

<b>DOCKETED</b>	
<b>Docket Number:</b>	23-OPT-01
<b>Project Title:</b>	Fountain Wind Project
<b>TN #:</b>	263382
<b>Document Title:</b>	County of Shasta Letter Comments - Attachment 4 Visual Impacts
<b>Description:</b>	County of Shasta Letter Comments - Attachment 4 Visual Impacts
<b>Filer:</b>	Kari Cameron
<b>Organization:</b>	County of Shasta
<b>Submitter Role:</b>	Public Agency
<b>Submission Date:</b>	5/27/2025 2:34:49 PM
<b>Docketed Date:</b>	5/27/2025



## MEMORANDUM

**To:** Adam Fieseler, Assistant Director  
Shasta County Department of Resource Management

**From:** Bruce R. Grove Jr., Regional Principal

**Date:** May 15, 2025

**Subject:** Evaluation of CEC's Staff Assessment for the Fountain Wind Energy Project – Visual Impacts

---

### Introduction

At the request of the Shasta County Department of Resource Management (County), SHN Consulting Engineers and Geologists (SHN) has provided the enclosed review comments on the California Energy Commission's (CEC) Staff Assessment and associated environmental impact review for the Fountain Wind Energy Project, dated March 25, 2025 (TN# 262350). This evaluation focuses on the adequacy of the disclosed aesthetic impacts and environmental determinations subject to the California Environmental Quality Act (CEQA).

### Project Description

The proposed project is a wind energy generation development proposed by Fountain Wind LLC (applicant) in unincorporated Shasta County. The proposed project is located approximately 1 mile west of the existing Hatchet Ridge Wind Project, 6 miles west of Burney, 35 miles northeast of Redding, and immediately north and south of State Route 299. The proposed project would be located entirely on private property, managed for timber production and harvesting, where public access is currently restricted. The project area includes thirty-seven parcels in which the project components will be sited and encompasses approximately 16,108 acres. The proposed project site boundary encompasses approximately 2,855 acres within the overall project area. Overall, the project would have a total nameplate generating capacity of up to 205 MW. Associated infrastructure and facilities would include:

- Up to 48 wind turbine generators, approximately 610 feet tall, rising above the existing tree canopy;
- 34.5-kilovolt (kV) overhead and underground electrical collector system;
- an on-site substation to receive electricity from the turbines via the electrical collector system;
- overhead and underground fiber-optic communication lines and/or a microwave relay system;
- an onsite switching station to connect the project to the existing regional grid operated by the Pacific Gas and Electric Company (PG&E);
- a temporary 10-acre construction and equipment laydown area;
- up to nine (9) temporary 2-acre laydown areas distributed throughout the project site to store and stage building materials and equipment;
- up to three (3) 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 (2) storage sheds;
- up to three (3) temporary five (5) acre concrete batch plants; and
- an operation and maintenance (O&M) facility with employee parking, including a septic system and a new operational water supply well.
- Over 500 acres of permanent forest clearing and conversion of forested working lands.

## CEQA Requirements

CEQA applies to "discretionary projects proposed to be approved or carried out by public agencies." (Pub. Res. Code Section 21080[a]). The term "project" means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. This includes the direct physical impact of mitigation measures (State CEQA Guidelines Section 15378[a],[c]–[d]). This definition ensures that the action reviewed under CEQA is the development or other activities that will result from the approval. A "project" has two essential elements. First, it is an activity that may cause a direct (or reasonably foreseeable indirect) physical environmental change. Second, it is an activity directly undertaken by a public agency, an activity supported in whole or in part by a public agency, or an activity involving the issuance by a public agency of some form of entitlement, permit, or other authorization. (Cal. Pub. Res. Code Section 21065). CEQA requires the CEC to evaluate and disclose the environmental impacts of the proposed Fountain Wind Energy Project and to reduce those impacts to the extent feasible.

## Review Methodology

CEQA and subsequent case law generally defines the level of detail required to make an environmental document legally adequate and defensible. In the absence of the necessary level of detail within a project application, it is the responsibility of the lead agency, in this case the CEC, to request additional information or conduct additional analysis in order to operate within the standard of care required to prepare a legally defensible document.

Our approach in completing this review is based on Article 10 – *Considerations in Preparing EIRs and Negative Declarations* of the State CEQA Guidelines (see Sections 15140 through 15155). Specifically, Section 15151 of the State CEQA Guidelines provides the following standards from which adequacy of a CEQA document is judged:

*An EIR should be prepared with sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible.*

CEQA's fundamental mandate is that environmental analyses and determinations must be accompanied by factual support. Accordingly, Section 15384 of the State CEQA Guidelines states:

*(a) "Substantial evidence" means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the*

*environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence.*

*(b) Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.*

### Prior Docketed Comments

On behalf of Shasta County, SHN previously offered a comprehensive and thoroughly investigated critique of docketed items specific to the applicant's evaluation of visual impacts (see TN# 260101). Our evaluation provided critical comments on several important aspects of the applicant's submitted visual assessments (see TN# 252567; TN# 250566; TN# 253663; TN# 249950-2; and TN# 25119). Prior comments submitted as part of TN# 260101 are hereby incorporated by reference and summarized below where appropriate.

### **The CEC's Evaluation of Aesthetic Impacts Fails to Comply with CEQA**

We have reviewed the Staff Assessment and related documents for the Fountain Wind Energy Project and have determined that the CEC, as lead agency, has failed to satisfy the requirements of CEQA (Public Resources Code section 21000 et seq.) in its review of the overall aesthetic impact resulting from project implementation. For the reasons set forth below and to afford the public and decision makers their rightful critical examination of new essential information, we urge the CEC to address inadequacies identified in these comments and recirculate the EIR.

### **Information Contained in Chapter 5.15 (Visual Resources) of the EIR Failed to Provide Meaningful Review of Anticipated Effects**

#### Key Observation Points

The CEC appears to have relied, in part, on past visual assessments as evidentiary support in its determinations of effect (see TN# 252567; TN# 250566; TN# 253663; TN# 249950-2; and TN# 25119). As a result, the publicly accessible Staff Assessment, including the EIR, lacks graphical legibility, quality and adequate detail to allow for a reasonable and meaningful review of the project's anticipated visual impacts. Key Observation Points (KOP 1 through 6), including all other relevant illustrations provided in Chapter 5.15 (Visual Resources) are highly pixelated and lack sufficient digital resolution to render a logically informed assessment of the actual significance of the adverse impacts (see Attachment 2 [EIR Figures 5.15-1 through 5.15-18]). In short, key details of the surrounding landscape and the turbines themselves are hardly distinguishable. In their current format this presents the concerned public and decision makers with unrealistic and distorted visual perspectives of the project, including the inability to understand the severity of the impact experienced at these locations. These figures are in stark contrast to CEC's statement on page 5.15-18 of the EIR where "*The primary purpose of a visual simulation is to accurately portray in a realistic manner and context a proposed activity (e.g. project) that modifies or changes the existing physical landscape.*"

### *Seasonal Variations*

The EIR's visual simulations, as presented, continue in their failings by not accurately disclosing the project's visibility under different lighting conditions. These conditions vary by season, time of day, sun direction and angle above the horizon, atmospheric factors, including the presence or absence of clouds and the level of haze. Although not specifically noted on the figures, docketed photos were reviewed and determined to be taken during spring (April and May) and winter (December) of 2023, generally between 9:30 a.m. and 3:18 p.m., reflecting a limited visual experience during daylight hours (see TN# 252567; TN# 250566; TN# 253663; TN# 249950-2; and TN# 25119). Additionally, the base KOP images offer limited landscape representations during the winter season (October through March) with visual simulations neglecting any depiction of snow conditions on the landscape. Accumulated snow represents a significant realistic local landscape theme that is experienced for long durations along State Route 299 within the project area during a typical winter season (see Attachment 3). Here, the CEC has failed to disclose the full impacts of placing the project within an area subject to fluctuating seasonal conditions. In this manner, the CEC has provided the public and decision makers with a narrow review of anticipated effects.

### *Degradation of Views*

Based on the illustrations contained in the EIR (see Figures 5.15-1 through 5.15-19) the CEC concluded *"given the existing physical landscape the project would substantially degrade the existing visual character or quality of public view of the site and its surrounds from KOP 4 and KOP 5"* (see EIR pg. 5.15-20), rendering the analysis of the remaining KOPs (1, 2, 3, and 6) as having a "less than significant" effect on the environment (see EIR pgs. 5.15-20 through 5.15-23).

Notwithstanding the likely-correct conclusion in the EIR that aesthetic impacts at KOP 4 and KOP 5 are significant and unavoidable under *criterion c* (see EIR pg. 5.15-8), as detailed below, the visual simulations and corresponding analysis woefully underestimate the severity of anticipated impacts, lacking sufficient evidence to support a less than significant effect determination for KOPs 1, 2, and 3. For each of these KOPs, the Public View Rating was identified as "low" (see EIR pgs. 5.15-68; 80; 92). A "low" score is defined as public views that include *"an agricultural, commercial, industrial, manufacturing, research and development intensive land use area; public view includes a small aggregation of dwellings"* (see EIR pg. 5.15-68). The following reevaluation of the Public View Rating for KOP 1, 2, and 3 concludes that ratings expressed in the EIR have been underestimated by the CEC:

- KOP 1 and KOP 2: These views do not include agricultural, commercial, industrial, manufacturing or research and development land uses and only one single-family dwelling against a predominate backdrop of forested land rendering the EIR's Public View Rating of "low" as inadequate (see Table 5, EIR pg. 5.15-68). The views also include appreciated areas of cultural claim of significance in the region by the Pit River Tribe (see Visual Impacts to Tribal Cultural Resources subsection, below) and a *"view approaching an area of aesthetic, cultural, and recreation claim that may be closely related to the appreciation of the aesthetic, cultural, and recreation significance at that designation"* (see Public View Rating criteria, EIR pgs. 5.15-68; 80). Based on the above, the Public View Rating for KOP 1 and KOP 2 must be identified as "high" requiring the CEC to reassess the visual criteria utilized to determine the level of effect on the environment at these locations.
- KOP 3: Similar to the above discussion, KOP 3 does not include agricultural, commercial, industrial, manufacturing or research and development land uses. The view represents generally unobstructed view of forested land adjacent to the entrance of Montgomery School. The Public View Rating of "low" for KOP 3 fails to recognized the appreciated areas of cultural

claim of significance in the region by the Pit River Tribe. A “low” score is defined as public views that include *“an agricultural, commercial, industrial, manufacturing, research and development intensive land use area; public view includes a small aggregation of dwellings”* (see EIR pg. 5.15-90). Based on the above, the Public View Rating for KOP 3 must be identified as “high” requiring the CEC to reassess the visual criteria utilized to determine the level of effect on the environment.

Based on the above, the entirety of the analysis under *criterion c* in Chapter 5.15 (Visual Resources) requires a thorough reevaluation of the project’s actual visual impact from selected KOPs. Therefore, the CEC must revise and recirculate the EIR to allow for meaningful consideration of the issues raised by the proposed project.

### **Failure to Address Key Project Impacts**

#### **The EIR Fails to Disclose and Analyze Construction and Decommissioning Impacts**

Chapter 5.15 (Visual Resources) of the EIR omits any reference or discussion, let alone a thorough analysis of anticipated aesthetic impacts during project construction and decommissioning activities. During construction, the presence of large trucks, cranes, mount towers, wind turbine components (i.e., nacelle, rotor, tower, and blades), and other large-scale construction equipment will be present on the project site. Considerations regarding construction of the turbine foundation, ancillary structures, trenching to bury electrical distribution lines, grading, surfacing, clearing, leveling, stock piling, and staging/parking areas are blatantly absent from the EIR’s aesthetic evaluation.

