

# Final Environmental Impact Statement

*Horse Heaven Wind Farm*

Chapter 5 - Cumulative Impacts

October 2023

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## 5.0 CHAPTER 5 – CUMULATIVE IMPACTS

When impacts are assessed for an individual proposed action, they may be determined less than significant, but when considered collectively (cumulatively) with the impacts of other actions, especially over a period of time, they can be significant (40 Code of Federal Regulations 1508.7). The Washington State Environmental Policy Act (SEPA) requires that agencies address cumulative impacts. Cumulative impacts are the combined result of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments (RFDs). RFDs generally include actions that are currently underway, formally proposed or planned, or highly likely to occur based on available information (Ecology 2018).

Construction activities and facility operations, in particular, have the potential to contribute to cumulative impacts on susceptible resources. For example, a cumulative impact would occur if increased runoff and contaminants from construction were added to the volumes and levels of contamination from similar development projects surrounding the same wetland. This analysis of cumulative impacts addresses environmental resources, such as housing, discussed in the Socioeconomics section in 3.16 and 4.16, but does not include an evaluation of other non-SEPA topics discussed in the Socioeconomics section.

### 5.1 Project Characteristics

Horse Heaven Wind Farm, LLC (Applicant) has proposed the Horse Heaven Wind Farm (Project, or Proposed Action), a renewable energy generation facility located in the Horse Heaven Hills area of Benton County, Washington. The Project would have a nameplate generating capacity of up to 1,150 megawatts (MW) utilizing both wind turbines and solar photovoltaic panels to convert energy from the wind and sun into electric power. The power would then be either directly transferred to the electric power grid or stored on up to two battery energy storage systems (BESS).<sup>1</sup> The number of turbines and the extent of solar arrays used for the Project would depend on the final turbine models and solar modules selected and the final array layout chosen but would not total more than 244 turbines or two solar arrays.

The Applicant has executed a lease agreement with landowners to establish a Lease Boundary. Within the Lease Boundary, the Applicant intends to construct turbines, solar arrays, and associated facilities. Chapter 2, Figure 2-1, shows the Lease Boundary location, which encompasses approximately 72,428 acres. The Project's Wind Energy Micrositing Corridor encompasses 11,850 acres and consists of the areas where the turbines and supporting facilities would be sited during the Proposed Action's final design. Within the Solar Siting Areas, there are three areas under consideration for the proposed solar arrays. Figure 2-2 illustrates the Solar Siting Areas and the three areas under consideration. The Solar Siting Areas encompass 10,755 acres. The Micrositing Corridor and the Solar Siting Areas are larger than the Project's final disturbance footprint. This would allow minor rerouting to optimize the design and minimize impacts to sensitive resources discovered during the final design and pre-construction process.

### 5.2 Analysis of Cumulative Impacts

Cumulative impacts result from spatial and temporal crowding of environmental disturbances. One way to determine the appropriate geographical boundaries for determining cumulative impacts is to consider the distance an impact can travel. For instance, a cumulative impact analysis of air emissions would need to consider impacts on air quality regionally as opposed to locally due to their mobility. For water, an appropriate boundary may be a

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<sup>1</sup> The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so.

river basin or a watershed. Similarly, when evaluating for socioeconomics, visual, or cultural and historic resources, it might be necessary to consider impacts on a community or regional basis (CEQ 1997).

Information about direct and indirect impacts of past and present actions is useful in identifying and predicting the level of impact a proposed action might have on the natural or built environment. However, the impacts of past actions may have no cumulative relationship to the impacts of a proposed action. To fully evaluate cumulative impacts, it is necessary to assess the type and extent of a proposed action's impacts and how the project and its alternatives would add to, modify, or mitigate impacts from past actions. In accordance with Council on Environmental Quality (CEQ) guidance, this analysis of cumulative impacts focuses on the current aggregate impacts of past actions without delving into the historical details of individual past projects (CEQ 2005).

Although no adverse impacts were identified for the No Action Alternative in Chapter 4, this evaluation of cumulative impacts includes an analysis of what would likely occur if the proposed project is not constructed and operated. The identification of cumulative impacts for the No Action Alternative establishes the effect that Past and Present Actions and RFDs have had or would have on the environmental setting without the incremental addition of the Proposed Action.

### **5.2.1 Methods**

The analysis of cumulative impacts for the Proposed Action used the following steps to evaluate past and present actions and RFDs:

- 1) Initial scoping, or identification of projects, to consider for an analysis of cumulative impacts
- 2) An analysis of project characteristics determined if the projects should be carried forward to an evaluation of cumulative impacts
- 3) An analysis of cumulative impacts that includes the Proposed Action, the past and present actions and RFDs identified during the initial scoping (Step 1) and preliminary cumulative impacts analysis (Step 2)

#### **5.2.1.1 Step 1: Initial Scoping**

Geographic boundaries and time periods used in cumulative impact analyses should be based on the following:

- Resources that are susceptible to cumulative impacts (also known as resources of concern)
- All actions that may contribute to cumulative impacts (EPA 1999)

The CEQ guidance on cumulative impacts analysis states that scoping for applicable past and present actions and RFDs should focus on projects that impact resources similar to those impacted by the proposed action (CEQ 2005). The CEQ states that agencies should exercise discretion in determining whether, and to what extent, information about the specific nature, design, or present effects of a past action is useful for the agency's analysis of the impacts of a proposed action (CEQ 2005).

#### **Identification of Spatial Boundaries**

When considering the impacts of past and present actions and RFDs in combination with the impacts of a proposed action, the analysis of cumulative impacts may require an expansion of the spatial limits beyond the boundaries used for the analysis of direct and indirect impacts. The spatial boundaries for this cumulative impact analysis are feasible and consistent with the resources of the natural and human environment. Within the

maximum geographical range used for this analysis of cumulative impacts, each resource would likely have its own spatial boundaries.

### ***Identification of Temporal Boundaries***

Determining the temporal boundaries for an analysis of cumulative impacts requires estimating the length of time the impacts of a proposed action would occur. Within the maximum temporal boundary, each resource may have its own temporal boundary that would be less than the upper range stated for the proposed action. The length of time extends for as long as the impacts of a project might contribute to impacts on resources that are susceptible to cumulative impacts (EPA 1999). The duration of direct and indirect impacts of the Proposed Action would begin at the start of the construction phase and extend through operations and potentially beyond decommissioning and restoration. For this Project, the temporal boundaries would exceed the 30- to 35-year life expectancy of the Proposed Action.

### ***Identification of Applicable Past and Present Actions and Reasonably Foreseeable Developments***

The following discussion presents the criteria used in selecting past and present actions and RFDs for evaluation of cumulative impacts.

This assessment of cumulative impacts started with a scoping analysis that identified potential projects for evaluation. The scoping analysis included a review of energy projects (e.g., renewable and conventional) and non-energy projects, alike. Non-energy projects include transportation improvements, industrial facilities, redevelopment programs, and transmission line installations.

