4 CUMULATIVE IMPACTS

4.1 INTRODUCTION

This chapter of the EIR describes the cumulative impacts of the proposed project. Section 15355 of the State CEQA Guidelines defines a cumulative impact as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. The individual effects may be changes resulting from a single project or several separate projects.

The State CEQA Guidelines (in Section 15130[b]) provide the following guidance for conducting an adequate cumulative impact analysis:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

The purpose of a cumulative impact analysis is twofold:

(1) Ensure that a lead agency considers the long-term environmental consequences of decision making by disclosing impacts that may be limited when examined individually, but are significant in combination with others.

(2) Determine whether the project itself would cause a "cumulatively considerable" (and thus significant) contribution to these cumulatively significant impacts.

When a lead agency is examining a project with an incremental effect that is not cumulatively considerable, the lead agency need not consider that effect significant, but must provide a basis for this conclusion. The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable (see Sections 15064, 15065, 15130[a], 15130[b], and 15355 of the State CEQA Guidelines).

4.2 CUMULATIVE IMPACT METHODOLOGY

Section 15130(b)(1) of the State CEQA Guidelines describes two methods for establishing the cumulative environment: using a list of past, present, and probable future projects (the "list approach") or using adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). The different approaches allow a lead agency to determine the method of analyzing cumulative impacts that may be best suited to the situation at hand.

For this EIR, Humboldt County (County) considered the geographic scope of the impact, the nature of each environmental resource being examined, the location of the project, and the type of project when determining the appropriate methodology for the cumulative impact analysis and the geographic scope of the analysis. For

example, project construction activities would emit criteria pollutants that would affect the air quality of the entire North Coast Air Basin (NCAB). Ambient air quality is regulated at the regional level by the North Coast Unified Air Quality Management District, which must prepare attainment plans for criteria pollutants that exceed national and state ambient air quality standards. Consequently, the plans and policies approach to cumulative analysis is best suited for characterizing the cumulative condition related to air quality.

On the other hand, topography and intervening vegetation would limit the visibility of the project components to specific geographic locations where views of the site are available. In this circumstance, the list approach is best suited for identifying projects with potential cumulative impacts. Given the variability in the nature of cumulative effects, a combination of the two methods has been used to identify related projects and evaluate cumulative impacts. Table 4-1 lists the cumulative impact analysis methodology applied to each impact category.

Table 4-1. Approach to the Evaluation of Cumulative Impacts

Resource Area	Geographic Scope of Impact and Approach to Evaluation
Aesthetics	Localized impact—list method
Agriculture and Forestry Resources	Regional impact—plans and policies
Air Quality	Regional impact—plans and policies
Biological Resources	Localized impact—list method for some, regional impact—plans and policies for others
Cultural Resources, including Tribal Cultural Resources	Localized impact—list method
Geology, Soils, and Paleontological Resources	Localized impact—list method
Greenhouse Gas Emissions	Regional impact—plans and policies
Hazards and Hazardous Materials	Localized impact—list method
Hydrology and Water Quality	Regional impact—plans and policies
Noise	Localized impact—list method
Transportation and Traffic	Localized impact—list method
Fire Protection Services and Wildfire Hazards	Regional impact—plans and policies
Source: Data compiled by AECOM in 2019	

4.3 CUMULATIVE PROJECTS CONSIDERED IN THIS ANALYSIS

Table 4-2 lists the past, present, and probable future projects considered in the cumulative impact analysis. This list was developed based on communication with the state and local agencies responsible for management of resources and infrastructure that could be affected by project construction and operation. The list shown in Table 4-2 is not intended to encompass every development project in the region; rather, it identifies the projects with the greatest potential for impacts that would overlap with those of the proposed project.

For topics requiring the use of a plans and policies approach to address cumulative conditions, information is drawn from the *Humboldt County General Plan* (General Plan) and supporting EIR for the General Plan Update (Humboldt County 2017a, 2017b). The land use map in the General Plan identifies the ultimate land use pattern and development potential of the adopted General Plan, and the EIR addresses the environmental effects associated with buildout of these land uses.

4.4 CUMULATIVE IMPACT ANALYSIS

The cumulative impact analysis presented below conforms to Section 15130 of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone."

Table 4-2 Cumulative Projects

Project No.	Project Name	Location	Project Type	Timing
1	Caltrans Fortuna Pavement Overlay	U.S. 101 from Post Mile 58.8 to Post Mile 65.6	Road maintenance	Finished by November 2019
2	Humboldt Redwood Company	Eel River watershed	Multiple timber harvest plans	Ongoing
3	Sierra Pacific Industries	Eel River watershed	Timber harvest plan	Ongoing
4	Commercial Cannabis Land Use Ordinance	Countywide	Zoning ordinance	Ongoing
NA*	Redwood Coast Energy Authority–Offshore Wind Energy Project*	NA*	NA*	NA*
5	Humboldt Redwood Company Scotia Operations Demolition Project	Town of Scotia	Demolition of structures on site of operating sawmill	Approved
6	Van Duzen Storage LLC	PG&E Bridgeville Substation	Battery energy storage	Application in process

Notes: Caltrans = California Department of Transportation; NA = not applicable; PG&E = Pacific Gas and Electric Company; U.S. 101 = U.S. Highway 101

* An application has not been filed, nor have the lands been formally included in an offshore lease by the Bureau of Ocean Energy Management.

Source: Data compiled by AECOM in 2019

4.4.1 AESTHETICS

The project site and surrounding land have been subject to many past and ongoing activities that have modified the landscape character, including logging, agriculture, and timber-related industry. Potentially affected viewer groups include residents, motorists, recreational users, and farmers in adjacent communities. The combination of open space, in the form of heavily forested land and views of agricultural fields, and the separation between rural communities contributes to the area's rural visual character, which represents the visual setting. This rural visual character is considered a scenic resource in the General Plan.