Moreover, access roads connecting each turbine and collector transmission lines will be constructed (in areas where no roads presently exist) or improved upon (in areas where existing roads are present). Access roads will create a linear, exposed soil route that follows the surface contour of the landscape as graphically represented on Figure 5.15-16; however, the impact evaluation (see EIR pgs. 5.15-20 through 5.15-23) fails to offer any analysis or consideration of anticipated construction and decommissioning impacts viewed from the remaining KOPs. CEQA requires a comprehensive evaluation of the entirety of the project, including its direct, indirect, and cumulative impacts on the environment. The failure to address construction and decommissioning impacts is a clear violation of CEQA. Therefore, the CEC must revise and recirculate the EIR to allow for meaningful consideration of the issues raised by the proposed project.

#### **The EIR Fails to Analyze the Project’s Overhead Collection System**

Page 3-12 of the EIR describes the proposed overhead collector system required to connect to the power grid. The overhead system involves the construction of up to 6 miles of pole-mounted overhead lines. The EIR notes *“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 or more above the ground depending on the span, approximately 100-footwide corridor centered on the center line of the overhead line. An approximately 80- foot-wide corridor would be maintained during the operations phase.”* The EIR fails to disclose, assess and mitigate the likely visual impacts of this significant 6-mile long project feature. Similar to the discussion above regarding the adequacy of the visual simulations, the CEC must revise and recirculate the EIR to allow for a meaningful evaluation of the visual implications raised by the proposed project. Absent this important and necessary evaluation, the EIR is rendered meaningless as an informational document and fails to fully disclose the actual environmental effects of the project.



### The EIR's Partial Evaluation of Visual Impacts to Tribal Cultural Resources is Inadequate

The Pit River Tribal members who call this sacred land home are connected with the land, since time immemorial. The landscape, although outside of recent Reservation boundaries, has traditionally been part of the Tribal Ancestral Territory and is considered a Tribal Cultural Resource (TCR). The Cultural Landscape is not simply a set of physical features but is a sacred memory and experience for the Tribe. Visual views of, and from, these Cultural Landscapes are an integral part in sacred activities and the on-going cultural practices of the Pit River Tribe and its members.

Impacts to visual resources are discussed for the Montgomery-Hatchet Creek Tribal Cultural Landscape including the “viewshed of surrounding ridges and peaks” which has “transcendent significance to the Pit River Tribe” (Chapter 5.4; EIR pg. 5.4-37). “Tribal members expressed concern that the construction, operation, and maintenance of the project” “would adversely affect...the viewshed of mountains held sacred by the Tribe” (EIR pg. 5.4-36). CEC staff concludes that both the project construction (EIR pg. 5.4-50) and project operation (EIR pg. 5.4-51) would have a “significant and unavoidable impact” to the Montgomery-Hatchet Creek Tribal Cultural Landscape as the project “will drastically impact the viewshed to and from surrounding sacred mountains” (EIR pg. 5.4-50), will result in a “drastic alteration to the natural topography, obstruction of sweeping natural vistas” (EIR pg. 5.4-51), and “would present a significant visual intrusion” (EIR pgs. 5.4-51, 52). The CEC staff have determined that “implementation of COC’s CUL-1 through CUL-4, will not reduce impacts to...less than significant level” both during construction (EIR pg. 5.4-51) and operation (EIR pg. 5.4-52).

Impacts to visual resources are also discussed for the Hatchet Ridge-Bunchgrass Mountain as the proposed project would have a “significant and unavoidable impact” both during construction (EIR pg. 5.4-46) and during operation (EIR pg. 5.4-48) by “spoil[ing] these remaining viewsheds” and “continu[ing] to spoil the vistas” (EIR pg. 5.4-48).

The visual cumulative impacts are determined to be “significant and unavoidable” (EIR pg. 5.4-52) as “the proposed project would alter the landscape and would visually impact an identified tribal cultural resource” along with “the existing Hatchet Ridge Wind Project has visually impacted a tribal cultural landscape” (EIR pg. 5.4-53).

The CEC has determined that aesthetic impacts under *criterion b* (see Chapter 5.15; EIR pg. 5.15-8) are “less than significant,” absent consideration of any impacts to the Montgomery-Hatchet Creek Tribal Cultural Landscape. This impact threshold requires specific discussion and analysis regarding the project’s potential to *substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway*. In defining scenic resources, the CEC notes “A cultural resource, historic property or landmark may be included. It should be recognized that cultural and historic values differ from aesthetic or scenic values (e.g., elegance, harmonious, imposing, sublime)” (see EIR pg. 5.15-16). The CEC has underestimated the magnitude of the impact related to scenic resources in Chapter 5.15 as a primary concern expressed by the Pit River Tribe and therefore erred in its conclusion of “less than significant impact” for *criterion b*. This determination is in direct contradiction with the CEC’s determination of “significant and unavoidable” related to impacts on the Montgomery-Hatchet Creek Tribal Cultural Landscape as noted above (see Chapter 5.4 [Cultural and Tribal Cultural Resources]).

The CEC’s failure to acknowledge and analyze the potential significance of visual impacts to the Montgomery-Hatchet Creek Tribal Cultural Landscape and Hatchet Ridge-Bunchgrass Mountain in Chapter 5.15 undermines CEQA’s fundamental principle of providing full disclosure.

### The EIR Fails to Appropriately Account for Nighttime Impacts

As noted above, we previously submitted comments specific to the applicant's evaluation of visual impacts (see TN# 260101) which included a detailed discussion regarding nighttime impacts. Relevant portions of TN# 26010 are summarized below as a factual basis of concern regarding the EIR's adequacy in fully disclosing adverse impacts to nighttime views:

- Federal Aviation Administration (FAA) guidelines for marking and lighting wind energy facilities require warning beacons that flash red at night (FAA, 2007). All marker beacons within a wind farm are also required to flash simultaneously (approximately 24 times/minute). The marking beacons will be visible from all KOP locations, among others, on most clear nights. From the viewer's perspective, the sight of a large number of closely and regularly spaced synchronized flashing red lights would significantly contrast against a black or near black backdrop of the night sky.
- It is noted that only daytime simulations were generated with corresponding narrative observations provided in the VIA Addendum (see Docket Number: 23-OPT-01, TN# 251199). This omission is further compounded by the proximity of the project to Lassen Volcanic National Park and Whiskeytown National Recreation area, both within the potential maximum viewshed of the proposed project (CEC, 2023c). As highlighted by agency representatives, *"the largest threat to dark night skies is artificial lighting from nearby development and flashing red lights at the Hatchet Ridge Wind Project that have caused some impacts to the night sky viewing experienced at both areas"* (CEC, 2023c). This statement further supports the need for a nighttime cumulative analysis focused on the introduction of a new utility-scale wind energy development adjacent to the Hatchet Ridge Wind Project.
- We recognize that there is an inherent limitation with photosimulations to effectively illustrate the flashing of turbine warning beacons; however, absent "still" or "static" nighttime simulations showing relative illumination of warning beacons underemphasizes the dynamic nature of the visual experience associated with the proposed wind facility. Again, this represents a glaring omission of the altered nighttime environment that viewers will experience living and driving through the project area during low light and nighttime conditions. The VIA Addendum must be revised to reflect a nighttime illumination assessment, including the maximum distance at which the red warning beacons are visible at night.

The EIR fails to accurately disclose and quantitatively analyze the project's adverse impacts of the required navigation warning system (two red beacons fixed on each nacelle; one red beacon on each Met tower). Staff's assessment limits the focus of the analysis to narrowly selected KOP locations, omitting any consideration of the viewer's experience for travelers along the entirety of State Route 299 as well as views experienced from the adjacent communities of Burney, Round Mountain, and Redding. With little discussion or deliberate attention devoted to regionally adverse nighttime impacts, the EIR merely identifies the lighting system as "highly visible" (see EIR pgs. 5.15-30; 31) and "significant and unavoidable" foregoing any consideration of mitigation.

The CEC, as lead agency, cannot simply render an impact significant and unavoidable then fail to explain how the impact is significant and unavoidable. This approach undermines the information goals of CEQA and precludes the lead agency from assessing the full range of potentially feasible mitigation measures to address the significant impact. An EIR's designation of a particular adverse environmental effect as "significant" does not excuse the EIR's failure to reasonably describe the nature and magnitude of the adverse effect. (*Cleveland Nat'l Forest Found. v. San Diego Ass'n of Gov'ts*



(2017) 3 Cal.5th 497, 514, citing *Berkeley Keep Jets Over the Bay Committee v. Board of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1371 [“The EIR’s approach of simply labeling the effect ‘significant’ without accompanying analysis of the project’s impact on the health of the Airport’s employees and nearby residents is inadequate to meet the environmental assessment requirements of CEQA”].)

Additionally, a nighttime illumination assessment as previously justified (see TN# 260101) was not included in the EIR’s evaluation of nighttime impacts. As a result, the failure to fully disclose foreseeable nighttime effects of the project undermines the public’s and decision maker’s ability to fully understand the severity and totality of the project’s adverse impacts.

#### *Snow Reflectivity and Light Pillar Effect*

Red warning lights on wind turbines, especially when viewed against a snowy backdrop, can create a visual effect where the lights appear to be reflecting off the snow.<sup>1</sup> This effect can result in an amplification of skyglow by snow also referred to as “snowglow” (Jechow and Holker, 2019). This is due to the snow’s high reflectivity, which causes the light to scatter in all directions, including back towards the viewer. The combined amplification of skyglow by clouds and snow can be significant in a remote setting. A solution for the amplification from snowglow is to reduce the illuminance levels, which is possible with dimmable, adaptive, smart lighting technology (Jechow and Holker, 2019).

This snowglow can be compounded with the light pillar effect. A light pillar or ice pillar is an atmospheric optical phenomenon in which a vertical beam of light appears to extend above and/or below a light source. The effect is created by the reflection of light from tiny ice crystals that are suspended in the atmosphere or that compose high-altitude clouds (e.g. cirrostratus or cirrus). Generally, the higher the crystals or the closer the light sources, the taller the pillars appear. In some instances, this occurs when the crystals are exceptionally high or the light sources are in close proximity (Atmospheric Optics, 2024).

The potential adverse impact of both snowglow and light pillar effects associated with the project’s nighttime navigation warning system was not disclosed by the CEC, although we highlighted the area’s variable weather conditions in prior comments (see TN# 620101). As a result, the EIR fails to consider and discuss reasonable and feasible adaptive measures to reduce the intensity of adverse nighttime impacts (see further discussion below under “The CEC Lacks Substantial Evidence to Support the Determination that Proposed Visual Conditions of Certification [Mitigation] Represents All Feasible Mitigation Measures”). Here the CEC has not fully accounted for the nighttime visual implications and associated impacts of the project or considered feasible mitigation measures that could minimize a project’s significant adverse impact. Simply rendering an impact significant and unavoidable and “walking away” from a thorough evaluation of the likely visual effects disregards CEQA’s fundamental mandate for full disclosure by the lead agency.

#### The EIR Fails to Disclose and Evaluate Shadow Flicker Effects

Shadow flicker is a term used to describe the intermittent change in the intensity of light cast on an area resulting from the rotation of an operating wind turbine’s blades between the sun and a stationary object. Chapter 5.15 (Visual Resources) of the EIR is void of any mention of the possible effects of shadow flicker from turbine rotor blades on nearby residents. The closest residence to a turbine is located 5,000 feet (or nearly one-mile) away (see EIR pg. 5.2-147).

---

<sup>1</sup> During winter and spring months (October through May) between 2014 and 2025, snow water equivalent measurements at the Natural Resources Conservation Service (NRCS) Snow Mountain monitoring station report accumulated snow levels in the vicinity of the project ranging between 15 to 65 inches with a median accumulation of approximately 28 inches (see Attachment 3).