The scoping analysis and selection of past and present actions and RFDs extended beyond the Lease Boundary to include human communities and neighboring jurisdictions, various rural and urban landscapes, watersheds, and airsheds. The setting for the scoping analysis and selection of projects for cumulative impacts evaluation was established in accordance with U.S. Department of Energy and Washington Department of Transportation guidance on evaluating cumulative impacts (USDOE 2021; WSDOT 2022). The cumulative impacts scoping analysis used the following criteria to identify applicable past and present actions and RFDs:

- State and local agency implementation plans and databases of proposed actions (e.g., Statewide Transportation Improvement Programs, Benton County SEPA registry, etc.) were reviewed for applicable RFDs. Upon identification of potential projects within the online resources, the scoping analysis applied the following criteria to determine if an RFD would be carried forward into the preliminary cumulative impacts analysis:
  - The RFD's funding source was clearly identified.
  - The RFD was located within Benton County, Washington's, geographical boundaries.
- A desktop review of temporally and spatially relevant past and present actions and RFDs located within southeastern Benton County, Washington, that would have the potential to impact resources similar to those impacted by the Proposed Action. If an applicable past or present action or RFD was identified through the desktop review process, it was considered for inclusion in the preliminary cumulative impacts scoping analysis if it met the following criteria:
  - Its construction and operation were, are, or would be similar to the Proposed Action.
  - It is or would be located in a neighboring jurisdiction.

RFDs identified during the desktop review were considered for analysis if they were undergoing a federal, state, or local agency permitting process, and the agency has publicly noticed the pending action.

- To identify past and present actions and RFDs similar to the Proposed Action beyond the jurisdictional boundaries of southwest Benton County, the scoping analysis included a review of the following:
  - Federal, state, and local agency databases
  - Public and private utility providers
  - An online search for perspective energy development projects

An RFD located beyond the local jurisdictional boundaries was considered for preliminary cumulative impacts analysis if it had received a federal, state, or local permit but construction had not started. Websites of relevant agencies with permitting authority over energy facility projects were reviewed to determine if any permits had been recently issued but construction had not started.

A full list of sources used to identify projects for the cumulative impacts analysis is included in Chapter 6 References.

### **5.2.1.2 Step 2: Preliminary Cumulative Impacts Analysis**

**Table 5-1** provides a summary of existing projects and RFDs geographically and temporally relevant to the Proposed Action, their characteristics, and potential resources susceptible for being cumulatively impacted.

**Table 5-1** also presents a list of primary resources that would likely be impacted by the past and present actions and RFDs and the Proposed Action. Preparation of the Final Environmental Impact Statement (EIS) involved a review and updating of projects included in **Table 5-1**. **Figure 5-1** presents the location of the identified existing projects and RFDs. The following discussion provides the rationale for including and excluding existing projects and RFDs identified during Step 1, the preliminary cumulative impacts scoping analysis in this evaluation of cumulative impacts.

#### ***Rationale for Inclusion***

The following criteria were applied to existing projects and RFDs across the region to compile a list of projects whose effects may combine with the impacts of the Proposed Action to further stress resources of concern or have the potential to create new resources of concern:

- Potential past and present actions or RFDs in the same geographic area that share resources in common with the Proposed Action. This analysis deemed 30 miles to be the absolute maximum upper geographic threshold for the inclusion of renewable energy projects and 20 miles for the inclusion of roadway and commercial and industrial projects. Projects that may share or impact the same resources include the following:
  - Wind farms
  - Solar farms
  - Energy storage facilities
  - Transmission line improvements
  - Roadway projects
  - Commercial or industrial developments

- Projects that have the potential to cause a migration of contaminants beyond their boundaries. For example, these existing projects or RFDs that could potentially affect air quality or water quality locally or on a regional basis
- Projects that, together with the Proposed Action, could result in a fragmenting of habitat
- Projects that could cause changes in land use or historic character through residential, commercial, or industrial development

### ***Rationale For Exclusion***

The following criteria were applied to past and present actions and RFDs from across the region to exclude them from this analysis of cumulative impacts:

- Projects that lack affected resources similar to those that would be affected by the Proposed Action.
- Projects that are located beyond the distance thresholds for inclusion.
- Presence of a significant geographic feature or land use feature that occurs between the past or present action or RFD, and the Proposed Action, that would prevent a nexus of impacts and resources. A significant geographic feature or land use would be a major topographical feature, a large body of water, or a large urban community or multiple smaller communities.

#### ***5.2.1.3 Step 3: Cumulative Impacts Analysis***

##### ***Impacts of Proposed Action and Existing or Reasonably Foreseeable Developments***

When combined with other actions affecting the natural and built environment, the activities addressed by this EIS could lead to cumulative impacts. The scale of those cumulative impacts depends on the project and the sensitivity of resources susceptible to cumulative impacts. **Table 5-2** provides an analysis of impacts from the Project and cumulative impacts from the Proposed Action and past and present actions and RFDs. If it is determined that the Proposed Action would considerably contribute in a distinctive manner or a noticeably measurable way to cumulative impacts to a resource topic within the applicable spatial and temporal setting, an additional discussion of cumulative impact specific to the resource and the Washington Energy Facility Site Evaluation Council's (EFSEC's) determination of significance is presented in Section 5.2.2.

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**Table 5-1: Existing and Reasonably Foreseeable Developments Included in the Cumulative Impact Analysis**

