APPENDIX L: HABITAT MITIGATION PLAN

Draft Habitat Mitigation Plan

Horse Heaven Wind Farm

Benton County, Washington

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ACRONYMS AND ABBREVIATIONS

Applicant	Horse Heaven Wind Farm, LLC
ASC	Application for Site Certification
BBCS	Bird and Bat Conservation Strategy
BCC	Benton County Code
BESS	battery energy storage system
BPA	Bonneville Power Administration
CAO	Critical Areas Ordinance
EFSEC	Energy Facility Site Evaluation Council
FWHCA	fish and wildlife habitat conservation area
GE	General Electric
GMA	Growth Management Act
HMP	Habitat Mitigation Plan
Micrositing Corridor	Wind Energy Micrositing Corridor
MW	megawatt
MWac	megawatts output as alternating current
O&M	operation and maintenance
Project	Horse Heaven Wind Farm
PV	photovoltaic
RCW	Revised Code of Washington
SCA	Site Certification Agreement
SEPA	State Environmental Policy Act
SG	Siemens Gamesa
Tetra Tech	Tetra Tech, Inc.
Turbine	wind turbine generator
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WEST	Western Ecosystems Technology, Inc.

1 INTRODUCTION

The Horse Heaven Wind Farm (Project) is a renewable energy generation facility that would have a nameplate energy generating capacity of up to 1,150 megawatts (MW) for a combination of wind and solar facilities as well as battery energy storage systems (BESS). Horse Heaven Wind Farm, LLC (the Applicant) proposes to construct up to 244 wind turbine generator (Turbine) locations and up to three solar arrays, with all possible Turbine locations and solar array extent cumulatively reviewed in the analysis of potential resource impacts in the Project's Energy Facility Site Evaluation Council (EFSEC) Application for Site Certification (ASC) and this Draft Habitat Mitigation Plan (HMP), although fewer Turbines and solar arrays may be constructed for this Project. As described in the EFSEC ASC, the Project is considering two general Turbine options comprising four different Turbine technologies to facilitate flexible Turbine siting: Turbine Option 1 consists of up to 244 General Electric (GE) 2.82-MW or 3.03-MW Turbines, and Turbine Option 2 consists of up to 150 GE 5.5-MW or Siemens Gamesa (SG) 6.0-MW Turbines.

Power generated by the Project would be transmitted to existing Bonneville Power Administration (BPA) transmission lines via two interconnections. Other Project components would include up to two BESS, underground and limited overhead electrical collection lines, underground communication lines, new Project substations, access roads, operation and maintenance (O&M) facilities, meteorological towers, control houses, and temporary construction yards. The Project would likely be built using a phased approach, with two phases currently under consideration. The EFSEC ASC describes the following example phased approach: Phase 1 could consist of 650 MW, with 350 MW generated via wind plus 300 MWac (megawatts output as alternating current) generated via solar; Phase 2 could consist of 500 MW, with either 250 MW generated via wind plus 250 MWac generated via solar or 500 MW generated via wind. Construction of the two Project phases would last approximately 11 months each, for a total of approximately 22 months of construction activity for the full 1,150 MW build-out.

The Project Lease Boundary (i.e., the extent of parcels in which the Applicant has executed a lease to construct Turbines, the solar array, and associated facilities) encompasses approximately 72,428 acres and contains the Project's Wind Energy Micrositing Corridor (Micrositing Corridor; i.e., the area in which the Turbines and supporting facilities would be sited during the final design) and the Solar Siting Areas (which consist of the three areas under consideration for siting of the proposed solar arrays during the final design) (see Figure 3.4-1 of the EFSEC ASC). The Micrositing Corridor and the Solar Siting Areas are larger than the Project's final footprint to allow minor rerouting to optimize the design and to avoid resources that may be discovered during the final design and pre-construction process.

2 REGULATIONS AND GUIDELINES

2.1 EFSEC

Energy facilities subject to review by EFSEC include thermal electrical generation, pipelines, electrical transmission lines, petroleum refineries, petroleum storage, and alternative energy electrical generation (wind, solar, geothermal, landfill gas, wave or tidal action, and biomass). However, alternative energy facilities (of any size) are not required to enter the EFSEC process in Washington; the applicant may opt in to the EFSEC process, or may choose to permit the project at the local level. For the proposed Project, the Applicant has elected to be sited under EFSEC jurisdiction.

Once an alternative energy facility has elected EFSEC permitting, EFSEC coordinates all evaluation and licensing steps for siting certain energy facilities in Washington. EFSEC specifies the conditions of construction and operation. If approved, a Site Certification Agreement is issued in lieu of other individual state or local agency permits. Chapter 80.50 of the Revised Code of Washington (RCW) includes the laws EFSEC must follow in siting and regulating major energy facilities. Title 463 of the Washington Administrative Code (WAC) sets forth the regulations establishing how EFSEC functions under state and federal law.

EFSEC is responsible for evaluating applications under the Washington State Environmental Policy Act (SEPA; see Section 2.3) and to ensure that environmental and socioeconomic impacts are considered before a site is approved. After evaluating an application, EFSEC submits a recommendation to the Governor. If EFSEC determines that constructing and operating the facility will produce minimal adverse effects on the environment, ecology of the land and wildlife, and ecology of the state waters and aquatic life, and meets its construction and operation standards, then it recommends that a Site Certification Agreement (SCA) be approved and signed by the Governor. The SCA lists the conditions the applicant must meet during construction and while operating the facility.

WAC 463-60-332 outlines how potential impacts to habitat, vegetation, fish, and wildlife must be addressed in the EFSEC ASC. This information has been prepared and presented in Section 3.4 of the ASC. This HMP has been prepared pursuant to WAC 463-60-332(3), which requires that the EFSEC ASC include a detailed mitigation plan. In addition, this HMP describes how the Project follows the Washington Department of Fish and Wildlife (WDFW) Wind Power Guidelines (WDFW 2009), as applicable, and Policy M-5002, pursuant to WAC 463-60-332(4).

2.2 Benton County Critical Areas Ordinance

Under Washington State's Growth Management Act (GMA), all cities and counties are directed to adopt critical areas regulations. Counties and cities are required to include the best available science in developing policies and development regulations to protect the functions and values of critical areas (RCW 36.70A.172). Benton County's Critical Areas Ordinance (CAO) was developed to comply with the requirements of the GMA, and was most recently updated on August 21, 2018, consistent with the GMA periodic review requirement in RCW 36.70A.130.

Benton County's regulations regarding critical areas are established in Title 15 of the Benton County Code (BCC). Title 15 defines critical areas as including any of the following areas or ecosystems: (1) wetlands (see Chapter 15.04 BCC); (2) critical aquifer recharge areas (see Chapter 15.06 BCC); (3) frequently flooded areas (see Chapter 15.08 BCC); (4) geologically hazardous areas (see Chapter 15.12 BCC); and (5) fish and wildlife habitat conservation areas (FWHCA; see Chapter 15.14 BCC).