Currently, there are no uniform standards defining what distance from the turbine is regarded as an acceptable limit beyond which the shadow flicker is considered to be insignificant (EAPC, 2020). While there are no regulations regarding shadow flicker that have been identified by the State of California, other agencies such as Kern County have studied the possible shadow flicker effects of wind energy farms at distance up to 1.2 miles as part of the agency's CEQA review (Kern, 2011a; 2011b; 2013). The effect of shadow flicker is also dependent on the physical characteristics of the turbine model and the distance between the source turbine and shadow receptor (Stantec, 2023).

The failure of the EIR to provide any discussion or analysis of potential shadow flicker impacts renders the EIR inadequate as an informational document. Since there is no acceptable limit beyond which the shadow flicker is considered to be insignificant, it can reasonably be assumed, given impact distances observed from other agencies, the shadow flicker effect may potentially impact more than one adjacent residence. In the absence of substantial evidence demonstrating the likely effect or no effect associated with shadow flicker, the CEC must require the applicant to prepare a comprehensive analysis for the project, including recommendations for long-term mitigation measures addressing the effects of shadow flicker. Therefore, the EIR must be revised and recirculated to allow examination of this new information and to inform decision makers of the totality of impacts.

### **The CEC Lacks Substantial Evidence to Support the Determination that Proposed Visual Conditions of Certification (Mitigation) Represents All Feasible Mitigation Measures**

The EIR fails to identify and discuss all reasonable and feasible mitigation measures related to nighttime impacts associated with required FAA obstruction lighting. In fact, the discussion and resultant summary of recommendations and Conditions of Certification (COC) suspiciously omit specific mitigation to reduce the magnitude of this significant and unavoidable impact. CEQA requires that an EIR describe and incorporate all feasible mitigation measures that could minimize a project's significant adverse impact (see CEQA Guidelines Section 15126.4[a][1]).

In its prior comments on the project, the National Park Service recommended the use of an Aircraft Detection Lighting system (ADLS) as allowed by current FAA guidelines which will be important for reducing artificial light impacts to the night sky and nocturnal wildlife. As stated on page 5.15-30 of the EIR, ADLS *"technology reduces the impact of nighttime lighting on nearby communities and migratory birds, as well as extends the life expectancy of obstruction lights."* The FAA maintains current guidance for the siting and approval of ADLS systems (FAA, 2020).

Based on published guidance specified in Advisory Circular AC 70/7460-1M, coupled with accessibility to approved ADLS vendors certified by the FAA, CEC's consideration of ADLS as mitigation to reduce the intensity of nighttime impacts cannot be arbitrarily dismissed (see FAA, 2023). Here, the EIR lacks sufficient substantial evidence demonstrating ADLS as an infeasible means of mitigation as the applicant has the ability to submit a request of usage to the FAA. The FAA has the authority to approve the ADLS assuming the ADLS meets certain parameters prescribed in FAA's Advisory Circular AC 70/7460-1M, Chapter 10 or deny the ADLS usage on certain turbines due to proximity to airports, low-altitude flight routes, military training areas, or other areas of frequent activity. As a reasonable and feasible adaptive lighting technology, the CEC maintains both its authority<sup>2</sup> and obligation to mitigate and must command the applicant to submit a feasibility request for ADLS usage, and if approved, require the system to be installed and maintained throughout the life of the project.

---

<sup>2</sup> CEQA Guidelines Section 15041: (a) A lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the "nexus" and "rough proportionality" standards established by case law (Nollan v. California Coastal Commission (1987) 483 U.S. 825, Dolan v. City of Tigard, (1994) 512 U.S. 374, Ehrlich v. City of Culver City, (1996) 12 Cal. 4th 854.).

## Visual Conditions of Certification (Mitigation) are Ineffective

CEQA has a substantive mandate that before approving a project, an agency must mitigate potentially significant environmental impacts when feasible. Feasible means “*capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.*” State CEQA Guidelines Section 15126.4 provides the following guidance related to formulating mitigation measures:

- Measures must be fully enforceable through conditions or other binding instruments.
- Mitigation not required for less than significant effects.
- Measures must comply with principles of “essential nexus” and “rough proportionality.”
- Measures should not defer formulation of mitigation until some future time but may specify performance standards.

The EIR fails to describe all feasible mitigation measures that will minimize significant environmental effects identified in an EIR. Condition of Certification (COC) VIS-2 (EIR pg. 5.15-41) is vague and incomplete, as well as speculative in its ability to satisfy Section 15126.4 of CEQA.

As currently proposed, VIS-2 simply requires the applicant to provide a light pollution control plan without identifying credible performance standards by which efficacy can be demonstrated or confirmed. For example, VIS-2 commits the project owner to include the use of luminaires that “*only be on when needed; only lights the area that needs it; illuminate no brighter than necessary; and minimize blue light emissions.*” These measures are unverifiable and cannot be reasonably tested in sufficient detail to demonstrate how they are likely to be feasible and effective in reducing impacts.

Further, VIS-2 commits the Director of the Shasta County Department of Resource Management, the Superintendent of Lassen Volcanic National Park, and the Superintendent of Whiskeytown National Recreation Area for review and comment on the light pollution control plan. This commitment is misleading and errors in its presumption that each agency has appropriately qualified staff or reasonable access to qualified professionals to review and assess the effectiveness of the plan. As a result, this future action is incomplete and unbinding in its effect, lacking any evidence that suggests these responsible agencies agree to their respective participation and authority granted by this measure. As a non-binding instrument that provides no warranties, either expressed or implied, the CEC cannot be assured that VIS-2 is both effective and feasible in reducing this adverse impact. As the lead agency, the CEC has not sufficiently satisfied Section 15126.4 of CEQA and must consider other feasible measures.

## Documentation and References

- Atmospheric Optics. 2024. *Light Pillars*. [Online]: <https://atoptics.co.uk/blog/light-pillars/>. Accessed April 17, 2025.
- CEC (California Energy Commission). 2024. 23-OPT-01, TN# 260101. *County of Shasta Comments on Wildfire, Economics, and Various Project Environmental Issues*. November 15, 2024.
- CEC. 2023a. Docket Number: 23-OPT-01, TN# 250567. *fwp\_visual\_resources\_addendum\_pt1*. June 9, 2023.
- CEC. 2023b. Docket Number: 23-OPT-01, TN# 250566. *fwp\_visual\_resources\_addendum\_pt2*. June 9, 2023.
- CEC. 2023c. Docket Number: 23-OPT-01, TN# 253663. *National Park Service Comments – Night Sky Impacts to two nearby National Park Sites and Communities*. December 18, 2023.
- CEC. 2023d. Docket Number: 23-OPT-01, TN# 249950-2. *CEC data Response Memo – Visual Resources*. May 2, 2023.
- CEC. 2023e. Docket Number: 23-OPT-01, TN# 251199. *FtnWind\_VisResTechReportAddendum\_07262023\_no\_sims*. July 27, 2023.

- DOI (United States Department of the Interior). 2013. *Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands*. First Edition. April 2013.
- EAPC (EAPC Wind Energy). 2020. *Pronghorn Flats Wind Farm Shadow Flicker Analysis Banner and Kimball Counties, NE*. June 10, 2020.
- FAA (United States Department of Transportation, Federal Aviation Administration). 2020. *Advisory Circular AC 70/7460-1M, Obstruction Marking and Lighting*. November 15, 2020.
- FAA. 2023. *FAA Informational Briefing: Wind Turbine Marking & Lighting (M&L)/Aircraft Detection Lighting Systems (ADLS)*, Aeronautical Charting Meeting Group 23-02. 2023.
- Jechow and Holker. 2019. *Snowglow – The Amplification of Skyglow by Snow and Clouds Can Exceed Full Moon Illuminance in Suburban Areas*. August 2019.
- Kern (Kern County). 2011a. *Draft Environmental Impact Report (SCH# 2011021023) for Morgan Hills Wind Energy Project*. July 2011.
- Kern. 2011b. *Draft Supplemental Environmental Impact Report (SCH# 2008121044) for Alta Infill II Wind Energy Project*. August 2011.
- Kern. 2013. *Draft Environmental Impact Report (SCH# 2011071049) for Rising Tree Wind Energy Project*. November 2013.
- LCI (California Governor's Office of Land Use and Climate Innovation). 2025. *California Environmental Quality Act (CEQA) Statute(Public Resources Code 21000-21189) and Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387)*. January 1, 2025.
- NRCS (United States Department of Agriculture, Natural Resources Conservation Service). 2025. *NWCC Interactive Map*. [Online]: <https://nwcc-apps.sc.egov.usda.gov/>. Accessed April 21, 2025.
- Shasta (Shasta County). 2020. *Fountain Wind Project Draft Environmental Impact Report for Use Permit No. UP 16-007 (SCH No. 2019012029)*. July 2020.
- Stantec. 2023. *Shadow Flicker Study, Philip Wind Project, Haakon County, South Dakota*. April 17, 2023.
- Sullivan, R., et al. U.S. Department of the Interior, Bureau of Land Management. *Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes*.
- Sullivan, R., M. Meyer and J. Palmer. 2021. *Evaluating Photosimulations for Visual Impact Assessment*. Natural Resources Stewardship and Science, Air Resources Division, National Park Service, Lakewood, Colorado. 2021.

## Qualifications of SHN Reviewer

Planning staff from SHN who contributed to the review of Chapter 5.15 (Visual Resources) include the following:

**Bruce R. Grove Jr.** Bruce R. Grove Jr. has over 28 years of experience in leading a variety of environmental reviews for entitlement and municipal projects. At SHN, he is responsible for leading all types of CEQA and NEPA studies (EIRs, Negative Declarations, Environmental Assessments), as well as due diligence studies. His projects have ranged from private entitlement applications related to residential and commercial projects to a variety of heavy industrial, water, wastewater, highway, redevelopment, and alternative energy projects throughout California.

**Ethan “Red Eagle” Lawton.** Ethan “Red Eagle” Lawton has 12 years of career experience working in Tribal governments, education, planning, and the engineering industries that includes: working with Native American people, Tribal governments, and various Tribal departments for the purpose of improving relationships between Tribal and non-Tribal entities, promoting understanding on Tribal sovereignty, Tribal lands (fee/trust), Tribal cultural resources, consultation, and confidentiality. He provides strategic guidance on the consideration and inclusion of Tribal issues in development of projects, plans, programs, and policies. As a key Tribal contact, he facilitates Tribal consultations (Section 106, SB 18, and AB 52), conflict management, and best practices. Mr. Lawton's planning experience covers, permits, land use projects, municipal planning, and NEPA/CEQA. He also provides various trainings on Tribal and Cross-cultural topics.

## Attachment 1

Evaluation of Docketed Visual Simulations – Fountain Wind Energy Project, dated November 13, 2024  
(submitted under TN# 260101)



## MEMORANDUM

**To:** Adam Fieseler, Assistant Director  
Shasta County Department of Resource Management

**From:** Bruce R. Grove Jr., Regional Principal  
Ethan Lawton, Tribal Cultural Liaison

**Date:** November 13, 2024

**Subject:** Evaluation of Docketed Visual Simulations – Fountain Wind Energy Project

---

### Introduction

At the request of the Shasta County Department of Resource Management (County), SHN Consulting Engineers and Geologists (SHN) has provided a preliminary evaluation of visual simulations docketed by the California Energy Commission (CEC) for the Fountain Wind Energy Project (proposed project). The purpose of this preliminary evaluation is to provide general comments on the adequacy of the updated photosimulations as provided in the *Visual Resources Technical Report Addendum*, dated July 26, 2023 (herein referenced as the VIA Addendum) in presenting accurate visual representations of anticipated project impacts. The following docketed items serve as the basis of this review:

- Docket Number: 23-OPT-01, TN# 250567, fwp\_visual\_resources\_addendum\_pt1, June 9, 2023 (CEC, 2023a).
- Docket Number: 23-OPT-01, TN# 250566, fwp\_visual\_resources\_addendum\_pt2, June 9, 2023 (CEC, 2023b).
- Docket Number: 23-OPT-01, TN# 253663, National Park Service Comments – Night Sky Impacts to two nearby National Park Sites and Communities, December 18, 2023 (CEC, 2023c).
- Docket Number: 23-OPT-01, TN# 249950-2, CEC data Response Memo – Visual Resources, May 2, 2023 (CEC, 2023d).
- Docket Number: 23-OPT-01, TN# 251199, FtnWind\_VisResTechReportAddendum\_07262023\_no\_sims, July 27, 2023 (CEC, 2023e).

