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OPPOSITION TO FOUNTAIN WIND - Fire, Mitigation, Health from an Emergency Management Perspective

Additional submitted attachment is included below.

To Whom it May Concern-

Intro and Expertise:

I am Kelly Willett Tanner. I have a Masters Degree in Disaster and Emergency Management and wrote my thesis on the Fountain Fire. I am writing in **OPPOSITION** to the proposed Fountain Wind Project which I and many others spent years opposing. While I was very actively involved in fighting the project in Shasta County. I spoke with many of the locals, fire officials, renowned fire experts and others over the course of fighting this project at the county. I will save you from another 135-page comment that the County received but that can be found, along with my presentation to the Board of Supervisors, a power point given to the county, and 3 op-eds I wrote elsewhere.

I will try to keep this brief. Personal circumstances have not allowed me to participate in this process as I would've liked to have done. Ironically, I appear to be one of the victims of wildfire smoke, my doctors believe that exposure to wildfire smoke has been as detrimental to me as the flames themselves. I have never smoked in my life and had no lung problems until 2022. I have been diagnosed with Severe Refractory Steroid Dependent Asthma in September 2023 along with who knows how many other people in this state due to exposure to wildfire smoke proving flames are just one element of wildfire that needs to be addressed. I have been hospitalized 4 times in the past year, I have needed biPaP twice and been in the ICU. I have had two rounds of pneumonia and 5 bouts of bronchitis which have prevented me from being more involved in this process and has completely altered my life. This is a public health issue as much as anything else.

This is particularly an environmental justice issue for rural areas and one often ignored: Research shows a strong association between exposure to small particulate matter (PM2.5) from wildfire smoke and increasing severity of asthma, other respiratory disease, such as COPD, inflammation or infections, including bronchitis and pneumonia, emergency department visits, and hospital admissions. https://ww2.arb.ca.gov/resources/documents/frequently-asked-questions-wildfire-emissions

This is a process we shouldn't have to endure all over again when we thought we could breathe safely knowing this project and County zoning had changed.

However, with my background and knowledge on the Fountain Fire I cannot live with myself knowing what I know and stay silent as this is people's lives and cultures at stake, even with my health so compromised I promised my community to see this through to the end. I agree with the recommendation that this project should **NOT** be approved. Simply put. This is not the right place for a project like this. I spent hundreds, if not more hours researching the original application at the County level and added to my research on the Fountain Fire and every facet of CEQA and that report. I will reiterate that the name of the project itself is insulting and does trigger PTSD for much of this community. Naming a project after something that burned our homes in mere hours is not an honor. It's a slap on the face.

MITIGATION and EMERGENCY MANAGEMENT, CEQA, FIRE

1. I am not a firefighter, or a CEQA Expert. However, my Emergency Management background doesn't differ from the main purpose of a DEIR in exploring how to mitigate problems caused by a project. In Emergency Management we view all disasters as HUMAN made and not natural. Our job is to mitigate many of those problems just like CEQA. An Emergency Managers job is to think of worse case scenarios, as well as, regular or more realistic hazards to make it safer for emergency responders, communities and citizens. It is crucial to good planning. As a person living so close to the project, it would be in my best interest to figure out solutions and mitigation that would make myself and the community safer if this were passed. In terms of fire – I can't no matter how hard I try because what is necessary to do would not be accepted by the community, the state or the applicant. It also would not be economically feasible. It would require drastic measures and costs.
2. The original fight against the original application shows what extent the applicant is willing to go and how tone deaf to the community, real risk and mitigation they are. At one point during that process, an applicant representative directly attempted to silence my legitimate safety concerns by saying, *'If all you see is disaster, all you will get is disaster.'* This comment was not only dismissive and irresponsible but an overt attempt to intimidate me into silence, implying that legitimate safety concerns should be ignored or downplayed. This attitude clearly illustrates the applicant's unwillingness to seriously consider the real and dangerous implications of their proposal. Any claims they make about caring about the community and mitigation are dismissed when looking at these comments.
3. The applicant's assertion they can 100% mitigate fire for this project is false. No Emergency Manager would claim to be able to mitigate 100% for any disaster particularly a fire or wildfire. If so, there would be no wildfires or fires because local cities, counties, states and the nation all have mitigation plans. PG&E and other utilities also have mitigation plans. We can see how effective these have been. If fire was 100% mitigatable millions of acres wouldn't be burning in California.
4. The applicant challenges even firefighters saying that they cannot weigh in on their capability to fight fires near turbines because they have no experience fighting turbines. This is a complete 180 from the county hearings where they constantly asked planning commissioners and Board of Supervisors to ask the real firefighting experts - the firefighters. Yet, when the firefighters say what they don't want to hear all of a sudden they too are unqualified to speak on firefighting. This is illogical. This would be equivalent to a firefighter saying that that the applicant has no idea how to construct a turbine with new technology so they can't weigh in. Does this mean no turbines have ever had fires? And if so, then how can the applicant tell us whether these fires can be fought? Are the applicants firefighters, know how to fight fires or do they know how to fight fires in complex terrain? The applicant also says they are relying on new technology in the turbines if so, how do they have the experience to weigh in on it and if it will work

