

**DOCKETED**

<b>Docket Number:</b>	23-OPT-01
<b>Project Title:</b>	Fountain Wind Project
<b>TN #:</b>	252363
<b>Document Title:</b>	Joseph Osa Comments - Lightning & Other Salient Details
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Joseph Osa
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	9/22/2023 1:16:11 PM
<b>Docketed Date:</b>	9/22/2023

*Comment Received From: Joseph Osa  
Submitted On: 9/22/2023  
Docket Number: 23-OPT-01*

## **Lightning & Other Salient Details**

*Additional submitted attachment is included below.*

September 21, 2023

To: Drew Bohan, Executive Energy Director, California Energy Commission  
Leonidas Payne, Project Manager, California Energy Commission  
Mr. Eric Knight, Manager, Siting and Environmental Branch

Subj: Wildfire, Lightning, and Other Salient Environmental Concerns Regarding the Fountain  
Wind Opt-In Application

Dear CEC Staff,

As you know several letters have been submitted by community members discussing the many problems with locating the Applicants project in our area within Shasta County. The community letters submitted have testified to the life-threatening impediment to aerial firefighting capabilities within and near the turbine field, due to the unmitigable obstructions of the large turbines scattered about on the highest ridge lines, in an area that is already rated the highest fire hazard severity zone by both Cal Fire and the CPUC.

I am writing this letter to add some salient details to the problems with locating this project in these forested lands of Shasta County. Most of the information presented to the CEC thus far, by various individuals in opposition to this project, was also previously presented to the Shasta County decision makers on both the Planning Commission and during the applicant's appeal to the Board of Supervisors, which when considered along with the numerous other environmental and social impacts, led them to not approve the applicant's permit, not certify the inaccurate FEIR, and eventually led to them implementing a general ban for this type of project in all of the unincorporated lands of Shasta County, not because they were against green energy projects, but because they were responsibly looking out for the health, safety, peace, and general welfare of it's residents. There is a new Biomass electrical generation facility being built not far from the project site which was enthusiastically embraced by the community and County officials because it is **the right type of project** for our area and can be an important part of forest health and restoration activities that also support a reduction of the wildfire risks, without impeding aerial firefighting operations or adding unnecessary ignition sources to our forests.

Some of the less talked about reasons why this area is not right for this project also have to do with the wildfire threat. This project increases the wildfire threat by some of the very same activities the applicant suggest will reduce it. The wide areas that are permanently cleared of trees to accommodate the transmission lines, both above and below ground, the cleared areas around the turbines themselves and other associated infrastructure, and roads, create "edge effects" within the forest. These open areas along with the associated "edge effects" expose

the remaining trees, particularly along the edge of these clearings, to hot drying winds and direct sunlight that they would not have been subjected to, which can have a devastating effect on them and other flora and fauna, causing death, disease and loss of moisture, (see reference [13]) thus increasing their vulnerability to fire and increasing the chance of contact with electrical transmission lines. These clearings also vastly increase the surface area covered with flashy fuels and would give a fire within them the ability to quickly move into other ladder fuels and eventually the forest. In addition, these openings increase the probability of “wind throw,” as the now exposed trees are not sheltered by other trees to wind velocity and have not grown stressed by wind. As such they are subject to limb breakage and toppling. This project would add miles of power lines in the area (one of the major causes of wildfires) which could be exposed to dead, dying, or other weather caused tree contact, requiring constant maintenance, and even then, they would increase the risk. As I’m writing this on 9/21/23 we are under another Red Flag Warning with notifications received of a probable PSPS event. We were to lose power yesterday, but the winds haven’t started yet, now the power may be shut off sometime this evening. This stressful situation has become a way of life recently. Community members peruse the social media sites, online area fire watch cameras, and other fire-watch sites when they smell smoke, we sign up for emergency alerts with Shasta County, PG&E, etc. Many of us listen on scanners or have the alert FM emergency radios. Given the threat of a wildfire in our area from any cause and the fact that our safety can’t be assured with the existing power lines, how could it possibly be OK to add the miles of additional power lines required by this project? Besides the wildfire threat impacts mentioned above, there are the effects of the turbines themselves on the ignitability of fuels in the area.