### Project Description

The proposed project is a wind energy generation development proposed by Fountain Wind LLC (applicant) in unincorporated Shasta County. The proposed project is located approximately 1 mile west of the existing Hatchet Ridge Wind Project, 6 miles west of Burney, 35 miles northeast of Redding, and immediately north and south of State Route 299. The proposed project would be located entirely on private property, managed for timber production and harvesting, where public access is currently restricted. The project area includes thirty-seven parcels in which the project components will be sited and encompasses approximately 16,108 acres. The proposed project site boundary encompasses approximately 2,855 acres within the overall project area.





The proposed project entails the construction and operation of up to 48 wind turbines. Associated development would include construction of underground and overhead collection lines, access roads, maintenance facilities, evaluation towers, batch plants, substations, and a relay microwave tower.

## CEQA Requirements

The California Environmental Quality Act (CEQA) applies to "discretionary projects proposed to be approved or carried out by public agencies." (Pub. Res. Code Section 21080(a)). The term "project" refers to the whole of an action and to the underlying activity being approved (State CEQA Guidelines Section 15378(a),(c)–(d)). This definition ensures that the action reviewed under CEQA is the development or other activities that will result from the approval. A "project" has two essential elements. First, it is an activity that may cause a direct (or reasonably foreseeable indirect) physical environmental change. Second, it is an activity directly undertaken by a public agency, an activity supported in whole or in part by a public agency, or an activity involving the issuance by a public agency of some form of entitlement, permit, or other authorization. (Cal. Pub. Res. Code Section 21065). CEQA requires the CEC to evaluate and disclose the environmental impacts of the proposed Fountain Wind Energy Project and to reduce those impacts to the extent feasible.

## Evaluation

The degree to which a project or activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape. The basic design elements of scale, form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project.

Utility-scale wind facilities and the individual wind turbine generators associated with this project are exceptionally large structures incorporating visually reflective surfaces and non-natural geometry that contrasts strongly with the natural landscape. Given the scale of this proposal and its geographic location within a forested setting of eastern Shasta County, the preliminary review of the above docketed items is approached based on the following assessment principals:

- Are the selected views important and representative of all stakeholders?
- Do the photosimulations illustrate the maximum visual contrast that could reasonably be expected on a regular basis?
- Are all project elements depicted in the right locations, at the right scale, and in correct visual perspective?
- Do the photosimulations reflect high-quality images of the proposed project?

## Key Observation Points

The most recent Key Observation Points (KOPs) were docketed by the CEC on July 27, 2023 (see Docket Number: 23-OPT-01, TN# 251199). The KOPs have been slightly adjusted and modified to those evaluated as part of the County's prior CEQA review and include the following:

- KOP 2 – Montgomery Creek view to east-southeast (previous KOP). View updated with current project layout.
- KOP 3a – Round Mountain view to east (previous KOP 3). View updated with current project layout.
- KOP 3b – Round Mountain view to east-southeast (new KOP). View of additional turbines outside of the frame of view from KOP 3a.

- KOP 4a – Hatchet Mountain Pass view to west-southwest (new KOP). View from eastbound State Route 299 of project turbines. This view replaces the previous KOP 4.
- KOP 4b – Hatchet Mountain Pass view to southwest (new KOP). View from eastbound shoulder of State Route 299, approximating westbound traveler's view of project's eastern access road.
- KOP 5a – Central Burney view to west-southwest (previous KOP 5). View updated with current project layout.
- KOP 5b – Northern Burney view to southwest (new KOP). View from rural residential portion of Burney (Black Ranch Road) with no obstructions.
- KOP 6 – Pit River Overlook view to west. Elevated view of project from State Route 299 from eastbound shoulder of highway, approximating westbound traveler's view.
- KOP 7 – Redding view to east-northeast. View from a point adjacent to the State Route 299 shoulder, approximating eastbound traveler's view of the project.

### Narrow KOP Selection

Photosimulations developed for specified viewpoints can only depict the views from those exact locations, and thus, they omit potential views of the project from all other locations within the viewshed. The current revised KOP views represent only a small part of the total area from which the project would be visible. We believe these views are limited in scope, limiting the CEC's ability to render an informed decision based on the range of anticipated project impacts (see Docket Number: 23-OPT-01, TN# 250566). In collaboration with County staff, the following KOP locations within the viewshed area should be considered by the CEC:

- Recommended KOPs 1 and 2 – These views were chosen to demonstrate the anticipated visual impacts of the proposed project combined with the cumulative impact of the Hatchet Ridge Wind Project in relation to the Round Mountain Substation and PG&E's 230 kV transmission facility.
- Recommended KOPs 3, 4 and 5 – Views 3, 4 and 5 were chosen for their clear view of the project site where travelers along State Route 299 can enjoy the scenic view of the natural landscape. Compared to the applicant's KOP 1, these photo locations also represent wider unobstructed views of the project site where visual impacts would be more frequently viewed for a longer duration along State Route 299.

The recommended KOPs images were collected between 9:17 a.m. and 10:24 a.m. on November 6, 2024 and do not account for variations in daytime hours or weather conditions. Future photosimulations of these view locations must account for variable lighting and seasonal settings as noted below under the *Visual Contrast* subheading.

### Omission of Key Stakeholder Perspectives

The Pit River Tribal members who call this sacred land home are connected with the land, since time immemorial. The landscape, although outside of recent Reservation boundaries, has traditionally been part of the Tribal Ancestral Territory and is considered a Tribal Cultural Resource (TCR). The Cultural Landscape is not simply a set of physical features but is a sacred memory and experience for the Tribe. Visual views of, and from, these Cultural Landscapes are an integral part in sacred activities and the on-going cultural practices of the Pit River Tribe and its members. The perspective of the Pit River Tribe fails to be considered as the VIA Addendum clearly omits a thoughtful analysis of the project's impacts to Cultural Landscapes.

Similar projects such as Terra-Gen’s proposal for forty-seven 600-foot turbines on ecologically sensitive Monument and Bear River Ridges analyzed potential impacts to Cultural Landscapes. In addition, the Humboldt County Offshore Wind Project (on-going/in process) includes an analysis of potential impacts to Tribal Cultural Landscapes by the National Oceanic and Atmospheric Administration and by the Udall Foundation’s John S. McCain III National Center for Environmental Conflict Resolution. An analysis of potential visual impacts to the Cultural Landscapes must be analyzed and included in the VIA Addendum.

## Visual Contrast

The visual environment changes constantly as the sun’s position changes in the course of the day and as clouds pass overhead. The photosimulations, as presented, fail to show the project’s visibility under different lighting conditions which can vary by season, time of day, sun direction and angle above the horizon, atmospheric factors, including the presence or absence of clouds and the level of haze. Photos were taken during spring (April and May) and winter (December) of 2023 generally between 9:30 a.m. and 3:18 p.m., reflecting a limited visual experience during daylight hours. The base KOP images also offer limited landscape representations of the winter season (October through March) with photosimulations neglecting any depiction of snow conditions on the landscape. Accumulated snow represents a significant realistic local landscape theme that is experienced for long durations during a typical winter season.

Based on the above factors, the photosimulations presented do not represent a typical worst-case visibility scenario (i.e., a scenario which simulated conditions result in the greatest visual contrast from the project.) A key factor contributing to contrast between the turbines and their visual backdrop is the relationship of the sun angle and the viewing angle (i.e., whether the turbines are frontlit with respect to the viewer, backlit, sidelit, or unlit (shaded)). *Evaluating Photosimulations for Visual Impact Assessment*, prepared for the National Park Service, provides an example for a typical worst-case windfarm scenario that is viewed from the west. This example states that considering lighting and weather conditions, the typical worst-case scenario would be early to mid-morning on a clear day with good visibility. In this case, the wind turbines would be backlit (silhouetted) by the rising sun, and the shadowed side of the turbines facing the view would contrast strongly with the bright backdrop (Sullivan, Meyer, Palmer, 2021).

Utilizing the above scenario as a guide, several simulated KOPs referenced analyzed in the VIA Addendum underrepresent the likely worse-case visual implications of the proposed project. Given the time of day and direction represented in KOP 2 (photo taken looking east at 2:18 p.m.), KOP 3a (photo taken looking east at 3:18 p.m.), and KOP 3b (photo taken looking east at 3:18 p.m.), the simulated turbines appear under illuminated and do not accurately reflect the anticipated worse-case contrast at these locations. While the VIA Addendum states that the wind turbines represented in these KOP would “*appear backlit and dark in morning light*,” the CEC is not afforded visual examples of how the backlit effect impacts the overall contrast for the viewer.

Furthermore, the VIA Addendum lacks basic data that would otherwise 1) inform the reviewer of base assumptions employed to develop the photosimulations and 2) confirm the accuracy in depicting the direction and length of visible turbine shadows upon the existing landscape. This includes the solar azimuth and altitude (direction of the sun on the horizon and its height above the horizon).

Creating multiple photosimulations that illustrate changes in lighting throughout the course of the day, including seasonal changes, can allow for a more representative assessment of these time-related effects. Absent consideration of varying lighting conditions and seasonality, the visual

simulations are one dimensional, lacking sufficient evidence to render a logical and informed impact conclusion by the CEC. To provide a comprehensive analysis and to fully disclose the visual impacts of the proposed project, additional multi-faceted photosimulations are warranted.

### Omission of Nighttime Simulations

When facilities, such as wind turbines, require lighting sufficient to cause impacts at night, the effects of illumination must be depicted in photosimulations. Federal Aviation Administration (FAA) guidelines for marking and lighting wind energy facilities require warning beacons that flash red at night (FAA, 2007). All marker beacons within a wind farm are also required to flash simultaneously (approximately 24 times/minute); however, only the perimeter turbines of a wind farm need such markings, provided that there is no unlighted gap greater than 0.5 miles. The marking beacons will be visible from all KOP locations, among others, on most clear nights. From the viewer's perspective, the sight of a large number of closely and regularly spaced synchronized flashing red lights would significantly contrast against a black or near black backdrop of the night sky.

It is noted that only daytime simulations were generated with corresponding narrative observations provided in the VIA Addendum (see Docket Number: 23-OPT-01, TN# 251199). This omission is further compounded by the proximity of the project to Lassen Volcanic National Park and Whiskeytown National Recreation area, both within the potential maximum viewshed of the proposed project (CEC, 2023c). As highlighted by agency representatives, *"the largest threat to dark night skies is artificial lighting from nearby development and flashing red lights at the Hatchet Ridge Wind Project that have caused some impacts to the night sky viewing experienced at both areas"* (CEC, 2023c). This statement further supports the need for a nighttime cumulative analysis focused on the introduction of a new utility-scale wind energy development adjacent to the Hatchet Ridge Wind Project.