Project	Description	Distance from Proposed Action (miles)	Construction Date and Operations Timeframe of Past and Present Actions	Anticipated Date for RFD Construction	Primary Resources in Common with the Proposed Action
Agrium U.S.	Agrium U.S. employs approximately 120 people at the Kennewick branch location and is engaged in chemical manufacturing activities at this facility. Agrium U.S. maintains a Title 5 Air Quality Permit.	3.2	Operated since 1959 with various facility expansions and closures.	Not Applicable	Air Quality, Water Resources, Energy and Natural Resources
Stateline Wind Project	This project is a wind energy facility consisting of two units—Stateline 1 & 2 and Vansycle II. Stateline 1 & 2 is composed of 186 wind turbines and has a peak generating capacity of up to 123 MW. Vansycle II consists of 43 wind turbines with a peak generating capacity of 99 MW.	12.6	Stateline was built in multiple phases between the years 2001 and 2002; Vansycle II was constructed in 2009.	Not Applicable	Wildlife, Habitat, and Visual and Aesthetics
Nine Canyon Wind Project	Constructed in three phases between 2002 and 2008, this project includes 63 wind turbines with a maximum generating potential of 95.9 MW of electricity. Phases I and II included a total of 49 turbines, each capable of producing 1.3 MW. The third phase expansion began in September 2007 and was completed in 2008. The third phase added 14 larger turbines, each capable of producing 2.3 MW of power.	0.5	Constructed in three phases between 2002 and 2008.	Not Applicable	Wildlife, Habitat, and Visual and Aesthetics
Port of Kennewick's Vista Field Redevelopment Project	The Port of Kennewick would sell or lease parcels and then use those proceeds to fund each phase of infrastructure until all 103 acres are developed. At full build-out, Vista Field is expected to add 750,000 square feet of retail, office, service, and entertainment and fulfill 1% of the region's anticipated growth over the next 20 years.	6.5	The official groundbreaking occurred in 2019. The Grand Opening for the initial phase would occur in June 2022.	Not Applicable	Public Services and Utilities, Earth Resources, Water Resources, and Air Quality
City of Kennewick & Port of Kennewick - Clover Island Shoreline Transformation	This project would use a portion of the City of Kennewick's Rural County Capital Fund allocated funding to improve public infrastructure and prepare commercial building sites in the form of shoreline stabilization, extension of certain utilities, construction of trails, installation of drainage infrastructure, and landscaping. The Clover Island Shoreline Transformation would support the shovel-ready preparation of three parcels owned by Port of Kennewick totaling 3.24 developable and marketable acres on Clover Island for food service, lodging, tourism, and other related businesses.	6.8	Contracts were issued for development in 2021.	In-Progress	Public Services and Utilities, Earth Resources, Water Resources, and Air Quality
City of Kennewick & Port of Kennewick - Columbia Gardens Phase 1	The intent of Columbia Gardens Phase 1 is to provide space for restaurants, wine tasting rooms, and other related businesses. This project would construct public infrastructure (extension of water, sewer, electrical and effluent utilities) and roads, storm drainage, lighting, landscaping, and parking areas to support the Port's construction of two buildings on a 6-acre site. The Columbia Gardens project is expected to result in more than 100 permanent jobs.	6.5	Project approved by Benton County Board of County Commissioners in 2017.	Not Applicable	Earth Resources, Water Resources, Air Quality, and Public Services and Utilities

**Table 5-1: Existing and Reasonably Foreseeable Developments Included in the Cumulative Impact Analysis**

Project	Description	Distance from Proposed Action (miles)	Construction Date and Operations Timeframe of Past and Present Actions	Anticipated Date for RFD Construction	Primary Resources in Common with the Proposed Action
County Well Road-Phase I State Road 221 to McBee (3.0 miles)	County Well Road - Phase I is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026. Portions of County Well Road intersect the Lease Boundary. County Well Road extends more than 7 miles in Benton County, Washington. Classified as a rural minor collector by the Washington State Department of Transportation the road sees heavy truck traffic during the farming season. This project is the first phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase I is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
County Well Road - Phase II McBee to Clodius (2.0 miles)	This project is the second phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase II is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
County Well Road-Phase III Clodius to County Pit (1.8 miles)	This project is the final phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase III is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Finley Road Mile Post 5.2 to End of Pavement (2.1 miles)	The Finley Road project would improve 2.1 miles of gravel Finley Road to a paved, all-weather standard and establish proper widths.	2.4	Finley Road is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Dague Road Terrill to Game Farm (0.5 miles)	Dague Road is a proposed 0.5-mile, paved, all-weather road that would connect E Game Farm Road to East Terrill Road in Finely, Washington, southeast of Kennewick.	2.0	Dague Road is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022-2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Richland–Stevens Drive 115-kV line rebuild project <sup>(a)</sup>	The Bonneville Power Administration is proposing to rebuild the 115-kilovolt power line between Richland Substation and Stevens Drive Substation in the Tri-Cities, Washington. Rebuilding the line will allow BPA to add another circuit to the line, in essence, creating two lines where now there is only one.	6.7	The transmission line rebuild and substation work is estimated to be energized in late 2025 or 2026.	Estimated timeframe 2025-2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation

Sources: See Chapter 6, References – Sources of Cumulative Impact Projects

Note:

<sup>(a)</sup> Richland-Stevens Drive 115-kV line rebuild project was added to Table 5-1 following publication of the Draft EIS.

BPA = Bonneville Power Administration; MW = megawatts; RFD = reasonably foreseeable development