Wind turbines are known to cause a general increase in the surface temperature of the land near and amongst them of 3-5 degrees Fahrenheit. They also cause a loss of precipitation and humidity in the same area, particularly downwind (see references [1,2,3,4,5,11,12]). The combined effects of increased temperatures, reduced humidity/precipitation and the drying forest edge effects significantly increases the risk of a wildfire in their vicinity that can’t be mitigated. The numerous Red Flag Warnings, Fire Watches and PSPS events would likely be much greater within their general area if monitored. The loss of Aerial firefighting capability in the area, the drying effects of increased temperature and loss of humidity and forest edge effects should be more than enough reason to deny the applicants project, but there are additional reasons to be considered.

As you may be aware a significant cause of wildfires in our area and elsewhere is lightning, particularly the dry-lightning events we often experience. It so happens that lightning is also the number one cause of turbine fires as well. Wind turbines are also known to attract lightning (see references [6,7,8,9,10,11,12,14]). They attract both downward and upward traveling lightning in the general area of a wind development that can affect other structures besides the turbines themselves, such as the trees and power lines which are often the usual points of contact for most of the ground strikes in our area. The probability of any lightning strike igniting the local area, is dependent on fuel load, type, and moisture content. Most of the area where

the project is proposed is a monoculture of Ponderosa Pine. With long needle pines, their ignitability is mostly dependent on moisture level whereas for a Douglass fir type forest the depth of the duff layer seems to be the determining factor. The previously mentioned drying effects, due to wind turbines will also increase the probability that a lightning strike will ignite the local vegetation and cause a wildfire. The increase in the presence of flashy fuels, as mentioned earlier, will also increase the probability of ignition by a dry-lightning event. The increase in the density of lightning within the vicinity of this development would also affect the nearby Hatchet Ridge Wind Development and the combined effect of both developments, with up to 92 turbines in this general area, would make our common dry-lightning events much more life threatening. It is also common for a lightning strike to contact the electrical distribution system in our area and frequently causes power outages until the blown transformer, downed power line or tripped breaker is repaired. Installing miles of additional power distribution lines in this area is just adding to a recipe for a disaster. As mentioned earlier the number one cause of turbine fires is lightning; therefore, locating them in an area known for dry-lightning events, also increases the probability that they will catch fire and spread to the nearby forest and communities. It also increases the chance that the nearby Hatchet Ridge turbines will catch fire.

Additionally, the location of the proposed turbines, along the intermittent ridgelines between Round Mountain, Montgomery Creek and the prominent Hatchet Ridge to the east where the present Hatchet Ridge industrial wind development is located, exacerbates the wildfire issues identified above by creating a no-fly zone for the entire area. As you are aware, aerial firefighting pilots and private pilots have testified that you cannot fly in or near a wind farm. If you approve this project, 600 plus foot tall wind turbines will be interspersed on ridges from Round Mountain, Montgomery Creek to Hatchet Ridge, creating a no-fly zone for the entire area, thus eliminating any critically important aerial firefighting capabilities, and likely hampering other emergency aerial response such as those involving the helicopter pad at Moose Camp. If a fire starts near Round Mountain with a southwest wind pushing it, it will rage through the Round Mountain, Montgomery Creek area all the way to Hatchet Ridge without aerial attack. Then it will crest in a firestorm and head downslope to Burney as did the Fountain Fire.

Another complexity that adds to the problem of lightning strikes, particularly those that contact the turbines, is that the soil conductivity in this area is low, as was noted in the previous EIR studies, and would likely require specially designed grounding systems that would have to be regularly maintained. Once again, our safety becomes unnecessarily dependent on how well somebody maintains their system as opposed to a "No Project" alternative. If lightning does strike a turbine, it does not necessarily have to catch fire to be a problem. It is also well known that the lightning strikes, even with the typical grounding system in place, can cause microdamage that later leads to catastrophic failures, which in turn can lead to fires and other safety issues and is a major concern for the insurance industry that cover turbine damages.

Most of the community members in this area are not against environmentally sound projects. Many community members have solar, hydro, and use other ecologically responsible methods to conserve energy and reduce their carbon footprint, some even have small wind systems, but this is just the wrong project for this forested area. Please deny this application for all the above reasons, the issues raised in the numerous docketed opposition letters, and the many other negative impacts that were previously addressed during the lengthy CEQA review by Shasta County. The “No Project” alternative is the only one that makes any sense considering all the added risk to our lives and general welfare this project brings to this area.

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