We recognize that there is an inherent limitation with photosimulations to effectively illustrate the flashing of turbine warning beacons; however, absent "still" or "static" nighttime simulations showing relative illumination of warning beacons underemphasizes the dynamic nature of the visual experience associated with the proposed wind facility. Again, this represents a glaring omission of the altered nighttime environment that viewers will experience living and driving through the project area during low light and nighttime conditions. The VIA Addendum must be revised to reflect a nighttime illumination assessment, including the maximum distance at which the red warning beacons are visible at night.

### Blade Motion

The motion of the turbine blades is an especially important part of the visual experience of wind energy projects and is not a common type of "natural" movement. The inability to depict motion as part of the visual impact assessment results in lowered perceptions of visual contrast associated with the proposed project. In reality, visible blade motion is a primary contributing factor to turbine visibility, becoming a more important visible element at shorter viewing distances. This limitation should be explicitly noted in the VIA Addendum while expanding the discussion of motion effects for each KOP.

### **Spatial Accuracy and Quality**

Renderings have limited and predetermined horizontal and vertical field of view showing what is only in the picture frame. As a result, the visual context provided by the larger landscape that would otherwise be visible in the "real" or proximate landscape, is lost. The VIA Addendum presents existing

and simulated images for each KOP, along with a panoramic view of each. The panoramic views provide a broader landscape context with focused simulations.

KOP 2, 3a, 3b, 5a, and 5b appear too small in size and of low digital resolution to see key details of the turbines. A more accurate and adjusted view of KOP 3a would capture a larger landscape frame, including landscape elements reflected on the left side of the panoramic view. Additionally, the KOP 3a, KOP 3b, and KOP 5b simulations are based on images taken a distance from the State Route 299 mainline. These KOPs depict far away views resulting in project and landscape elements appearing too small and lacking realistic detail presenting the reviewer with an unrealistic and distorted visual perspective of the project and its visual impacts at these locations.

### **Omission of Key Project Features**

Photosimulations submitted in Docket Number: 23-OPT-01, TN# 251199, omit a dedicated KOP that evaluates the impacts associated with the proposed O&M Building. Additionally, and as noted in the VIA Addendum, proposed meteorological towers constructed onsite would be up to 394 feet high and painted in aviation-safe orange and white. Although no meteorological towers appear in the photosimulations, a new, potentially focused simulation should be prepared from State Route 299 to illustrate at least one meteorological tower in relation to the wind turbines. Absent a specific photosimulation of the O&M building and at least one meteorological tower, the VIA Addendum should expressly state the rationale for not modeling these important project elements.

### **Documentation and References**

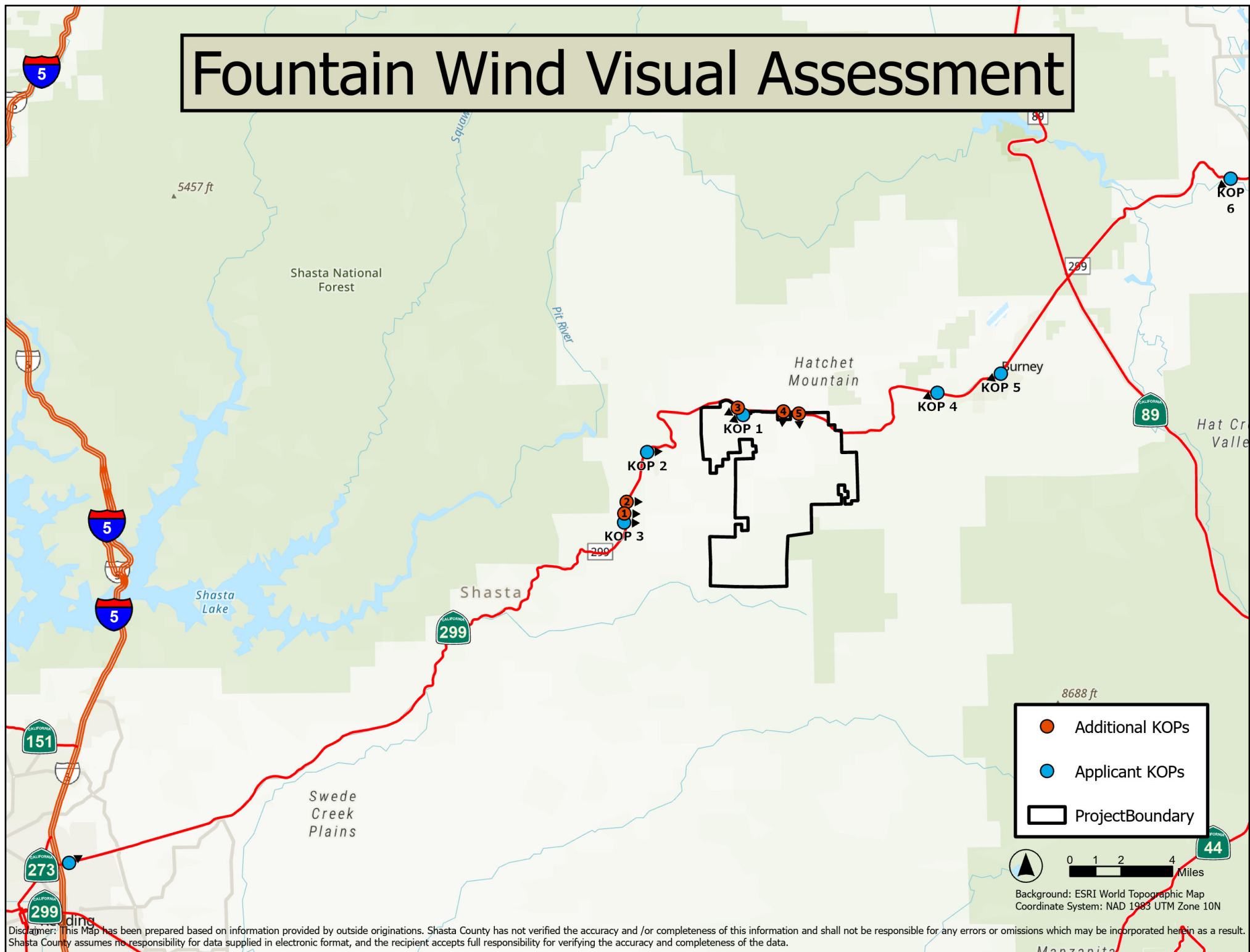
- CEC (California Energy Commission). 2023a. Docket Number: 23-OPT-01, TN# 250567. *fwp\_visual\_resources\_addendum\_pt1*. June 9, 2023.
- CEC. 2023b. Docket Number: 23-OPT-01, TN# 250566. *fwp\_visual\_resources\_addendum\_pt2*. June 9, 2023.
- CEC. 2023c. Docket Number: 23-OPT-01, TN# 253663. *National Park Service Comments – Night Sky Impacts to two nearby National Park Sites and Communities*. December 18, 2023.
- CEC. 2023d. Docket Number: 23-OPT-01, TN# 249950-2. *CEC data Response Memo – Visual Resources*. May 2, 2023.
- CEC. 2023e. Docket Number: 23-OPT-01, TN# 251199. *FtnWind\_VisResTechReportAddendum\_07262023\_no\_sims*. July 27, 2023.
- DOI (United States Department of the Interior). 2013. *Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands*. First Edition. April 2013.
- OPR (Office of Planning and Research). 2024. *California Environmental Quality Act (CEQA) Statute(Public Resources Code 21000-21189) and Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387)*. January 1, 2024.
- FAA (U.S. Department of Transportation, Federal Aviation Administration). 2007. *Advisory Circular AC 70/7460-1K, Obstruction Marking and Lighting*. February 1, 2007.
- Shasta (Shasta County). 2020. *Fountain Wind Project Draft Environmental Impact Report for Use Permit No. UP 16-007 (SCH No. 2019012029)*. July 2020.
- Sullivan, R., et al. U.S. Department of the Interior, Bureau of Land Management. *Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes*.
- Sullivan, R., M. Meyer and J. Palmer. 2021. *Evaluating Photosimulations for Visual Impact Assessment*. Natural Resources Stewardship and Science, Air Resources Division, National Park Service, Lakewood, Colorado.

## Attachments

Fountain Wind Visual Impacts Figure (Applicant KOPs/Additional KOPs)