Per BCC 15.14.010, FWHCAs include the following: (1) areas where federal or state designated endangered, threatened, and sensitive species have a primary association[1], (2) state priority habitats and areas associated with state priority species, (3) habitats and species of local importance as designated by Benton County (i.e., shrub-steppe habitat), (4) waters of the state, (5) naturally occurring ponds under 20-acres and their submerged aquatic beds that provide fish or wildlife habitat, (6) lakes, ponds, streams, and

[1] Primary association area - The area used on a regular basis by, in close association with, or is necessary for the proper functioning of the habitat of a critical species. Regular basis means that the habitat area is normally, or usually known to contain a critical species, or based on known habitat requirements of the species, the area is likely to contain the critical species. Regular basis is species and population dependent. Species that exist in low numbers may be present infrequently yet rely on certain habitat types (Benton County 2018).

rivers planted with native fish populations, (7) Washington State Wildlife Areas, and (8) Washington State Natural Area Preserves and Natural Resource Conservation Areas (Benton County 2018). Information provided in Section 3.4 of the EFSEC ASC submitted for this Project, as well as this HMP, addresses the requirement per BCC 15.14.030 for the Applicant to provide a habitat assessment and discuss the habitat avoidance, minimization, and mitigation measures proposed for the Project.

As described in Section 3.4 of the EFSEC ASC, the Project would include disturbance in areas considered FWHCAs as defined by the CAO (i.e., primarily shrub-steppe and associated wildlife species). This HMP addresses mitigation for these impacts.

2.3 SEPA

SEPA is the state interdisciplinary policy that identifies and analyzes environmental impacts associated with state governmental decisions, including permits to construct energy facilities. The applicable SEPA statutes and regulations include RCW Ch. 43.21C, Washington Environmental Policy Act, WAC Ch. 197-11, Washington State Department of Ecology SEPA Rules, and Section 6.35 of the BCC, which establish requirements for compliance with SEPA. As the Applicant has elected to be sited under EFSEC jurisdiction, as discussed above, EFSEC will serve as the lead agency for SEPA review. The Applicant has prepared a SEPA Environmental Checklist in compliance with the statutes and regulations set out above (see Appendix C of the EFSEC ASC). EFSEC would issue a SEPA Determination to satisfy these regulations. Sections 4 and 5 of the SEPA Checklist address potential impacts to plants and animals, and part of Section 8 addresses critical areas designated by the applicable local jurisdiction (described above). This HMP, in addition to the analysis provided in Section 3.4 of the Project's EFSEC ASC, supports the finding that, with the implementation of proposed mitigation, probable significant adverse environmental impacts can be reduced to a level of non-significance as defined and understood in SEPA.

2.4 WDFW Wind Guidelines

WDFW published the Wind Power Guidelines in 2009 to provide consistent statewide guidance for the development of land-based wind energy projects that avoid, minimize and mitigate impacts to fish and wildlife habitats in Washington State (WDFW 2009). The guidelines are intended to provide permitting agencies and wind project developers with an overview of the considerations made by WDFW in the review of wind energy project proposals. The permitting authority (e.g., EFSEC) is responsible for SEPA review before issuing a project permit. However, WDFW is considered an agency with environmental expertise through SEPA and provides review and comments on environmental documents. The Applicant used the Wind Power Guidelines to develop this HMP where applicable, including the mitigation considerations listed below summarizing the criteria for the habitat selected to replace the functions and values of habitat impacted by the Project (i.e., replacement habitat):

- Like-kind (e.g., shrub-steppe for shrub-steppe, grassland for grassland) and/or of equal or higher habitat value than the impacted area, noting that an alternative ratio may be negotiated for replacement habitat that differs from impacted habitat;
- Given legal protection (through acquisition in fee, a conservation easement, or other enforceable means);
- Protected from degradation, including development, for the life of the project to improve habitat function and value over time;
- In the same geographical region as the impacted habitat; and

- At some risk of development or habitat degradation and the mitigation results in a net habitat benefit.

2.5 WDFW M-5002 Policy

WDFW established Policy M-5002 requiring or recommending mitigation in 1999. This policy applies to all habitat protection assignments where WDFW is issuing or commenting on environmental protection permits, documents, or violation settlements; or when seeking commensurate compensation for impacts to fish and wildlife resources resulting from oil or other toxic spills. The Applicant reviewed Policy M-5002 to support the develop of this HMP, including the following considerations:

- The goal is to achieve no loss of habitat functions and values. Mitigation credits and debits will be based on a scientifically valid measure of habitat function, value, and area. Ratios will be greater than 1:1 to compensate for temporal losses, uncertainty of performance, and differences in functions and values.
- On-site in-kind mitigation is preferred.
- Mitigation plans will include the following: baseline data, estimate of impacts, mitigation measures, goals and objectives, detailed implementation plan, adequate replacement ratio, performance standards to measure whether goals are being reached, maps and drawings of proposal, as-built drawings, operation and maintenance plans (including who will perform), monitoring and evaluation plans (including schedules), contingency plans, including corrective actions that will be taken if mitigation developments do not meet goals and objectives, and any agreements on performance bonds or other guarantees that the proponent will fulfill mitigation, operation and maintenance, monitoring, and contingency plan.
- Mitigation measures will be completed before or during project construction.
- Mitigation site will be protected for the life of the project.
- Mitigation banking may be an acceptable form of mitigation.

3 AGENCY CONSULTATION HISTORY

The Applicant met with the U.S. Fish and Wildlife Service (USFWS) and WDFW in two joint consultation meetings regarding the proposed Project on September 19, 2017 and January 28, 2020 (Jansen 2017; Jansen and Fossum 2020). The Project as proposed at the time of these first two meetings consisted of a wind energy generation facility and did not yet include solar and BESS components. The Applicant subsequently met virtually with WDFW on January 27, 2021 to provide a Project status update including a description of the solar arrays and transmission route, as well as a summary of the avian, habitat, and rare plant surveys completed in 2020. The first meeting served as the agency kick-off meeting for the Project, with attendees from the Applicant, Western Ecosystems Technology, Inc. (WEST; the Applicant's consultant for wildlife survey work), USFWS, and WDFW. The Applicant provided an overview of the Project, presenting the initial layout at the time. Attendees discussed applicable wildlife and habitat surveys (i.e., bird presence, raptor nests, bat acoustic monitoring, and land cover), including survey design recommendations from USFWS and WDFW. Based on this meeting, the Applicant was able to confirm the survey approach, with adjustments per the agencies' input, and continue with ongoing surveys to inform the next stages of Project design.