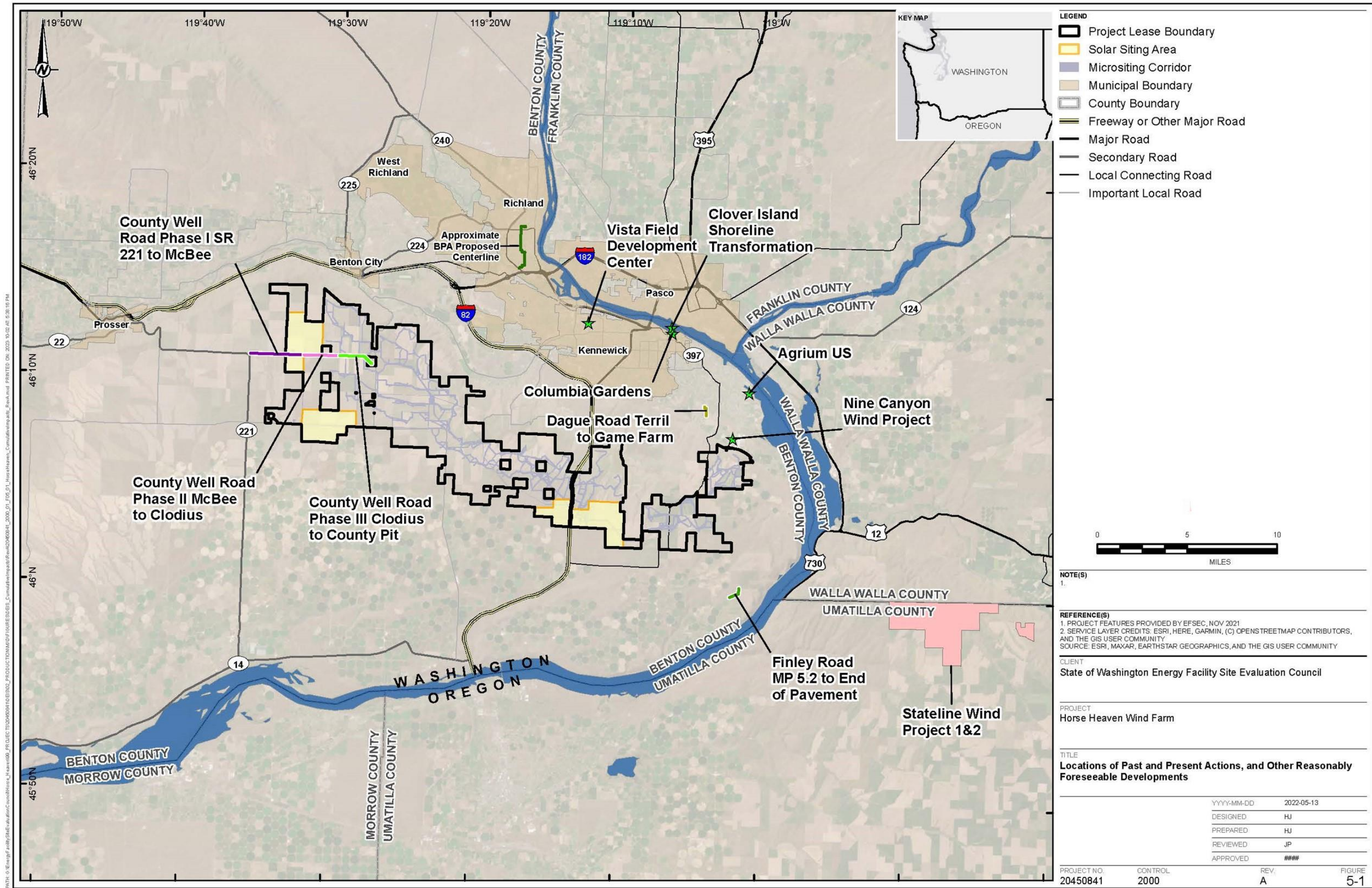


Figure 5-1: Location of Past and Present Actions, and Other Reasonably Foreseeable Developments



**Table 5-2: Cumulative Impacts with Proposed Action**

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Earth	Geologic hazards, sedimentation, and fugitive dust	<p><b>From the Project:</b> Impacts on geology, soil, topography, and geologic hazards would occur because of constructing access roads, tower foundations, transformer pads, and other project facilities.</p> <p><b>From Past and Present Actions and RFDs:</b> Impacts on earth resources from past and present actions and RFDs would be limited to localized, temporary erosion impacts from ground disturbance during construction. The impacts on soils would be within the construction footprint for the respective project; they would not geographically overlap each other.</p> <p><b>Conclusion:</b> The Proposed Action does not meaningfully contribute to a cumulative impact on geologic hazards and sedimentation within the spatial and temporal setting.</p>
Air Quality	Fugitive dust (PM <sub>2.5</sub> and PM <sub>10</sub> )	<p><b>From the Project:</b> Cumulative impacts on air quality in terms of PM<sub>2.5</sub> and PM<sub>10</sub> are unlikely to occur because the relative contribution of emissions from the Project are extremely small in comparison to the regional emissions inventory.</p> <p><b>From Past and Present Actions and RFDs:</b> Cumulative impacts on air quality in terms of PM<sub>2.5</sub> and PM<sub>10</sub> are unlikely to occur because the relative contribution of emissions from the Project are extremely small in comparison to the regional emissions inventory.</p> <p><b>Conclusion:</b> The Proposed Action does not meaningfully contribute to the overall cumulative impact on air quality within the spatial and temporal setting.</p>
Water Resources	Change in surface water runoff or absorption, change in water quality, impacts on ephemeral and intermittent streams, impacts on floodplains	<p><b>From the Project:</b> Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines may result in impacts on ephemeral and intermittent streams, floodplains, surface water runoff and absorption capacity, and water quality. These impacts are anticipated to be temporary and localized. Potential impacts from decommissioning are not expected to be additive to impacts from past and present actions and RFDs and are therefore not expected to contribute to cumulative negative effects.</p> <p><b>From Past and Present Actions and RFDs:</b> Impacts on water resources from past and present actions and RFDs are also anticipated to be limited to localized and temporary impacts and are not expected to result in cumulative impacts.</p> <p><b>Conclusion:</b> The Proposed Action does not meaningfully contribute to cumulative impacts on water resources.</p>
Vegetation	Loss of Priority Habitat, loss of other vegetated areas, and loss of suitable habitat for special status plant species	<p><b>From the Project:</b> Impacts from construction and operation of the wind turbines, solar arrays, substations, BESS, transmission lines, roads (new and upgraded), and associated Project infrastructure, when combined with impacts from past and present actions and RFDs, would result in cumulative long-term loss of Priority Habitat and suitable habitat for special status plant species. The operation of the Project may also contribute to degradation of Priority Habitat and suitable habitat for special status plant species adjacent to Project infrastructure such as roads from invasive plants and dust. Potential impacts from decommissioning are not expected to be additive to impacts from past and present actions and RFDs and are therefore not expected to contribute to cumulative negative effects.</p> <p><b>From Past and Present Actions and RFDs:</b> Past and present actions and RFDs located within Priority Habitat areas (e.g., Sagebrush shrub-steppe) would contribute to habitat loss and alteration. Similarly, loss of suitable habitat for special status plant species in the area would contribute to habitat fragmentation or isolation of populations.</p> <p><b>Conclusion:</b> The Proposed Action would meaningfully contribute to cumulative impacts on Priority Habitat and special status plant species.</p>
Wildlife and Habitat	Loss of habitat, loss of habitat for special status wildlife, indirect loss of habitat through displacement and behavioral changes, mortality, barriers to movement	<p><b>From the Project:</b> Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines when combined with impacts from past and present actions and RFDs would result in cumulative long-term wildlife habitat loss (direct and indirect), and barriers to wildlife movement. Operation of the Project, particularly the wind turbines, may also, when combined with impacts from past and present actions and RFDs, contribute to the cumulative mortality of wildlife. Potential impacts from decommissioning are not expected to be additive to impacts from past, present, and RFDs and are therefore not expected to contribute to cumulative negative effects.</p> <p><b>From and Past Present Actions, and RFDs:</b> Past and present actions and RFDs located on natural habitat (e.g., shrub-steppe) and modified habitat used by wildlife (e.g., agricultural lands) would contribute to the loss and alteration of wildlife habitat. Similarly, projects situated on natural habitat and linear projects (e.g., roadways) would contribute to habitat fragmentation and barriers to wildlife movement. Existing developments and RFDs, particularly wind power projects, would contribute to the mortality of local wildlife—notably, aerial species (birds and bats).</p> <p><b>Conclusion:</b> The Proposed Action would meaningfully contribute to a cumulative impact on habitat loss and degradation, habitat loss for special status wildlife species, barriers to movement, and wildlife mortality.</p>
Energy and Natural Resources	Resource availability, disruption of supply chains	<p><b>From the Project:</b> The Project would require electricity, gasoline, and diesel fuel to power portable generators, construction vehicles, and other equipment required for development and operation of the proposed facility. Mineral and earth resources such as iron ore, gravel, and concrete would be required for development of the Proposed Action. These resources are readily available within Benton County, Washington State, and the United States. Existing supply chains are sufficient to meet the Proposed Action's current and future needs.</p> <p><b>From Past and Present Actions and RFDs:</b> Commercial, industrial, and transportation projects listed in <b>Table 5-1</b> would contribute to cumulative impacts to energy and natural resources because they would require similar resources for construction and operation as the Proposed Action. These projects would require mineral and earth resources, gasoline, and diesel fuel for construction and operations. These materials and energy sources are readily available throughout southeastern Benton County, Washington State, and the United States.</p> <p><b>Conclusion:</b> If existing and future actions require energy and natural resources beyond what is currently available, modifications to supply chains and infrastructure would be altered to meet future demand. Therefore, the Proposed Action's requirements do not meaningfully contribute to a cumulative impact on availability of energy and natural resources within the spatial and temporal setting.</p>