or not? Either both the firefighters and the applicant can weigh in on using their professional expertise or neither can when it comes to new technology.

5. One can look at an example below about the difficulties of fighting such a fire by using the illustrative example:
    a. Fighting a fire in a 700-foot turbine is like battling a blaze in a 70-story skyscraper that's completely inaccessible from the inside, filled with hundreds of gallons of highly flammable lubricants and oils, and equipped with massive blades (each longer than a football field) capable of breaking off and unpredictably flying or collapsing. Now imagine that skyscraper standing atop a complex ridgeline, surrounded by dense forest with no effective shaded fuel breaks, making traditional land/wildland firefighting methods and ladder responses nearly impossible. Aerial firefighting support—vital for protecting crews on the ground—would be forced into weaving dangerously between multiple skyscrapers of varying heights due to terrain and slope differences, creating unpredictable wind tunnels and severe turbulence as wind and atmospheric conditions would change as the wind bounced off each structure. Meanwhile, to respond directly, you're left relying on just two people trapped inside this inaccessible, blazing building, armed only with small fire extinguishers and sprinklers. It's a scenario no firefighter would willingly confront—yet that's precisely what fighting a fire involving these turbines would entail.
2. The applicant's argument that firefighters cannot weigh in because they have never fought turbine fires is absurd and illogical. By that reasoning, no expert could ever address safety issues with any new or emerging technology. If firefighters truly lack expertise in turbine fires, as the applicant suggests, how exactly does the applicant intend to prepare emergency responders for such fires? Are they setting up mock turbines for training? Conducting specialized aerial and ground firefighting drills around similarly scaled turbines? Without actual experience or thorough specialized training—which the applicant has neither provided nor outlined, their mitigation plan is inherently flawed, dangerously incomplete, and absolutely not 100% mitigatable.
3. Additionally, given the turbine height, blade length, and complex ridgeline placement, the turbines themselves will inevitably create turbulent, tornado-like wind patterns in an area already highly susceptible to extreme fire behavior. As an emergency manager, I question how quickly these intense wind vortices could spread embers and spot fires well beyond standard mitigation measures. What's their emergency warning and evacuation protocol for rapidly developing turbine-induced firestorms? Have they modeled how far and fast embers might travel, the anticipated rate of fire spread under these unique conditions, or the extreme heat intensities likely generated? How much heat will the lubricants and oil add to a fire started from a turbine or a turbine entering the area? How quickly would it take for a turbine to ignite if a fire entered the project area? Without addressing these critical questions, their claims of safe mitigation remain hollow and dangerously misleading.
4. At the Board of Supervisor Meeting regarding the original application. The Fire Chief noted that 200 feet does not equal a shaded fuel break and that fuel breaks are intended

for firefighters on the ground to be able to stay safe with the help of aerial planes if their lives were endangered.