During the second meeting, in January 2020, the Applicant presented the updated proposed Project layout and timeline, as well as a summary of biological surveys completed to date. Attendees included the

Applicant, WEST, Tetra Tech, Inc. (Tetra Tech; the Applicant's consultant for Project permitting and select biological and other surveys), USFWS, WDFW, and the Lower Columbia Basin Audubon Society (local stakeholder). The following summarizes key points for each of the biological survey topics discussed at the meeting:

- Avian Use and Raptor Nest Surveys
  - The Applicant described the one year of small bird surveys, two years of large bird surveys, and raptor nest surveys conducted as of the meeting date. USFWS concurred that surveys were conducted in compliance with USFWS guidance (i.e., USFWS' 2012 Final Land-Based Wind Energy Guidelines [USFWS 2012], the 2013 USFWS Eagle Conservation Plan Guidance Module 1 – Land Based Wind Energy [USFWS 2013], and the USFWS 2016 Eagle Rule Revision [USFWS 2016]).
  - WDFW noted setback recommendations that may be appropriate during construction during the nesting/fledging season for the ferruginous hawk (*Buteo regalis*) nest observed near the Project that was occupied all 3 years it was surveyed (2017-2019).
- Sensitive Species
  - WDFW concurred that, based on survey data and lack of irrigated agriculture and wetland resources, sandhill cranes (*Antigone canadensis*) do not occupy the Project Lease Boundary but instead typically fly high above the Project and use the area north of the Project for foraging, loafing, and roosting.
  - The Applicant confirmed that while no specific nest surveys were conducted for ground-nesting raptors, such as merlins (*Falco columbarius*), nests are likely to occur in the Project Lease Boundary based on observations of ground-nesting species during avian use surveys. Species such as short-eared owl (*Asio flammeus*), prairie falcon (*Falco mexicanus*), and northern harriers (*Circus hudsonius*) were observed during point count surveys and nests would have been recorded if incidentally observed.
- Land Cover
  - WDFW noted that eastside (interior) grasslands have a 1:1 mitigation ratio for permanent impact.
  - Audubon and WDFW concurred that shrub-steppe habitat is very important to maintain. WDFW noted that while the Project is not located in prime canyon shrub-steppe habitat, the Project could be a great opportunity to work together in conservation and restoration efforts.

The third (i.e., January 2021) virtual meeting with WDFW served to provide an update to WDFW on the Project design, permitting approach, and field surveys completed in 2020. Attendees included the Applicant, Tetra Tech, WEST, and WDFW. The Applicant provided an overview of the updated Project design (i.e., the addition of solar and BESS) and permitting approach (i.e., EFSEC). Tetra Tech and WEST described the results of habitat, rare plant, and avian use surveys completed in 2020. WDFW noted that the Project was well sited given the level of existing disturbance (e.g., agricultural activity and presence of non-native species) in the area, and identified minimization measures related to fencing that could further reduce potential impacts: fencing smaller areas of solar arrays rather than the entire solar facility in order to maintain habitat connectivity by maintaining travel corridors for wildlife, and restoring the areas under solar panels with native plant species.

4 HABITAT MAPPING

The Applicant used a combination of field survey data and desktop sources to map habitat within the Project Lease Boundary from 2017 through 2020, as described in Section 3.4.1.1 of the EFSEC ASC (Chatfield and Brown 2018a, 2018b; Tetra Tech 2021; USFWS 2018; USGS 2016; Yang et al. 2018). In general, habitat types and subtypes were adapted from habitat descriptions in the *Washington Department of Fish and Wildlife Wind Power Guidelines* (WDFW 2009) and *Wildlife-habitat Relationships in Oregon and Washington* (Johnson and O'Neil 2001), with some modifications as described below. Descriptions of habitat types and subtypes mapped within the Project Lease Boundary are provided in Section 3.4.1.1 of the EFSEC ASC. Table 1 provides a crosswalk between habitats mapped at the Project and WDFW Habitat Types and Classifications (WDFW 2009). Vegetation within the majority of the Project Lease Boundary has been degraded due to historical and current agriculture and grazing activity, and non-native invasive grasses and forbs are prevalent throughout the Project Lease Boundary.

Table 1. Project Habitat Type and Subtype Crosswalk with WDFW Habitat Type and Classification

Project Habitat Type	Project Habitat Subtype	WDFW Habitat Type	WDFW Classification
Agricultural land		Croplands	Class IV
Developed/disturbed		Urban and Mixed Environs	
Grassland	Unclassified grassland[1/]	Eastside (Interior) Grasslands	Class III
	Non-native grassland		
	Planted grassland	Conservation Reserve Program Lands	
Shrubland	Rabbitbrush shrubland		
	Sagebrush shrub-steppe	Shrub-steppe	Class II
	Dwarf shrub-steppe		
	Unclassified shrubland[1]		

1/ Unclassified grassland and unclassified shrubland habitat subtypes include those areas mapped during surveys conducted in 2018 or using NLCD data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 desktop analysis (see Section 3.4 of the EFSEC ASC).

Of the nine upland habitat subtypes mapped within the Project Lease Boundary, two were not readily classified into either WDFW (2009) or Johnson and O'Neil (2001) habitat types or subtypes: non-native grassland and rabbitbrush shrubland. Non-native grassland was considered eastside (interior) grassland (Class III) WDFW habitat because these areas were dominated by non-native grassland and forb species. The non-native grasslands mapped at the Project likely provide lower functional value to wildlife than typical eastside (interior) grassland due to the presence of invasive species (e.g., several areas field-mapped as non-native grassland habitat in 2020 consisted of vast areas dominated by dense cover of cereal rye [*Secale cereale*], a Class C noxious weed [BCNWCB 2020; WSNWCB 2020]); however, eastside (interior) grassland provided the best fit because these areas did not meet the definition of pasture (WDFW 2009). Unclassified grassland was also considered eastside (interior) grassland, but may be reclassified following additional field verification prior to construction.

Planted grassland and rabbitbrush shrubland were considered to be likely Conservation Reserve Program (CRP) land (Class III) because these areas appear to have been planted with non-native grasses, native grasses, and/or native shrubs, and are therefore the functional equivalent of typical CRP lands, but their

current CRP enrollment status is unknown. Rabbitbrush shrubland was not considered shrub-steppe because this habitat subtype was observed in areas that appeared to be former agricultural lands that have subsequently been planted. It is unknown whether rabbitbrush was planted in these areas or has established naturally. Rubber rabbitbrush (*Ericameria nauseosa*) is an early seral species that readily colonizes disturbed sites, such as areas disturbed by overgrazing or fire or abandoned agricultural lands (Faber et al. 2013; Tirmenstein 1999; USDA 2017).

Sagebrush shrub-steppe and dwarf shrub-steppe were considered shrub-steppe (Class II) WDFW habitat because they were dominated by native shrubs such as big sagebrush (*Artemisia tridentata*) and rock buckwheat (*Eriogonum sphaerocephalum*). Lithosol soils were not observed in the sagebrush shrub-steppe habitat mapped within the Project Lease Boundary, but were observed within the mapped dwarf shrub-steppe habitat, indicating a likely increased length of time for restoration following disturbance (WDFW 2009). Unclassified shrubland was also conservatively considered shrub-steppe, but may be reclassified following additional field verification prior to construction.

