

DOCKETED	
Docket Number:	23-OPT-01
Project Title:	Fountain Wind Project
TN #:	250551
Document Title:	ALT-01_02_fwp_site_selection_and_proj_obj
Description:	N/A
Filer:	Caitlin Barns
Organization:	Stantec Consulting Services, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	6/8/2023 12:30:45 PM
Docketed Date:	6/8/2023

To:	Leonidas Payne	From:	Caitlin Barns
	California Energy Commission		Stantec Consulting Services, Inc.
File:	ALT-01, ALT-02 Response Memo	Date:	June 8, 2023

Reference: Responses to Data Requests ALT-01 and ALT-02 for the Fountain Wind Project

ALT-01 DATA REQUEST

Please discuss how the project location was selected as the proposed site, and what factors were used to screen alternatives (i.e., site suitability, location of sensitive resources, jurisdictional boundaries, etc.) The 2020 DEIR does not disclose the process used to identify and select the project location as the proposed site for analysis. This site selection criteria is necessary to screen the alternatives for site suitability.

ALT-01 DATA RESPONSE

The Applicant considers three key criteria when siting utility-scale wind energy facilities: 1) wind speed, 2) access to the transmission system, and 3) compatibility with land uses and environmental sensitivities. At the onset of site identification, the Applicant had to rely on broad-scale data, publicly available information, and general knowledge of the transmission system to identify a project location that was suitable for long-term and capital-intensive study work. Based on these criteria--in particular wind speed and transmission access--there are few sites suitable for utility-scale wind energy development in California that are not yet already developed. To the Applicant's knowledge, the Fountain Wind Project is the only greenfield, utility-scale wind energy project currently under review by any permitting entity in California. This is the case not because there is no market for wind energy in the state, but because there are very few available sites suitable for new utility-scale wind energy in California.

WIND SPEED AND COMMERCIAL VIABILITY

The Applicant selected the proposed site because it possesses commercially viable wind speeds of at least 6 m/s (average mean wind speed) at a 100-meter hub height¹. A brief overview of what speeds are considered viable for large wind projects can be found at a website maintained by the US Energy Information Administration.² Given that the Applicant did not have on-site wind data at the time of initial site selection, the Applicant had to rely on high-level state modeling of wind speeds, such as maps prepared by the National Renewable Energy Laboratory (NREL) combined with the knowledge that there was an operational wind project, the Hatchet Ridge Wind Project, in close proximity to the targeted project area that had a publicly disclosed net capacity factor (NCF) of greater than 30%. The NCF is the ratio between actual output and maximum possible output.³ The average NCF for wind farms in the United States is approximately

¹ <https://www.nrel.gov/gis/wind-resource-maps.html>

² <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php>

³ <https://docs.wind-watch.org/Boccard-Capacity-Factor-Of-Wind.pdf>

June 8, 2023

Leonidas Payne

Page 2 of 6

Reference: Responses to Data Requests ALT-01 and ALT-02 for the Fountain Wind Project

34%⁴. These factors gave the Applicant confidence of the presence of a commercially viable wind resource at this location. In gauging commercial viability, the Applicant must preliminarily balance the general costs of constructing a project versus the revenues the project would generate, otherwise referred to as the Levelized Cost of Energy (LCOE). The Applicant then must weigh this LCOE against market trends (i.e., what utilities, Community Choice Aggregators, and others are willing to pay for energy produced from a wind facility) at the time the project reaches commercial operation.

ENGINEERING CONSTRAINTS: ACCESS TO TRANSMISSION

A key factor in siting utility-scale wind energy facilities is proximity to the high-voltage transmission system. The Applicant initially chose the proposed location because two high-voltage transmission lines intersect the site: PG&E's Round Mountain to Pit 3 230 kV, and Cottonwood to Pit 1 230 kV lines. Because these lines are existing, no generation-tie (gen-tie) would need to be constructed, a major benefit of this particular site given the historical difficulties in siting and permitting new high-voltage electrical infrastructure in California.

At the beginning of site selection, the Applicant has no way of knowing with certainty whether the California Independent Systems Operator (CAISO) or the transmission service provider will allow a project to interconnect to a given transmission line. However, the Applicant speculated correctly that there was available capacity in these lines. The Applicant submitted an interconnection study request to CAISO for interconnection to the Cottonwood to Pit 230 kV line, theorizing that this line was likely to have the most available capacity, since the Hatchet Ridge Wind Project interconnected to the Round Mountain to Pit 3 230 kV line. No other renewable energy project (such as a solar project) could economically take advantage of the Cottonwood to Pit 1 line's existing capacity; its capacity is considered "stranded" in the absence of this project. Following application submittal, which included technical information on the project and substantial financial commitments, the Applicant initiated two years of interconnection studies. Given the often years-long delays caused by severe transmission constraints for many renewable energy projects in California, existing transmission capacity at this location was a primary consideration in site selection.

