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FOUNTAIN WIND ENERGY PROJECT

Application for Opt-in Certification
Executive Summary and Project Description

January 4, 2023

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LIST OF TABLES

Executive Summary

1.1 Fountain Wind Energy Project

The Fountain Wind Project (project) is a wind energy generation development proposed by Fountain Wind LLC (Applicant) in unincorporated Shasta County (County). The Applicant is applying for site certification and project approval under the California Energy Commission's "opt-in" provisions pursuant to Public Resources Code (PRC) §25545 et seq. These opt-in provisions grant the Commission exclusive permitting authority (with some exceptions) over qualifying non-thermal energy production "facilities," including a "terrestrial wind electrical generating powerplant with a generating capacity of 50 megawatts or more and any facilities appurtenant thereto."

As further described below, the project consists of:

- Up to forty-eight (48) wind turbines up to 7.2[1] megawatts (MW) in size within a 4,464-acre area of Shasta County currently used for active timber production and harvesting
- A total nameplate capacity of up to 205 MW
- Underground and overhead collection lines
- Access roads, temporary construction laydown areas, an operations and maintenance facility, up to four permanent meteorological evaluation towers (five potential locations are being analyzed), storage sheds, and up to three temporary concrete batch plants
- A substation and switchyard to interconnect to the existing Pacific Gas and Electric (PG&E) 230 kilovolt (kV) line (from Pit #1 Dam to the Cottonwood Substation) and a relay microwave tower or overhead fiber optic communication circuits
- Interconnection into the existing PG&E 230 kV line via an aboveground line tap located adjacent to the switching station

Based on the above components, the project qualifies as a "facility" under PRC §25545(a)(1) because it is a terrestrial wind electrical generating powerplant with a generating capacity of more than 50 MW.

1.2 Project History

1.2.1 SITE SELECTION

Identifying viable sites for new terrestrial, utility-scale wind energy generation in California is difficult. This is due to a combination of factors including:

[1] The 7.2 MW turbine under consideration possesses the same specifications (height, rotor dimensions, etc.) as the 6.2 MW turbine originally analyzed in the Draft EIR.

- Most of the concentrated commercially viable wind energy areas in the state are already fully developed and/or repowered, including the Altamont Pass, the Montezuma Hills, the Tehachapis, San Gorgonio Pass, and Pacheco Pass;
- A lack of transmission capacity in the state;
- Local prohibitions, moratoria or denials of new or repowered utility-scale wind energy (such as those in Shasta, Solano, Humboldt, and Los Angeles Counties);
- Limitations on megawatts of repowering of existing wind energy without additional programmatic environmental review, as in Alameda County;
- Severe restrictions of wind energy development on land administered by the Bureau of Land Management under the Desert Renewable Energy Conservation Program; and
- Concerns about impacts in areas where protected species, such as the California condor, are expanding their range, including in the Tehachapis and the Salinas Valley;

The proposed development site in Shasta County was selected for a wind energy project and is appropriate for development of a wind energy project for numerous reasons, including:

- The site has a commercially viable wind resource, with wind speeds of greater than 6 meters per second at 100 meters from the ground (based on NREL data[2]).
- It is proximate to an existing PG&E 230 kV transmission line with existing capacity.
- At the time of CUP application, County zoning regulations allowed approval of the project with a conditional use permit and was consistent with Shasta County's General Plan to encourage all types of generation projects, including wind energy.
- The location is suitable for wind development as demonstrated by the California Environmental Quality Act (CEQA) evaluation and the fact that Shasta County approved a wind project in this same location over a decade ago. That project, Hatchet Ridge, has been safely and reliably operated for over ten years without the negative impacts raised by those in opposition to Fountain Wind.
- The project is consistent with Shasta County's own general plan to encourage diversified energy sources (Shasta County General Plan Policy E-2).
- Shasta County planning staff recommended approval of the CUP and certification of the Final EIR based on compliance with all applicable zoning requirements/laws and extensive mitigation measures.

[2] National Renewable Energy Laboratory. 2022. Land-based Wind Speed: Multiyear Average at 100 meters Above Surface Level, California, United States. Available at: WINDExchange: California Land-Based Wind Speed at 100 Meters (energy.gov). Accessed October 2022.

- There is demand both locally and throughout the state for new wind energy sources. Local utilities in Shasta County expressed interest in the proposed project and utilities in the state short-listed the project for a power sale contract pending the permit outcome.
- Wind energy is the favored form of renewable energy due to the capacity it provides during the evening hours when solar is unavailable.
- No other renewable energy resource can economically take advantage of the available capacity on PG&E's existing transmission line (known as the "Pit River 1 to Cottonwood" line) located in this part of Shasta County.
- Hundreds of individuals and stakeholders located in Shasta County expressed support on the record for Fountain Wind.
- The Planning Commission and Board of Supervisor's rationale for voting against the project was not supported by the record, and contrary to findings in the record (i.e., concerns about increased fire risk).
- The site has been actively logged for over 100 years; wind energy development is compatible with on-going logging operations.
- Wind energy generation has shown to be compatible with a forested landscape; many states have wind energy projects in forested landscapes, including California, Washington, Oregon, New York, and Maine.
- There is a low risk of interaction with state and federally listed species based on lack of suitable or known occupied habitat.
- The site is near trained workers and services.
- The site is served by existing state highways and an existing network of on-site logging roads.
- There are few nearby residents.

1.2.2 ORIGINAL PROPOSAL (2016)

In 2016, the Applicant applied to Shasta County for a conditional use permit under the County's then existing zoning regulations, which allowed utility scale wind energy projects on lands designated "Timber" under the Shasta County General Plan and zoned "Timberland Production." The original project proposed one hundred (100) 2–4 MW turbines, each with a maximum height of 591 feet and a total nameplate generating capacity of 347 MW. The project at that time, as now, included an aboveground and belowground 34.5 kV electrical collector system, on-site substation and switching station, access roads, and temporary laydown areas.

In 2017, the County commenced consultation with tribes that are traditionally and culturally affiliated with the project area and that had requested consultation pursuant to PRC §21080.3.1 (Assembly Bill [AB]52). The County's AB 52 contact list consisted of Native American tribes that had submitted written requests for notification of CEQA projects within their geographic area of traditional and cultural affiliation as of December 8, 2017, when the County initiated consultation. The County sent letters by certified mail to two

representatives of the Pit River Tribe: Mickey Gemmill and Morning Star Gali. Each letter identified the proposed project area that was within the Tribe's geographic area of traditional and cultural affiliation. Return receipts for the certified letters indicate the letters were delivered on December 8, 2017. The County received no response to either letter, and therefore did not pursue further consultation under AB 52. However, the tribes did participate in public proceedings before the County, and the Applicant and the County continued coordination with the tribes throughout the CEQA process.

The Applicant's predecessor submitted an Initial Study in April 2018.

1.2.3 FIRST REVISION TO PROPOSAL (2019)

In 2019, the Applicant elected to amend the use permit application to decrease the number of turbines from up to 100 to up to 72 turbines and to increase the maximum turbine height from 591 feet to 679 feet with a maximum generating capacity of 5.7 MW per turbine.

1.2.4 AGENCY AND COMMUNITY OUTREACH

In 2019, the Applicant conducted outreach to agencies and other interested parties, including the following:

- Burney Fire Protection District
- California Department of Fish and Wildlife
- California Department of Transportation
- Central Valley Regional Water Quality Control Board
- Shasta County Assessor/Recorder
- Shasta County Air Quality Management District
- Shasta County Fire Department
- Shasta County Office of the Sheriff
- Shasta County Mosquito and Vector Control District
- Pit River Tribe
- Frontier Communications
- Wintu Audubon Society

Correspondence with these agencies and members of the community is documented in Shasta County's Initial Study.

Over the course of project development, the Applicant met with dozens of local stakeholders within Shasta County, including those communities directly adjacent to the project. Starting in November of 2019, the Applicant started hosting regular project office hours in Round Mountain at the Round Mountain Community Center. Seven meetings were held prior to the implementation of Covid-19-related meeting restrictions. During the pandemic, the Applicant continued to meet with project stakeholders via phone and video conference, including hosting a virtual Local Vendor Faire in July of 2020, a video of which can be found at https://vimeo.com/442746967 as well as five Project Information Webinars that were held in December of 2020. Based on stakeholder feedback, the Applicant donated a total of $12,000 to six separate organizations in Shasta County, including One Safe Place, KKRN Radio, Burney Food Co-Op, Montgomery Creek School, and the Tri-County Community Network.

1.2.5 SCOPING ACTIVITIES

1.2.5.1 Notifications

On January 15, 2019, the County published and distributed a Notice of Preparation (NOP) accompanied by the Initial Study described above to advise interested local, regional, state, and federal agencies, as well as the public, that an EIR would be prepared for the project. The County sent the NOP package to trustee, responsible, and potentially affected federal agencies; to the Governor's Office of Planning and Research State Clearinghouse; and to three libraries in the project area. The NOP and NOP mailing list are provided in Appendix A of the Project Scoping Report.

The County mailed a separate notice to 603 recipients that included Tribes, property owners within 2 miles of the project site, and other interested parties. The direct-mail notification and its mailing list are provided in Appendix B of the Project Scoping Report.