The rural character of Scotia has been preserved by the presence of working resource lands (e.g., timberland and grazing lands) at the town's edge (including the project site), which serve as an urban/rural boundary. However, the expansion of U.S. Highway 101 (U.S. 101) and the construction of a large power plant have detracted from the historic setting. Most of the land on and surrounding the project site is designated for agriculture and resource extraction in the form of timberland.

The combination of mountainous terrain and mixed conifer forest limits long-distance views in the Eel River valley. Visibility is also influenced by the prevailing atmospheric conditions, which can vary from clear skies to

thick fog that obscures the ridgeline. Together, the restricted viewshed and frequent fog limit opportunities to observe multiple projects simultaneously from the Eel River Valley floor.

Humboldt Redwood Company (HRC) owns the land on which the proposed project is sited and has filed multiple timber harvest plans (THPs) covering land in the project vicinity. HRC is likely to continue to harvest timber from its holdings, including land adjacent to proposed project components; however, HRC's forestry practices usually involve thinning trees (as opposed to clearcutting), do not include the use of nighttime lighting, and are not directly visible from Scotia, U.S. 101, or Ferndale. Consequently, long-term visual impacts of the proposed wind turbine generators (WTGs), such as encroaching vertical elements (towers and blades), distractive movement (when blades are moving), changes to landforms (caused by roadways and maintenance of pad construction areas), and blinking lights, would not combine with the effects of HRC timber harvest activities.

Impacts of project construction would be significant and unavoidable, but other projects on the cumulative projects list, including HRC's THPs, would not contribute to the project's impacts. Therefore, the project would have a **less-than-significant** cumulative impact on visual resources. The initial study prepared for the Van Duzen battery storage project indicates that this related project would have less-than-significant impacts on aesthetic resources (Humboldt County 2019). Although the proposed project would require upgrades at the Bridgeville Substation, which is also the site of the proposed Van Duzen battery storage project, the substation is not visible from a public vantage point. Therefore, the impacts of the proposed project would not be cumulatively considerable when combined with the visual impacts of the proposed battery storage project.

4.4.2 AGRICULTURE AND FORESTRY RESOURCES

AGRICULTURAL RESOURCES

The Commercial Cannabis Land Use Ordinance was found not to result in the loss of agricultural lands or to conflict with Williamson Act contracts. The ordinance and the State of California define cannabis as an agricultural product; therefore, cultivation activities on prime soils would not result in conversion of prime soils to a nonagricultural use. In addition, the County has determined that cannabis cultivation is a compatible use on lands subject to Williamson Act contracts (Humboldt County 2017a). This related project would not create impacts that would overlap with those of the proposed project.

The Van Duzen battery storage project would not result in conversion of prime soils to a nonagricultural use (Humboldt County 2019). This related project would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project on agricultural resources would not be cumulatively considerable when combined with impacts of the battery storage project.

As discussed in Section 3.3, "Agriculture and Forestry Resources," no features of the proposed project would be located on prime soils as shown on the County's Prime Agricultural Land map, or on prime agricultural land as defined in Section 51201(c) of the California Government Code. The WTGs and the permanent access road in the western portion of the project area and the generation transmission line (gen-tie) alignment in the eastern portion of the project area would occupy approximately 27 acres of Williamson Act contract lands that are used for livestock grazing and timber production. Overall, this acreage would account for less than 1 percent each of the 6,819 acres and 202,934 acres of Williamson Act contract lands in the project area and Humboldt County, respectively. Most of the land under Williamson Act contracts would remain devoted to the production of

agricultural commodities for commercial purposes, consistent with General Provision 4 of the guidelines for establishment of agricultural preserves in Humboldt County (Humboldt County 2016).

Implementing the proposed project would not result in any cancellation of Williamson Act contracts. In addition, after decommissioning of the project, lands under Williamson Act contracts would be restored to preproject conditions and could become available for grazing again. Therefore, the proposed project **would not result in a cumulatively considerable contribution to a significant cumulative impact**.

FORESTRY RESOURCES

The cumulative context for forestry resources is the land in Humboldt County. As of 2014, approximately 80 percent of the county contained forestland, and lands zoned for timber production represent approximately 50 percent of the county (Humboldt County 2017a). The conversion of forestland and designated Timberland Production Zone (TPZ) lands to non-timber uses and the decline in Humboldt County's timber industry are of concern to the local economy and residents. Planned development is anticipated to cause the continued conversion of forestland and TPZ lands to nonforest uses with fragmentation of parcels, smaller parcels, and increased residential development on these types of lands, thus contributing to existing challenges for economically viable timber production in the county (Humboldt County 2017a). The revised draft EIR for the General Plan Update recognizes the conversion of TPZ lands as a significant and unavoidable impact even with implementation of policy provisions in the proposed General Plan Update (Humboldt County 2017b). Although substantial amounts of forestland and TPZ land remain in the county, the General Plan Update EIR found that continued conversion of forestland and TPZ lands to nonforest uses would be a significant cumulative impact.

Construction or operation of the Van Duzen battery storage project would have less-than-significant impacts related to the conversion of forestland to nonforest uses (Humboldt County 2019). This related project would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project on forestry resources would not be cumulatively considerable when combined with the impacts of the battery storage project.

Constructing and operating electrical distribution and transmission lines are permitted uses in a TPZ. Trees that meet the definition of "merchantable timber" under the Forest Practice Rules and fall within forestland as defined in Section 12220(g) of the California Public Resources Code would be cut, hauled from the site, and processed in local mills. After the removal of merchantable timber, temporary impact areas would be revegetated with trees; however, project features would remain in place permanently on up to 160 acres, thereby reducing the total amount of timber land available. Removing up to 160 acres of timber would reduce the total private timber lands in Humboldt County by less than 0.00013 percent. The project applicant would apply for the applicable timber harvest document, and the California Department of Forestry and Fire Protection would ensure that the timber harvest is conducted in accordance with the Forest Practice Rules and all industry standards. Therefore, the proposed project **would not make a cumulatively considerable contribution to a significant cumulative impact** related to the conversion of forestland to nonforest uses.