5. The applicant may want to say the firefighters cannot weigh in however the incident commander is the one in charge of deciding which resources will be sent and to where – not the applicant. Without a shaded fuel break of appropriate proportions – this will not happen. They will not risk their firefighter's lives.
6. The applicant states that they will have water tenders on the ground to fight fires from the ground. However, without aerial support and the incident commander's willingness to send men without aerial protection, who will these water tenders be used by? Where will they be getting the water?
7. During the Fountain Fire the old logging roads leading to the fire in the project area were too unsafe. It has been admitted that the roads would take a long time to get up for fire personnel and equipment. My grandfather's house and his neighbors were saved because the firefighters were trapped and had to make a stand for their own lives by protecting the structures and vicinity around them. They could not get up these roads in time.
8. The applicant notes that there are turbines in Canada and Washington but do not note whether the topography is the same. In Ontario, Canada, on July 18, 2018 one fire was started in the construction process by an ATV. For three days small fires had started by construction crews and despite it being red flag warnings and written plans to not work on them during these conditions the company constructing them continued anyway despite their "mitigation plans." It led to 28,000 acres burned without a single turbine on the land yet.
    a. The risk is not just once the turbines are constructed it starts well before that. Ironically, the same company leasing the land for the project during wildfire season often restricts their land to the public during the summer due to "wildfire danger risks." This is acknowledgement of how high risk this area is for fire and that it is too hazardous to have others in the area on foot let alone giant turbines creating new risks.
9. The two-hundred-foot fuel break the applicant proposes is laughable at best quoting the standard for what CALFIRE is implementing for prescribed burns. Prescribed burns are done under specific conditions, monitored closely and often not near large structures like the applicant's turbines. Prescribed burns are done under the best conditions possible to control a fire. A fire in a turbine will not just occur on a day when fires are optimal to fight and cannot be compared to a prescribed burn in remote areas with little to no population. It is a very poor comparison.
    a. A real shaded fuel break would have to look something like Stephen Pyne, one of the most respected wildfire experts in the world, mentions about Camp Pendleton. He also states, "… in no cases do fuelbreaks succeed by themselves, any more than firewalls will keep a building from burning down; but they buy time and assist firefighting. (p.91). Fuelbreaks struggle "when retrofitted or imposed over landscape in defiance of terrain, wind, and fuels. When local conditions favor large fires, only very large fuelbreaks can help check them, and that effectively means type conversion, transforming whole landscapes…" (Pyne 2017, p. 91).

Pyne also explains "engineers design for a 50- or 100- year flood, not a millennial one, or for a 5.8 or 6.7 earthquake, not for a Richter 8. Similarly, fire agencies traditionally plan for an average event" (Pyne 2016)."

b. Pyne also explains that throughout the world the most massive changes in land use result in the most violent outbreaks. Furthermore "Complete prevention is chimerical – accidents, arson, lightning something will start a blaze. This shifts the burden of protection to rapid detection and initial attack… even the best systems will lose 2 to 3 percent of starts under extreme conditions, and these fires may sweep widely. (During the 2002 season, initial attack caught 99.2 percent of all starts – and lost 7.2 million acres)" (Pyne 2004). Even prescribed fires that are done by professional firefighters using the best methods under optimal conditions cannot stop a prescribed fire from burning out of control. "Prescribed fires have killed, their smoke has obscured views, led to car crashes, and compromised human health…the percentage of fires that escape prescription is estimated at approximately 2 to 3 percent, roughly the same as those that escape initial attack. (Ibid).

10. While the applicant is overconfident in their 100% ability to mitigate fires caused by themselves and turbines, they completely ignore fires that are not started by them and enter the project area and hit the turbines. CEQA requires them to understand cumulative effects. But pretending fires don't occur naturally and ignorantly believing no fires or firestorms, like the Fountain Fire will enter their project area and lead to catastrophic results is wishful thinking. Fires operate under fire regimes. CalFire already states, without the project that fires in this area will be more disastrous than any fire before"\ due to the heavy electrical infrastructure and other changes that have occurred since the Fountain Fire. Adding these turbines, and potentially projects they pretend are not in the works if this passes will lead to extreme danger to life and homes. Considering the Fountain Fire burned over 600 structures and wiped-out entire communities in mere hours there is only one thing that can be worse. People will die. It is a miracle they didn't in the Fountain Fire. They did die cleaning up the fire though.
11. Studies say 10% of turbine fires are reported. They aren't in fire databases (applicants may say they searched but found no turbine fires – they aren't listed as turbine fires but as structures just like your home; no way to tell what type of structure burned.