5 PROJECT IMPACTS

Construction and operation of the Project would result in both permanent and temporary impacts to wildlife habitat, as well as modifications to habitat within the solar array fencelines. Areas of permanent impacts include locations of permanent infrastructure (e.g., Turbines, meteorological towers, BESS, substations, permanent access roads, and O&M facilities), and areas of temporary impacts include locations that would be disturbed during construction and revegetated following construction outside the solar array fencelines (e.g., locations of underground collection and communication lines and temporary construction yards) (see Table 2.1-1 in Section 2 of the EFSEC ASC). Temporary impacts associated with solar facilities include a 10-foot construction buffer along the outside of the solar fencelines. Where not permanently impacted due to permanent infrastructure (i.e., graveled interior access roads, inverter pads, and tracker system support posts), habitat within the solar array fencelines would be revegetated with low-growing vegetation following construction and would remain available to wildlife such as small mammals, birds, reptiles, and invertebrates in a modified condition.

Table 2 provides the estimated acres of impact to wildlife habitat from construction and operation of the Project, including the acres of temporary and permanent impacts within the Micrositing Corridor and Solar Siting Areas, and acres of habitat modification within the Solar Siting Areas. Table 2 conservatively includes the acres of impact to each habitat subtype under Turbine Option 1, which represents the estimated maximum acreage of impact (from the greatest number of Turbines and associated roads and collector lines) and thus would result in the maximum estimated acreage of mitigation (calculated in Section 7.3.1). If Turbine Option 2 is selected, impacts on habitat and thus the mitigation need would be reduced within the Micrositing Corridor. Impacts from the solar arrays and associated infrastructure would not vary based on Turbine options, but would be reduced if one or more of the Solar Siting Areas is not developed. Table 2 lists the acres of Project impact by impact type and habitat subtype; where these impacts result in the need for mitigation (i.e., outside of agricultural and developed land), these values are again listed in Section 7.3.1 where they are multiplied by their respective mitigation ratios to determine the mitigation need by habitat type and subtype.

Table 2. Estimated Impacts on Habitat Types from Construction and Operation of the Project

Habitat Type	Habitat Subtype	Micrositing Corridor		Solar Siting Areas		
		Temporary Impact (Acres)[1/]	Permanent Impact (Acres)[1/]	Temporary Impact (Acres)[2/]	Permanent Impact (Acres)[2/]	Modified Habitat Impact (Acres)[2/]
Agricultural land		2,309	257	53	239	5,382
Developed/disturbed		20	0.7	3	3	3
Grassland	Non-native grassland	47	4	0.1	0.1	3
	Planted grassland	199	18	3	6	100
	Unclassified grassland[3/]	135	6	9	20	333
Shrubland	Dwarf shrub-steppe	9	1	--	--	--
	Rabbitbrush shrubland	119	10	6	22	393
	Sagebrush shrub-steppe	17	0.8	--	--	--
	Unclassified shrubland[3/]	25	1	1	4	63
Total[4/]		**2,881**	**299**	**76**	**294**	**6,276**

Notes:

1/ Overlapping permanent disturbance is subtracted from temporary impact corridors/areas (e.g., temporary impact area around a Turbine does not include the Turbine foundation and graveled areas); those are included only in the permanent impact column.

2/ Temporary impacts associated with solar facilities include a 10-foot construction buffer along the outside of the solar fencelines. Permanent impacts include the solar inverters and new access roads within the solar siting areas. Modified impacts are associated with the solar arrays and include those areas within the solar fencelines that are outside areas of permanent impact. Following construction, low growing vegetation would be planted under and between the solar arrays; therefore, these impacts would be considered a modification of habitat versus a temporary or permanent impact.

3/ Unclassified grassland and unclassified shrubland habitat subtypes include those areas mapped during surveys conducted in 2018 or using NLCD data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 survey or desktop analysis. Acres of impacts to each of these "unclassified" habitat subtypes may be revised following habitat surveys of the Solar Siting Areas and Micrositing Corridor that are planned to occur prior to construction.

4/ Totals may not sum exactly due to rounding.

The vast majority (86 percent) of habitat proposed to be permanently impacted within the Micrositing Corridor is agricultural land, followed by planted grassland, rabbitbrush shrubland, unclassified grassland, non-native grassland, unclassified shrubland, dwarf shrub-steppe, sagebrush shrub-steppe, and developed/disturbed (Table 2). The vast majority (86 percent) of habitat proposed to be modified within the solar array fencelines is agricultural land, followed by rabbitbrush shrubland, unclassified grassland, planted grassland, unclassified shrubland, developed/disturbed, and non-native grassland (Table 2).

Habitat proposed to be impacted within the northern and western Solar Siting Areas is almost entirely agricultural and disturbed land while just over half of the habitat within the eastern Solar Siting Area is agricultural and disturbed land with the remaining habitat consisting of grassland and shrubland habitat (e.g., see Figure 3.4-1 in Section 3.4 of the EFSEC ASC). Neither sagebrush shrub-steppe nor dwarf shrub-steppe (i.e., the higher quality habitat subtypes documented at the Project as described in Section 3.4.1.1 of the EFSEC ASC) have been mapped within the solar array fencelines, although field surveys would be conducted prior to construction to verify the results of desktop habitat mapping within the Solar Siting Areas. The Revegetation and Noxious Weed Management Plan (Appendix N to the EFSEC ASC) identifies a seed mix consisting of low-growing native grasses and forbs compatible with desired vegetation conditions under the solar arrays (i.e., species whose mature height would not interfere with or shade the solar array) for revegetation under the solar arrays, including areas that previously consisted of agricultural lands. Therefore, the majority of areas of proposed modified habitat under the solar array may provide higher quality habitat following revegetation compared to the current condition (e.g., areas

that are actively plowed and/or dominated by invasive species may provide higher quality habitat to wildlife once revegetated with low-growing vegetation). Details of planned revegetation, including seed mixes and methods, are provided in the Revegetation and Noxious Weed Management Plan (Appendix N to the EFSEC ASC).

Renewable energy facilities (i.e., wind and solar) have recently been built and proposed throughout the Columbia Plateau in Washington, including in Benton County (EFSEC 2021; Erickson et al. 2003; Yakima Herald 2019). Therefore, the Project has the potential to contribute to cumulative impacts on wildlife and habitat, including loss of habitat and direct mortality of birds and bats as described in the EFSEC ASC (see Section 3.4.2.3). Cumulative impacts are the comprehensive effect on the environment that results from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions (USFWS 2012). For example, Rodhouse et al. (2019) documented a decline in hoary bat occupancy consistent with wind energy development in the Pacific Northwest. However, the Applicant has avoided, minimized, or otherwise mitigated impacts from the Project as described in Section 7.0, which will also reduce potential cumulative impacts.