4.4.3 AIR QUALITY

The cumulative setting for air quality is the North Coast Air Basin. The NCAB includes Humboldt County, Mendocino County, and northern Sonoma County. The North Coast Unified Air Quality Management District (NCUAQMD) regulates air pollutant point sources in the NCAB. Ambient concentrations of air pollutants are

determined by the level of pollutants emitted and the atmosphere's ability to transport and dilute such emissions. Humboldt County is in attainment of all California and national ambient air quality standards for criteria air pollutants except the 24-hour California ambient air quality standard for respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}). Monitoring results have shown that PM_{10} is the principal pollutant in the NCAB, including Humboldt County. The primary sources of PM_{10} in the NCAB are vehicles (engine exhaust and fugitive dust generated by travel on both paved and unpaved roads), open burning of vegetation (both residential and commercial), residential wood stoves, and stationary industrial sources (factories). PM_{10} emissions from these sources are considered significant cumulative air quality impacts (Humboldt County 2017b).

The Van Duzen battery storage project would not exceed the NCUAQMD thresholds of significance for PM_{10} emissions, and would be required to comply with all applicable NCUAQMD rules and regulations. This related project would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project would not be cumulatively considerable when combined with the impacts of the battery storage project.

Project construction would generate emissions that would exceed NCUAQMD's maximum daily thresholds of significance for oxides of nitrogen (NO_X). Therefore, construction of the proposed project could result in short-term generation of a substantial level of pollutants that would contribute to an existing or projected air quality violation. As discussed in Section 3.4, "Air Quality," feasible mitigation measures are available to offset project emissions of NO_X. However, daily NO_X emissions would continue to exceed adopted thresholds. Thus, the proposed project's contribution to the significant cumulative impact of General Plan buildout would be cumulatively considerable. Additional mitigation is not available to reduce the project's contribution to a less-than-considerable level, for the reasons discussed for the project-level analysis. Thus, this cumulative impact would be **cumulatively considerable** and **significant and unavoidable**.

4.4.4 BIOLOGICAL RESOURCES

The cumulative setting for biological resources consists of Humboldt County and adjacent migration and movement corridors, including rivers and streams and the Pacific Flyway for migratory birds. In addition, the cumulative context includes the Pacific Ocean to account for the migration of anadromous fish (e.g., Steelhead, Chinook Salmon, Coho Salmon). The varied habitat types present in Humboldt County support a diverse wildlife population: fox, deer, elk, waterfowl, marine mammals, salmon, mountain lions, bears, and many other fish and wildlife species.

Humboldt County is one of the most rural counties in California. However, past development in the region, including the timber harvest (beginning in the mid-19th century), resulted in substantial loss of native habitat, including old-growth Sitka spruce and Douglas-fir redwood forest, and degradation of aquatic habitat and water quality in the county's watersheds. Continuing development and other land use activities (e.g., agriculture) in both incorporated and unincorporated areas of Humboldt County would contribute to a significant cumulative impact on special-status wildlife, special-status plants, natural communities, waters of the United States, and migratory corridors (Humboldt County 2017b).

Implementing the proposed project would result in the permanent conversion of 895 acres of wildlife habitat. Of this total, up to 759 acres are associated with temporary impacts (i.e., staging and storage areas), while up to

136 acres may be permanently affected by removal and/or replacement by project infrastructure: removal of 90 acres of forest and woodland habitat that supports special-status wildlife species, 0.7 acre of riparian habitat, 0.17 acre of wetlands, 4 acres of shrub, 37 acres of grassland, and 0.6 acre of disturbed land. The loss of habitat from project development combined with conversion of forested lands from historic and ongoing logging activity, timber-related industry in the Eel River Valley, and agricultural activity would result in a significant cumulative impact on special-status mammal species. The conversion of these habitat types as a result of project development would be mitigated by implementation of measures identified in Section 3.5, "Biological Resources":

- Mitigation Measure 3.5-19c, "Develop and Implement a Preconstruction Survey Plan for Special-Status Mammals," requires preconstruction surveys for special-status mammal species. These surveys would guide development of project- and species-specific avoidance and minimization measures to address the project-related conversion of habitat.

- Mitigation Measure 3.5-19d, "Minimize Impacts on Special-Status Mammals during Construction," requires the project to use barriers to prevent wildlife from entering the active construction area; incorporates best management practices (BMPs) such as covering trenches and bore holes if not backfilled; limits vehicle speed on construction roads; and requires avoidance of high-intensity lighting during nighttime activity.

- Mitigation Measure 3.5-19e, "Restore Special-Status Mammal Habitat," requires the project applicant to compensate for the loss of habitat through a menu of options that include enhancement or restoration of land by preparing and implementing a reclamation, revegetation, and weed control plan.

Implementing these measures would reduce project-specific impacts on special-status mammals and their habitat to less than significant, so the proposed project would **not make a cumulatively considerable contribution** to a significant cumulative impact for mammals.

Operation of the proposed project would result in an impact on birds and bats through mortality from direct collision with rotor blades, or from electrocution of birds or bats perched on the gen-tie if their wingtips touch the line to form a circuit. Bats may also be affected by barotrauma.

Forestland in Humboldt County is home to many special-status bird species that have been adversely affected by historic logging practices that removed stands of mature old-growth trees that served as roosting and nesting sites. Logging practices have evolved over time, and current logging operations are subject to rules outlined in the California Forest Practice Rules, which outline avoidance and minimization actions to address impacts on biological resources and promote sustainable forest management. The loss of forest habitat associated with past activity is considered a **cumulatively significant impact**.