The County also posted an electronic copy of the NOP and the direct-mail notice on its website: https://www.shastacounty.gov/planning/page/scoping-fountain-wind-project. In addition to the NOP, direct mail notifications, and web posting, the County notified the public about the public scoping meeting through newspaper advertisements published in the *Record Searchlight* on January 15, 2019, in the *Mountain Echo* on January 15, 2019, and in the *Intermountain News* on January 16, 2019. The newspaper notices are provided in Appendix D of the Project Scoping Report.

1.2.5.2 Agency Scoping Meeting

The County held an agency-specific scoping meeting on Thursday, January 24, 2019, at 2 p.m. at the Shasta County Administration Building, located at 1450 Court Street in Redding. Notes of the agency-specific scoping meeting are provided in Appendix E of the Project Scoping Report.

1.2.5.3 Public Scoping Meeting

The County held a scoping meeting for members of the public on Thursday, January 24, 2019, at the Montgomery Creek Elementary School, located at 30365 State Route (SR) 299 East in Montgomery Creek.

1.2.5.4 Draft Environmental Impact Report

Shasta County published the Draft EIR in July 2020. Detailed analyses included Aesthetics, Agriculture and Forestry Resources, Air Quality, Biological Resources, Communications Interference, Cultural and Tribal Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, and Wildfire. Appendices included technical reports and studies on the topics of Aesthetics, Air Quality and Greenhouse Gas Emissions, Biological Resources (including wildlife, aquatic resources, rare plants and vegetation, avian use counts, and special status bird and amphibian surveys), Communications Interference, Energy and Fuel Use, Hazards and Hazardous Materials, Shadow Flicker, Noise and Vibration, Transportation, and Water Supply.

Technical Studies Produced for the Draft EIR

Technical studies prepared in support of the Draft EIR are summarized in Table 1 below.

Table 1. Studies Prepared for the Draft EIR

Study	Author	Report Date
Traffic Assessment Report	Westwood	February 2020
Noise Technical Report	Stantec (Stantec)	December 2019
Economic Impact Analysis	Stantec	September 2020
Economic and Public Revenue Impact Study	Economic & Planning Systems, Inc.	March 2021
Environmental Records Review (Hazardous Materials)	Stantec	February 2019
Wildfire Effects Review	Quigley and Zerr	June 2021
Preliminary Geotechnical Engineering Report	Terracon	September 2021
Visual Resources Studies		
Visual Resources Technical Report	Stantec	November 2019
Updated Visual Resources Technical Report	Stantec	December 2019
Shadow Flicker Report	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR)	February 2020
Updated Visual Simulations	Stantec	March 2021
Updated Shadow Flicker Report	EDR	September 2021
Updated Visual Simulations and Viewshed Analysis	Stantec	September 2021
Biological Surveys and Related Studies		
Site Characterization Study Report	Western EcoSystems Technology, Inc. (WEST)	January 2017
Aquatic Resources Survey Report	Stantec	December 2019
Rare Plant Surveys and Natural Vegetation Community Mapping	WEST	October 2018
Rare Plant Surveys and Natural Vegetation Community Mapping	WEST	December 2019
Year 1 Avian Use Study Report and Risk Assessment	WEST	November 2018
Results of the Year 2 Avian Use Study at the Fountain Wind Project	WEST	September 2019
Great Gray Owl Habitat Assessment	WEST	October 2018
Bat Acoustic Survey Report	WEST	October 2018
2017 Raptor Nest Survey Report for the Fountain Wind Project	WEST	September 2018
2018 Northern Goshawk Nest Survey Results	WEST	October 2018
2018 Eagle Nest Status Survey Report,	WEST	September 2018
Response to Informal Consultation Request for Use Permit 16-007	WEST	November 2018

Study	Author	Report Date
California Spotted Owl Risk Assessment	WEST	February 2020
2018 Willow Flycatcher Survey Results	WEST	October 2018
2018/2019 Foothill Yellow-legged Frog Assessment	WEST	December 2019
2018 Foothill yellow-legged frog and Cascades frog habitat assessments and surveys	WEST	October 2018
2021 California Spotted Owl Survey Results	WEST	October 2021
2021 Northern Goshawk Nest Survey Results	WEST	October 2021
2021 Rare Plant Surveys	WEST	October 2021
CA Condor Risk Assessment Memo	WEST	February 2020
2019 Nest Survey Report	WEST	September 2019
2019 eDNA Surveys for Foothill Yellow-legged Frog	WEST	January 2020
Nocturnal Migrant Risk Summary	WEST	October 2018
MEMO re: Request for clarifications on 2017 and 2018 Raptor Nest Survey Reports	WEST	January 2019
Water Supply Assessment	Stantec	June 2020
Cultural Resources Surveys and Related Studies		
Phase I Cultural Resources Report	Stantec	January 2019
Addendum 1: Updated Cultural Survey Area	Stantec	March 2020
Addendum 2: Tribal Coordination and Correspondence	Stantec	March 2020

Significant and Unavoidable Determinations in the Draft EIR

The Draft EIR made Significant and Unavoidable Determinations for the topics of Aesthetics, Air Quality, Biological Resources, and Cultural and Tribal Cultural Resources.

- **Aesthetics.** The project would have a significant and unavoidable impact, both at the project-specific level and cumulatively, with regard to its effect on a scenic vista and the existing visual character or quality of public views of the site and its surroundings from publicly accessible vantage points.
- **Air Quality.** The project would have a significant and unavoidable impact with regard to a cumulatively considerable net increase in emissions of particulate matter less than or equal to 10 microns in diameter (PM10) in a region of non-attainment for PM10 state ambient air quality standards. Mitigation Measure 3.3-2c (Fugitive Dust Controls) was proposed but would not reduce the potential impact below the established threshold.
- **Biological Resources.** The project would have a significant and unavoidable impact with regard to potential mortality and injury to raptors as a result of collisions with wind turbines and electrical transmission lines and mortality and injury to bats, including special-status species. These significant unavoidable impacts would also be cumulatively significant and unavoidable.
- **Cultural and Tribal Cultural Resources.** The project would have a significant and unavoidable impact with regard to changes in the significance of a tribal cultural resource. Mitigation Measure 3.6-1 (Archaeological Research Design and Treatment Plan) and Mitigation Measure 3.6-3 (Tribal

Cultural Resources Interpretive and Use Program) were proposed but would not reduce the potential impact below the established threshold.

Alternatives Analyzed in the Draft EIR

The Draft EIR considered three alternatives to the project: the No Project Alternative; Alternative 1, South of SR 299; and Alternative 2, Increased Setbacks. As summarized in the staff report, if implemented, none of these alternatives would have reduced significant and unavoidable impacts to less than significant. The Draft EIR also discussed a range of considered alternatives including off-site locations, replacing the current proposal with an off-shore wind facility, a repowering scenario in which the Applicant would repower one or more of its existing wind facilities elsewhere, alternative technologies to wind power (including hydroelectric power, cogeneration, and solar energy). The County also analyzed alternative approaches to the project, including conservation and demand-side management, distributed energy resources, and improving the efficiency of existing energy resources. See Draft EIR Section Section 2.5.2 for further information.

1.2.5.5 Second Revision to Proposal (February 2021)

After receiving comments on the Draft EIR, the Applicant elected to make further revisions to the project to respond to comments from California Department of Fish and Wildlife (CDFW) and the public and to request authority to use a 6.2 MW turbine model that was not commercially available when the application was submitted to reduce the total number of turbines.

The changes were described in Section 1.2.3 of the Final EIR and consisted of the following:

- Relocation of various collection lines and access roads to avoid existing drainages and associated aquatic features, including perennial stream, intermittent stream, and riparian wetland segments, and to make use of existing access roads and to avoid cultural resource site FW11.
- Elimination of turbine location M03 in response to a request by CDFW to reduce risks to avian and bat species.
- Additional project design features and Applicant proposed measures to address CDFW comments:
    - Preparation of a worker environmental awareness training program to be implemented during construction.
    - Continued application of relevant provisions from US Fish and Wildlife Service's (USFWS) Land-Based Wind Energy Guidelines during construction and operation of the project,
    - Preparation and implementation of a Bird and Bat Conservation Plan, which would detail measures to be taken during project operations to reduce impacts to birds and bats. Measures included post-construction mortality monitoring, prey reduction techniques, and adaptive management strategies.
    - Development of a Nesting Bird Management Plan (NBMP) in coordination with CDFW to avoid or minimize adverse impacts to nesting birds during construction. The NBMP would establish nesting seasons, species-specific avoidance buffers, and measures to reduce disturbance to nests.

- Application of measures described in the Avian Power Line Interaction Committee guidelines to reduce avian collisions and electrocution with project infrastructure, including installation of bird flight diverters and electrical design recommendations.
- Adoption of a Federal Aviation Administration-approved lighting plan for meteorological towers, and downward-facing and shielded lighting on other project components in consideration of the USFWS Communication Tower Guidance, to reduce the potential for nocturnal bird collisions.
- Implementation of an Invasive Species Management Plan prior to construction that included invasive weed control measures and best practices to reduce introduction or limit the spread of noxious weed species.
- Avoidance of sensitive habitats and waterways during application of dust palliatives.