**Table 5-2: Cumulative Impacts with Proposed Action**

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Land and Shoreline Use	Agricultural productivity, profitability, and farm operations	<p><b>From the Project:</b> The Project would be located in an area zoned for agricultural activities. Additionally, the Project is in alignment with Benton County Code zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a conditional use permit. This zoning ordinance allows commercial wind farms with approval of a conditional use permit issued by the Board of County Commissioners. During construction of the Project, the potential would exist for construction-related traffic, noise and vibration, and air emissions to result in some temporary cumulative impacts on agricultural production and farm profitability within the spatial setting. Mitigation measures identified by EFSEC would address impacts on farm profitability and operations. Additionally, lease payments provided to participating farmers and ranchers would have beneficial financial impacts on their agricultural businesses. During operation, the Project would be expected to operate consistent with local land use regulations and would not be expected to result in changes to land uses or development patterns different from those envisioned by Benton County’s comprehensive land use plans. Mitigation measures and zoning ordinances would require that decommissioning of the proposed action be in alignment with the environmental setting.</p> <p><b>From Past and Present Actions and RFDs:</b> The potential exists for the development of properties within the spatial setting to continue to occur on an incremental basis consistent with adopted local policies, regulations, and allowable uses. The past and present actions and RFDs listed in <b>Table 5-1</b> would be required to comply with applicable plans, policies, and development standards. During construction of RFDs, the potential would exist for construction-related traffic, noise and vibration, and air emissions to result in some temporary cumulative impacts on agricultural production and farm profitability within the spatial setting. These cumulative impacts would be temporary, occurring during the period of construction. While future development may result in a different type of land use in a particular location, that use would most likely be consistent with applicable plans, policies, and regulations and would therefore not be considered a cumulative impact to land and shoreline use. Improvement in rural roadways and lease payments from renewable energy projects to farmers would support long-term farm profitability and operations.</p> <p><b>Conclusion:</b> With mitigation measures and the continued authority of Benton County zoning ordinances and land use requirements, the Proposed Action does not meaningfully contribute to a cumulative impact on agricultural productivity, profitability, or farm operations within the spatial and temporal setting.</p>
Historic and Cultural Resources	Movement, alteration, and/or destruction of historic and cultural resources through ground disturbance, construction, and/or facility operation; loss of access to historic and cultural resources	<p><b>From the Project:</b> Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines would include ground disturbance, viewshed alteration, and restricted access to Traditional Cultural Properties. Changes to landforms, views, and accessibility would contribute to cumulative negative effects on historic and cultural resources by impacting the nature and use of the landscape.</p> <p><b>From Past and Present Actions and RFDs:</b> Past and present actions and RFDs have cumulatively impacted the integrity of historic and cultural resources—specifically, their location, setting, feeling, and/or association.</p> <p><b>Conclusion: Due to changes in the nature and use of the landscape, the Proposed Action would meaningfully contribute to a cumulative impact on historic and cultural resources.</b></p>
Visual Aspects, Light and Glare	Domination of views, creation of shadow flicker, visible lighting, and glare	<p><b>From the Project:</b> Impacts from operation of the wind turbines, solar arrays, substations, BESS, and transmission lines would generate long-term visual aspects, lighting, and sources of glare in the confined, local, and regional settings. Project aspects would dominate the existing setting and adjacent views, include visible light, and be a source of glare. There would be no cumulative impacts from construction or decommissioning as these visual aspects, glare, and light sources would be short term or temporary.</p> <p><b>From Past and Present Actions and RFDs:</b> Past and present actions and RFDs have led to a cumulative impact on the spatial setting’s visual aspects as they have modified the natural setting as well as introducing sources of lighting and glare.</p> <p><b>Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on visual aspects within the spatial setting.</b></p>
Noise and Vibration	Noise and the potential for vibration	<p><b>From the Project:</b> Impacts from operations of the wind turbines, solar arrays, substations, BESS, and transmission lines would generate long-term noise sources that could add to the present and RFDs in the local settings, but not regionally. Project aspects would generate noise that would be audible at the Lease Boundary and at neighboring receptors. There would be no cumulative impacts from construction or decommissioning as the noise and vibration sources would be temporary and limited to the area of construction and decommissioning.</p> <p><b>From Past and Present Actions and RFDs:</b> Impacts from past and present actions and RFDs have the potential to cumulatively impact local noise environments.</p> <p><b>Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on the local noise environment in the spatial setting.</b></p>
Recreation	Recreational activities could be altered, or recreationists could be unable to use the resource altogether; quality of recreational experience for recreationists may change considerably; continuance of recreational activities in the area of the Project could lead to public health and safety concerns.	<p><b>From the Project:</b> Impacts from the Proposed Action’s construction and operations would result in the change in the quality of recreational experience of recreationists.</p> <p><b>From Past and Present Actions and RFDs:</b> Impacts from past and present actions and RFDs have the potential to impact recreation—specifically, the use, quality of the experience, and health and safety of recreationists.</p> <p><b>Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on recreational resources due to changes in the use, quality of the experience, and the health and safety of recreationists.</b></p>