LAND USE, GEOLOGY, AND ACCESSIBILITY

When initially screening the proposed site, the Applicant considered the project's compatibility with existing and planned land use. Historically, wind facilities result in a minimal change to existing land use, and have been shown to be especially compatible with timber operations. At the time of the original application to Shasta County, local zoning measures allowed utility-scale wind development on land zoned for timber management, as is evidenced by the existence of Hatchet Ridge. Built in this location, the project would also be able to take advantage of the adjacent state highway (SR 299) and system of existing onsite logging roads.

⁴ <https://www.energy.gov/ne/articles/what-generation-capacity#:~:text=The%20Capacity%20Factor&text=It%20basically%20measures%20how%20often,of%20the%20time%20in%202021>

June 8, 2023

Leonidas Payne

Page 3 of 6

Reference: Responses to Data Requests ALT-01 and ALT-02 for the Fountain Wind Project

Wind speeds tend to be higher on ridgelines and in mountain passes, and, as such, the proposed site was selected for its numerous ridgelines. Other than its elevation, geology (such as fault lines, etc.) was not a primary siting consideration, though steep topography in certain areas did guide the elimination of certain turbine strings (e.g., N-string) that may have proven to be difficult to access when the Project was reduced to 48 turbines in 2021.

The site is also uniquely attractive because, in contrast to many other potential wind energy development sites, it lacks the potential for impacts to radar or other air navigation infrastructure. If the site is not located within 1,000 feet of a military installation, does not lie within special use airspace nor beneath a low-level flight path. For example, the proximity to military installations has precluded wind energy development in many other locations in California. Kern County has height restrictions for structures built within a wide radius of Edwards and China Basin Air Force Bases. Solano County has enacted a moratorium on any new wind energy development due to perceived conflicts with Travis Air Force Base.

ENVIRONMENTAL SENSITIVITIES

This site was also selected based on its lower potential to result in significant environmental impacts. The site is not located within a state, regional, county and city park; it is not considered wilderness, nor a scenic or natural reserve. It is not an area set aside for wildlife protection, recreation, or historic preservation. It is not located in an estuary or in an area of critical environmental concern. There are no unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites; lands of hazardous concern; and areas under consideration by the state or the United States for wilderness, or wildlife and game reserves. Because the proposed site has been privately managed for timber harvest for the past century, land use practices have resulted in a fragmented and disturbed landscape that makes it less likely to harbor sensitive species or high-quality habitat. The site is privately owned and not accessible to the public.

Based on this knowledge, the Applicant initiated the initial environmental sensitivity evaluation process. Over several years, the Applicant performed a Critical Issues Analysis and a Site Characterization Study to identify the most likely environmental sensitivities of the site. These initial studies identified no sensitivities that would preclude continued development; however, information obtained during these reviews helped refine the project footprint to avoid locations with a high potential for environmental resources.

Based on the results of initial onsite environmental screening studies, the Applicant undertook the suite of intensive studies and onsite surveys which would inform the Project's environmental analysis under CEQA and final siting and design. Results of these detailed studies showed that few sensitive environmental resources would be impacted by Project construction as compared to other locations across the state with commercially viable wind resources. For example, visual impacts would be high in coastal areas without a forested landscape to obscure views of the project; additional wind energy development in the upper Tehachapi Mountains could affect the critically endangered California condor; development in Humboldt County could impact the marbled murrelet and northern spotted owl; golden eagles could be impacted by new wind projects in Alameda and Contra Costa Counties.

June 8, 2023

Leonidas Payne

Page 4 of 6

Reference: Responses to Data Requests ALT-01 and ALT-02 for the Fountain Wind Project

In addition to selecting the site based on the potential for low environmental effects, the Applicant revised the Project layout twice in 2021 in response to stakeholder and agency comments. The reduction in turbine number and associated infrastructure reduced or eliminated impacts to existing drainages and wetlands and cultural resource site FW11. Reduced turbine height and the elimination of N-, D-, A-, and select M-string turbines reduced impacts to residential properties and public roadways and visual impacts. The elimination of turbine M03 in particular reduced risks to avian and bat species. The Applicant also added a number of design features to reduce environmental impacts, such as commitments to Worker Environmental Awareness Training, the application of USFWS Land-Based Wind Energy Guidelines, preparation of a Bird and Bat Conservation Strategy and Nesting Bird Management Plan, application of measures described in the Avian Power Line Interaction Committee Guidelines, adoption of a FAA-approved Lighting Plan, and implementation of an Invasive Species Management Plan. The Applicant also committed to additional avian protections and enhanced post-construction monitoring and reporting.

WATER, WASTE, AND FUEL CONSTRAINTS

The Project will use minimal water during construction and operations. Water constraints was not a topic of major importance during the Applicant's siting process.

The Project will generate minimal waste during construction, all of which can be disposed of locally, and little to no waste during operations. Waste constraints were not a topic of major importance during the Applicant's siting process.

The fuel for a wind energy project is wind. The Applicant sited the Project within its current location because it possessed an adequate wind resource (i.e., greater than 6 m/s at 100 meters from the ground). No fuel constraints exist for the project.