1.2.5.6 Final Environmental Impact Report

Shasta County Planning published the Final EIR in April 2021. The Final EIR evaluated whether there were any new significant environmental impacts from the project revisions and concluded there were none, responded to all of the comments and made corrections to the Draft EIR and revisions, additions and clarifications to several mitigation measures.

1.3 Community and Environmental Benefits

The Applicant designed the project to bring the following significant benefits to Shasta County.

- **A positive impact on the ability to fight fires in the region**. Construction of the Project will improve the ability to fight fires in the Project area by enhancing access for emergency response, creating and maintaining fire breaks, and increasing wildfire monitoring in the Project area, leading to quicker emergency response times.
- **Reduced greenhouse gas emissions**. Aid California in achieving its carbon emissions reduction goals of obtaining 50 percent of the state's electricity from eligible renewable energy resources by 2030, and achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter.
- **Enhanced grid resiliency**, including the ability to help stabilize the grid through reactive power capabilities, which would allow the project to help maintain grid conditions while also upgrading the local PG&E infrastructure.
- **Revenue for Shasta County**. The project represents a more than $300 million investment in Shasta County and will bring significant construction activities and tax revenues to the County, including:
  - $3.5 million in sales tax revenue during construction.
  - $50 million in property tax revenue over the life of the project

- Approximately 450 job years[3], about $27 million in employee compensation, and about $60 million in total economic output/sales in Shasta County during Project construction.
- 42 permanent jobs during operations, about $2.5 million in employee compensation, and just over $6 million in economic output/sales activity each year during its 35-year lifetime.
- Cumulatively over the 35-year period, project operations will provide 1,456 job years, $90.4 million in employee compensation, and $210.3 million in economic output/sales activity in the County.

- **Community Benefit Program**

Additional details about the Applicant's Community Benefits Program can be found in the Community Benefits Programs pamphlet in the docket files.

- $1 million commitment to benefit the Round Mountain and Montgomery Creek communities
- $250,000 commitment to enhance the internet service in the communities adjacent to the project
- $250,000 commitment to enhance fire protection via local fuel reduction projects
- $100,000 commitment to update the County Wide Community Wildfire Protection Plan
- $1 million commitment to the Shasta County Sheriff's Office

- **Access to Shasta Cascade Timberlands property** for community recreation and tribal cultural activities.

A varied group of community members and organizations expressed support for the project including:

- Shasta Voices
- Shasta Builders Exchange
- Tri-County Community Network
- J.F. Shea Construction
- Western Shasta Resource Conservation District
- State Building & Construction Trades Council of California
- Fall River Resource Conservation District
- Pit Resource Conservation District
- Bales Mountain Quarry
- Roseburg Forest Products
- Operating Engineers Local Union No. 3
- Northeastern Building & Construction Trades Council
- Shasta College

[3] A job-year is defined as one year of work for one person. For example, one person holding a job for 12 months equals one job-year, and two people each holding a job for six months would also equal one job-year.

1.3.1 SHASTA COUNTY ACTION ON PROJECT

1.3.1.1 Planning Commission Hearing

Staff Recommendation of Approval

On June 22, 2021, the Shasta County Planning Department submitted a Staff Report to the Planning Commission recommending project approval. The staff report concluded that the project was consistent with the County's laws, ordinances, regulations and policies: "…staff is of the opinion that the Project is consistent with the General Plan plan policies and zoning standards for the area and that the establishment, operation, and maintenance of the Project would not be detrimental to the health, safety, peace, morals, comfort, and general welfare of persons residing or working in the neighborhood or be detrimental or injurious to property or improvements in the neighborhood or to the general welfare of the County."

Based on the project's many economic, environmental, and technical benefits, the staff report also recommended the adoption of a Statement of Overriding Considerations with respect to the identified significant and unavoidable environmental impacts:

> "The specific economic, legal, social, technological, or other benefits identified in the FOF [Finding of Fact] and SOC [Statement of Overriding Considerations] for the project include the following: Assistance in meeting state renewable energy goals, reduced greenhouse gas emissions relative to fossil-fuel based electricity generation, reduced public health impacts relative to fossil-fuel based electricity generation, diversification of statewide energy portfolio and price stabilization, wind is a domestic source of energy, increased local employment and economic activity, increased tax revenue, and landowner support via diversification of revenue streams."

The report recommended certification of the EIR and approval of the Use Permit with conditions.

Commission Denial

Testimony to the Planning Commission lasted approximately 10 hours. A number of the commenters testified in support of the project due to it beneficial economic impacts to the region, job creation, enhanced fire safety benefits, and need for new sources of clean, reliable energy. Opponents objected on the grounds of aesthetic impacts, fire risks, and impacts to property values. After the testimony by the Applicant and project supporters and opposition groups, the public comment portion of the hearing was closed. Subsequent to closure of public comment, the Shasta County Planning Commission asked no questions of the parties that were present, including County Planning staff, the County's third party CEQA consultant, California Department of Forestry and Fire Protection (CAL FIRE), the Applicant, opponents, or various technical report subject matter experts. After a brief discussion, the Commission declined to follow the staff report's recommendations, and denied the project's use permit.

1.3.1.2 Appeal

Following the Planning Commission hearing on June 22, 2021, the Applicant timely appealed the Planning Commission action to the Board of Supervisors.

1.3.1.3 Third Project Revision (September 2021)

On September 24, 2021 the Applicant introduced an additional set of project refinements, summarized in a memo submitted in advance of the Board of Supervisors Hearing, which addressed comments received from the public and Planning Commission with respect to environmental and community impacts (see Project Refinements Memo, September 24, 2021). These refinements represented a reduced version of the project and combined elements from both Alternative 1 (South of SR 299 Alternative) and Alternative 2 (Increased Setbacks Alternative) as described in the Draft EIR.

The refinements included:

- **Use of fewer, shorter turbines**. The original project proposed up to 72 turbines with a maximum turbine height of 679 feet. The refined project design would construct up to 48 turbines with a maximum turbine height of 610 feet.
- **Incorporation of Alternative 1 from Draft EIR (South of SR 299)/Elimination of A-string Turbines.** The refined proposal adopted Alternative 1 from the Draft EIR, specifically the elimination of the A-string turbines, which were the seven turbines proposed to the north of SR 299 (turbine numbers A01 through A07) and related infrastructure, including the associated aboveground collector line.
- **Incorporation of Increased Property Line Setbacks described in Alternative 2 from Draft EIR.** The refined proposal also adopted elements of Alternative 2 from the Draft EIR, specifically the removal of four turbines (M03, D05, B01 and K02) to increase setback distances from residential properties and public roadways.
- **Elimination of D-string Turbines.** The refinements proposed removal of the five D-string turbines (turbine numbers D01 through D05) in the northwestern portion of the project adjacent to Moose Camp to eliminate turbine construction noise and potential shadow flicker and reduce project visibility for the owners of second homes in Moose Camp.
- **Elimination of Turbine B01.** The refined proposal eliminated Turbine B01 to increase setback from residences to reduce potential for shadow flicker and noise, decrease proposed infrastructure near SR 299, and eliminate impacts to California Black Oak Woodland.
- **Elimination of N-string and Select M-string Turbines.** The refined proposal eliminated the seven N-string turbines (turbine numbers N01, N01A, N02A, N02, N03, N04, N05) and four of the eight M-string turbines (turbine numbers M03, M04, M05, and M08A), some of the closest turbines to the communities of Round Mountain and Montgomery Creek, to reduce visual impacts, consolidate the project footprint and eliminate disturbance from access roads, collector lines, and turbine pads in the southern portion of the project site.

1.3.1.4 Additional Environmental Commitments (October 2021)

The Applicant also identified several additional Applicant-Proposed Measures related to wildlife resources that focus on the Applicant's commitment to apply the USFWS Wind Energy Guidelines (WEGs) (2012) and submitted these to the County on October 18, 2021 prior to the Board of Supervisors hearing. To provide clarification to stakeholders regarding Applicant's commitment to minimizing environmental impacts and to further demonstrate adherence to these volunteered measures, the Applicant requested that the County include the following additional voluntary measures in the Statement of Conditions specified for Use Permit 16-007:

- **Avian Protections**
  - The Permittee shall continue informal coordination with environmental organizations, including Wintu Audubon Society and the Shasta Group of the Sierra Club, during the construction and operational phase of the project to provide annual updates on the status of the project, and development and implementation of avian plans.
  - Construction and operation plans provided to the Director of Resource Management and CDFW shall also be provided to the Wintu Audubon Society and Shasta Group of the Sierra Club, including the Permittee's Bird and Bat Conservation Strategy, Nesting Bird Management Plan, and Avian Power Line Interaction Committee guidelines report.
  - The Permittee's Bird and Bat Conservation Strategy (BBCS) shall include specific study methodology for Post-construction Mortality Monitoring (PCMM), including both standardized and incidental monitoring.
- **Monitoring and Reporting**
  - Standardized PCMM shall commence upon commercial operation of the Facility, defined as the date when the project has achieved full and unrestricted commercial operations.
  - During standardized post-construction mortality monitoring, the permittee will develop study methodology and implement surveys following seasonal weather events as a focused effort to detect potential project interactions with migrating sandhill cranes.
  - The Permittee shall implement an incidental monitoring and reporting program for wildlife, as specified in Mitigation Measure 3.4-3a(e). This incidental monitoring and reporting program shall be outlined in the BBCS. Incidental monitoring will be performed throughout the duration of the use permit including during construction and operation.
  - Results of incidental monitoring may also trigger adaptive mitigation measures should detections indicate exceedance of the avian and bat impact thresholds as identified in Mitigation Measure 3.4-3b(e) and in accordance with the Wind Energy Guidelines (USFWS 2012). Accordingly, the Permittee shall consult with CDFW and USFWS and implement relevant adaptive measures as outlined in the BBCS.