Tree removal required to create the proposed project's gen-tie corridor would result in the direct loss of 90 acres of forest and woodland habitat. Operation of the proposed project would also result in significant and unavoidable impacts on numerous bird species: marbled murrelet, northern spotted owl, bald and golden eagles, and other raptors, including special-status species. It would also result in significant and unavoidable impacts on bats. These impacts would make **cumulatively considerable contributions** to the **significant cumulative impact** on special-status birds and on bats.

Implementing the proposed project along with related projects, including demolition and removal of structures from the HRC sawmill site, could adversely affect waters of the United States, including the Eel River. The Eel

River is identified as critical habitat for special-status fish, including Coho Salmon and other salmonids. Historic logging activity and land development such as introduction of roads into forestland have substantially affected the water quality of the Eel River and its watershed and caused increased mortality for salmonid species. Although project-specific impacts on salmonids would be less than significant with mitigation, this is considered a **significant cumulative impact** associated with past projects located within the Eel River watershed.

The proposed project would temporarily disturb 1.0 acre and permanently affect 0.7 acre of riparian habitat. The project would also permanently affect 0.171 acre of perennial drainages crossing the site. In addition to causing direct physical effects on wetland and riparian habitat, project construction may affect water quality by exposing bare soil previously protected by the forest canopy to wind- and water-driven erosion, causing sedimentation and increased turbidity in watercourses that serve as aquatic habitat. Other construction-related impacts on water quality involve the potential for chemical spills to enter local waterways, or for bentonite slurry to be accidentally released into the Eel River during horizontal directional drilling to place the gen-tie beneath the river. These project impacts identified above would contribute to the degradation of water quality in the Eel River watershed, which is already listed as impaired under the Clean Water Act.

Project compliance with existing regulations governing waters of the United States would ensure that the project would not result in a net loss of functions and acreage of wetlands and other waters because the project applicant must implement U.S. Army Corps of Engineers mitigation guidelines. Thus, the proposed project's contribution to this significant cumulative impact on waters of the United States would **not be cumulatively considerable**.

Impacts on special-status fish resulting from disturbance and degradation of aquatic habitat would be minimized by complying with existing regulations and implementing the following mitigation measures:

- Mitigation Measure 3.5-1, "Minimize the Construction Footprint"
- Mitigation Measure 3.5-3, "Develop and Implement a Worker Environmental Awareness Program"
- Mitigation Measure 3.5-21a, "Avoid and Minimize Impacts on Aquatic, Riparian, and Upland Habitats"
- Mitigation Measure 3.5-22a, "Avoid and Minimize Impacts on Aquatic Resources"
- Mitigation Measure 3.5-22b: Implement Siting Constraint Measures to Delineate and Protect Aquatic Resources"
- Mitigation Measure 3.5-23e, "Develop and Submit a Reclamation, Revegetation, and Weed Control Plan"
- Mitigation Measure 3.10-1a, "Implement Wet-Weather BMPs Consistent with the Humboldt Redwood Company Habitat Conservation Plan," in Section 3.10, "Hydrology and Water Quality"

Applying BMPs for wet-weather work would ensure that the project is designed and implemented to control the runoff leaving the site in a manner that would limit soil erosion and sediment transported into tributaries of the Eel River; they also require the proper handling and storage of hazardous materials to prevent chemical contamination in local waterways. These measures would reduce the project's impacts on water quality. Therefore, the proposed project's contribution to this significant cumulative impact on aquatic habitat would **not be cumulatively considerable.**

The Van Duzen battery storage project would not result in a significant impact on biological resources (Humboldt County 2019) and would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project on biological resources would not be cumulatively considerable when combined with the impacts of the battery storage project.

4.4.5 CULTURAL RESOURCES, INCLUDING TRIBAL CULTURAL RESOURCES

The cumulative context for historical resources is the Coast Ranges and the Klamath Mountains, where common patterns of historic-era settlement have occurred over roughly the past two centuries. The cumulative context for archaeological resources, human remains, and tribal cultural resources is the former territory of the Yurok, Wiyot, Karuk, Hupa, Chilula, and Sinkyone tribes, which stretches out into neighboring counties. Buildout of Humboldt County as permitted under the General Plan's Land Use Element would result in a cumulative impact on cultural resources in the county (Humboldt County 2017b).

The Van Duzen battery storage project is proposed at the location of a known archaeological resource, CA-HUM-187 (Humboldt County 2019). However, the integrity of the site is compromised (i.e., significant disturbance across the site, the probability that artifacts are not located in their original context, and the removal of artifacts from the site by authorized and unauthorized collectors). Previous disturbances to site CA-HUM-187 have affected its ability to provide additional information important in prehistory. In addition, implementing mitigation measures during construction of the battery storage project would reduce impacts to a less-than-significant level. Therefore, impacts of the proposed project on cultural resources would not be cumulatively considerable when combined with the impacts of the battery storage project.

Ground-disturbing activities for the proposed project, in combination with other development in the region, could cause a substantial adverse change in the significance of a historical resource or unique archaeological resource (see Section 3.6, "Cultural Resources, Including Tribal Cultural Resources"). These impacts could contribute to significant cumulative impacts on cultural resources. Implementing Mitigation Measure 3.6-1a, "Avoid Potential Impacts"; Mitigation Measure 3.6-1b, "Preserve Resources in Place"; and Mitigation Measure 3.6-1c, "Monitoring Construction Activity," would protect significant archaeological resources identified during field investigations and any previously unknown archaeological sites uncovered during construction. Construction activities for the proposed project, in combination with other development in the region, could contribute to the disturbance of human remains. However, compliance with Sections 7050.5 and 7052 of the California Health and Safety Code and Section 5097 of the California Public Resources Code would ensure that treatment and disposition of the remains would occur in a manner consistent with guidance from the California Native American Heritage Commission.