The Project was sited to minimize impacts to avian and bat species based on the results of pre-construction surveys, as described in the Applicant's Bird and Bat Conservation Strategy (BBCS), and the post-construction monitoring program described in the BBCS will serve to document fatality rates at the Project for review by a Technical Advisory Committee. Although wind energy facilities have been identified as a source of mortality for birds and bats (USFWS 2012; Erickson et al. 2003), results of a cumulative effects analysis suggest that no significant population-level effects are likely associated with existing and anticipated wind energy development in the Columbia Plateau (Johnson and Erickson 2011), which is similar to findings of other investigations of cumulative impacts associated with wind energy development in the United States (e.g., NAS 2008). Additionally, the Project was sited such that the vast majority of habitat proposed to be impacted by the Project is agricultural land that has been previously disturbed, thus minimizing impacts to habitat and wildlife. Habitat that is currently agricultural land within the solar array fencelines would be revegetated with low-growing primarily native vegetation and thus could provide higher quality habitat following revegetation (described below in Section 7.2) compared to the current condition of being actively plowed. Outside the solar array fenceline, impacts to grassland and shrubland habitat would be mitigated consistent with the WDFW (2009) Wind Power Guidelines, and thus replacement habitat would be provided such that there would be no loss in function or value of habitat (described below in Section 7.3). Additionally, development of the Project is consistent with the long-term climate goals of the Washington Clean Energy Transformation Act of 2019, which will transition the state to an electricity supply free of greenhouse gas emissions by 2045, and the Project may benefit wildlife of the Columbia Plateau by replacing fossil fuel sources of energy and thus mitigating the threat and cumulative impact of climate change on wildlife and habitat.

6 SCIENTIFIC BASIS

WDFW (2009) defines permanent impacts to habitat as those impacts that are anticipated to persist and cannot be restored within the life of the project, which may include "new permanent roads, operations and maintenance facilities, Turbine pads, impervious and/or areas devoid of native vegetation resulting from project operations." Areas that would be revegetated under the solar arrays following construction of the Project would not be impervious, would not be devoid of native vegetation, or otherwise built up, and would be restored within the life of the Project; therefore, these areas are generally not considered permanently impacted habitat. Following completion of construction, areas under the solar arrays would

be revegetated with low-growing vegetation (see Appendix N to the EFSEC ASC, the Revegetation and Noxious Weed Management Plan).

A recent study demonstrated that successful revegetation under solar panels is possible, even with native grass species adapted to full-sun conditions (Beatty et al. 2017). This study demonstrated that revegetation under solar panels was able to "achieve ground cover sufficient to control erosion and begin to restore wildlife habitat" (Beatty et al. 2017). A recent study in Oregon (Hassanpour Adeh et al. 2018) quantified changes to the microclimatology, soil moisture, water usage, and biomass productivity due to the presence of solar panels. In this study, areas under photovoltaic (PV) panels maintained higher soil moisture, showed a significant increase in late season biomass (90 percent more biomass), and were significantly more water efficient (328 percent more efficient), although caution should be used in applying these results from west of the Cascade Mountains to the drier Columbia Plateau (Hassanpour Adeh et al. 2018). Hernandez et al. (2020) evaluated the seed bank survival of two desert annual plant congeners, one rare (Barstow woolly sunflower [*Eriophyllum mohavense*]) and one common (Wallace's woolly daisy [*E. wallacei*]) in the Western Mojave Desert and found that seed bank survival across both species was significantly greater in shade (10 percent) microhabitats compared to runoff (5 percent) and control microhabitats (3 percent), possibly related to the shade microhabitats receiving less photosynthetically active radiation and having lower soil moisture and temperatures. Similarly, pre- and post-construction biological monitoring data at a PV solar facility in California indicated similar to higher vegetation productivity on-site compared to reference sites (Sinha et al. 2018). As a result, areas under solar panels that would be revegetated are generally considered modified rather than temporarily or permanently impacted.

As described above, habitat within the solar array fencelines would remain available to wildlife such as small mammals, birds, reptiles, and invertebrates in a modified condition. Limited research is available regarding the effects of PV array development (including the effects of fencing and shading) on residual wildlife habitat value; however, preliminary studies indicate residual habitat value remains for various species of birds, and the value may differ based on restoration and vegetation management practices. For example, DeVault et al. (2014) studied avian abundance at PV array fields and paired airport grassland areas using transect surveys. The results indicated that airport grasslands generally had greater species diversity and PV arrays generally had more total birds observed; however, overall bird mass was comparable at airport grasslands and PV arrays, suggesting more smaller birds tended to use the PV arrays than the airport grasslands. Similarly, Visser et al. (2018) measured bird abundance and diversity at a PV array facility in South Africa using point counts within and outside the facility. The primary conclusion of the study was that bird diversity and density were higher outside of the facility, but the facility was not absent of birds. Visser et al. (2018) found that the bird community inside the facility comprised birds that were generalist species or those that use grassland habitat. Thus, the species composition appeared to be associated with a change from a shrub/woodland habitat to a grassland habitat within the facility. This limited research demonstrates that while bird species use may change at PV arrays, use of the area is not eliminated; instead, the modified habitat supports a modified avifaunal community.

Similarly, post-construction biological monitoring data at a PV solar facility in California documented the presence of dozens of wildlife species, including California horned lark (*Eremophila alpestris actia*), ferruginous hawk, loggerhead shrike (*Lanius ludovicianus*), prairie falcon, black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), San Joaquin kit fox (*Vulpes macrotis mutica*), and coast range fence lizard (*Sceloporus occidentalis bocourtii*) (Sinha et al. 2018). This California site was reseeded with native flora species to allow vegetation to grow beneath the solar

panels, creating new habitats, providing sources of food for various wildlife species, and providing dust control (Sinha et al. 2018). The results of monitoring indicated that, although solar facility construction activities do involve short-term disturbance, responsibly developed solar facilities can provide shelter, protection, and stable use of land to support biodiversity (Sinha et al. 2018).