These voluntary measures supplemented existing commitments, including those specified in the County Staff Report's conditions of approval (dated June 22, 2021) and Applicant-proposed mitigation measures as identified in the Permittee's Mitigation Monitoring and Report Program (Appendix G of the Final EIR).

1.3.1.5 Board of Supervisors Hearing

On October 26, 2021, the Shasta County Board of Supervisors heard the appeal and upheld the Planning Commission's denial of the project's use permit. The Resolution of Denial is included in the docket files.

1.3.1.6 Legislature Enacts AB 205

On June 30, 2022, California Governor Gavin Newsom signed AB 205 into law, a legislative effort that significantly expands the California Energy Commission's (CEC's) jurisdiction and encourages the development of new clean energy projects. AB 205 allows developers to opt into a new streamlined environmental review and authorization process for certain solar, wind, and other qualifying clean energy projects under exclusive state jurisdiction.

1.3.1.7 Shasta County Prohibition on Utility-Scale Wind Energy Projects

On July 12, 2022, , the Shasta County Board of Supervisors adopted an ordinance to amend Section 17.88.035 of the Zoning Plan, prohibiting the construction of utility-scale wind projects in the County and allowing only "small wind energy systems". The amendment states that "Large wind energy systems are prohibited in all zone districts of the unincorporated area of the County of Shasta and no permit or approval of any type shall be issued therefor."

1.3.1.8 Application to California Energy Commission

The Applicant has had several pre-filing discussions with CEC staff, the first on August 15, 2022, and the second on October 13, 2022. A formal pre-filing meeting was held on November 16, 2022, and the Application for Certification was filed on December 16, 2022.

2 Project Overview

2.1 Project Overview

The Fountain Wind Project (project) is a wind energy generation development proposed by Fountain Wind LLC (Applicant), in an unincorporated area of Shasta County. Overall, the project would have a total nameplate generating capacity of up to 205 MW.[4] Associated infrastructure and facilities would include a 34.5-kilovolt (kV) overhead and underground electrical collector system to connect turbines together and to an on-site collector substation; overhead and underground fiber-optic communication lines; an on-site switching station to connect the project to the existing regional grid operated by the Pacific Gas and Electric Company (PG&E); a temporary construction and equipment laydown area; 9 temporary laydown areas distributed throughout the project site to store and stage building materials and equipment, an operation and maintenance (O&M) facility with employee parking; up to four permanent meteorological evaluation towers (METs); temporary, episodic deployment of mobile Sonic Detection and Ranging (SoDAR) or Light Detection and Ranging (LiDAR) systems within identified disturbance areas (e.g., at MET locations); two storage sheds; and three temporary batch plants. New access roads would be constructed within the project site, and existing roads would be improved. See Draft EIR Figure 2-2 which shows the proposed layout of project components and docket files[5] responding to Appendix B data request (a)(1)(E). The project would operate year-round. Section 1.2.1 above explains why the proposed site was selected and why it is appropriate for wind energy development.

2.2 Project Schedule

Project construction is expected to last 18 to 24 months.

2.3 Project Location

The project site is located approximately 1 mile west of the existing Hatchet Ridge Wind Project, 6 miles west of Burney, 35 miles northeast of Redding, immediately north and south of State Route (SR) 299, and near the private recreational facility of Moose Camp[6]. Other communities near the project site include Montgomery Creek, Round Mountain, Wengler, and Big Bend. The project site is also within in a geographic area that is traditionally and culturally affiliated with the Pit River Tribe. Access to the project site is provided locally by SR 299, Moose Camp Road, and three existing, gated, logging roads, and would be provided regionally by highways that provide access to SR 299, including Interstate 5 (I-5),

[4] "Nameplate capacity" is the amount of power that would be generated under ideal conditions. Actual output can differ from nameplate capacity for a number of reasons, including wind speeds and other weather conditions, and equipment maintenance.

[5] pd_fwp_parcel_owners_and_contact_info; pd_fwp_parcels_within_1000ft_fig; pd_fwp_project_parcel_apns_section_township_range

[6] Moose Camp is an approximately 146-acre private recreational facility owned and operated by Moose Recreational Camp, Ltd., a California Non-Profit Mutual Benefit Corporation, for the benefit of its approximately 75 members and their families (Moose Recreational Camp, Ltd., 2012a, 2012b; Appendix J, *Scoping Report* [Letters P17, P23, P37, P43, P55]). In Moose Camp, 50 cabin residences are used year-round (Appendix J, *Scoping Report* [Letters P17, P23, P37, P43, P55]).

which is approximately 35 miles to the west of the project site, and SR 139, which is approximately 60 miles to the east of the project site.

The project site is located within the southern end of the Cascade Range with topography characterized by buttes and peaks separated by small valleys. The Lassen National Forest lies to the southeast, and the Shasta-Trinity National Forest is to the north. Other surrounding lands are privately owned; many are used for timber harvesting purposes. Elevations within the project site range from 3,000 to 6,000 feet above sea level. Little Cow Creek and the south fork of Montgomery Creek cross the project site from east to west. Other small tributaries run through the valleys. Northern portions of the leasehold were affected by the 1992 Fountain Fire as evidenced by burn scars. The Shasta County General Plan designates the project site as Timber (T); the zoning designations are Timber Production (TP) (approximately 4,457 acres) and Unclassified (U) (approximately 6 acres). See Draft EIR Figure 2-3. The existing land use within the project site consists exclusively of managed forest lands. Logging roads (some of which are unpaved) and transmission lines cross the project site.

3 Generation Facility Description, Design, and Operation

The project consists of three major components included within the approximately 4,500-acre project site:

- Up to 48 turbines, including associated concrete foundations, pads, and temporary construction areas
- 34.5 kV overhead and underground collector lines and fiber optic communication cabling
- An on-site substation and switching station for connecting the project into the existing PG&E transmission line (Draft EIR Figure 2-2)

The elements of each of these major components are described in more detail below. Ancillary facilities and infrastructure would also be required, including access roads, temporary construction laydown areas, an O&M facility, up to four permanent METs storage sheds, and up to three temporary concrete batch plants (Table 3).

Table 2. Evolution of Project Description Throughout Public Review

Project Detail	Described in the Initial Study (2018)	Described in Final EIR (2021)	Current Project Description (2022)
Nameplate generating capacity	347 MW	216 MW	205 MW
Generating capacity per turbine	2-4 MW	Up to 6.2	Up to 7.2
Number of Towers	Up to 100	Up to 72	Up to 48
Hub height	Up to 384 ft	Up to 410 ft	Up to 328 ft
Rotor diameter	Up to 433 ft	Up to 558 ft	Up to 558 ft
Blade tip height (max turbine height)	Up to 591 ft	Up to 679 ft	Up to 610 ft
Rotor-swept area per turbine	Up to 147,254 sq ft	Up to 244,545 sq ft	Up to 244,545 sq ft

Project Detail	Described in the Initial Study (2018)	Described in Final EIR (2021)	Current Project Description (2022)
Permanent disturbance area for tower pad (2.5 acres per pad)	250 acres	180 acres	120 acres
Underground electrical collector system	Up to 56 miles	Up to 51 miles	Up to 35 miles
Overhead electrical collector system	Up to 16 miles	Up to 12 miles	Up to 5 miles
On-site collector substation	1 (5 acres permanent)	1 (5 acres permanent)	1 (5 acres permanent)
On-site switching station	1 (15 acres permanent)	1 (8 acres permanent)	1 (8 acres permanent)
Access Roads	Up to 21 miles of new roads	Up to 24 miles of new roads	Up to 19 miles of new roads
Widen existing 16-foot-wide access roads	Not specified	Up to 33 miles of existing roads may be widened	Up to 19 miles of existing roads may be widened
Temporary Laydown Areas	1 (10 acres temporary)	14 (28 acres total)	9 (18 acres total)
O&M facility	1 (5 acres permanent)	1 (5 acres permanent)	1 (5 acres permanent)
Temporary concrete batch plant, if necessary	2 (up to 10 acres temporary)	3 (up to 15 acres temporary)	3 (up to 15 acres temporary)
MET towers	2 (0.1 acres total permanent)	4 (2 acres total permanent)	3 (1.5 acres total permanent)
Construction period	18-24 months	18-24 months	18-24 months
Anticipated Total Temporary Construction Disturbance	Not specified	1,384 acres	868 acres
Anticipated Total Permanent Disturbance	Not specified	713 acres	475 acres

As can be seen by the above table, the project sponsor has already significantly reduced the capacity and footprint of the project in response to public concerns.