**Table 5-2: Cumulative Impacts with Proposed Action**

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Public Health and Safety	Fire, smoke and haze, hazardous materials release	<p><b>From the Project:</b> Impacts from hazardous materials releases, fire, and resulting smoke and haze may result from construction of the wind turbines, solar arrays, substations, BESS, and transmission lines, and operation and decommissioning of the Project. Impacts related to fire and hazardous materials release would be localized and temporary. Smoke and haze resulting from fire caused by the Project would be a regional impact because smoke can travel long distances.</p> <p><b>From Past and Present Actions and RFDs:</b> The past and present actions and RFDs listed in <b>Table 5-1</b> have the potential to cause localized fires or hazardous materials spills. The Project would not contribute to cumulative impacts because these impacts would be localized and temporary. Controls would be in place to minimize Project impacts related to fire and hazardous materials spills. Smoke and haze could contribute to cumulative impacts if fires caused by existing projects or RFDs were to occur simultaneously, although this would be unlikely. Controls to minimize impacts related to fires would also reduce the likelihood of Project smoke and haze impacts. Although it is possible that fires caused by the Project and RFDs could occur at the same time, this scenario is very unlikely.</p> <p><b>Conclusion:</b> The Proposed Action does not meaningfully contribute to a cumulative impact on public health and safety.</p>
Public Services and Utilities	Level of service and safety	<p><b>From the Project:</b> Regulations and programs exist within Washington whose intent are to reduce the potential for interference with existing utilities during construction, operation, and decommissioning.</p> <p><b>From Past and Present Actions and RFDs:</b> The past and present actions and RFDs listed in <b>Table 5-1</b> do not suggest a large increase in demand for utilities or public services; for instance, the number of transportation projects listed would not have a demand for the provision of utilities and would generally not have permanent need for service.</p> <p><b>Conclusion:</b> The Proposed Action does not meaningfully contribute to a cumulative impact on level of service and safety within the spatial and temporal setting.</p>
Transportation	Construction and decommissioning of the Project would lead to increased traffic volumes that would decrease the Level of Service of traffic routes; may lead to loss of access to public resources; and potentially cause a decrease in roadway safety.	<p><b>From the Project:</b> Impacts on transportation would occur during construction and decommissioning of the Project as a result of the decrease in level of service of traffic routes and loss of access to public resources and would potentially cause a decrease in roadway safety.</p> <p><b>From Past and Present Actions and RFDs:</b> The past and present actions and RFDs listed in <b>Table 5-1</b> have the potential to cause similar impacts to those listed for the Project.</p> <p><b>Conclusion:</b> Impacts on transportation would be short term during the construction and decommissioning of the Project. If other projects were constructed or decommissioned contemporaneously, contributions to cumulative impacts on transportation resources would be considerable. <b>Therefore, depending on the construction timing of RFDs, the Proposed Action has the potential to meaningfully contribute to impacts on transportation within the spatial and temporal setting.</b></p>
Socioeconomics	Housing Availability	<p><b>From the Project:</b> Project construction, operation, and decommissioning could impact populations onsite and adjacent to the site through Project-related impacts to housing availability.</p> <p><b>From Past and Present Actions and RFDs:</b> The types of projects listed in <b>Table 5-1</b> do not indicate a need for an expanded workforce that would cause an increase in rental prices for housing within the spatial setting or change in demographics. For instance, transportation improvement projects, once complete, would no longer require a large number of staff to maintain the roadways.</p> <p><b>Conclusion:</b> Vacant housing with abundant short-term rental options exists throughout the socioeconomic study area and spatial setting for this cumulative impact analysis. Mitigation measures would address and minimize the severity of impacts on the environmental setting. Therefore, the Proposed Action would not meaningfully contribute to a cumulative impact on housing availability.</p>

BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter.

## 5.2.2 Identification of Meaningful Contributions to Cumulative Impacts and Determination of Significance from the Proposed Action

This section provides additional analysis for the resource topics listed in **Table 5-2** that would be subject to meaningful cumulative impacts from the Proposed Action within the defined spatial and temporal setting. This section also includes an analysis of the No Action Alternative. The No Action Alternative was included to demonstrate the extent of the cumulative impact from past and present actions and RFDs on the identified resources. While a determination of significance cannot be made for the whole of the past and present actions and RFDs for the identified resources, the presentation of the No Action Alternative indicates what the resource's status would be if the Proposed Action were not built.

### ***Vegetation (Proposed Action)***

As noted in **Table 5-2**, Project-related impacts on vegetation resources during Project construction and operation may contribute to cumulative impacts occurring regionally. While Project-related disturbance has been mostly sited within previously disturbed areas (e.g., agricultural land and developed/disturbed areas), Project construction would result in temporary and permanent disturbance to Priority Habitats, including sagebrush shrub-steppe and Eastside (interior) grasslands. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. While it has been determined that the Proposed Action would meaningfully contribute to a cumulative impact on vegetation, the magnitude of that impact is dependent on the final design and implementation of the Proposed Action. The potential exists for a final design that lessens the residual impact and reduces the Proposed Action's contribution to cumulative impacts on priority habitats and native plant species.

The Washington Department of Fish and Wildlife (WDFW) estimates that 80 percent of historic shrub-steppe habitat in Washington State has been lost or degraded from past development, including conversion to agriculture land (WDFW 2022a). Jansen (2023) reports that shrub-steppe land cover decreased by 13% (approximately 700,000 acres) between 2006 and 2019, although grassland cover increased by 10% (approximately 500,000 acres). Remaining patches of Priority Habitat are small and are becoming increasingly isolated. These factors make remaining patches of Priority Habitat vulnerable to further degradation from surrounding development (e.g., spread of invasive plants) and, potentially, to further loss from random events (e.g., large-scale wildfire).

The Project would be situated near known populations of special status plant species, mainly woven-spore lichen (*Texosporium sancti-jacobi*). Woven-spore lichen is associated with undisturbed shrub-steppe and grassland communities (DNR n.d.), which are present within the Lease Boundary. The proximity of present actions and RFDs presents the potential for further isolation of remaining populations. Loss of Priority Habitat and loss of native plant species, particularly native bunchgrasses, may impact the persistence of woven-spore lichen in the region considering past and present actions and RFDs.

### ***Vegetation (No Action Alternative)***

In the No Action Alternative, Priority Habitats and populations of special status plant species in the Project Lease boundary would not be altered or lost. Priority Habitats have historically been converted to agricultural lands, urban areas, and developments for resource extraction. In particular, the conversion to cropland has highly fragmented the remaining native shrub-steppe and grasslands. Similarly, the spatial extent of special status species that depend on these habitat types has been reduced. This trend is consistent for sagebrush shrub-steppe throughout eastern Washington, where sagebrush ecosystems are becoming increasingly fragmented by the expansion of communities and industries. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects. These major threats to Priority Habitats are expected to persist

in the No Action Alternative. Further, the impacts of these threats are expected to be exacerbated by the impacts of alterations associated with climate change (WDFW 2022a).

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for loss and degradation of Priority Habitat and special status plant species.

### ***Wildlife and Habitat (Proposed Action)***

As noted in **Table 5-2**, Project-related impacts on wildlife and habitat during Project construction and operation may contribute to cumulative impacts occurring regionally. The Project is predicted to result in the permanent disturbance of natural (e.g., shrub-steppe) and modified habitat (agricultural land). Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Natural habitats, particularly State Listed Priority Habitat (e.g., shrub-steppe) have been impacted by past developments, and permanent loss or alteration of these natural habitats associated with the Project would be additive to these past, present, and future losses resulting in cumulative habitat loss. While it has been determined that the Proposed Action would meaningfully contribute to a cumulative impact on wildlife and habitat, the magnitude of that impact is dependent on the final design and implementation of the Proposed Action. The potential exists for a final design that lessens the residual impact and reduces the Proposed Action's contribution to cumulative impacts on special status wildlife species and priority habitats.