Project operation also has the potential to indirectly affect historic districts and historic landscapes. Implementing Mitigation Measure 3.6-3a, "Prepare a Historic American Landscape Survey Report," and Mitigation Measure 3.6-3b, "Prepare and Implement a Site Protection Plan," would reduce project impacts on the Bear River Ridge and Valley Historic Landscape to **less than significant**. However, even with application of Mitigation Measure 3.6-3c, "Incorporate Plants Appropriate for the Wiyot Tribe Ethnobotanical Area into the Reclamation, Revegetation, and Weed Control Plan Required as Part of Mitigation Measure 3.5-23e," construction and operation of the project along Bear River Ridge would permanently alter the ethnobotanical/cultural landscape, and the impact would be **significant and unavoidable.** Thus, even after implementation of Mitigation Measures 3.6-1a through 3.6-1c, the proposed project's contribution to cumulative impacts on historic archaeological resources **would be cumulatively considerable**.

The proposed project would also result in a significant impact on tribal cultural resources found along Bear River Ridge, which forms the southern boundary of the Wiyot ancestral territory. The entire Wiyot ancestral territory can be viewed from Bear River Ridge. Likewise, Bear River Ridge is visible from anywhere within Wiyot territory. In the past, the ridge would have been used as a high prayer spot. Project operation may also impede success of the condor reintroduction program proposed for the Bald Hills region of Redwood National Park. The condor is a spiritual symbol for the tribes of Humboldt County. Project operation would permanently alter the character of this tribal cultural resource, which is a cumulatively considerable contribution to the cumulative loss of cultural resources in the county.

4.4.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

GEOLOGY AND SOILS

Each cumulative project site has its own unique geologic considerations that would be subject to uniform site development and construction standards. Potential geologic hazards related to seismic, soils, or other conditions are site-specific impacts that would not be compounded by development of the project and related projects, including the Van Duzen battery storage project. Thus, the proposed project would not contribute to any significant cumulative impact related to geology or soils.

Generally, all land development in Humboldt County is subject to the requirements of the California Building Code, which includes provisions for structures located in seismic zones, and of Humboldt County Code Section 331-12 (Grading, Excavation, Erosion, and Sedimentation Control). The California Building Code also includes structural engineering standards to ensure that structures can withstand changes to soil integrity that may result in slope instability. Adherence to all relevant plans, codes, and regulations with respect to structural design and construction would avoid cumulative impacts related to exposure to geologic hazards. Therefore, no additive effect would result from construction or operation of the proposed project, and the project would not contribute to any cumulative impact related to seismic hazards, landslides, or soil instability.

Grading and land disturbance for the proposed project and cumulative projects could cause soil erosion or loss of topsoil that could affect surface water quality. Construction activities for land development are subject to state and local regulations pertaining to erosion and soil deposition, as described in Section 3.7, “Geology and Soils.” Further, logging activity is regulated by the requirements outlined in the California Forest Practice Rules, which require that every THP include an analysis of cumulative impacts on the watershed and implement measures to mitigate the effects of soil loss and sedimentation on water quality and stream channel conditions. Every THP must adopt all feasible measures to limit or avoid impacts of soil erosion and sedimentation. Compliance with existing permitting requirements and regulations would ensure that the proposed project **would not contribute to a cumulative impact** related to soils. The Van Duzen battery storage project would not result in a significant impact on geology or soils (Humboldt County 2019) and would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project on geology and soils would not be cumulatively considerable when combined with the impacts of the battery storage project.

PALEONTOLOGICAL RESOURCES

Fossils are being discovered with increasing frequency during excavation and earth-moving activities for development throughout the state. Different fossil groups vary in value or importance by their age; the depositional environment of the rock unit containing the fossils; their rarity; the extent to which they have already

been identified and documented; and the ability to recover similar materials under more controlled conditions (such as for a research project). Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is site-specific and based on the type of specific geologic rock formations found underground. These geologic formations vary from location to location.

Because of the site-specific nature of unique paleontological resources, the low probability that any project would encounter unique and scientifically important fossils, and the benefits of recovery and further study of any fossils encountered, development of the related projects, including the Van Duzen battery storage project, and other regional development would not result in a cumulatively significant impact on paleontological resources. The proposed project would make a **less than cumulatively considerable** contribution to the cumulative impact.

4.4.7 GREENHOUSE GAS EMISSIONS

Concentrations of carbon dioxide (CO_2) in the atmosphere have risen approximately 30 percent since the Industrial Revolution, while average global temperature has risen by 1 degree Fahrenheit over the past 100 years. Past activity during this period caused a substantial loss of forests through conversion to urbanized use and expansion of agricultural activity into new areas. Based on climate change predictions for California, it is reasonably foreseeable that local temperatures in Humboldt County will increase over time. This warming could lead to other environmental effects on the unincorporated county, such as increased flooding as a result of increased precipitation and runoff, a decrease in the snowpack (a major water source), habitat modification and loss, and impacts on sensitive plant and animal species. The unincorporated county could also be affected by an increase in sea level.

The County has adopted policies to achieve reductions in greenhouse gas (GHG) emissions consistent with state requirements and is preparing a climate action plan (CAP) that will comply with statutory requirements. The County forecasts that GHG emissions generated by activities in Humboldt County will reach 1,281,211 metric tons of CO_2 equivalent (MT CO_2e) by 2028, an increase of approximately 135,887 MT CO_2e (12 percent) over 2005 levels. With implementation of General Plan policies, including participation in a countywide CAP, the County intends to reduce GHG emissions in the unincorporated area resulting from its discretionary land use decisions to 10 percent below 2003 levels by 2020. Because the timing of CAP preparation is uncertain, the influence of CAP policies on future emissions levels cannot be estimated; therefore, the General Plan EIR considered GHG impacts to be cumulatively significant.