3.1 Wind Turbine Generators

The site plan shown in Draft EIR Figure 2-2 depicts 48 turbine sites that are being considered as part of the project. Final design may include fewer than 48 turbine sites. The 48 turbine sites represent feasible locations for a range of turbine models, each with different dimensions, generating capacity, and layout requirements. Prior to construction, the Applicant would determine which model would be installed based on component availability from the manufacturer, data on on-site wind resources, and other project-specific factors. Regardless of the model ultimately selected, the project would not exceed the proposed maximum 216 MW nameplate generating capacity.

The project would construct, operate, maintain, and decommission up to 48 wind turbines, each with a nameplate generating capacity of up to 7.2 MW, to convert wind energy directly to electrical power to supply the existing electrical grid. The project would use three-bladed, horizontal-axis turbines, meaning the rotor shaft and nacelle, which contains the electrical generator, would be mounted at the top of a cylindrical tower. A range of turbine heights are being considered; however, the maximum possible height would be 610 feet from ground level to the vertical turbine blade tip. Each turbine tower would be

mounted on a concrete pedestal supported by a permanent foundation. Generic (non-project-specific) turbine profiles are shown in Draft EIR Figure 2.4a.

Designated turbines and METs would have flashing red lights installed to improve nighttime visibility for aviation and that comply with Federal Aviation Administration (FAA) standards and Advisory Circular 70/7460-1L (FAA 2016). In accordance with these standards, the Applicant would prepare a lighting plan for the project and obtain FAA approval that would specify the installation of flashing red lights on designated turbines and METs to improve nighttime visibility for aviation. Because the height of the proposed turbines would be greater than 500 feet, it is expected that each would need to be lit with two lights. A commercial-scale wind turbine is made up of three main parts, including a tower, nacelle, and three blades that make up the rotor. The rotor is attached to the nacelle, which houses the generating components within a wind turbine, including the drive shaft, gearbox, generator, and controls. The tower provides the vertical support for the nacelle and rotor. Each turbine tower would be mounted on a concrete pedestal supported by a foundation. Spread footing foundations, which have a wide base that spreads the weight of the structure over a larger subsurface area for greater stability, are likely to be used for the foundation design. This type of foundation is buried underground to a depth of approximately 10 to 15 feet with a pedestal that extends approximately 1 foot above ground.

Turbine foundations would be designed based on the findings of a project-specific, site-specific geotechnical investigation that would be prepared once final turbine locations have been verified. Section 1803 of the California Building Code specifies the required content of geotechnical reports. Existing law requires that the geotechnical investigation be conducted by a registered design professional and in accordance with the provisions of California Building Code Section 1803, as may be amended from time to time, and in effect at the time the investigation is conducted. Prior to finalizing the location of each turbine, soil borings would be collected to an approximately 50-foot depth, or as appropriate, to verify soil and rock characteristics and to check that there is sufficient soil strength and bearing capacity to provide a stable foundation for the turbine.

Depending on the final turbine model selected, the widest underground portion of the turbine spread footing foundation would be between 50–80 feet in diameter. The aboveground, visible portion of the foundation is anticipated to be similar in diameter to the turbine tower, up to approximately 16 feet in diameter. A step-up transformer would be located either within the turbine nacelle or within a 9-foot by 9-foot reinforced concrete box pad located approximately 5 feet from the tower foundation (Draft EIR Figure 2.4a).

During construction, a temporary work area would be cleared and graded around each turbine, including the area to be occupied by the turbine foundation. The size and configuration of each work area would depend on the turbine site's terrain. Each work area would require an up to 250-foot by 300-foot area for foundation excavation and construction and turbine assembly. A typical work area is 200 feet by 250 feet depending on site conditions. The work area would be used to stage the construction crane, which would be used to hoist turbine sections into place. Depending on site conditions, additional temporary work space may be used for rotor assembly. Temporary work areas would be cleared and leveled to approximately a two percent slope or less. Within each work area, a crane pad would be constructed of compacted soil to provide a stable area for crane operation during turbine component installation. The size and location of each crane pad would be determined by the contractor. A portion of the crane pad would be left in place after construction and used for turbine repair or during decommissioning of the project.

Post-construction, a permanent, 15-foot gravel ring would be placed around the base of the foundation to provide a stable surface for maintenance vehicles and to minimize surface erosion and runoff. The permanent turbine pads would be between 65 and 95 feet in diameter, depending on the site conditions and final turbine model constructed. An area up to an additional two acres around the permanent turbine pads would be removed from timber production and maintained as low-growing vegetation.

4 Collection Line Description, Design, and Operation

No transmission lines are proposed to be constructed as part of the Project. As such, this section describes the design and operation of the proposed collector lines.

4.1 Electrical Collector System and Communication System

A combination of overhead and underground 34.5 kV electrical collector lines would collect energy generated by the turbines and deliver it to an on-site collector substation, described in more detail in Draft EIR Section 2.4.3. A communication system also would be installed within the same footprint. The communication system consists of fiber optic communication cabling for the Supervisory Control and Data Acquisition (SCADA) system, which provides communication capabilities between turbine locations, substation, and operations and maintenance facilities. Most of the collector system would be located underground and adjacent to on-site access roads. However, portions of the collector system may be constructed overhead in response to environmental and engineering constraints such as:

- a large distance from generators to the substation;
- meeting the transmission limits of underground cable (20 to 25 MW);
- steep terrain where the use of a backhoe or trenching machine is infeasible or unsafe;
- stream and wetland crossings and cultural resource sites, where an overhead line would avoid or minimize an impact to the resource; or
- the presence of soils with low thermal conductivity or rocky conditions which could significantly increase trenching costs.

See also Figure 5 and Figure 6 of the Initial Study provided as part of the Notice of Preparation package in Draft EIR Appendix J, Scoping Report, which show conceptual design details of the proposed underground and overhead collector system.

4.1.1 UNDERGROUND COLLECTOR SYSTEM

The underground collector system would consist of insulated cables buried in trenches that are 46 inches deep and at least 12 inches wide. Each trench would contain power cables, a ground wire, a fiber optic communication cable, and a marker tape above the cables. Cables generally would be co-located with turbine access roads to minimize ground disturbance. In areas where the underground collector system would be co-located with both new and existing access roads, no additional ground disturbance would be required to install the underground electrical collection system beyond that which is disclosed in the impacts for the widening of the road. Where cable trenches cannot be co-located with access roads, a

temporary, 50-foot-wide disturbance area would be required to install the cable. During operations, a permanent, 30-foot-wide corridor centered on the buried cable would be maintained clear of woody vegetation. The cables would terminate at individual turbines; the cables would connect from there to junction boxes, overhead power lines, or at the on-site substation. Junction boxes also would be installed on long collector runs between turbine strings. Blasting may be required prior to trenching in rocky areas.

4.1.2 OVERHEAD COLLECTOR SYSTEM

The 34.5 kV overhead electrical collector system would be installed on wood poles with a maximum height of 90 feet and wire heights between approximately 20 to 30 feet above the ground depending on the span; however, special circumstances could require greater wire clearances. Installation of the overhead collector line could require a temporary workspace consisting of an approximately 100-foot-wide corridor centered on the center line of the overhead line. An approximately 80-foot-wide corridor would be maintained during the operations phase. This area would be kept clear of taller woody vegetation to provide for safe operations and allow access for equipment inspections, vegetation control, and maintenance. Permanent disturbance impacts associated with the overhead collector system would be limited to the individual pole locations. All overhead collector lines would be designed in accordance with the Avian Protection Plan Guidelines prepared by the U.S. Fish and Wildlife Service (USFWS, 2005), and the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) guidance for reducing avian electrocution risk (APLIC, 2006) and risk of collisions with power lines (APLIC, 2012).

Riser poles used to transition underground lines to overhead collectors would be constructed consistent with APLIC guidance for power pole configurations at wind energy projects (APLIC, 2019).

4.2 Project Substation, Switching Station and Interconnection Facilities

As described above, an on-site collector substation and switching station would increase the voltage of the electricity from the collection system's 34.5 kV to 230 kV to match the voltage of the existing PG&E 230 kV line. The preliminary substation and switching station designs are depicted in Draft EIR Figure 2-4b, Preliminary Switching Station and Substation Site Plan. The basic elements of the substation facilities include a control house, a bank of one or two main transformers, outdoor breakers, capacitor banks, relaying equipment, high-voltage bus work, steel support structures, an underground grounding grid, and overhead lightning-suppression conductors. The main outdoor electrical equipment and control enclosure would be installed on a concrete foundation.

The switching station would be located next to the project substation and would facilitate the interconnection between the project's electricity and the PG&E transmission lines. The project would tap into the existing PG&E 230 kV line via an aboveground line tap located directly adjacent to the switching station. Minor modifications or upgrades to the existing 230 kV line may be required within the project site to facilitate the project's interconnection. Upgrades to PG&E facilities are anticipated to include construction or reconfiguration of utility line structures and transmission line circuits involving four to six new transmission poles. If required, the new poles would be located adjacent to the proposed substation and switching station. Additionally, a relay microwave tower or overhead fiber optic communication circuits could be required. If required, the microwave relay tower would be up to 150 feet tall and would be located within the switching station permanent footprint. The tower would be a self-supporting lattice or

lattice mast design and would require either a reinforced concrete slab foundation or a drilled pier foundation. A reinforced concrete slab foundation can be up to approximately 42 inches thick, covering a 25- by-25-foot area. A drilled pier foundation can be approximately 40 feet deep. An antenna system would be mounted on the tower and oriented for optimal communication with PG&E's control and communication system. The Applicant would construct the switching station; PG&E would construct the electrical connections to its facility. PG&E ultimately would own and operate the switching station and interconnection components.