# Fountain Wind Visual Assessment

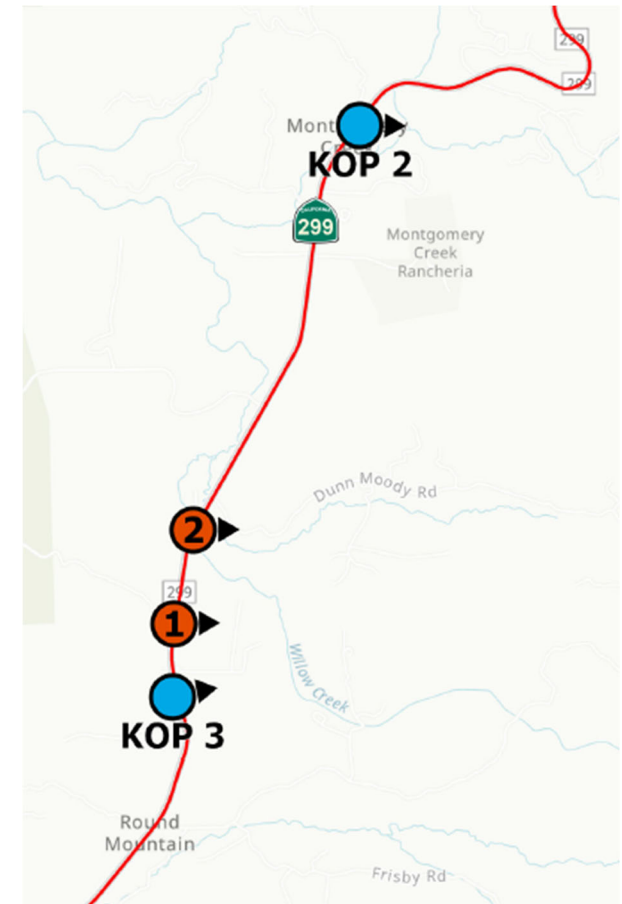




Additional KOP 1

Photo Taken 11/06/2024 at 10:24 AM

Facing Fountain Wind Project Area



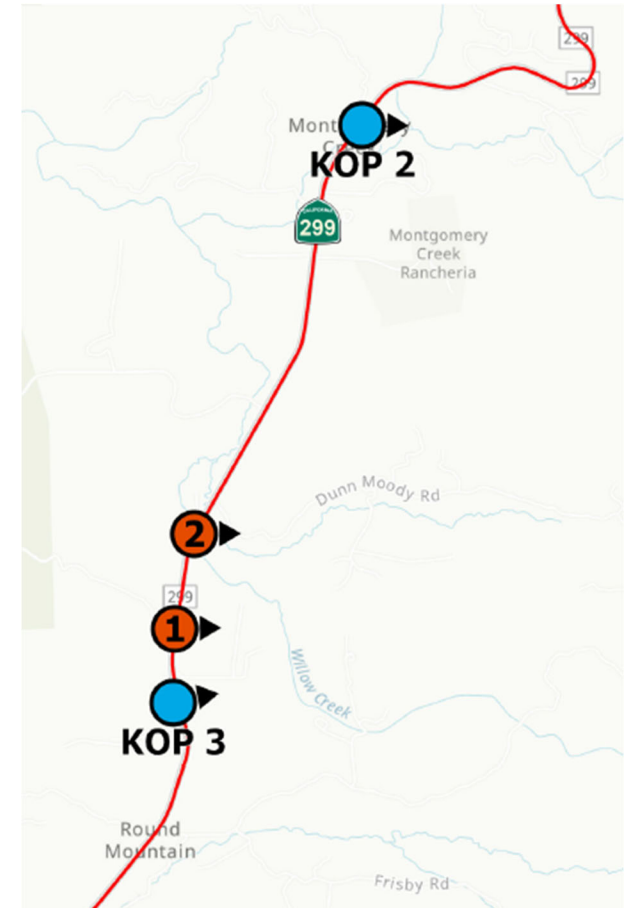




## Additional KOP 2

Photo Taken 11/06/2024 at 10:21 AM

Facing Fountain Wind Project Area



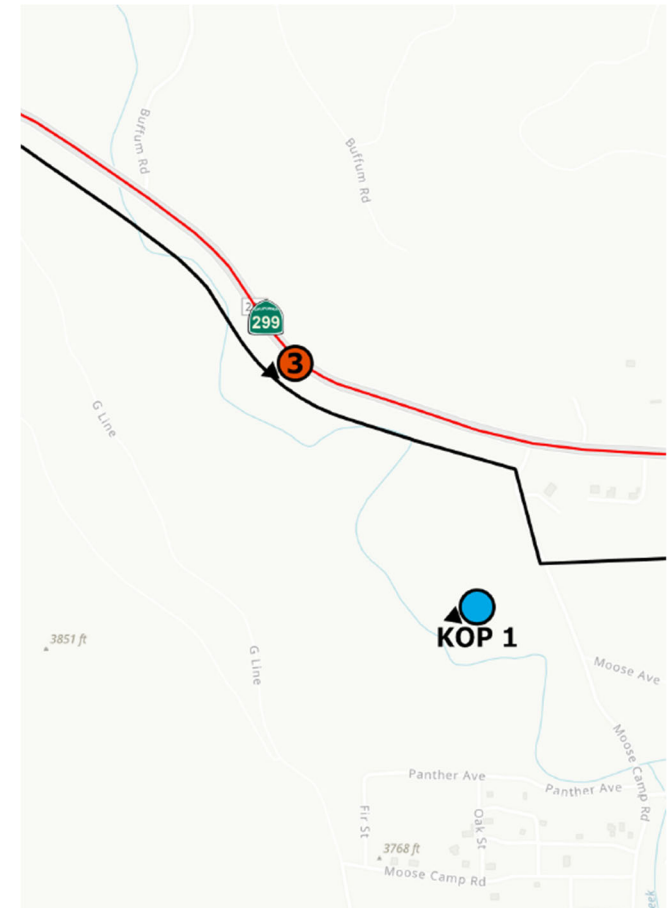




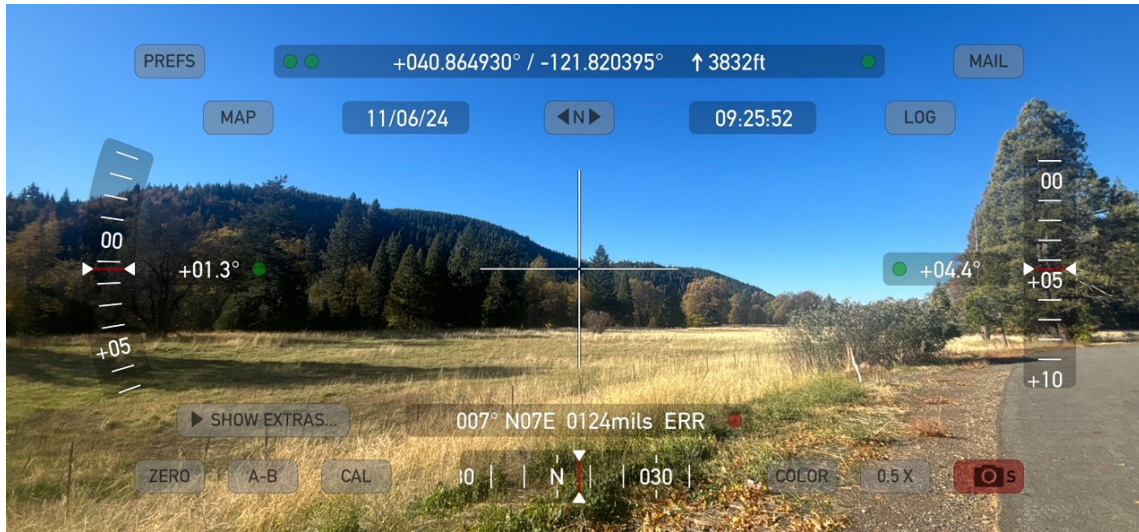
### Additional KOP 3

Photo Taken 11/06/2024 at 9:17 AM

Facing Fountain Wind Project Area



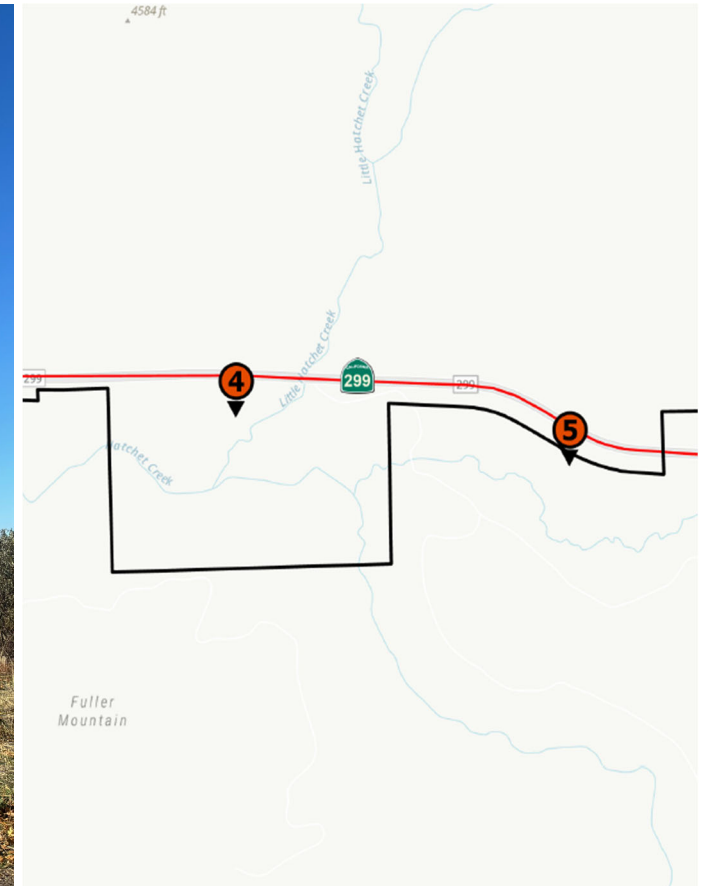




Additional KOP 4

Photo Taken 11/06/2024 at 9:25 AM

Facing Fountain Wind Project Area



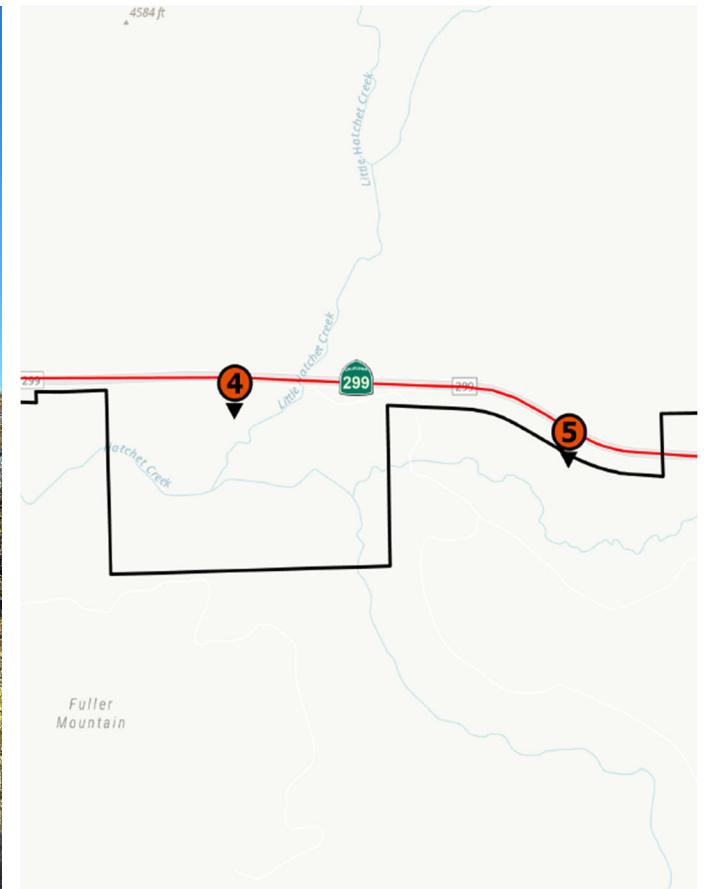




Additional KOP 5

Photo Taken 11/06/2024 at 9:28 AM

Facing Fountain Wind Project Area





## Attachment 2

Staff Assessment EIR Figures 5.15-1 through 5.15-18



**Figure 5.15-1**

View from the Caltrans maintained Hatchet Mountain Vista Point (a pullout) on State Route 299 (3,300 feet elevation) looking southwest at Ward Butte and to the west at Carberry Mountain. The proposed 2,855-acre project site is to the west about one and a half miles. The view shows a scenic vista as defined, the “saddle” or gap in the topography. Photo credit: Darayush Mistry, “Hatchet Mountain Vista Point – looking towards Burney,” Google Maps, April 2021, accessed on October 12, 2024.

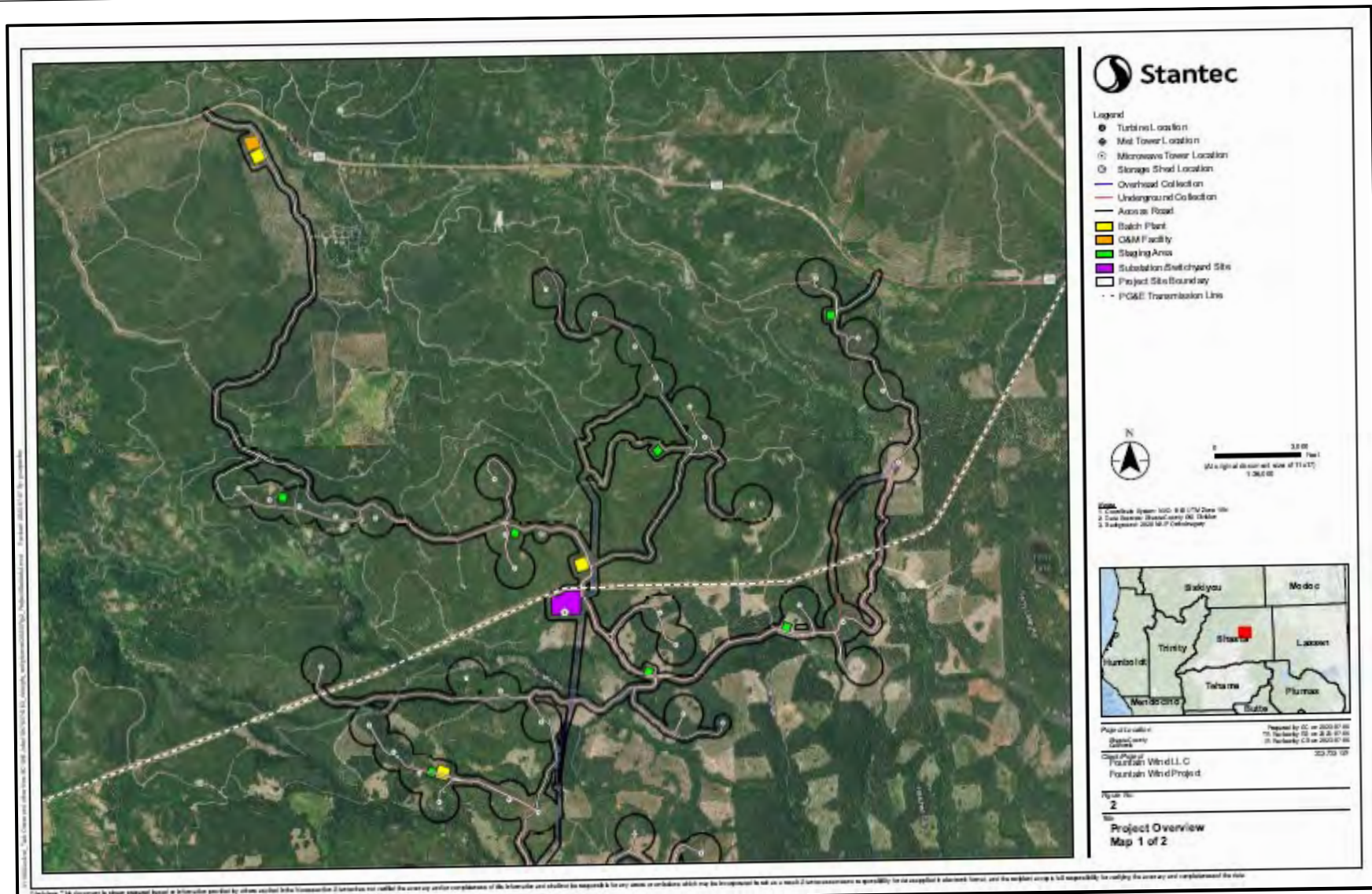


Figure 5.15-2

Project site aerial overview northern portion of the 2,855 acres. Source: Stantec Consulting Services, Inc., docketed March 4, 2024, as TN #254794.