7 MITIGATION MEASURES

7.1 Avoidance and Minimization

The following avoidance and minimization measures were either applied during Project development or are proposed for Project construction and operations:

- To minimize impacts to wildlife, baseline studies were conducted at the Project consistent with the WDFW Wind Power Guidelines (WDFW 2009), the USFWS' 2012 Final Land-Based Wind Energy Guidelines (USFWS 2012), the 2013 USFWS Eagle Conservation Plan Guidance Module 1 – Land Based Wind Energy (USFWS 2013), and the USFWS 2016 Eagle Rule Revision (USFWS 2016). In order to minimize impacts to and avoid wildlife resources, the Applicant used the results of these baseline studies to inform the layout design.
- Project facilities were sited on previously disturbed (e.g., cultivated cropland) areas as feasible to avoid impacts to native habitats and associated wildlife species.
- The Project will use industry standard BMPs to minimize impacts to vegetation, waters, and wildlife.
- To the extent feasible, the solar array fencelines have been designed to enclose smaller solar arrays within the Solar Siting Areas rather than enclosing each entire Solar Siting Area, which will minimize habitat fragmentation and allow wildlife passage through the Solar Siting Areas. Fencing will be designed to be at least 4 inches above ground and will not have razor wire at the top.
- The Project was sited outside of wetlands and waters to the extent feasible to avoid and minimize impacts to these resources as described in Section 3.3 and Section 3.5 of the EFSEC ASC, which will also avoid impacts to fish and minimize impacts to wildlife species that use these habitats.
- If the final design results in impacts to waters of the state that cannot be avoided, the Applicant will work with EFSEC and WDFW to confirm whether a Hydraulic Project Approval is required, and will prepare an application accordingly.
- During construction, WDFW-recommended seasonal buffers (per Larsen et al. 2004) for ferruginous hawk nests would be observed to avoid disturbing nesting ferruginous hawks.
- During construction, WDFW-recommended seasonal buffers (per Larsen et al. 2004) for burrowing owl nests would be observed to avoid disturbing nesting burrowing owls, if present. If impacts to potentially suitable habitat cannot be avoided during final design, the Applicant will consult with WDFW regarding the need for burrowing owl surveys prior to construction, including surveys to determine habitat suitability for burrowing owls, and surveys for breeding owls if suitable habitat is present.
- The Applicant does not anticipate using pesticides during Project construction or operation; if unforeseen circumstances arise that require the use of pesticides, the Applicant will consult with WDFW and EFSEC regarding use of pesticides to avoid and minimize impacts to burrowing owl (per Larsen et al. 2004).

- The Applicant would minimize bird and bat collision with Project infrastructure by implementing down-shield lighting (e.g., for permanent lighting at the substations and O&M facilities) that will be sited, limited in intensity, and hooded in a manner that prevents the lighting from projecting onto any adjacent properties, roadways, and waterways; lighting will be motion activated where practical (i.e., excluding security lighting);
- All permanent meteorological towers would be designed as free-standing (i.e., unguyed) to minimize collision risk for wildlife.
- The Applicant would acquire any necessary federal approvals as described in Section 2.23 of the EFSEC ASC. The Applicant will continue ongoing coordination with the USFWS regarding an eagle take permit for incidental take of bald and golden eagles, and will continue to evaluate eagle risk to determine if an eagle take permit is appropriate considering the use of the Project by bald and golden eagles. The Applicant does not plan to pursue an eagle take permit for the anticipated Phase 1 of the Project but will re-evaluate eagle risk and whether there is a need for an eagle take permit for the anticipated Phase 2 of the Project.
- Prior to construction, habitat surveys would be conducted within the Solar Siting Areas and portions of the Micrositing Corridor that were not surveyed in 2020. These habitat surveys would focus on documenting areas of sagebrush shrub-steppe habitat. Sagebrush shrub-steppe habitat would be avoided to the extent possible, and any unavoidable impacts mitigated as described in this HMP.
- Prior to construction, special status plant surveys would be conducted within the Solar Siting Areas and portions of the Project Micrositing Corridor that were not surveyed in 2020. If special status plant species are observed during pre-construction surveys, individuals and populations would be avoided to the extent possible. If avoidance is not possible, mitigation measures for impacts would be developed in consultation with the applicable agencies.
- The Applicant will limit construction disturbance by flagging any sensitive areas (e.g., wetlands, rare plant populations, if present) and will conduct ongoing environmental monitoring during construction to ensure flagged areas are avoided.
- The Applicant has prepared a BBCS that describes the surveys conducted, avoidance and minimization, and potential impacts to birds and bats and their habitat as a result of construction and operation of the Project (see Appendix M to the EFSEC ASC).
- The Applicant will conduct 2 years of standardized post-construction fatality monitoring to assess impacts of Turbine operation on birds and bats. Proposed post-construction fatality monitoring is described in the Applicant's BBCS (Appendix M to the EFSEC ASC).

7.2 Restoration

As described in the Revegetation and Noxious Weed Management Plan (Appendix N to the EFSEC ASC), temporarily disturbed areas and areas under the solar arrays would be revegetated following completion of construction with native or non-invasive, non-persistent non-native plant species. Example seed mixes consisting of native species are provided in the Revegetation and Noxious Weed Management Plan. Revegetation would begin as soon as feasible following completion of construction. Seeding would be done in a timely manner and within the appropriate season to facilitate germination. Site preparation, seeding techniques, and example seed mixes are described in the Revegetation and Noxious Weed Management Plan, along with success criteria, monitoring, and reporting. The Revegetation and Noxious Weed Management Plan also provides methods, monitoring, and reporting associated with the

prevention and control of the introduction and spread of noxious weeds from construction and operation of the Project

7.3 Compensatory Mitigation

After avoidance and minimization measures have been implemented, some impacts to wildlife habitat would remain. This section describes compensatory mitigation proposed to account for the effects of unavoidable impacts to habitat, in compliance with the regulations and guidelines described in Section 2.

7.3.1 Calculation

Table 3 provides the estimated maximum number of acres of each habitat type and subtype proposed to be impacted by the Project under Turbine Option 1 that would result in the need for mitigation (i.e., excluding impacts to agricultural and disturbed land that are shown above in Table 2), and the resulting acres of mitigation needed based on the approach described in this HMP. In Table 3, the acres of impact are multiplied by the appropriate mitigation ratio, depending on impact type and duration as well as habitat subtype, in order to determine the mitigation need by habitat type and subtype. The temporary and permanent impact mitigation ratios shown in Table 3 are consistent with the WDFW (2009) Wind Power Guidelines because these impact types match the definitions provided in WDFW (2009). The modified habitat mitigation ratios were developed for this Project in the absence of solar development guidelines and considering that revegetated habitat under solar arrays does not meet the definition of temporary or permanent impacts from WDFW (2009). Table 3 summarizes Project impacts by impact type for habitat subtypes that result in the need for mitigation, for the purpose of calculating the maximum mitigation need for the Project. See Table 2 in Section 5 for a full tabulation of all Project impacts.