Together, construction of the substation, switching station, and interconnection facilities would temporarily disturb up to approximately 19 acres; the permanent area of disturbance would be approximately five acres for the collector substation and eight acres for the switching station. The permanent footprint of the substation and switching station would include a graveled parking area for maintenance vehicles. The substation and switching station would be enclosed with a chain-link fence. Appropriate safety signs would be posted along roads and around towers, transformers, and other high-voltage facilities in conformance with applicable regulations.

4.3 Other Infrastructure

4.3.1 ACCESS ROADS

The project site would be accessed from three existing, gated logging roads located off SR 299 that would remain gated throughout project construction, operation, and decommissioning.

Existing gates may be replaced or reinforced during project construction. During construction, workers would access the project site using the three access points and would park at the O&M facility or at a laydown area. The proposed road system is shown in Draft EIR Figure 2-5. The road layout may be modified as final project designs are developed to maximize the use of existing roads. Access road cross section details are shown in Figure 7a and Figure 7b of the Initial Study provided as part of the Notice of Preparation package in Draft EIR Appendix J. As new roads are built and existing roads are modified, existing culverts would be replaced as needed with wider, stronger culverts to maintain a functional stormwater drainage system. Drainage improvements would be made in accordance with the project's erosion control plan pursuant to the National Pollution Discharge Elimination System (NPDES) permit, described in more detail in Draft EIR Section 2.4.5.6. During operation and maintenance activities, the access roads would continue to be used by service vehicles and equipment.

4.3.2 TEMPORARY CONSTRUCTION AND EQUIPMENT AREAS

Construction would require an approximately 10-acre cleared, graded, compacted gravel pad for use as a main construction staging area, to store equipment and materials, host construction trailers, refuel equipment, and store construction waste temporarily (i.e., for up to 14 days).

Construction waste would be removed weekly or biweekly by a local waste management company. This area would also provide temporary parking, construction office space (mobile trailers), and temporary sanitary facilities. A vendor-supplied fuel truck would make daily or weekly deliveries to approved storage tanks, which would then be used to refuel construction vehicles. Fuel tank storage capacity would be determined by the construction contractor. Fuel tanks would be maintained and operated according to all local, state, and federal regulations during construction and operation, and hazardous material storage

would be detailed in the Spill Prevention, Countermeasure, and Control (SPCC) Plan described in Draft EIR Section 2.4.8.3.

Refueling and general maintenance for construction equipment, such as changing fluids and lubricating parts, would occur within this temporary construction and equipment area or other outdoor locations with sufficient containment capabilities and according to measures outlined in the SPCC Plan. Post-construction, the portions of the staging and laydown area not used for permanent operation and maintenance activities would be restored to preconstruction conditions in accordance with applicable plans, such as a Habitat Restoration Plan, Vegetation Management Plan, and Invasive Species Management Plan. These plans would be developed by the Applicant prior to initiating on-site activities and would outline the procedures to be implemented upon the completion of construction to restore and revegetate areas of temporary disturbance and performance standards to measure revegetation success.

Additionally, during construction, 14 two-acre laydown (staging) areas would be located throughout the project site to stage building materials and equipment. The final dimensions of each laydown area would be based on site topography and may be graded and compacted or graveled depending on construction needs and soil conditions. Following construction, the laydown areas would be restored in accordance with the Applicant-proposed Habitat Restoration Plan and Vegetation Management Plan within one year following the conclusion of construction. Restoration may occur on a rolling basis as construction is completed in the locations served by each laydown area.

4.3.3 OPERATION AND MAINTENANCE FACILITY

A permanent operation and maintenance (O&M) facility, storage yard, and parking area would be located within an approximately 5-acre fenced area near SR 299. (See Draft EIR Figure 2-2; see also Figures 8a, 8b and 8c of the Initial Study provided as part of the Notice of Preparation package in Draft EIR Appendix J, Scoping Report, which show the proposed O&M facility plan and profile, and Figure 9, which shows a conceptual site plan for the O&M facility.) During the project's operation and maintenance phase, maintenance equipment would be staged in the O&M storage yard. The O&M facility would be served by new or existing domestic wells or water storage tank and an on-site septic system in accordance with the rules and regulations of the Shasta County Department of Resource Management's Environmental Health Division.

4.3.4 METEOROLOGICAL EQUIPMENT

Up to four permanent METs would be constructed within the project site to measure and record meteorological data to assess the performance of turbines and guide project operation. These METs would be unguyed and freestanding to minimize impacts on avian species, would be up to 394 feet tall, and would comply with FAA lighting regulations. The Applicant would develop an FAA-approved lighting plan that is expected to specify the installation of flashing red lights on designated METs to improve nighttime visibility.

Mobile meteorological equipment, such as LiDAR and SoDAR systems, also may temporarily be deployed on-site during operation to supplement wind resource data gathered by the permanent METs. No ground disturbance would result from the use of these mobile units.

4.4 Site Preparation and Construction

4.4.1 SITE PREPARATION

4.4.1.1 Fencing and Site Security

The project would be located entirely on private property where public access is currently restricted. The on-site substation would be surrounded by a chain-link fence. Where necessary, safety and "No Trespassing" signs would be posted around towers, transformers, other high- voltage facilities, and along roads in accordance with federal and state regulations. Roads diverging from public access points such as SR 299 would be gated, locked, and set back from SR 299 at least 50 feet with a paved apron.

4.4.1.2 Timber Clearance and Harvesting

Existing commercial and pre-commercial timber would be harvested, treated, and/or removed from the project site to allow development of the project. Areas that would be removed from timber production as a result of the project would be harvested in accordance with requirements set forth in the Forest Practice Act and CAL FIRE's Forest Practice Rules would be prepared by a Registered Professional Forester and carried out by licensed timber operators.

4.4.1.3 Ground-Disturbing Activities

Construction would include ground-disturbing activities such as clearing and grubbing; topsoil stripping; grading; compaction; utility trenching; soil borings; well-drilling; and placement of turbine foundations, pads, and aggregate surfacing. Grading activities would include the removal, storage, and disposal of soil, gravel, vegetation, organic matter, loose rock, and debris. Native soil excavated in one part of the project site would be used as fill in another area to minimize soil import and export. Cut and fill dimensions would be finalized along with engineering designs. Project disturbance areas that would be subject to ground disturbance as a result of these activities are summarized in Table 2-1 in the Draft EIR.

Blasting may be necessary to loosen rock before excavation. If blasting is necessary, the Applicant would prepare a Blasting Plan that identifies the locations where blasting is anticipated to be needed and all applicable regulations for blasting procedures. The Blasting Plan would also specify the times and distances where explosives would be permitted to avoid impacts on sensitive environmental receptors and the human environment. Emergency responders would be notified at least 24 hours in advance of blasting. All blasting activities would be conducted in compliance with applicable federal, state, and local laws; and appropriate safety and environmental protection measures would be implemented, including weather restrictions in regards to wildfire risk.

4.4.1.4 Road Construction and Improvement

The project site would be accessed via existing, gated logging roads located off of SR 299. Existing gates may be replaced or reinforced, and the roads may be graveled. During construction, new internal access roads would have a 40-foot-wide driving surface plus a 20-foot construction buffer on either side, resulting in an approximately 80-foot-wide disturbance area. In some areas, the construction cleared area could be up to 200 feet wide to accommodate significant cut-and-fill, stormwater controls, road design, and blade-delivery-vehicle turning radii. New road surfaces would be graded and graveled. The existing logging road

network within the project site would be widened and modified according to the aforementioned specifications to safely accommodate turbine component delivery vehicles and heavy equipment. Road widening details are provided in Table 2-1 in the Draft EIR. Fugitive dust control would include application of appropriate dust suppressants, such as water or surfactants, as necessary during construction.

As new roads are built and existing roads are modified, existing culverts would be upgraded or replaced as needed to maintain a functional stormwater drainage system and meet fire safety and access standards. Individual crossings and culverts would follow appropriate BMPs and comply with all applicable independently enforceable requirements of the U.S. Army Corps of Engineers. Drainage improvements would be made in accordance with the project's erosion control plan pursuant to the NPDES permit described in Draft EIR Section 2.4.5.6, Stormwater Control.

During operation, access roads would continue to be used by service vehicles and equipment for maintenance activities. After construction, permanent access roads would be reduced to a 20-foot driving surface with a 1-foot shoulder. An additional 10 feet on either side may be required in some areas to accommodate stormwater drainage. Permanent access roads would be periodically graded and compacted to minimize erosion. Catch basins, roadway ditches, and culverts would be cleaned and maintained regularly. Permanent access roads would be used for project operation and continued timber management; and the project operator and timber operator would share responsibility for maintaining these areas. Maintenance would be done at a frequency dictated by environmental conditions on-site.