Construction and operation of the proposed project combined with related projects in Humboldt County would contribute CO_2 emissions that would contribute to global climate change. The maximum construction emissions over the lifetime of the proposed project are estimated to be 2,400 MT CO_2e, which translates into annual construction emissions of approximately 156 MT CO_2e per year when amortized over 25 years. After construction and installation of the WTGs, operations and maintenance activities for the proposed project would emit GHGs, bringing the annual total of GHG emissions to approximately 246 MT CO_2e/year when amortized over the 25-year period.

Operation of the proposed project would contribute new sources of renewable energy into the bulk power market, helping utilities to meet the statewide Renewable Portfolio Standards. Project operation also has the potential to reduce the emissions of GHGs from fossil fuel–fired plants. It is not possible to state that operation of the project would directly replace energy generated by fossil fuel–fired plants, but project operation would reduce the collective GHG emissions per megawatt-hour of electricity produced and would reduce overall CO_2e emissions

compared to existing conditions. As a result, implementing the proposed project would not generate GHG emissions at levels that would represent a cumulatively considerable contribution to a significant cumulative impact; therefore, the impact would be **less than significant**. The Van Duzen battery storage project would not result in a significant impact related to GHG emissions (Humboldt County 2019). Therefore, impacts of the proposed project would not be cumulatively considerable when combined with the impacts of the battery storage project.

4.4.8 HAZARDS AND HAZARDOUS MATERIALS

The cumulative context for hazards and hazardous materials consists of the historic and existing land uses on and adjacent to the project site that could cause soil or groundwater contamination, or create a risk of upset conditions.

Impacts related to the transport, use, or disposal of hazardous materials and hazards to the public or environment because of upset and accident conditions are primarily site-specific. These impacts of the proposed project would not combine with impacts from related projects, including the Van Duzen battery storage project, such that a cumulatively significant impact associated with hazards or hazardous materials could occur. In addition, the project must comply with existing regulations, which would reduce the potential to create a hazard to the public or environment. Mitigation Measure 3.9-1, "Prepare and Implement a Blasting Plan to Minimize Potential for Blasting-Related Safety Incidents," also would minimize the potential risk of upset conditions created during the use of explosives. Thus, the proposed project **would not contribute to any significant cumulative impacts** related to the use of hazardous materials.

4.4.9 HYDROLOGY AND WATER QUALITY

SURFACE DRAINAGE AND SURFACE WATER QUALITY

All development activity in Humboldt County has the potential to increase surface runoff and degrade water quality by disturbing the ground surface and introducing impervious surfaces. Land developments must receive regulatory approvals by the County and the North Coast Regional Water Quality Control Board before the start of any construction-related ground-disturbing activities. These approvals would include Section 401 water quality certification, a California statewide National Pollutant Discharge Elimination System stormwater permit for general construction activity (Water Quality Order 2009-0009-DWQ), and any other necessary site-specific permits or waivers. Preparation and implementation of the storm water pollution prevention plan and sediment and erosion control plan would reduce the contribution of each project to the temporary, short-term construction-related drainage and water quality effects of urbanization, a potentially significant cumulative impact. However, there is no quantitative threshold for water quality at a project level to guarantee that meeting these requirements would reduce cumulative impacts to less than significant. Therefore, the General Plan Update EIR found that countywide development activity would result in significant and unavoidable impacts on surface water quality (Humboldt County 2017b).

Related projects include logging activities identified in THPs, California Department of Transportation (Caltrans) road maintenance, and urban development in unincorporated areas and incorporated cities along U.S. 101. Each cumulative project would implement existing policies for protection of surface water quality. All timber harvest activity must follow the California Forest Practice Rules, adopted in Articles 1 and 4 of the Z'berg-Nejedly Forest Practice Act of 1973. The Forest Practice Rules require THPs to consider the impacts of logging on the watersheds where the logging occurs, to maintain biological diversity and watershed integrity and reduce adverse

cumulative impacts, including impacts on water quality and beneficial uses. Each THP includes a cumulative impact assessment that considers how timber harvest activities interact with the impacts of past and reasonably foreseeable future projects in the watershed. Effects considered by the THP include:

- the degree to which logging operations would contribute to impairment of a waterbody's beneficial uses such as sedimentation and subsequent loss of aquatic habitats;
- changes in water temperature induced by removal of the vegetation canopy near streams;
- decomposition of organic debris that can limit oxygen levels in the waterway;
- chemical contamination from untreated runoff; and
- stormwater flows and potential for sedimentation and effects on soil productivity and the condition of watercourses near the proposed logging operation.

The THP must adopt feasible mitigation measures that would substantially lessen or avoid significant adverse impacts. To mitigate potential effects, the THP includes a variety of BMPs, such as:

- designation of setbacks from a watercourse;
- aquatics conservation activities;
- a watershed analysis to determine sediment loads in the watershed;
- restrictions on roadway use during wet weather;
- roadway stormproofing;
- post-watershed analysis;
- prescribed methods for constructing, reconstructing, upgrading, and maintaining roadways;
- management of hillsides to prevent soil loss; and
- a monitoring protocol to determine the effectiveness of the prescribed measures and ensure compliance with the requirements outlined in the THP.