WDFW estimates that 80 percent of historic shrub-steppe habitat in Washington State has been lost or degraded (WDFW 2022a). Similarly, indirect habitat loss through behavioral changes and displacement of wildlife associated with the construction and operation of the Project may be additive with similar disturbances associated with other regional projects and developments to further reduce the suitability and use of natural habitats. Creation of mitigation habitat (e.g., offset) associated with the Project is expected to reduce the Project's contribution to cumulative impacts on habitat. Cumulative loss and modification of natural habitat is expected to be more notable for special status species (see Section 3.6 for definition), as these populations are generally affected in the existing conditions, prior to consideration of the Project, due to historical changes to the landscape. Specific to the Project, cumulative effects on special status species associated with sage brush habitat, such as sagebrush lizard (*Sceloporus graciosus*), sage thrasher (*Oreoscoptes montanus*), sagebrush sparrow (*Artemisiospiza nevadensis*), and Townsend's ground squirrel (*Urocitellus townsendii townsendii*), are expected to be more notable as past and present actions have reduced the regional habitat capacity for this group of species.

The Project would be situated near mapped wildlife movement corridors, and, if the final siting of Project components were to result in loss of habitat within those corridors, the Project could contribute to the cumulative barriers to wildlife movement over the landscape created by past and present actions and RFDs in the region. The final Project siting has not been completed, and if major Project components, such as solar arrays, are not located on mapped movement corridors, the Project's contribution to cumulative barriers to movement would be reduced. Wider-ranging special status species, such as pronghorn antelope (*Antilocapra americana*), are expected to be more influenced by cumulative barriers to movement as these barriers can reduce animals' ability to move between habitats on the landscape. The culmination of development, roadways, and projects creates a fragmented network of habitat types and introduces obstacles that can deter wildlife movement (e.g., roads) or require wildlife to expend additional energy to move around (e.g., fences).

The Project is expected to result in wildlife mortality during construction and operation, predominantly associated with birds and bats during the operation of wind turbines. Mortality of aerial species associated with the Project is expected to occur cumulatively with mortality associated with other regionally occurring projects, particularly other



wind power projects such as the Nine Canyon and Stateline Wind Projects. Using aggregated mortality data from 65 operating wind facilities in the Columbia Plateau Ecoregion (CPE; Washington and Oregon), Jansen (2023) estimated that approximately 17,369 bird (excluding raptors) fatalities occur per year (based on 2.57 birds/MW/year). Similarly, Jansen (2023) estimated that wind facilities in the CPE result in 793 raptor mortalities (0.12 birds/MW/year) and 7,292 bat mortalities (1.08 birds/MW/year). Species recognized as having a greater risk of interacting with wind turbines, such as horned lark (*Eremophila alpestris*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*), as well as special status species that are at risk of collision with turbines (e.g., American white pelican [*Pelecanus erythrorhynchos*] and sandhill crane [*Antigone canadensis*]) are identified in Section 4.6. While horned lark may comprise the majority of wind facilities mortalities, Jansen (2023) estimated that development of wind energy facilities may cumulatively have a greater effect on the ruby-crowned kinglet (*Corthylio calendula*) population in the CPE as this species has a smaller population than horned lark. Jansen (2023) concluded; however, that mortality rates for both species from wind energy facilities were not estimated to exceed the resilience of these species. In contrast, mortality levels from wind energy facilities on ferruginous hawk (*Buteo regalis*) would be additive with other sources of anthropogenic and natural mortality, contributing to cumulative impacts on this species. Bat mortality from wind facilities is expected to be additive with other sources of bat mortality (e.g. white nose syndrome), contributing to cumulative impacts.

Finally, the Project is anticipated to have the potential for high-magnitude effects on ferruginous hawk due to its proximity to active nests (i.e., nests recorded during Project surveys that were occupied by a ferruginous hawk or its egg), impacts on foraging habitat, and potential to result in mortality. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the high-magnitude effect. This species is state-listed as endangered, partially due to the cumulative loss of range within Washington State, as well as mortality from electrocution and collisions with turbines (WDFW 2022b).

Habitat loss and mortality associated with the Project are expected to be additive to past and present actions and RFDs in the region, resulting in cumulative impacts on the species. Cumulative habitat loss can be attributed to the nibbling effects of conversion of lands from native shrub-steppe due to projects and other developments. Similarly, ferruginous hawk mortalities may occur at a variety of project sites; however, the greatest risk of mortality for this species is expected to occur at projects that create obstacles within the raptor's flight path, such as powerlines and wind power projects. Therefore, the impacts of mortality from the Project are expected to be additive to similar projects (transmission lines and wind power projects) in the region while being less likely to be additive with ground-level projects, such as road construction.

### **Wildlife and Habitat (No Action Alternative)**

In the No Action Alternative, wildlife populations, habitats, and movement corridors in the Project Lease Boundary would continue to function and persist following similar trends as current conditions. Wildlife habitat and movement corridors have regionally been impacted by alteration and development on natural habitats. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects to wildlife habitats and movement corridors as have occurred regionally. Pressures on habitats and movement corridors are expected to persist in the region in the No Action Alternative. The short- and long-term population trends (increasing, stable, decreasing) of Priority wildlife species with potential to occur in the Lease Boundary are described in Table 3.6-3. These trends are expected to persist in the No Action Alternative, with species populations currently reported to be declining and continuing to decline.

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for habitat loss and degradation, barriers to movement, wildlife mortality, and special status species.

### ***Historic and Cultural Resources (Proposed Action)***

As noted in **Table 5-2**, Project-related impacts on historic and cultural resources may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Changes to the nature and use of the landscape are likely to result from the construction and operation of the Project and from past and present actions and RFDs. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Cumulative impacts from ground disturbance, viewshed alteration, and restricted access to Traditional Cultural Properties are likely to alter the nature and use of the landscape. Cumulative impacts from past and present actions and RFDs may affect the location, setting, feeling, and/or association of historic and cultural resources, resulting in a potential loss of the integrity of these resources.

### ***Historic and Cultural Resources (No Action Alternative)***

Under the No Action Alternative, historic and cultural resources within the Project Lease Boundary would continue to persist following similar trends as current conditions. Ground disturbance and construction activities may result in movement, alteration, and/or destruction of historic and cultural resources. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects. Continued deterioration of historic-period cultural materials, such as metal and glass artifacts, can be expected. Displacement of precontact and historic-period cultural materials and subsurface deposits is likely through natural processes such as erosion and disturbance of sedimentary deposits by living organism. The trend of deterioration and displacement through natural processes is expected to persist in the No Action Alternative; however, deterioration and displacement take place over long timespans and do not result in the complete destruction of cultural materials.

**EFSEC Determination:** Project meaningfully contributes to cumulative impacts for historic and cultural resources, including changes to the nature and use of landscape.

### ***Visual Aspects***

As noted in **Table 5-2**, Project-related impacts on visual aspects may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Modifications of the existing landscape character, as well as the introduction of lighting and sources of glare, would occur from the operation of the Project and from past and present actions and RFDs. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. These effects include dominating the area's landscape character through the introduction of large-scale energy infrastructure, as well as dominating views from viewing locations where the setting would appear heavily modified. In combination with past and present actions and RFDs, the visual impacts from the Proposed Action are expected to be additive to similar projects (transmission lines and wind power projects) in the region while being less likely to be additive with ground-level projects, such as road construction.