4.4.1.5 Domestic Well Installation

New water wells may be required during construction and operation. Domestic well installation, if determined by the Applicant to be needed or desirable for project purposes, would occur at the location of the proposed O&M facility and be performed using typical truck mounted drilling equipment in accordance with the rules and regulations of the Shasta County Department of Resource Management's Environmental Health Division (Shasta County EHD 2019). The number of new wells to be installed would be determined based on an agreement with the landowner.

Alternatively, the Burney Water District could supply domestic water to serve project needs. The project's estimated water demand is discussed in Draft EIR Section 2.4.8.1, Water and Wastewater.

4.4.2 CONSTRUCTION SEQUENCE

Initial construction activities would include widening existing access roads and constructing new access roads. Temporary staging and laydown areas would also be established to store turbine components and other project equipment. A 5-acre area would be cleared around each turbine location to create a crane pad, construction laydown area, and rotor assembly area. Once turbine foundations are constructed, the turbines would be assembled and erected using forklifts and cranes. Construction of the substation, underground and overhead collection system, and O&M building would be concurrent with turbine installation. Upon the conclusion of construction, final testing would begin to see that that all systems are functioning properly. As construction activities are completed, temporary staging and laydown areas would be restored to preconstruction conditions. As part of a final site cleanup, all waste materials would be removed from the project site. See Draft EIR Section 2.4.7 for a description of decommissioning and site restoration procedures.

Throughout construction, all construction activities would be implemented consistent with NPDES permit requirements, the Storm Water Pollution Prevention Plan (SWPPP), and the Temporary Erosion and Sediment Control (TESC) Plan described in Draft EIR Section 2.4.5.5, Stormwater Control.

4.4.2.1 Materials Delivery

Delivery of project components would be coordinated through the California Department of Transportation (Caltrans)and timed to minimize traffic disruptions. Coordination would include topics such as final trailer configuration, clearance requirements, emergency service access, lane closures (if necessary), California Highway Patrol escort (if required), and transportation times. For purposes of this analysis, all materials would be delivered to the project site by truck.

Turbines

Delivery plans would be finalized once a final turbine model and supplier is selected. In general, towers are expected to be delivered in three to six sections. Turbine components such as blades, nacelles, rotors, controllers, ladders and platforms, pad-mounted transformers, pad-mounted transformer vaults, and turbine switchgear would be delivered separately. Up to 15 separate delivery loads would be needed for each turbine. Of these, eight or nine deliveries would be classified as oversize for highway transportation according to California Vehicle Code Division 15, Size, Weight, and Load. These deliveries would require oversize vehicle permits and/or variances from Caltrans. Turbine component delivery vehicles would conform to road weight limits, and any deviations from these weight limits would be specified in oversize permit applications submitted to Caltrans. Additionally, cranes used to assemble turbine components would be delivered in multiple loads and assembled on-site.

Aggregate

Up to three temporary concrete batch plants (each between three and five acres) may be located within the on-site temporary construction and equipment area to facilitate cement delivery for foundations. Aggregate is expected to be sourced locally from the Burney area but could be supplied from Redding. The batch plants would be removed following construction. Each batch plant would require a stand-alone generator as well as fuel, aggregate, cement, and water for operation. Stockpiles of sand and aggregate, which would be delivered by truck, would be located near each batch plant in a location that would minimize exposure to wind. Cement would be discharged via screw conveyor directly into an elevated storage silo without outdoor storage. The construction managers and crew would use BMPs and standard operating procedures to keep the plant, storage, and stockpile areas clean and to minimize the buildup of fine materials that could result in fugitive dust or offsite sedimentation.

Project construction is anticipated to generate approximately 12,070 total material delivery truck trips (east and west combined), or an average of 124 material delivery truck trips per day.

Material delivery trucks could carry aggregate, turbine-related components, concrete, water, and other construction-related materials (Appendix H, Transportation, to the Draft EIR). The Applicant anticipates that the bulk of materials would be delivered by truck from locations no more than 50 miles from the project site. Prior to arrival on-site, large components such as turbine blades are likely to be delivered by truck, barge, or rail to existing regional storage yards.

Construction Equipment

Equipment types and use assumptions by phase to construct the project are identified in Table 2-2 in the Draft EIR, Construction Equipment List.

4.4.3 CONSTRUCTION SCHEDULE AND WORKFORCE

Project construction is expected to last 18 to 24 months. Generally, construction would occur during daylight hours from 7 am to 5 pm but could vary during summer or winter months, to accommodate specific construction needs or site conditions, to avoid traffic or high winds, or to facilitate the project schedule. The project would require up to 400 workers, some of whom would be local workers, and others would be specialized workers that may reside outside the local area. Non-local workers would stay at local hotels and commute to the project site. No new temporary worker lodging is expected to be constructed as part of the project. Workers would most likely commute from Redding, Burney, Fall River Mills, or McArthur (Appendix H).

4.4.4 STORMWATER CONTROL

To minimize impacts on drainage and runoff, the project would maintain on-site surface drainage patterns to the extent possible. Newly-constructed access roads would be designed to follow natural contours and minimize hill cuts. Ditches and culverts would be incorporated into road design to capture and convey storm water runoff. Except in areas where permanent recontouring is required, disturbed areas would be restored to preconstruction conditions.

In accordance with the Construction General Permit (USEPA, 2017), the Applicant would prepare a site-specific SWPPP for the project that would identify BMPs to be used to minimize or eliminate pollution, erosion, and sedimentation. The Applicant also would prepare a TESC Plan, which would be implemented and maintained by the construction contractor throughout operation to further reduce the potential for erosion. Measures included in the TESC Plan would be comparable in effect to those described by the Center for Environmental Excellence by the American Association of State Highway and Transportation Officials (AASHTO, 2019).

4.4.5 OPERATION AND MAINTENANCE

Although upgrading and replacing equipment could extend the operating life of the wind energy facility indefinitely, for CEQA purposes, the life of the project is assumed to be 40 years.

The Applicant would prepare a project-specific Fire Prevention Plan (FPP) prior to the commencement of on-site activities that would remain in place for the life of the project. The FPP would include procedures for emergency response, evacuation, fire agency notification, and fire prevention. Tree removal and maintenance of fire breaks would be undertaken. The FPP would require the Applicant's and construction contractors' vehicles and personnel to be equipped with fire suppression equipment, radio and cellular access, and pertinent telephone numbers for reporting a fire. The Applicant's FPP would be prepared consistent with the directives in the Shasta County Fire Safety Standards (Shasta County 2017), the Forest Practice Rules (CAL FIRE 2019), and CAL FIRE's Shasta-Trinity Unit Strategic Fire Plan (CAL FIRE 2017).

Project operation would require up to 12 full-time employees. Operation and maintenance activities would occur from Monday to Friday during normal working hours. The project operator would monitor turbines through the SCADA monitoring system 24 hours a day, seven days a week. This system would allow the Applicant to perform self-diagnostic tests and would allow a remote operator to perform system checks, establish operating parameters, and see that the turbines are operating at peak performance. In the event of winds, gusts above the maximum operating parameters, or red flag alerts, the turbines would automatically shut down.

Maintenance of turbines and associated infrastructure includes a wide variety of activities. The Applicant would develop an operations and mainentance protocol to be implemented throughout project operation. This protocol would specify routine turbine maintenance and operation in accordance with the maintenance requirements prescribed by the turbine manufacturer. Some unscheduled maintenance and repair would be necessary. Routine maintenance activities are expected to include, but not be limited to the following:

- Checking torque on tower bolts and anchors
- Checking for cracks and other signs of stress on the turbine tower and other turbine components
- Inspecting for leakage of lubricants, hydraulic fluids and other hazardous materials, and replacing them as necessary
- Inspecting the grounding cables, wire ropes and clips, and surge arrestors
- Cleaning
- Repainting

Most routine maintenance activities would occur within and around the tower and the nacelle. Cleanup from routine maintenance activities would be performed at the time maintenance is performed. While performing most routine maintenance activities, operations and maintenance staff would travel via pickup or other light-duty trucks.

Scheduled maintenance activities would include servicing the turbines twice a year or more often as needed and may require the use of a crane within the 65- to 95-foot diameter maintained areas around the turbines. Turbine servicing would require maintenance staff to climb towers and service turbine parts by performing activities such as removing the turbine rotor and replacing generators and bearings. Project operation would require utility vehicles, cranes, and other equipment for project maintenance activities. Non-routine maintenance such as repair or replacement of rotors or other major components, if needed, could involve use of one or more cranes and equipment transport vehicles. Permanent access roads would be periodically graded and compacted in order to minimize erosion. Catch basins, roadway ditches, and culverts would be cleaned and maintained regularly.

4.4.6 DECOMMISSIONING AND SITE RESTORATION

Proposed decommissioning of existing facilities and infrastructure and restoration of the project site would require approximately 18 to 24 months. Decommissioning refers to the dismantling and removal of the project's facilities, including power generation equipment. Removal of turbine components and related infrastructure would include dismantling the turbines, support towers, transformers, substation, switching station, and foundations; excavating them to a depth of approximately 3 feet below grade; and removing them from the project site to be reused, recycled, or sold. Some roads no longer needed to access turbines, e.g., once turbines have been dismantled and removed, roads no longer needed to access

those turbines would be allowed to naturally revegetate. If a domestic well(s) is installed as described in Draft EIR Section 2.4.4.3, it would remain on-site. Underground collection and communication cables would be abandoned in place.