In addition to the Forest Practice Act, logging on HRC lands is subject to the Humboldt Redwood Management Plan (July 2016). This plan outlines silviculture[1] policies and procedures for maintaining, enhancing, and/or restoring forest resources while considering multiple factors that influence the quality of surface water runoff leaving the site: the ecological characteristics of forest stands; soil characteristics and slope stability; existing species composition and physical structures; and forest growth dynamics. The Humboldt Redwood Management Plan includes a habitat conservation plan (HCP) component that describes the monitoring programs, adaptive

[1] Silviculture is the science of managing aspects of forest composition and growth. Silviculture treatments include a variety of activities such as harvesting, planting, thinning, and brush management that affect the stocking and growth of a forest stand and the habitat provided by the stand.

management strategies, and environmental protection for fish, wildlife, and rare plants found in the HCP area. As part of the HCP, HRC must conduct a watershed analysis to evaluate the characteristics of the streams and hillslopes in the basin, evaluate the risks of the timber harvest on fisheries and wildlife, and develop watershed-specific prescriptions for riparian and hillslope management to ensure that sediment is controlled properly.

Project construction could cause soil erosion and stormwater discharges of suspended solids, increase turbidity, and potentially mobilize other pollutants. If not controlled, these effects, combined with other actions in the watershed, may contribute to a cumulatively significant water quality impact on the Eel River. The proposed project would comply with existing rules and regulations (see Section 3.5, "Biological Resources"; Section 3.7, "Geology and Soils"; and Section 3.10, "Hydrology and Water Quality") and comply with Mitigation Measure 3.10-1, "Implement Wet-Weather BMPs Consistent with the Humboldt Redwood Company Habitat Conservation Plan." Adhering to existing regulatory requirement and implementing the mitigation measures outlined in these sections would reduce the project's impacts on surface water quality to less than significant by requiring the design and implementation of measures to control runoff leaving the site in a manner that would limit soil erosion and transport of sediment into tributaries to the Eel or Van Duzen River. As a result, the proposed project **would not result in a cumulatively considerable contribution** to a significant water quality impact.

The expansion of the Bridgeville Substation site would involve a limited amount of ground disturbance subject to a grading permit and erosion control and would not create impacts that would overlap with those of the proposed project. Therefore, impacts of the proposed project would not be cumulatively considerable when combined with the impacts of the battery storage project.

FLOOD PROTECTION

Buildout of the General Plan would increase the amount of impervious surface and compaction of soils adjacent to developed areas, resulting in an increase in peak-flow rates of stormwater runoff. In undeveloped areas of Humboldt County, rainfall collects and flows at a natural rate through the soil as subsurface flow and on the surface through natural drainages. In contrast, developed areas, where impermeable surfaces cover portions of the ground, have less capacity to store rainfall. Impermeable surfaces such as roads, roofs, parking lots, and sidewalks store little water, reduce infiltration of water into the ground, and accelerate runoff to ditches and streams. Cumulative development activity can also alter drainage patterns and may increase stormwater runoff volumes to a level that would exceed the capacity of the county's existing stormwater drainage systems. In addition, floodplain or floodway encroachment could alter flood-carrying capacity along county watercourses, possibly creating a flood hazard risk.

The General Plan's Community Infrastructure and Services Element includes a drainage and flood control plan to limit the likelihood that runoff water would exceed the capacity of existing or planned stormwater drainage systems. The Conservation and Open Space Element includes additional policies regarding flooding and stormwater runoff. These policies require new development to implement low impact development standards in urbanized areas and offer incentives for their use in rural areas of the county; require retention of natural drainage courses; and establish requirements for downstream peak stormwater flow. Complying with these policies would reduce adverse impacts related to the alteration of drainage patterns or increased runoff from development allowed under the General Plan Update to **less than significant** (Humboldt County 2017b). Thus, buildout of the General Plan would not result in a significant cumulative impact associated with flood risks.

The project does not propose to place structures in a floodplain and would not introduce a substantial amount of impervious surface into the rural landscape that would cause a substantial increase in runoff leaving the site. Complying with existing regulations that require preparation and implementation of a final drainage plan would ensure that any stormwater runoff would be channeled and contained in a manner that would avoid downstream flooding. Like the proposed project, related projects, including the Van Duzen battery storage project, would be required to adhere to applicable requirements designed to prevent downstream flooding; therefore, implementation of related projects would not be cumulatively considerable. Thus, the proposed project's contribution to potential flood hazard impacts **would not be cumulatively considerable**.

4.4.10 NOISE

Major noise sources in Humboldt County include highway and roadway traffic; aircraft in the vicinity of airports; railroad traffic along the Northwestern Pacific right-of-way; noise from industrial activities, such as operation of HRC's lumber mill in Scotia and power plant facilities in Blue Lake, Fairhaven, and Scotia; and noise generated at construction sites. Most of these noise source types are found in incorporated areas of the county. Motor vehicles traveling along U.S. 101 and sawmill operations expose nearby residential uses in Scotia to noise levels exceeding the levels deemed acceptable by the County (Humboldt County 2017b). Noise levels on the project site itself are generally very low and consist of sounds typical of a rural setting, including ongoing logging operations on select parcels of land.

Operation of equipment and other human activity during project construction would generate a temporary increase in noise levels. Construction activities on the project site would not expose sensitive receptors to noise levels that would exceed adopted standards, given the distance between the receptors and the noise sources and the presence of intervening topography and vegetation. Noise from construction traffic would not cause an audible increase in noise levels at sensitive receptors along the haul route. However, temporary off-ramp construction at Hookton Road, construction of the gen-tie near the Bridgeville Substation, and trips by heavy haul trucks along detour roadways would result in a substantial noise level increase (i.e., +5 decibels) above ambient noise levels. The noise levels predicted for construction of the temporary off-ramp at Hookton Road and of the transmission line near the Bridgeville Substation also would exceed the County's exterior noise standard for land use compatibility, 60 A-weighted decibels Community Noise Equivalent Level. Therefore, noise impacts of project construction activities would be significant. Implementing Mitigation Measure 3.11-1, "Implement Noise-Reducing Construction Practices," would reduce construction-related impacts to **less than significant**.