### ***Visual Aspects (No Action Alternative)***

Under the No Action Alternative, past and present actions and RFDs would continue to modify the area's landscape character but due to the scale of these projects, the regional landscape character would not be dominated by large-scale energy infrastructure. Views may be locally dominated by these projects, but their influence on views would diminish with distance resulting in minimal impacts on the regional setting. Regarding light, if the No Action Alternative occurs, there would continue to be modifications to minor sources of visible light from the projects listed in **Table 5-1**. Past and present actions and RFDs have not contributed glare to the spatial setting.

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for visual aspects, including alteration of landscape character and introduction of sources of lighting and glare.

### ***Noise (Proposed Action)***

As noted in **Table 5-2**, Project-related operational impacts on noise may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Project aspects would generate noise that would be audible at the Lease Boundary and neighboring receptors. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Impacts from long-term noise sources could add to the present developments and RFDs in the local settings, but not regionally. In combination with past and present actions and RFDs, the noise impacts from the Proposed Action are expected to be additive to similar projects (wind power and solar projects) and other sources of noise, including agricultural and transportation on the local level, but less likely to affect regional noise levels.

### ***Noise (No Action Alternative)***

Under the No Action Alternative, past and present actions and RFDs listed in **Table 5-1** would continue to include temporary and long-term noise sources that would impact the local noise environment, but not in the regional setting. The projects listed in **Table 5-1** would cause short-term impacts during construction, but the effects would be localized and temporary. Long-term sources of vibration that could contribute to cumulative impacts were not identified amongst the projects listed in **Table 5-1**.

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for audible noise generation for Project receptors.

### ***Recreation (Proposed Action)***

As noted in **Table 5-2**, Project-related impacts on recreation resources would contribute to cumulative impacts occurring regionally. Impacts on recreational use, quality of experience, and health and safety of recreationists would occur during Project construction and operation. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect.

The Project would be situated near paragliding launching and landing sites with flight paths directly over proposed turbine and solar field locations. The Project area is frequently used for biking and hiking, with recreationists using public land within the Project area or near the extent of the Project boundary. The Applicant proposes to construct solar arrays on a parcel of land administered by the Washington Department of Natural Resources, limiting recreational activities to outside the solar field's fence.

Cumulative impacts from past and present actions and RFDs may also affect recreational use, quality of experience, and health and safety of recreationists. Cumulative loss of the use for recreation resources occurs when lands, frequently used for recreation activities, are taken out of use during the construction and operation of non-recreation projects or recreation activities are indirectly impacted by projects (e.g., visual, noise, etc.).

### ***Recreation (No Action Alternative)***

Under the No Action Alternative, the past and present actions and RFDs listed in **Table 5-1** would continue to modify the area's recreation opportunities. Recreationists would experience the change in use, recreational experience, or the potential of decreased public health and safety during the activity. Depending on the identified RFD, crowding or loss of use altogether may occur or values that a recreationist deems as important to their individual experience may become altered.

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for use and quality of recreation resources and safety and access of recreationists.

### ***Transportation (Proposed Action)***

As noted in **Table 5-2**, Project-related impacts on transportation resources may contribute to cumulative impacts occurring regionally. Short-term impacts on the level of service of traffic routes, access to public resources, and roadway safety are expected during Project construction and decommissioning. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect.

Cumulative impacts from past and present actions and RFDs have the potential to affect the level of service of traffic routes, cause loss of access to public resources, and decrease roadway safety if constructed or decommissioned contemporaneously.

### ***Transportation (No Action Alternative)***

Under the No Action Alternative, past and present actions and RFDs listed in **Table 5-1** would continue to modify the area's traffic patterns, level of service, and transportation requirements, especially during construction and decommissioning of the identified Projects. Due to the scale of these RFDs, traffic patterns are likely to change during construction and decommissioning, level of service would decrease but only for the short term, and roads and intersections may continue to be altered to provide access to heavy and oversize loads.

**EFSEC Determination:** The Proposed Action meaningfully contributes to cumulative impacts for traffic volumes, level of service, and roadway safety.

## **5.2.2.1 Summary of Combined Determination of Significance**

**Table 5-3** presents the resources that the Proposed Action would cumulatively impact in a meaningful way, along with the significance determination of those impacts. It describes the direct or indirect impact that the Proposed Action would have for each resource, and whether that impact would be significant with the identified recommended mitigation measures implemented. Finally, it indicates whether that impact would make a meaningful contribution to a cumulative impact when combined with past and present actions and RFDs.

**Table 5-3: Cumulative Impact Analysis Summary**

<b>Section</b>	<b>Topic</b>	<b>Description of Impact from the Proposed Action</b>	<b>Significant Direct or Indirect Impact from the Proposed Action</b>	<b>Cumulative Impacts from Past and Present Actions and RFDs</b>	<b>Proposed Action Meaningfully Contributes to a Cumulative Impact</b>
Vegetation	Priority Habitat	Loss and degradation of Priority Habitat	No	Yes	Yes
Vegetation	Special Status Plant Species	Loss and isolation of special status plant species	No	Yes	Yes
Wildlife and Habitat	Habitat Loss	Habitat loss and degradation	No	Yes	Yes
Wildlife and Habitat	Barriers to Movement and Fragmentation	Fencing as a barrier to movement and fragmentation of habitat due to Project footprint	No	Yes	Yes
Wildlife and Habitat	Wildlife Mortality	Mortalities from wildlife-vehicle collisions or turbine strikes	No	Yes	Yes
Wildlife and Habitat	Special Status Species	Loss of special status species from mortalities or loss or degradation of habitat	No	Yes	Yes
Historic and Cultural Resources	Archaeological Resources	Partial or complete loss of archaeological resources	Yes	Yes	Yes
Historic and Cultural Resources	Traditional Cultural Properties	Partial or complete loss of traditional cultural properties and resources	Yes	Yes	Yes
Visual Aspects, Light and Glare	Visual Aspects	Turbines would dominate the existing landscape and viewshed.	Yes	Yes	Yes
Visual Aspects, Light and Glare	Light and Glare	Security lighting would introduce sources of light and glare	No	Yes	Yes
Noise and Vibration	Noise	Noise from construction and Project components during operation.	No	Yes	Yes
Noise and Vibration	Vibration	Vibration during construction and decommissioning	No	No	No
Recreation	Recreation - Use	Reduction in access to available recreation lands	No	Yes	Yes
Recreation	Recreation – Public Health and Safety	Health and safety of paragliders and hang gliders	Yes	Yes	Yes
Transportation	Traffic Volume	Increased traffic volume from construction and decommissioning	No	Yes	Yes
Transportation	Level of Service	Decreased level of service for motorists, particularly at intersections close to Project	No	Yes	Yes
Transportation	Roadway Safety	Safety of motorists due to the presence and movement of heavy vehicles	No	Yes	Yes

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