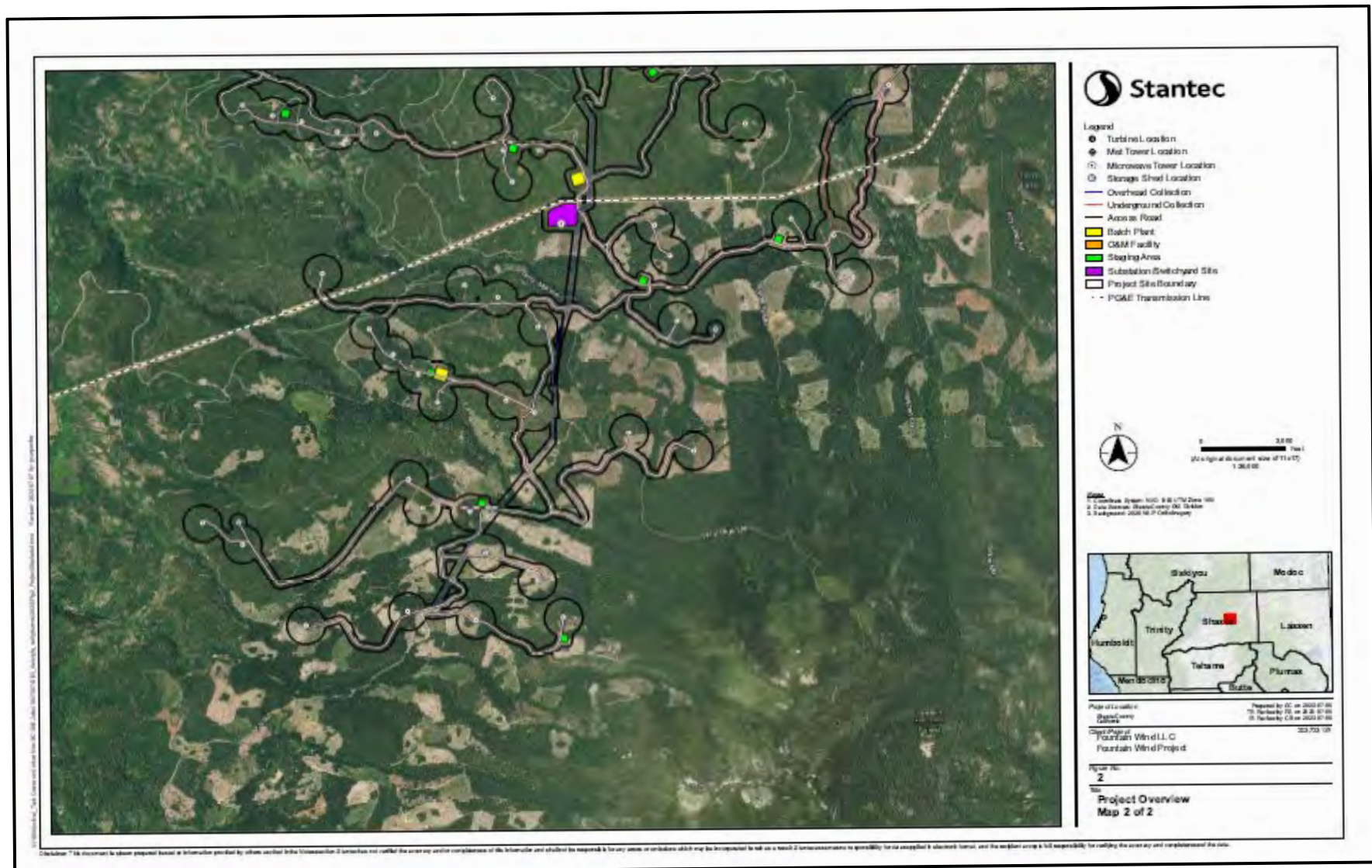


Figure 5.15-3

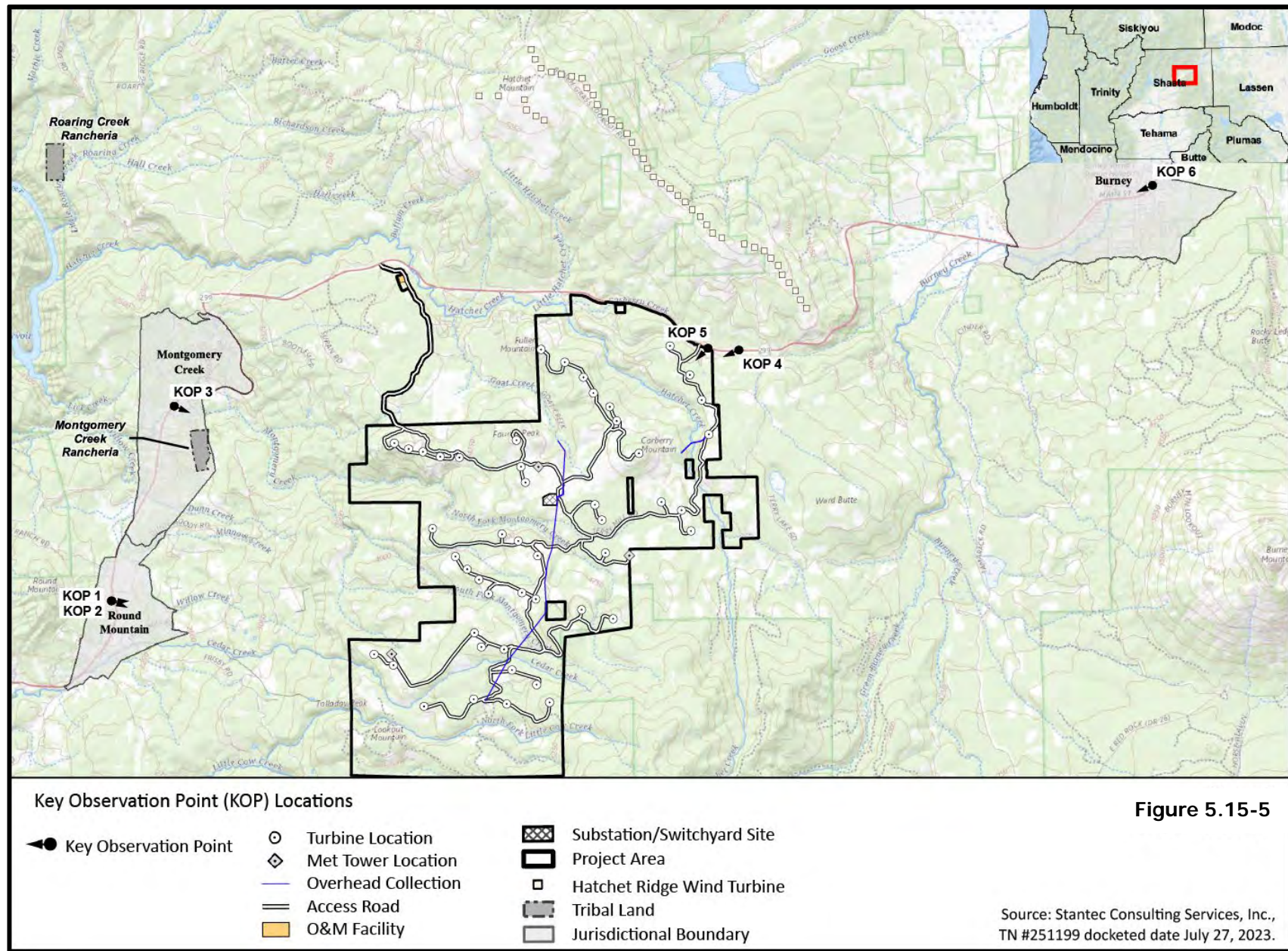
Project site aerial overview southern portion of the 2,855 acres. Source: Stantec Consulting Services, Inc., docketed March 4, 2024, as TN #254794.



**Figure 5.15-4**

An image showing existing wind turbine generators on forestland (top photo) and a simulated image showing wind turbine generators above a mature tree canopy on forestland (bottom photo). Photo credit: ConnectGen, "Fountain Wind Project," 2023, ConnectGen website: <https://www.fountainwind.com/> and <https://www.connectgenllc.com/-project/fountain-wind-project/>, accessed on November 10, 2024.









**Figure 5.15-6**

Existing view from KOP 1 - United States Post Office Round Mountain driveway entrance on SR-299. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.



**Figure 5.15-7**

Existing view from KOP 1 plus simulated project components. Source: Stantec Consulting Services Inc., docketed June 9, 2023, as TN #250566.