Fountain Fire

1. Emergency Managers, when creating mitigation plans and assessing risks, often look at historical events. They know that disasters often occur in the same area and act similarly as prior disasters. They also understand all disasters are local – they behave differently based on the unique attributes of the area and community they involve. You cannot compare a wildfire in Nebraska for example with a wildfire in the mountains of Northern California.
2. This area already has a historical fire that was almost wholly ignored in the thousands of pages of the applicants original DEIR and FEIR. In doing so, they missed valuable clues and serious concerns that would be challenging for their project whether their turbines or

a wildfire entering their project site would pose. Briefly here are some of the major things to consider. This comes from my extensive research and is only a few factors one must consider:

a. At the time the Fountain Fire became the fastest and costliest fire in California history. It stayed in the top 25 for most structures burned until the last few years. It was still 20th at the time of the original application to the County. This is astonishing due to its rural environment.
b. It moved at a peak of 9mph and sustained a rate of 6 mph. It burned the equivalent of 105 football fields a minute. It burned 12 miles in 3 hours. 91 square miles and 63 out of the 64,000 acres burned in 33 hrs. 2/3 of the structures were gone the first night.
c. It was a firestorm. It took 20 minutes for the first Engine to reach the remote area and the area the fire broke out in was on accessible roads not the logging roads that are even further away from fire departments and roads that are anticipated to be built for this project (though aircraft arrived sooner)
d. 300 ft high flames
e. It created its own weather system detected by weather radar in Medford Oregon – produced a 25,000 foot cloud, produced multiple lightning strikes, and soaring winds between 50-70 mph as well as spawned fire tornadoes.
f. People only had one egress route that quickly was blocked by fire to both citizens and firefighters. Citizens and firefighters alike were trapped some in meadows and others forced to use slow and dangerous old logging roads. In response to this in the original application, the applicant stated this was a problem that existed before the project and not their problem. This is a very callous view for the lives of both emergency responders and the community. It also undermines CEQA and cumulative effects ignoring the facts on the ground.
g. CalFire official records say it was difficult to fight because it was remote and long travel times. Winds shifted 90 degrees every 15 minutes, both sides of 299E was blocked almost instantly changing fire trucks routes. Fire tornadoes spawned snapping trees 3 feet in width, blew metal roofs 300 ft. Firefighters were left dropping hoses, ran for their lives, sliding down hatchet ridge. The turbines are even more remote.
h. There were only 13 volunteer firefighters – there are now approximately 7. Many were not here when the fire started.
i. Only 25% of the resources needed to fight the fires were available as large fires were burning in the state. This is now common and a growing challenge as fires continue to grow more acres and more devastatingly each year.
j. The fire arced along powerlines.
k. It was compared by the national news to the 1988 Yellowstone Fires but a miniature version.
l. Infrastructure Destroyed: 300 PG&E Wooden power poles, 169,000 Ft of telephone lines, 300 Hwy Guardrails

m. Destroyed 50% of the homes in Round Mountain, including destroying Cedar Creek Elementary School's Cafeteria (the school is now closed due to those who had to move after the fire and the drop in property taxes) 40 out of 60 homes at Moose Camp destroyed and 2/3 of total structure loss occurred during the 1st day

