mortality sources. Losing large areas where targeted releases or recovery actions are no longer suitable is a significant impediment to species recovery efforts.

We are in general agreement with the Revegetation and Noxious Weed Management Plan (Appendix N) in terms of stockpiling topsoil, weed treatments, seed mixes, planting methodologies, and 3-year monitoring for grasslands and 5-year monitoring for shrublands.

This proposal must be viewed in conjunction with the numerous other proposed energy projects before EFSEC and the various county's processes in the shrubsteppe landscape. A piecemeal review, viewing all the various projects in isolation frustrates analysis. The cumulative impacts of these projects viewed collectively is vital so we can ascertain any significant permanent landscape scale impacts. There are additional energy projects that we are aware of that are also proposed for locations identified as key to the ALI conservation network.

Finally, the Horse Heaven Hills ridge line from the east near the Columbia River to the west and beyond Prosser provides important shrubsteppe habitats and landscape connectivity. In fact, we have worked closely with Benton County and private developers to conserve native habitats and connectivity in this area. Constructing the HWSB would result in the loss of ecological connectivity and impacts to and losses of wildlife species. To reduce the landscape-scale impact of the HWSB and reduce impacts to connectivity, we recommend that the project focus on solar development only on agricultural and grasslands in the southern edge of the HWSB lease area and to the southwest. This includes transmission corridors and all supporting infrastructure. This would help preserve the integrity of the Horse Heaven Hills ridge line as the only documented and scientifically-validated east/west ecological corridor supporting native habitats and wildlife in Benton County.

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			1,555		1,607.5

Based on the direct impacts to these habitats, and not accounting for other direct and indirect impacts to the losses of habitat functions and values and the landscape-scale impact to Horse Heaven Hills connectivity that we identified earlier that would be difficult if not impossible to mitigate, we very conservatively estimate approximately 1,608

We appreciated the analysis of mean exposure indices for potential avian impacts within the rotor swept height (RSH) for both the shorter and taller turbines. Based on the data in table 3.4-9, use of the tall GE 5.5 turbine would result in lower exposure indices for many of the 66 bird species recorded on the HWSB site, with the exception of snow and Canada geese. Additionally, use of the taller turbines would result in 94 fewer machines on the landscape and we look forward to working with HWSB to microsite these further away from documented raptor nesting areas than is shown in the 244-turbine layout. For example, Map 4 of Figure 3.4-4 (Fish and Wildlife Habitat Conservation Areas) shows turbine locations adjacent to Webber and Sheep Canyons and along the ridge between these canyons. We realize that there is already a 350' disturbance buffer around the turbines and microsites corridors, but removing turbines from the this ridge and canyon rims or from crossing the canyon (Sheep) would provide additional buffer and habitat for the variety of raptors that have utilized these areas for nesting and foraging for decades. Additionally, these canyons are important nesting and foraging habitat for Ferruginous Hawk, a State Threatened Species that is in the process of being uplisted to Endangered. Prey base and food web are an important consideration for species recovery such as the listed ferruginous hawk. Ferruginous hawks move around the continent based in part on the availability of food resources. Townsends ground squirrels are commonly found in the proposed project location. This important food source attracts these and other species that are then susceptible to collision with proposed turbines. Micrositing does not ameliorate this impact. Maintaining sufficient foraging area to support successful territories and nesting for Ferruginous Hawks and other raptors that use thermals and air currents associated with the Horse Heaven Hills seems particularly challenging with current proposed structure orientation.

Species recovery efforts avoid locations in the vicinity of mortality sources. Losing large areas where targeted releases or recovery actions are no longer suitable is a significant impediment to species recovery efforts.

We are in general agreement with the Revegetation and Noxious Weed Management Plan (Appendix N) in terms of stockpiling topsoil, weed treatments, seed mixes, planting methodologies, and 3-year monitoring for grasslands and 5-year monitoring for shrublands.

This proposal must be viewed in conjunction with the numerous other proposed energy projects before EFSEC and the various county's processes in the shrubsteppe landscape. A piecemeal review, viewing all the various projects in isolation frustrates analysis. The cumulative impacts of these projects viewed collectively is vital so we can ascertain any significant permanent landscape-scale impacts. There are additional energy projects that we are aware of that are also proposed for locations identified as key to the ALI conservation network.

Finally, the Horse Heaven Hills ridge line from the east near the Columbia River to the west and beyond Prosser provides important shrubsteppe habitats and landscape connectivity. In fact, we have worked closely with Benton County and private developers to mitigate previous projects in a way that conserves native habitats and connectivity in this area. Constructing the HWSB would result in the loss of ecological connectivity and impacts to and losses of wildlife species. To reduce the landscape-scale impact of the HWSB and reduce impacts to connectivity, we recommend that the project focus on solar development only on agricultural and grasslands in the southern edge of the HWSB lease area and to the southwest. This includes transmission corridors and all supporting infrastructure. This would help preserve the integrity of the Horse Heaven Hills ridge line as the only documented and scientifically-

validated east/west ecological corridor supporting native habitats and wildlife in Benton County.

Please contact me at 509-380-3028 or at Michael.Ritter@dfw.wa.gov with any questions.

Sincerely,

A handwritten signature in black ink that reads "Michael Ritter". The signature is written in a cursive, flowing style.

Michael Ritter
Area Habitat Biologist
Statewide Technical Lead: Wind and Solar