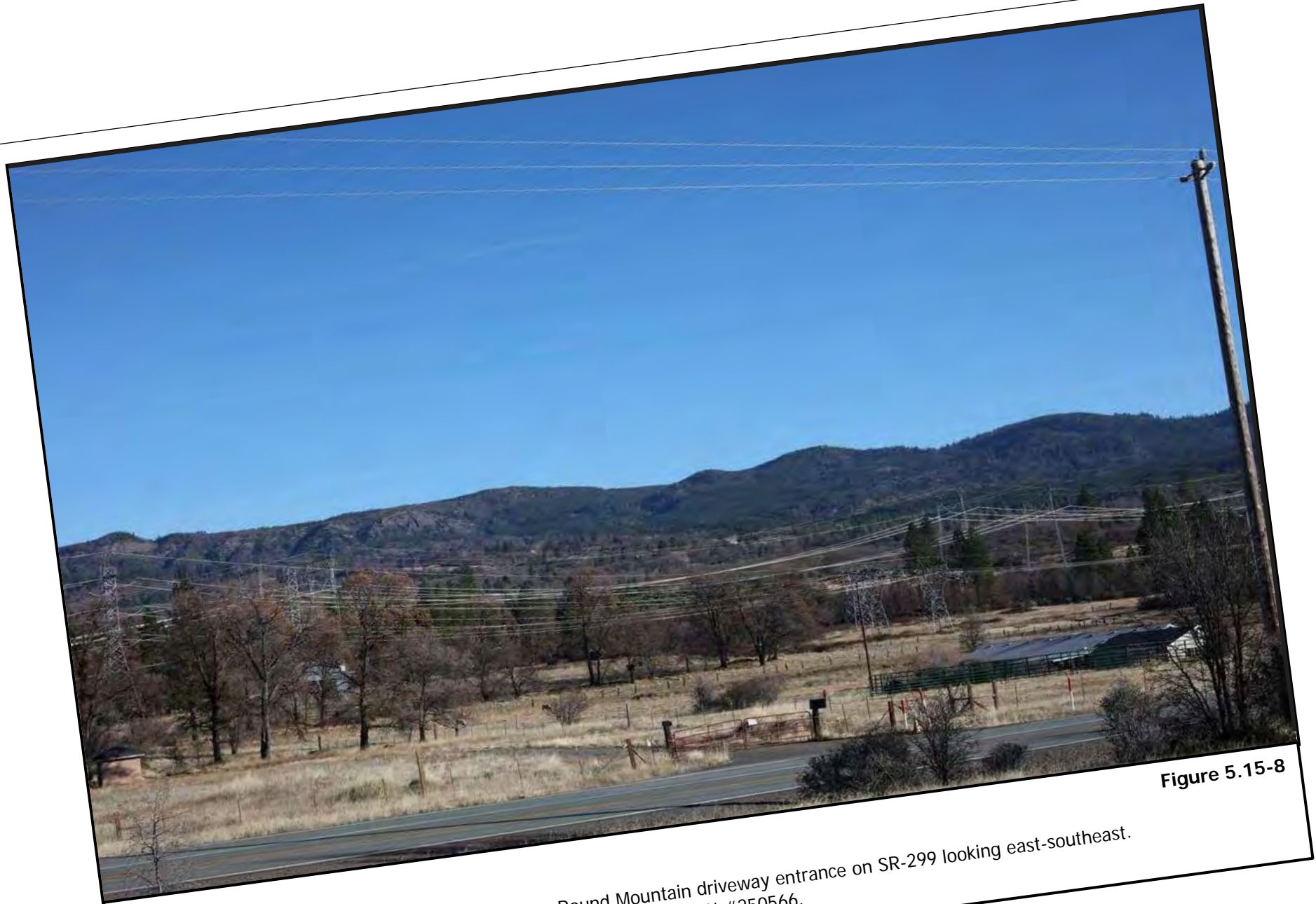


Figure 5.15-8

Existing view from KOP 2 - United States Post Office Round Mountain driveway entrance on SR-299 looking east-southeast.  
Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.



**Figure 5.15-9**

Existing view from KOP 2 plus simulated project components. Source: Stantec Consulting Services Inc., docketed June 9, 2023, as TN #250566.





**Figure 5.15-10**

Existing view from KOP 3 - Montgomery Creek Elementary School driveway entrance on SR-299. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.



**Figure 5.15-11**

Existing view plus simulated project components from KOP 3. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.





**Figure 5.15-12**

Existing view from KOP 4 - west of Bunch Grass Lookout Road on SR-299. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.



**Figure 5.15-13**

View showing existing wind generator turbines at Hatchet Ridge Wind on the northside of SR-299 approximately one-mile east of the proposed Fountain Wind Project site in Shasta County, California. Photo credit: Carlos Avila Gonzales, "An epic battle is brewing between California and deep-red Shasta County. Here are the details," San Francisco Chronicle, December 10, 2023.





**Figure 5.15-14**

Existing view from KOP 4 plus simulated project components. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.





**Figure 5.15-15**

Existing view from KOP 5 – the location for the proposed east access road entrance to the project site on SR-299.  
Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.





**Figure 5.15-16**

Existing view from KOP 5 plus simulated project components. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.



**Figure 5.15-17**

Existing view from KOP 6 – junction of Main Street (SR-299) and Mountain View Road in the town of Burney. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.





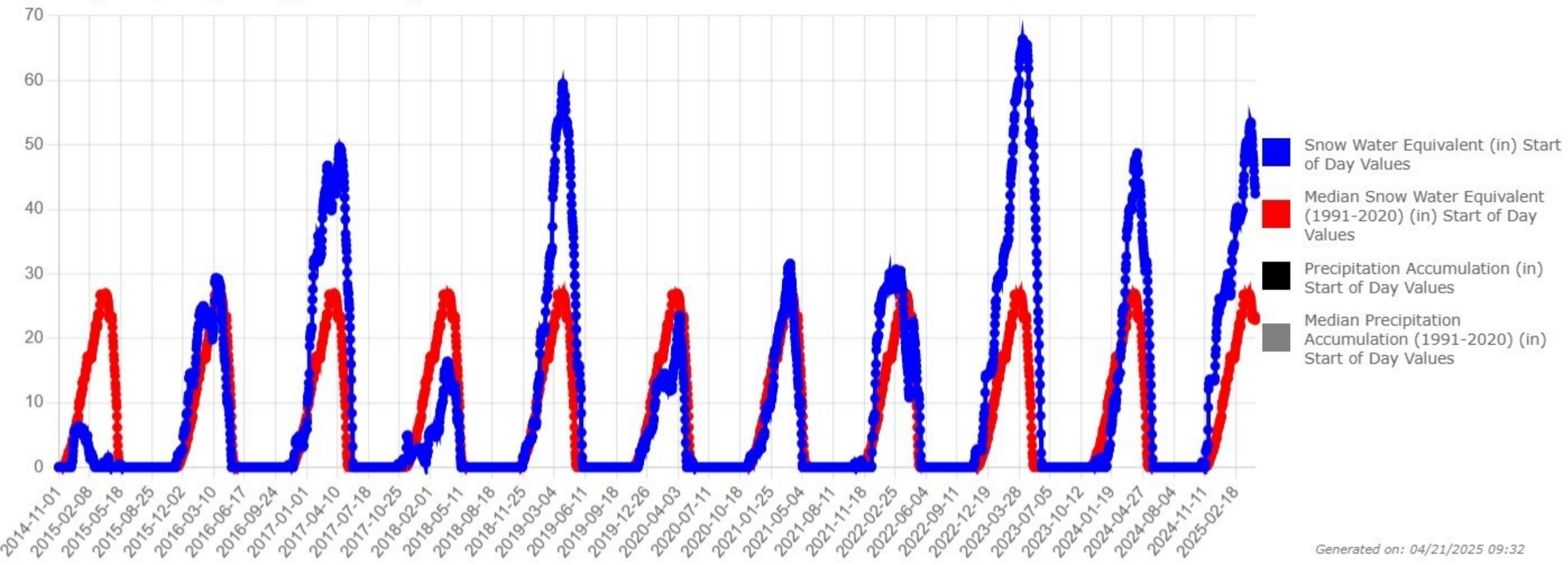
**Figure 5.15-18**

Existing view from KOP 6 plus simulated project components. Source: Stantec Consulting Services, Inc., docketed June 9, 2023, as TN #250566.

## Attachment 3

### NWCC Chart

**Snow Mountain (SNM) California COOPERATOR SNOW SENSORS Site - 5900 ft**  
**Reporting Frequency: Daily; Date Range: 2014-11-01 to 2025-04-21**





## Attachment 4

### Example Visual Effects from Wind Turbines



Figure 1 - Wind turbines in the Tehachapi Mountains, Kern County, during winter. Source: [https://www.tehachapinews.com/visitor-guide/visitor-guide-something-in-the-air-tehachapi-pass-makes-ideal-wind-energy-location/article\\_30a805bc-0bc9-11ee-86c2-af3afcda9c1b.html](https://www.tehachapinews.com/visitor-guide/visitor-guide-something-in-the-air-tehachapi-pass-makes-ideal-wind-energy-location/article_30a805bc-0bc9-11ee-86c2-af3afcda9c1b.html).



Figure 2 - Red navigation warning lights on turbines in Allen County, Kansas flash in unison during an overcast nighttime sky. Source: <https://www.cjonline.com/story/news/politics/government/2023/04/04/kansas-bill-would-turn-off-flashing-red-lights-on-wind-farms-at-night/70056963007/>.



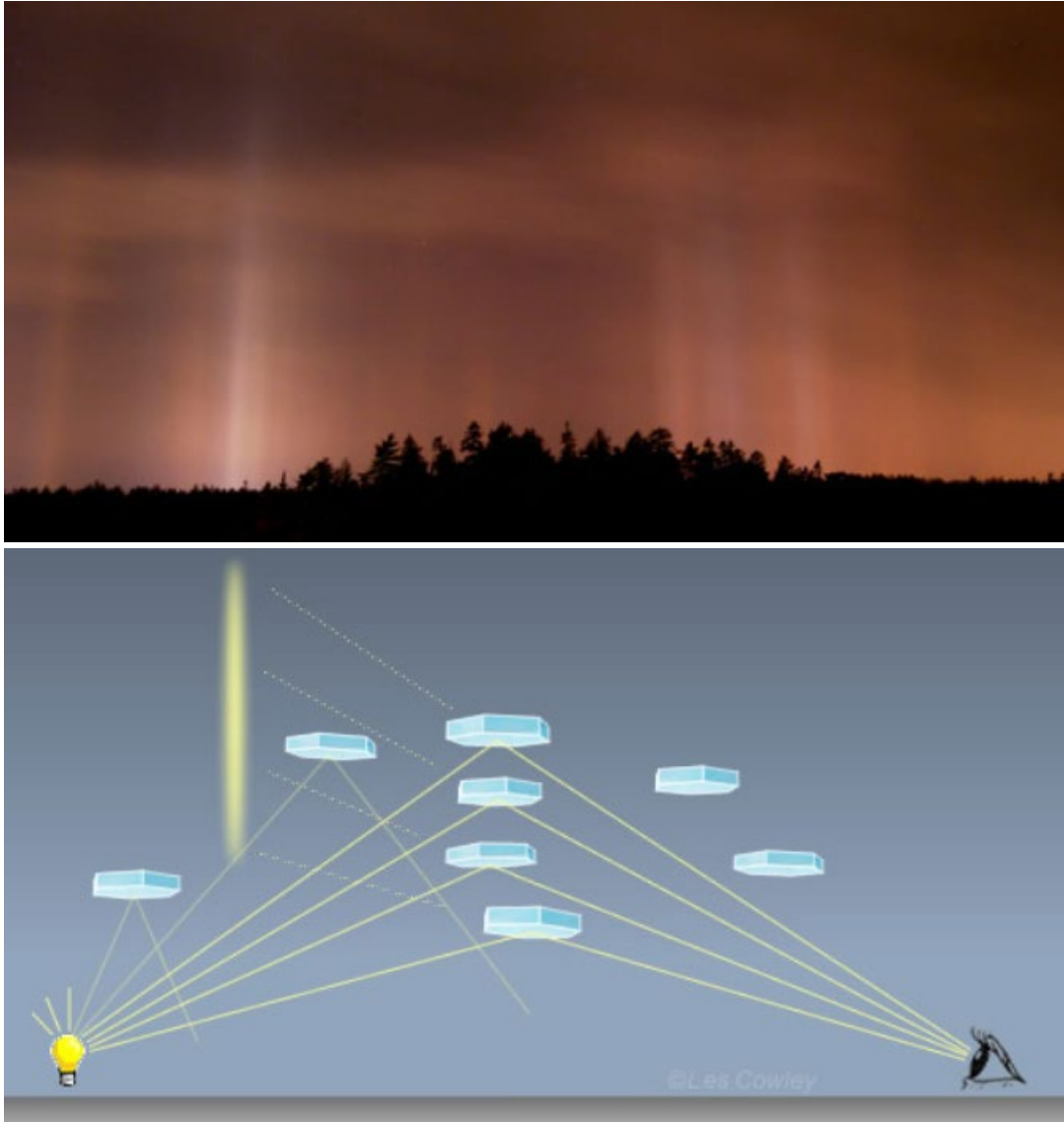


Figure 3 - Light Pillar Effect. Source: <https://atoptics.co.uk/blog/light-pillars/>.