ALT-02 DATA REQUEST

Please explain the purpose or need for each of the 9 project objectives. CEQA Guidelines Section 15126.6(a) requires that the alternatives evaluation discuss a reasonable range of alternatives that feasibly attain most of the basic objectives. The 2020 DEIR Project Description (Section 2.3) provides a wide range of 9 project objectives, but does not explain how or why these objectives are essential to the project. CEQA Guidelines Section 15124(b) requires that the statement of objectives include the underlying purpose of the project, which will facilitate the development of a reasonable range of alternatives. Please include the following details in the Description of Project/Alternatives: how and why the proposed site was selected, how capacity and generation targets were identified, and why job creation and revenue is a basic objective of the project.

ALT-02 DATA RESPONSE

The underlying purpose of the project is chiefly captured in Objectives 1 and 4—to develop a utility-scale wind energy facility capable of generating up to approximately 205 megawatts (“MW”) of renewable wind energy and to assist California in meeting renewable energy generation targets set forth in Senate Bill (SB) 100. The State of California is recognized worldwide for transitioning its electricity system to one that relies increasingly on clean sources of energy, such as solar, wind, and geothermal. The State Legislature has established statutory goals requiring that 60 percent of California’s electricity portfolio come from eligible renewable sources by 2030 and that all retail electricity be carbon-free by 2045. Utility-scale wind facilities like this project will be a key source of renewable energy in meeting the state’s goals.

The other objectives—set forth below—capture other purposes and objectives of the project:

1. Develop, construct, and operate a commercial wind energy generation facility capable of generating up to 205 MW of wind energy.
2. Interconnect to the Northern California electrical grid (NP15).⁵
3. Locate the Project in close proximity to an existing transmission line with sufficient capacity to reduce impacts and costs associated with building new transmission infrastructure.
4. Assist California in meeting the renewable energy generation targets set in Senate Bill (SB) 100.⁶
5. Create temporary and permanent jobs in Shasta County and contribute to the County’s tax base.
6. Obtain entitlements to construct and operate a commercially financeable wind energy project.

⁵ The California Independent System Operator (CAISO) manages the operation of California’s power grid, including the generation and transmission of electricity by PG&E and the CAISO’s other member utilities. The CAISO divides the state into three regions: NP15, SP15, and ZP26. NP15 corresponds to PG&E’s electric service territory (CAISO, 2008; PG&E, 2014). An existing 230 kV line crosses the Project Site south of SR 299 (CEC, 2014). The Project would interconnect to the grid along this line.

⁶ SB 100 was signed into law on September 10, 2018. This bill accelerates the state’s renewable energy goals, requiring 60 percent of California’s electricity portfolio to come from eligible renewable sources by 2030 and that all retail electricity be carbon-free by 2045.

June 8, 2023

Leonidas Payne

Page 6 of 6

Reference: Responses to Data Requests ALT-01 and ALT-02 for the Fountain Wind Project

7. Support landowners through diversification of revenue streams.
8. Offset approximately 356,343 metric tons of carbon dioxide equivalent emissions based on national average emissions factors for electricity.⁷
9. Provide emissions-free energy for approximately 80,000 households.⁸

Neither CEQA nor Appendix B require an explanation of why a project's objectives are essential or basic to the project. We nonetheless respond to specific questions about the objectives as follows. The proposed generation capacity of the Project was derived based on the available transmission on the existing PG&E line and on the feasibility of maximizing generation to take advantage of available transmission while minimizing cost and environmental impacts. Turbine locations were selected based on wind data, accessibility for construction and maintenance, and environmental factors including visual impacts and biological and cultural resource impacts.

Job creation and revenue creation are objectives of the project because, to be authorized for construction and operation under the opt-in program, a project must demonstrate that it will result in an overall net positive economic benefit under Public Resources Code section 25445.9. Second, less robust job creation and lower tax revenues could be reasons for the CEC to reject alternatives to the project as "infeasible" pursuant to CEQA. Feasibility may be based on a number of factors, including economic, environmental, social, legal and technological factors. CEQA Guidelines section 15364.

Siting commercial wind facilities is increasingly difficult due to land constraints, environmental constraints, zoning constraints, transmission constraints and the hundreds of millions of dollars required to develop these projects. Accordingly, the project's objectives were created with these constraints in mind. The Applicant seeks to develop a commercial wind energy generating facility in an area with viable wind resources (objectives 1 and 6), located in proximity to existing transmission facilities with available capacity (objectives 2 and 3), to assist the State of California in meeting its renewable energy goals and to offset carbon dioxide emissions (objectives 4, 8, and 9). In addition, and consistent with other utility-scale renewable energy facilities, the Applicant desires to create local benefits, including jobs and additional tax revenues (objective 5) and diversified revenue streams for the private landowners (objective 7.)

See also the Executive Summary and Project Description for more details regarding the purpose and objectives of the Project. (TN #248322).

⁷ USEPA Greenhouse Gas Equivalencies Calculator; accessed June 2023. Available at: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

⁸ The California Public Utilities Commission (CPUC) reported in 2018 that "California households consume electric service at an average rate of 534 kWh per month in the summer months, and 459 kWh per month in the winter months" (CPUC, 2018a). If California households consume an average of 496.5 kWh per month (or 5.958 MWh per year), then the Project's generation could serve an estimated 80,000 households per year.