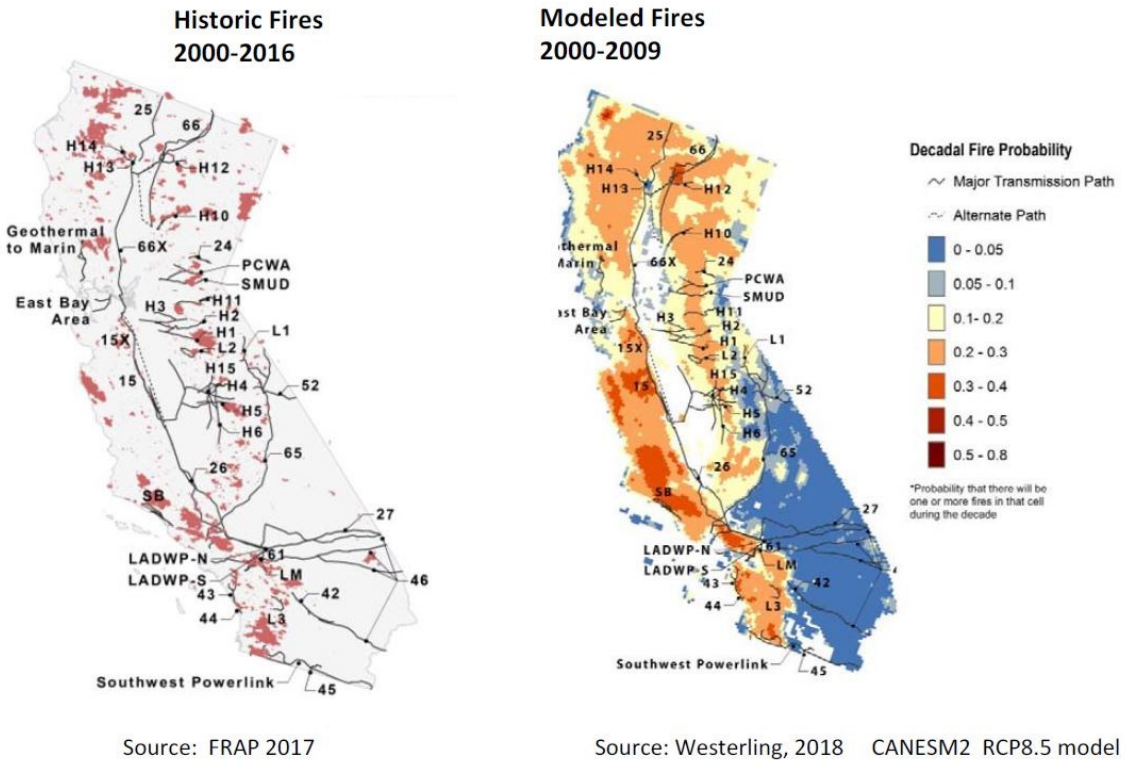
Climate Change/Concerns over Electric Infrastructure Fires

1. If the goal is to reduce carbon emissions, you don't add more hazards to increase the release of carbon emissions – wildfire in forests and the structures it's burning is doing just that. It's why the state is desperately trying to keep building out of the WUI and to keep from building in high-risk fire areas.
2. Wildfire emissions are becoming one of the largest sources of Pollution in California:
    a. In 2020 alone, wildfires killed 30 people and caused more than $19 billion in economic losses. On top of the immediate damages, the wildfires lead to pollution that is set to shave nearly a year off the life expectancy of residents in California's most polluted counties if pollution levels persist. What is often ignored is that, fueled by climate change's higher temperatures and drier conditions, the wildfires also contribute to climate change. A new analysis finds the wildfires in 2020 alone make up 30 percent of the state's greenhouse gas emissions.
    b. U.S. Secretary of the Interior Ryan Zinke today announced that according to data analyzed by the U.S. Geological Survey (USGS), the 2018 wildfire season in California is estimated to have released emissions equivalent to roughly 68 million tons of carbon dioxide. This number equates to about 15 percent of all California emissions, and it is on par with the **annual emissions produced by generating enough electricity to power the entire state for a year.** https://www.doi.gov/pressreleases/new-analysis-shows-2018-california-wildfires-emitted-much-carbon-dioxide-entire-years
    c. Using preliminary fire footprint information, CARB has also released a draft estimate of 2020 wildfire GHG emissions, which was the worst fire year on record (by acres burned) for the State of California. The emissions estimate, 112 million metric tons of CO_2 ($MMTCO_2$), is equivalent to the amount of carbon contained in the structural lumber of 6.3 million average California homes, or over 75 percent of all homes in California. This number is expected to be updated when final data become available in mid-2021. https://ww2.arb.ca.gov/resources/documents/frequently-asked-questions-wildfire-emissions
    d. Health risks to citizens, particularly near wildfires is often ignored. Ironically, I appear to be one of the victims of wildfire smoke which has prevented me from being more involved in this process and completely altering my life. This is particularly an environmental justice issue for rural areas and one often ignored: Research shows a strong association between exposure to small particulate matter (PM2.5) from wildfire smoke and increasing severity of asthma, other respiratory disease, such as COPD, inflammation or infections, including bronchitis and pneumonia, emergency department visits, and hospital admissions. https://ww2.arb.ca.gov/resources/documents/frequently-asked-questions-wildfire-emissions

3. Taken from my original response citing the Fourth Climate Change Assessment Report:

Furthermore, technical reports made for California in regards to the Fourth Climate Change Assessment include one report regarding the impacts of wildfires on electric infrastructure and the ability to reliably provide Californians with electrical service. The report reviews past wildfires that were in close proximity to high transmission power lines, disrupted service from fires near powerlines, the financial cost of repairing such infrastructure, increasing climate change problems that will further exasperate the risk to electric infrastructure particularly high-powered transmission lines (including the ones specifically in this project area) and notes that efforts should be made to either place these lines underground or make land use choices to locate such infrastructure outside of high fire risk areas.