Table 3. Estimated Project Impacts on Habitat Subtypes and Associated Mitigation Need

Habitat Type	Habitat Subtype[1/]	WDFW Classification	Impact (Acres)	Mitigation Ratio[2/]	Mitigation (Acres)
Temporary Impacts Only[3/,4/,5/]					
Grassland	Non-native grassland	Class III	47	0.1:1	5
	Planted grassland		202	0.1:1	20
	Unclassified grassland[6/]		143	0.1:1	14
Shrubland	Rabbitbrush shrubland		126	0.1:1	13
	Dwarf shrub-steppe	Class II	9	1:1	9
	Sagebrush shrub-steppe		17	0.5:1	9
	Unclassified shrubland[6/]		26	0.5:1	13
Permanent Impacts Only[3/, 4/]					
Grassland	Non-native grassland	Class III	4	1:1	4
	Planted grassland		24	1:1	24
	Unclassified grassland[6/]		26	1:1	26
Shrubland	Rabbitbrush shrubland		32	1:1	32
	Dwarf shrub-steppe	Class II	1	2:1	2
	Sagebrush shrub-steppe		1	2:1	2
	Unclassified shrubland[6/]		5	2:1	10

Habitat Type	Habitat Subtype[1/]	WDFW Classification	Impact (Acres)	Mitigation Ratio[2/]	Mitigation (Acres)
Modified Habitat Only[4/]					
Grassland	Non-native grassland	Class III	3	0.5:1	1
	Planted grassland		100	0.5:1	50
	Unclassified grassland[6/]		333	0.5:1	166
Shrubland	Rabbitbrush shrubland		393	0.5:1	196
	Unclassified shrubland[6/,7/]	Class II	63	2:1	126
Total[8/]					**721**

Notes:
1/ Only impacted subtypes that result in the need for mitigation are shown.
2/ Temporary and permanent impact mitigation ratios are consistent with the WDFW (2009) Wind Power Guidelines; modified habitat mitigation ratios were developed for this Project in the absence of solar development guidelines and considering revegetated habitat under solar arrays does not meet the definition of temporary or permanent impacts from WDFW (2009).
3/ Overlapping permanent disturbance is subtracted from temporary impact areas (e.g., temporary impact area around a Turbine does not include the Turbine foundation and graveled areas); those are included only in the permanent impact calculations.
4/ Temporary impacts associated with solar facilities include a 10-foot construction buffer along the outside of the solar fencelines. Permanent impacts include the solar inverters and new access roads within the Solar Siting Areas. Modified impacts include those areas associated with the solar arrays. Following construction, low-growing vegetation would be planted under the solar arrays; therefore, these impacts would be considered a modification of habitat versus a temporary or permanent impact.
5/ Per WDFW (2009), for temporary impacts, a reduced mitigation ratio may be considered if restoration results in a higher level of habitat function than pre-project conditions. This reduced ratio may be applied as a credit to subsequent Project phases following determination that revegetated result in a higher level of habitat function compared to pre-Project conditions.
6/ Unclassified grassland and unclassified shrubland habitat subtypes include those areas mapped during surveys conducted in 2018 or using National Land Cover Database data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 survey or desktop analysis. Acres of impacts to each of these "unclassified" habitat subtypes may be revised following habitat surveys of the Solar Siting Areas and Micrositing Corridor that are planned to occur prior to construction.
7/ For the purpose of mitigation within the solar fencelines, unclassified shrubland is conservatively assumed to be shrub-steppe (Class II habitat) and assigned a mitigation ratio of 2:1; areas under panels would not be revegetated with shrubs and thus construction of the solar array would constitute a permanent loss of shrub-steppe. Areas of unclassified shrubland would be field verified prior to construction and any areas assigned a different habitat subtype (e.g., rabbitbrush shrubland) will be re-assigned the appropriate mitigation ratio for modified habitat (e.g., 0.5:1).
8/ Totals may not sum exactly due to rounding.

For most habitat subtypes, the mitigation ratio for modified habitat is less than the replacement ratio for permanent impacts but greater than the ratio for temporary impacts for each habitat subtype given that the function and value of these habitat subtypes will be reduced somewhat following construction of the solar arrays but not eliminated as described in Section 6.0. The habitat subtype unclassified shrubland is conservatively assigned a mitigation ratio of 2:1 within the solar array fencelines because there is potential for these areas to contain shrub-steppe (Class II) habitat; areas under panels will not be revegetated with shrubs (e.g., sagebrush) and thus construction of the solar array would constitute a permanent loss of shrub-steppe if shrub-steppe habitat cannot be avoided during final design. Areas of unclassified shrubland will be field verified prior to construction and any areas assigned a different habitat subtype (e.g., rabbitbrush shrubland) would be re-assigned the appropriate mitigation ratio for modified habitat (e.g., 0.5:1). Therefore, excluding potential shrub-steppe habitat, revegetation of areas within the solar array fenceline outside of permanent impact areas (e.g., roads) in combination with the compensatory mitigation will result in no loss of functions and values of habitat overall.

7.3.2 Mitigation Options

The Applicant proposes three potential mitigation options including (1) acquisition of a conservation easement to protect and enhance a compensatory habitat mitigation area, (2) mitigation fee with WDFW, and (3) payment to provide option with a local land trust or conservation organization, as available. In

addition, the Applicant would also consider alternative mitigation pathways if available in the future. The Applicant may use one option or a combination of options to mitigate for habitat impacts, and will determine the combination of the mitigation options that best correlate to the impacted areas in consultation with WDFW and the affected landowners, subject to EFSEC's approval. The final mitigation approach will offer enough suitable habitat to meet the regulatory requirements described in Section 2. The duration of all three mitigation options will be for the life of the Project.

Option 1 may include a conservation easement on habitat within or adjacent to the Project Lease Boundary that was avoided by Project infrastructure. For example, areas of sagebrush shrub-steppe and grassland initially proposed for Turbine locations have been avoided in the current layout, including areas of sagebrush shrub-steppe habitat subtype that were avoided due to their designation as WDFW PHS locations and critical areas (e.g., see Figures 3.4-1 and 3.4-4 of the EFSEC ASC). Sufficient acreage of like-kind habitat may be available within the Project Lease Boundary to mitigate for Project impacts and achieve no loss of habitat functions and values. This option would meet the criteria for replacement habitat outlined by WDFW (2009), including that it is like-kind, would be given legal protection as well as protection from degradation for the life of the Project, it is in the same geographical region as the impacted habitat, and is at some risk of development given the wind resource at these locations that resulted in the initial placement of Turbines. If Option 1 is pursued and depending on the mitigation area selected for conservation easement, potential enhancements to provide habitat uplift may be appropriate; enhancements could include weed control, seeding, planting, and/or other appropriate measures to ensure habitat functions and values are improved over time. The mitigation area could be managed by the Applicant or a designated conservation partner to ensure the habitat is protected from degradation for the life of the Project.

Option 2 is based on the mitigation "by fee" option outlined in WDFW (2009), which states that the wind project developer, the permitting authority, and WDFW can identify an appropriate annual fee for the life of the Project to mitigate the Project's impacts on habitat. Alternatively, a "lump-sum" upfront payment could be applied in-lieu of annual fees and be determined by the number of acres of impact taking into consideration the duration of impact. The payment would be used primarily to support "stewardship" (management, monitoring, restoration, protection from degradation; WDFW 2009) of high-value habitat in the same ecological region as the Project. The stewardship funds could be applied to strategically important habitat acquired by WDFW throughout Washington. The annual fees or lump sum payment could be deposited into a dedicated WDFW account and may also be used for acquisition. The payment could be calculated by determining the cost per acre of obtaining a conservation easement and multiplying this by the acres of mitigation needed; the resulting value would be a payment amount equivalent to the cost of mitigating via a conservation easement. The determined cost per acre of a conservation easement may also take into consideration the cost of habitat enhancements, and maintenance and monitoring costs for the life of the Project.