Concurrent operation of all 60 WTGs at once would cause a substantial permanent increase in the noise level at one residence compared to ambient noise levels without the project. The long-term operational impact of WTG operation would be significant. Implementing Mitigation Measure 3.11-2, "Implement Noise-Reducing Wind Turbine Generator Operations," would reduce the operational noise impacts of the project's WTGs to **less than significant** because the resulting predicted noise levels would comply with applicable standards for exterior noise at a residential land use.

Noise and vibration are localized occurrences; they decrease rapidly in magnitude as the distance from the source to the receptor increases. Therefore, only the related projects that lie within the direct vicinity of the project site and that are considered influential with regard to noise and vibration (e.g., are relatively large and are not located where traffic noise from U.S. 101 dominates the ambient conditions) are appropriate to consider in a cumulative context with the proposed project's incremental contribution. For this reason, only the planned demolition of abandoned structures on the site of the HRC sawmill in Scotia has the potential to generate noise that could

combine with the proposed project to create a cumulative effect. Construction and operation of the offshore wind energy project would not generate noise that could combine with project-related noise to form a cumulative impact. Logging activity under approved THPs is an existing use on land adjacent to the project site and contributes to the study area's ambient noise conditions. Noise from the Van Duzen battery storage project would be limited to the power conversion system and battery storage module. Batteries and inverters make very little noise and the system is fully enclosed, which limits the noise signature.

The proposed demolition at the HRC sawmill calls for the deconstruction of 30 structures over 9–12 months. This activity would require the use of small mobile equipment and hand tools, which would limit noise to levels quieter than those generated by existing sawmill operations. Furthermore, with the use of the proposed deconstruction and dismantling methods, a large percentage of the demolition materials would be reused, repurposed, or recycled (reclaimed) on the site, which would limit the noise generated by trucks hauling debris from the demolition site. Noise impacts from the proposed demolition activity were not determined to be significant and no mitigation was required in the EIR.

Because the noise impacts of project construction and operation can be mitigated to less than significant and none of the related projects would expose sensitive uses to noise levels exceeding adopted standards, the proposed project would not result in a cumulatively considerable contribution and cumulative noise impacts would be **less than significant**.

4.4.11 TRANSPORTATION AND TRAFFIC

The vehicular traffic generated by the proposed project would be present primarily during the 18-month construction period. This traffic would consist of worker trips to and from the project area, the transport of construction material, and equipment deliveries. Project construction is expected to generate 97 daily trips, with six daily trips associated with subsequent operation and maintenance. Construction traffic would be routed primarily along U.S. 101, with two temporary bypasses (at Hookton Road and 12th Street in Fortuna) and a new access road through Jordan Creek. Monument Road from Rio Dell and Bear River Road/Mattole Road through Ferndale would be used only for egress during an emergency.

With some exceptions, heavy trucks that would transport project components would exceed standards for the height, width, length, and weight of regular vehicles as outlined in the California Vehicle Code. Obstruction of traffic flows and impairment of emergency access are also potential impacts associated with the hauling of heavy project components. The project would obtain transportation permits from responsible agencies and implement traffic control requirements during transportation of heavy components as described in Mitigation Measure 3.12-1, "Rehabilitate/Reconstruct County-Maintained Roads Damaged by Truck Traffic," and Mitigation Measure 3.12-2, "Create a Traffic Control Plan and Notify the Public Regarding Anticipated Roadway Obstructions," which would reduce all potential transportation and traffic impacts to less than significant.

A review of the cumulative project list found that most related projects would not create vehicular trips that would overlap with those of the proposed project to create a cumulatively significant traffic impact. Those projects either do not generate substantial traffic volumes (e.g., THPs and the Van Duzen battery storage project) or would not use the same road segments for construction trips (e.g., HRC sawmill). It is reasonably foreseeable to conclude that some traffic generated by cannabis cultivation would use some of the same roadway segments as the proposed project. However, the draft EIR for the Amendments to Humboldt County Code Regulating Commercial

Cannabis Activities found that cannabis operations would not result in a substantial increase in vehicular trips and would not degrade operational conditions along County roads because the trips would be dispersed throughout the county's transportation network. For these reasons, reduction in traffic flow and impairment of emergency routes associated with project construction **would not result in a cumulatively considerable contribution** to a significant cumulative traffic impact.

4.4.12 Fire Protection Services and Wildfire Hazards

The proposed project would not contribute to any potential significant cumulative impacts related to wildfire risks. Complying with existing regulations and implementing Mitigation Measure 3.13-1a, "Prepare and Implement a Fire Services Financing Plan," and Mitigation Measure 3.13-1, "Prepare and Implement a Fall Protection and Rescue Plan," would mitigate project impacts. Like the project, the related cumulative projects do not pose a significant threat of wildfire. Logging activity, for example, is subject to the requirements of THPs that apply land management techniques to promote a healthy forest through sustainable practices and reduce fuel loads that reduce the risk of wildlife. Logging roads also provide access to remote land, which supports firefighting efforts. The Caltrans road repair project would occur on a paved surface that would not pose a threat of wildfire. Similarly, the demolition and reconstruction activity in Scotia is proposed on the grounds of an existing sawmill and would not pose a wildfire risk. Thus, implementing the related cumulative projects would not create overlapping impacts, and the project's contribution **would not be cumulatively considerable**. The Van Duzen battery storage project would contain batteries in sealed modules, which in turn would be stored in battery racks housed within containers. The battery storage site is located on the grounds of an existing substation subject to ongoing maintenance, including vegetation clearance around structures. No impact on fire protection services would occur. Therefore, impacts of the proposed project would not be cumulatively considerable when combined with the impacts of the battery storage project.

This page intentionally left blank