One significant finding from the report is that "Over the 2000-2016 period, wildfire damages to the transmission and distribution system in selected areas exceeded $700 million. Total wildfire damage to all sectors of the economy were much larger. Damage to distribution from wildfires during this period was significantly higher than wildfire-mediated damage to transmission." Included in their analysis is Path 66 considered a Western Electricity Coordinating Council (WECC) path which ends in Round Mountain and other transmission lines that are routed off of that path including H12, which is within/near project site, but not considered WECC.



The figure above is included on page 13 of the report titled "Figure 5: The Exposure of California Transmission Paths to Wildfires." Note paths 66 and H12 and their high decadal fire

probability. Also note the table below included on page 23 of the report.

Table 7: New and Alternative Path Characteristics

Path_ID	Path Name	# Cells Crossed	Path Length (mi)	2040-2049 Expected No of Fires	Density
Alternative Paths					
15	Midway-LosBanos	120	635	21	0.18
15 Alt	Midway-LosBanos	98	603	16	0.16
66	California Oregon Intertie (COI)	106	398	35	0.33
66 Alt	California Oregon Intertie (COI)	108	372	32	0.30
15X	Tracy-LosBanos	52	130	11	0.21
15X Alt	Tracy-LosBanos	15	123	3	0.20
Total Original Paths		**278**	**1103**		
Total Alternate Paths		**221**	**1098**		

Source: GIS analysis applied to WECC 2013

Path 66 is expected to have the largest increase of number of fires from 2040-2049 and largest density. This is also portrayed on the map below from the report.