The types of equipment, vehicles, and workforce necessary to decommission the project would be generally similar to the requirements for construction, except considerably less intensive in that no concrete batch plant(s), cable delivery, or concrete trucks would be required; and no cable trenching or similar work would occur. Moreover, existing service roads would be used; no new access roads or road widening would be required. All management plans and BMPs developed for project construction also would apply during the decommissioning phase of the project.

Site restoration refers to recontouring and revegetating the site upon completion of the project's operational life to be as similar to preconstruction conditions as possible. In coordination with the land owner, disturbed areas would be replanted with trees or other appropriate vegetation. The goal of site revegetation would be to develop vegetation cover, composition, and diversity similar to the area's ecological setting and consistent with the landowner's current and future land use practices.

Prior to operation of the project, the Applicant would prepare a Draft Decommissioning Plan that details a restoration plan and how project facilities and infrastructure would be removed. The Draft Decommissioning Plan would be revised and finalized prior to project operations. The Applicant or its contractor would implement the Final Decommissioning Plan upon cessation of project operations and would include plans and procedures for facility dismantling and removal, disposal and recycling, site restoration, and habitat restoration and monitoring. The Decommissioning Plan would be developed in compliance with standards and requirements at the time of site decommissioning. The Applicant would also be required to post and update a financial assurance mechanism to cover the cost of the annual decommissioning cost estimate. This financial assurance is also meant to address facility closure in the event of unexpected cessation of operations as required under Appendix B data request (e)(1).

4.4.7 WATER, WASTEWATER, WASTE, AND HAZARDOUS MATERIALS

4.4.7.1 Water and Wastewater

Project construction and long-term operation includes the use of potable water from one or more new on-site water supply wells to be drilled at the O&M facility location or from the importation of water by truck from the Burney Water District, which is located approximately six miles east- northeast of the project site. Any wells installed on-site would be constructed in accordance with the rules and regulations of the Shasta County Department of Resource Management's Environmental Health Division. A Water Supply Assessment has been prepared for the project in accordance with Water Code requirements (see data room).

Project construction would require up to 49 acre-feet of water for dust control, soils compaction, and concrete manufacture, emergency fire suppression, and other activities. Out of the 12,070 total material delivery trips, approximately 1,338 truck trips (each way) are estimated for the delivery of water during construction.

Operation and maintenance of the project would require up to 5.6 acre-feet of water per year (approximately 5,000 gallons per day) for vehicle and equipment washing and maintenance, potable water supplies for 12 full-time employees, and water storage to meet Shasta County fire flow

requirements. Water for the O&M building would be supplied either by an on-site well or by a storage tank located at the O&M building that would be periodically filled by a water truck. No additional permanent water tanks are proposed to be installed as part of the project. Water use during decommissioning and site restoration would be limited to use for fire protection and dust suppression.

During construction, portable toilets would be provided for the construction workforce. These facilities would be serviced on a regular basis by a contractor who would dispose of sanitary wastewater pursuant to applicable regulations. Wastewater from the O&M facility would be processed using an on-site septic system.

Fire flow requirements may be found in the Shasta County Code of Ordinances, Title 16 Buildings and Construction, Chapter 16.04.130 Fire Standards and Equipment (Ordinance No. 2019-06 [2019]) and the 2019 California Fire Code (24 Cal. Code Regs. Part 9).

4.4.7.2 Waste

During construction, approximately 10,000 pounds of solid waste would be generated per week. Construction debris (e.g., scrap lumber and metal) and operational debris (e.g., office waste) would be collected by either the construction contractor or Burney Disposal Inc. Waste would be transported to the Burney Transfer Station and ultimately disposed of or recycled at the Anderson Landfill in accordance with federal, state, and local solid waste regulations. Decommissioning and restoration would generate the same amount of solid waste as the construction phase (10,000 pounds per week). The Applicant would handle and dispose of solid waste in accordance with all regulatory requirements and would implement standard BMPs with regard to solid waste.

4.4.7.3 Hazardous Materials

Table 2-3 in the Draft EIR, Hazardous Materials, depicts the types, uses, and quantities of hazardous materials that are expected to be used during the site preparation and construction, operation, maintenance, decommissioning, and site restoration phases of the project.

During all project phases, activities may involve the transportation, use, or storage of a variety of hazardous materials, including batteries, hydraulic fluid, diesel fuel, gasoline, propane, antifreeze, dielectric fluids, explosives, herbicides, grease, lubricants, paints, solvents, and adhesives.

In accordance with requirements contained in the Health and Safety Code and the California Code of Regulations, the Applicant would prepare a Hazardous Materials Business Plan/Spill Prevention Control and Countermeasures Plan (HMBP/SPCC) prior to construction. The HMBP would include BMPs for the transport, storage, use, and disposal of hazardous materials and waste. The HMBP would also include information regarding construction activities, worker training procedures, and hazardous materials inventory procedures. Prior to operation, the Applicant would update the HMBP (including the BMPs) with information about the types of hazardous materials that would be used during operation. The HMBP/SPCC would comply with the requirements of these federal, state, and local requirements (see, e.g., 40 CFR Part 112).

During construction, waste disposal and collection receptacles would be located on-site for proper disposal of hazardous materials. Operation and maintenance of the project would not require as many hazardous materials as construction or decommissioning. During operation, hazardous materials would

be stored in the O&M facility and storage sheds. Monthly inspections of each of these facilities would occur to check for leaks and spills.

During construction, operation, and decommissioning, all fuels, waste oils, and solvents would be collected and stored in tanks or drums within a secondary containment area consisting of an impervious floor and bermed sidewalls. Fuel would be stored in aboveground storage tanks.

These tanks may have either a double wall or would be placed within temporary, lined, earthen berms for spill containment. Upon the conclusion of construction and decommissioning phases, excess fuels would be removed from the site and any surface contamination resulting from fuel handling operations would be remediated.

All equipment (particularly equipment operating in or near a drainage or in a basin) would be maintained in good working condition and free of leaks. All vehicles would be equipped with drip pans during storage to contain minor spills and drips. No refueling or storage would take place within 100 feet of a drainage channel or other sensitive resource. Spill kits would be located on-site and in vehicles for use in spill response. In addition, all maintenance crews working with heavy equipment would be trained in spill containment and response.

5 Project Permits

In the absence of CEC opt-in jurisdiction, the permits in Table 4 would be required for the development of the project.

Table 3. List of Potential Permits and Status

Agency	Permit/Approval Required	Status
Federal		
Federal Aviation Administration (FAA)	Notice of Proposed Construction or Alteration; Determination of No Hazard.	Received July 20, 2020
U.S. Army Corps of Engineers (USACE)	Clean Water Act, Section 404 Nationwide Permit if jurisdictional waters of the U.S. could be affected by construction or operation of the project.	In preparation
State		
California Department of Forestry & Fire Protection (CAL FIRE)	Application for conversion***** (Pub. Res. Code §4621 et seq.); approval of a timber harvesting plan (Pub. Res. Code §4582)	Submitted application on April 23, 2021
State and/or Regional Water Resources Control Board (SWRCB and/or RWQCB)	Construction Stormwater General Permit; Notice of Intent to Comply with Section 402 of the Clean Water Act, SWPPP and SPCC Plan; Industrial Stormwater General Permit; Approval of O&M SWPPP and SPCC Plan. Section 401 Certification if USACE determines jurisdictional waters of the U.S. would require a Clean Water Act Section 404 permit.	In preparation

Agency	Permit/Approval Required	Status
California Department of Fish and Wildlife (CDFW)	Streambed Alteration Agreement***** (Fish & Game Code §1600 et seq.); consultation with CDFW would be needed to address potential effects to State-listed species under Section 2081 of the California Fish and Game Code.	Submitted application on May 13, 2021 (EPIMS No. 18805)
California Department of Transportation	Oversize load permit(s) and variances***** for loads with a width over 15 feet and/or length over 135 feet (i.e., "superloads"). Encroachment Permit for utility line crossing state right-of-way.	Pending project approval
California Highway Patrol	Notification of Transportation of Oversize/ Overweight Loads*****	Pending project approval
California Public Utilities Commission	Approval of construction of switching station for transfer to PG&E (i.e., General Order 131-D)	Pending project approval
Local		
Shasta County Air Quality Management District	Authority to Construct and/or Permit to Operate***** as needed	Pending project approval
Shasta County	Use Permit*	Permit No. 16-007 denied October 26, 2021
Shasta County Department of Resource Management, Environmental Health Division	Hazardous Materials Business Plan*****, septic system permit*****, well permit*	Pending project approval
Shasta County Building Division	Building and grading permits*****	Pending project approval
Shasta County Hazardous Materials Program, CUPA	Hazardous Materials Business Plan and Permit* for handling hazardous materials above threshold quantities (includes hazardous waste management).	In preparation
Shasta County, Public Works Department	Encroachment Permit*****	Pending project approval

* Indicates that permit would be superseded by CEC approval of the project under the opt-in program.