Option 3 may include a payment to a local land trust or conservation organization (e.g., Friends of Badger Mountain, Tapteal Greenway; Land Trust Alliance 2021, Ritter 2021) and/or local tribes (i.e., Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and the Wanapum Tribe) to support an ongoing or planned conservation project that benefits the types of habitats impacted by the Project. The identification of potential locations for mitigation in this option may consider areas identified for conservation and/or restoration by local tribes. The payment amount would be determined using similar methods as described for Option 2 (mitigation fee with WDFW), and could be used towards the acquisition and conservation of a property of the size described above to meet the Project mitigation need, or could be used to provide uplift to a larger

area and/or at an existing conservation easement. The payment amount and conservation project would be determined through coordination between the Applicant, EFSEC, WDFW, and the land trust or conservation organization or tribe.

Prior to construction the Applicant would update or supplement this HMP to identify the selected mitigation option based on coordination with stakeholders, availability of mitigation opportunities, and the final layout and final habitat mapping which will affect the quantity and habitat subtypes of impacted areas and thus the mitigation need. Additional details to be provided include a description of the baseline conditions at the mitigation area(s) including maps, mitigation measures (e.g., noxious weed control) and a description of how these mitigation measures have taken into consideration the probability of success, and ongoing management practices that will protect habitat and species, including a maintenance program.

7.3.3 Implementation Schedule

This HMP would be implemented concurrently with Project construction and continue through the life of the Project. Prior to construction the Applicant would confirm the selected mitigation option(s) and update or supplement this HMP to describe the mitigation area(s) and appropriate mitigation measures, as applicable, as well as documentation of a conservation easement and/or a long-term financial commitment, depending on the option selected. During construction, the Applicant would initiate baseline surveys to inform any mitigation treatments (e.g., noxious weed control, seeding, etc.). Prior to operation, the Applicant would initiate any mitigation treatments, which could continue, as needed, through Project operation.

8 MONITORING AND REPORTING

For Option 1 (Conservation Easement), the Applicant would hire a qualified investigator (botanist, wildlife biologist, or revegetation specialist) to conduct a comprehensive monitoring program for the mitigation area, as appropriate. For Option 2 (Mitigation Fee with WDFW), the annual or lump-sum fee would cover the costs for WDFW to monitor and report, as needed, on stewardship activities. For Option 3 (Payment to Provide), part of the payment would fund a stewardship endowment that would cover costs for the land trust, conservation organization, or tribe to monitor and report on how they have implemented the funding to meet the mitigation needs of the Project. The purpose of this monitoring is to evaluate on an ongoing basis the protection of the habitat quality and the results of any habitat enhancements.

For Option 1, the investigator would monitor the habitat mitigation area for the life of the Project beginning in the year following the initial planting/seeding as applicable. Monitoring would occur annually during the first 5 years following initial treatment, then occur every 2 years until year 10 (i.e., in years 7 and 9), then every 5 years thereafter. The Applicant would identify appropriate monitoring actions for the Conservation Easement and the habitat treatments that are implemented in consultation with WDFW. Depending upon specific habitat treatments implemented, the investigator may carry out the following monitoring procedures:

1. Assess vegetation cover (species, structural stage, etc.) and progress toward meeting the success criteria (see Section 9 of this HMP);
2. Record environmental factors (such as precipitation at the time of surveys and precipitation levels for the year);

3. Record any wildfire that occurs within the mitigation area and any remedial actions taken to restore habitat quality in the damaged area;
4. Assess the success of the weed control program and recommend remedial action, if needed; and
5. Assess the survival rate and growth of planted/seeded species.

The investigator would visit identified monitoring locations within planted areas, as applicable. The mitigation area would be compared to baseline conditions to determine the success of any treatments, and may also be compared to reference sites at the Project to demonstrate how the mitigation achieves equivalent or greater habitat quality than the areas impacted. Prior to construction and after the mitigation option(s) has been selected, the Applicant would update or supplement this HMP to include additional monitoring details such as monitoring locations as applicable.

9 SUCCESS CRITERIA

Mitigation of the habitat impacts of the Project may be considered successful if the Applicant documents through monitoring and reporting the protection and enhancement of sufficient habitat to meet the habitat replacement requirements as described in Sections 2 and 7.3.1 or provides commensurate funding. For Option 2, mitigation would be considered successful in meeting the Applicant's obligations at the time of payment to WDFW.

10 WASHINGTON ADMINISTRATIVE CODE COMPLIANCE

Compliance with the WAC is shown in Table 4.

Table 4. Washington Administrative Code 463-60-332(3) Requirements Matrix

Requirement	Section(s) where addressed
(3) Mitigation plan. The application shall include a detailed discussion of mitigation measures, including avoidance, minimization of impacts, and mitigation through compensation or preservation and restoration of existing habitats and species, proposed to compensate for the impacts that have been identified. The mitigation plan shall also:	Entire
(a) Be based on sound science	Throughout (e.g., see Sections 6.0 and 7.3.1)
(b) Address all best management practices to be employed and setbacks to be established	Section 7.1
(c) Address how cumulative impacts associated with the energy facility will be avoided or minimized	Sections 5.0 and 7.1
(d) Demonstrate how the mitigation measures will achieve equivalent or greater habitat quality, value and function for those habitats being impacted, as well as for habitats being enhanced, created or protected through mitigation actions	Sections 5.0 and 7.3
(e) Identify and quantify level of compensation for impacts to, or losses of, existing species due to project impacts and mitigation measures, including benefits that would occur to existing and new species due to implementation of the mitigation measures;	Section 7.3.1 and 7.3.2
(f) Address how mitigation measures considered have taken into consideration the probability of success of full and adequate implementation of the mitigation plan	Section 7.0

Requirement	Section(s) where addressed
(g) Identify future use of any manmade ponds or structures created through construction and operation of the facility or associated mitigation measures, and associated beneficial or detrimental impacts to habitats, fish and wildlife	Not Applicable
(h) Discuss the schedule for implementation of the mitigation plan, prior to, during, and post construction and operation	7.3.3
(i) Discuss ongoing management practices that will protect habitat and species, including proposed monitoring and maintenance programs	Section 7.3.2, 8.0
(j) Mitigation plans should give priority to proven mitigation methods. Experimental mitigation techniques and mitigation banking may be considered by the council on a case-by-case basis. Proposals for experimental mitigation techniques and mitigation banking must be supported with analyses demonstrating that compensation will meet or exceed requirements giving consideration to the uncertainty of experimental techniques, and that banking credits meet all applicable state requirements.	Not Applicable

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