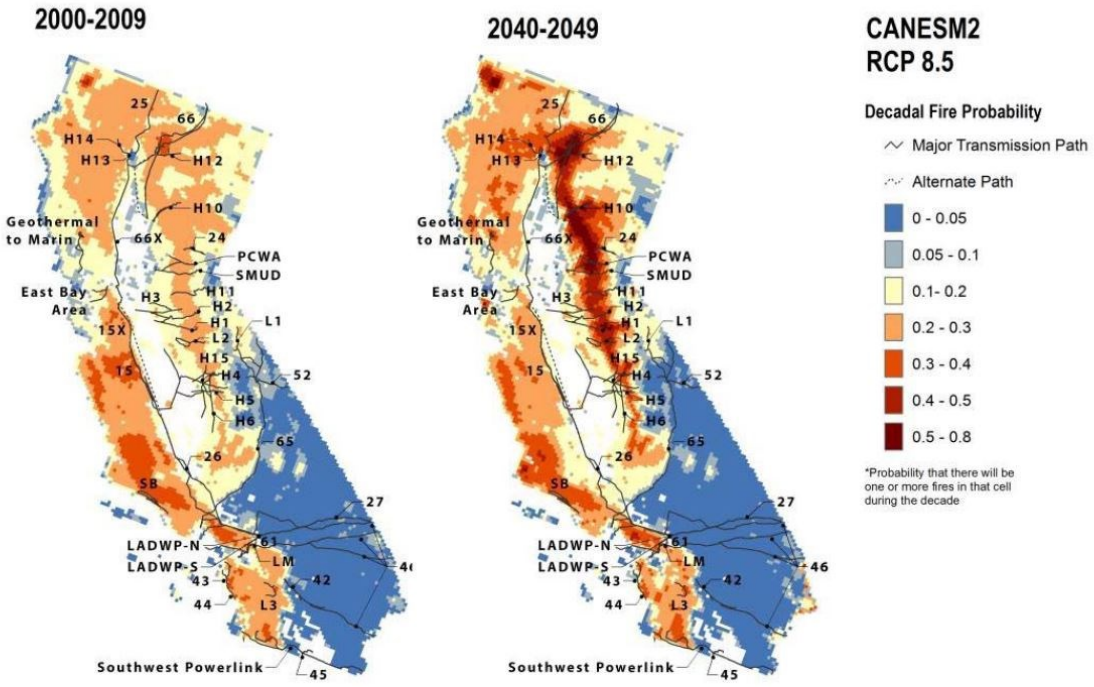


Figure 8: Projected Change in Future Fire Risk

The report defines the increase of probability near the Path 66 transmission lines as an increase of 46% higher probability with 35 fires in the ten year period. With H12 the direct transmission lines located near or within the project site as having an increase of 75% more fires or 12 fires. These represent some of the most significant increases in wildfire probability they modelled. H12 includes just 122 miles but has one of the largest MW productions of the smaller paths with the capacity of 1395 MW. This project will only add more transmission lines to this vicinity making more infrastructure and lines at risk (though does not address the transmission lines capacity of adding more MW to it). Since these projections are forecasted for 2040-2049 it also means that it will be during the operational timeframe of the wind turbines which would also put the turbines, the new substation and switching station and all of its lines into the associated risk of 75% more fires than between 2000-2009. This seems like quite the gamble for such a costly investment project. The County will be left with much of the associated costs of such damage and it could impact the reliability of energy throughout the state.

Table 8: Projected Change in Transmission Path Fire Risk

		2000-2009		2040-2049		Change	
Path ID	Area (cells)	Expected number fires	Fires per Cell Area	Expected number of fires	Fire per Cell Area	Expected number of fires	Change Number fires (%)
WECC Paths							
15	120	27	0.23	21	0.18	-6	-22%
24	44	8	0.18	11	0.25	3	38%
25	29	6	0.21	8	0.28	2	33%
26	72	15	0.21	14	0.19	-1	-7%
27	48	1	0.02	0	0.00	-1	-100%
42	15	0	0.00	0	0.00	0	0%
43	26	6	0.23	5	0.19	-1	-17%
44	12	3	0.25	3	0.25	0	0%
45	1	0	0.00	0	0.00	0	0%
46	445	10	0.02	8	0.02	-2	-20%
52	30	2	0.07	1	0.03	-1	-50%
61	3	0	0.00	0	0.00	0	0%
65	88	7	0.08	5	0.06	-2	-29%
66	106	24	0.23	35	0.33	11	46%
15X	52	12	0.23	11	0.21	-1	-8%
66X	97	16	0.16	25	0.26	9	56%
Non WECC Paths							
EastBayArea	23	4	0.17	4	0.17	0	0%
GeothermaltoMarin	68	11	0.16	14	0.21	3	27%
H1	30	6	0.20	9	0.30	3	50%
H10	72	16	0.22	32	0.44	16	100%
H11	29	5	0.17	10	0.34	5	100%
H12	58	16	0.28	28	0.48	12	75%
H13	18	2	0.11	3	0.17	1	50%
H14	13	3	0.23	4	0.31	1	33%
H15	18	4	0.22	5	0.28	1	25%
H2	38	6	0.16	9	0.24	3	50%
H3	46	8	0.17	11	0.24	3	38%
H4	22	3	0.14	4	0.18	1	33%
H5	22	4	0.18	4	0.18	0	0%
H6	119	19	0.16	25	0.21	6	32%

After calculating future projections to current paths they suggested either burying lines underground or avoiding putting future electric infrastructure in these areas projected to have a high increase in fires due to both the reliability of electricity for Californians and the estimated cost of damage to these paths

Closing:

I urge decision-makers to take heed to the data and statistics above, the inability to 100% mitigate for any fire, the Fountain Fire's foreshock of what was to come to California, the comments in *County of Inyo v. Yorty* (1973) raising the alarm bell before the ecological point of no return, not just the risk of wildfire burning things but the effects on people's health and also to the words of a survivor of the Peshtigo Fire that occurred in 1871 in Wisconsin burning over 1 million acres and which became the deadliest wildfire in United States history killing over 2,000 people.

The area was not unlike the areas here in Shasta County and was being extensively logged in order to keep up with the demand for expanding the railroads and developments in the West. Logging seemed like the ideal way to make an easy profit and safety practices were not implemented. Isaac Stephen, owner of the lumber mill, years later recounted a lesson we should all learn and particularly policy makers as we encounter newer technology and decide land-use policies. "***'But in our efforts to better our position… we unwittingly paved the way for disaster…***'" (Gezz and Lutz 2002).

California cannot make the same mistakes in an effort to better ourselves. We need to use all available resources we can, but these projects need to be in the right places and not unwittingly pave the path to disaster for its citizens.

Respectfully,

Kelly Willett Tanner