DOCKETED	
Docket Number:	23-OPT-01
Project Title:	Fountain Wind Project
TN #:	256430
Document Title:	fwp_wildfire_presentation
Description:	N/A
Filer:	Caitlin Barns
Organization:	Stantec Consulting Services, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	5/16/2024 12:56:04 PM
Docketed Date:	5/16/2024

Fountain
WIND PROJECT

Fountain Wind Project

Wildfire Analysis

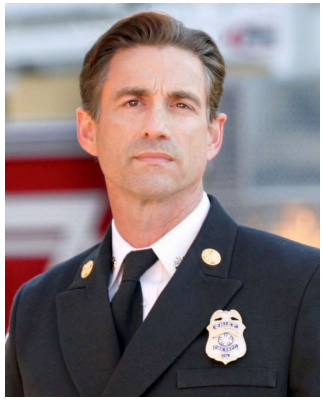
23-OPT-01

May 16, 2024

Project Fire Risk, Protection & Prevention Experts

Ruben Grijalva

Former Director of CAL FIRE
Former California State Fire Marshal
36 Years Firefighting Experience



Shane Lauderdale

Former Chief of Chico Fire-Rescue
38 Years Wildland Firefighting exp.
Operations Section Chief in response to Camp, Thomas, & North Complex wildfires

Darin Quigley

Former CAL FIRE Battalion Chief
20 Years CAL FIRE experience
42 Years Wildland Firefighting exp.
2014 CAL FIRE Firefighter of the Year
1992 Fountain Fire responder

John Messina

Former CAL FIRE Assistant Region Chief
33 Years CAL FIRE experience
15 Years Aerial Firefighting experience
2018 Camp Fire Incident Commander

Discussion Topics

1. Project's Fire Risk Reduction Benefits
2. Project's Fire Prevention Plan & Mitigation
3. Aerial Fire Fighting
4. History of Wildfires at Wind Projects in California
5. Other Wind Energy Projects in Forested Landscapes
6. Fire Suppression Technology in Modern Wind Turbines
7. Shasta County Concluded Wildfire Risks for Fountain Wind & Hatchet Ridge are Mitigable

Project's Fire Risk Reduction Benefits

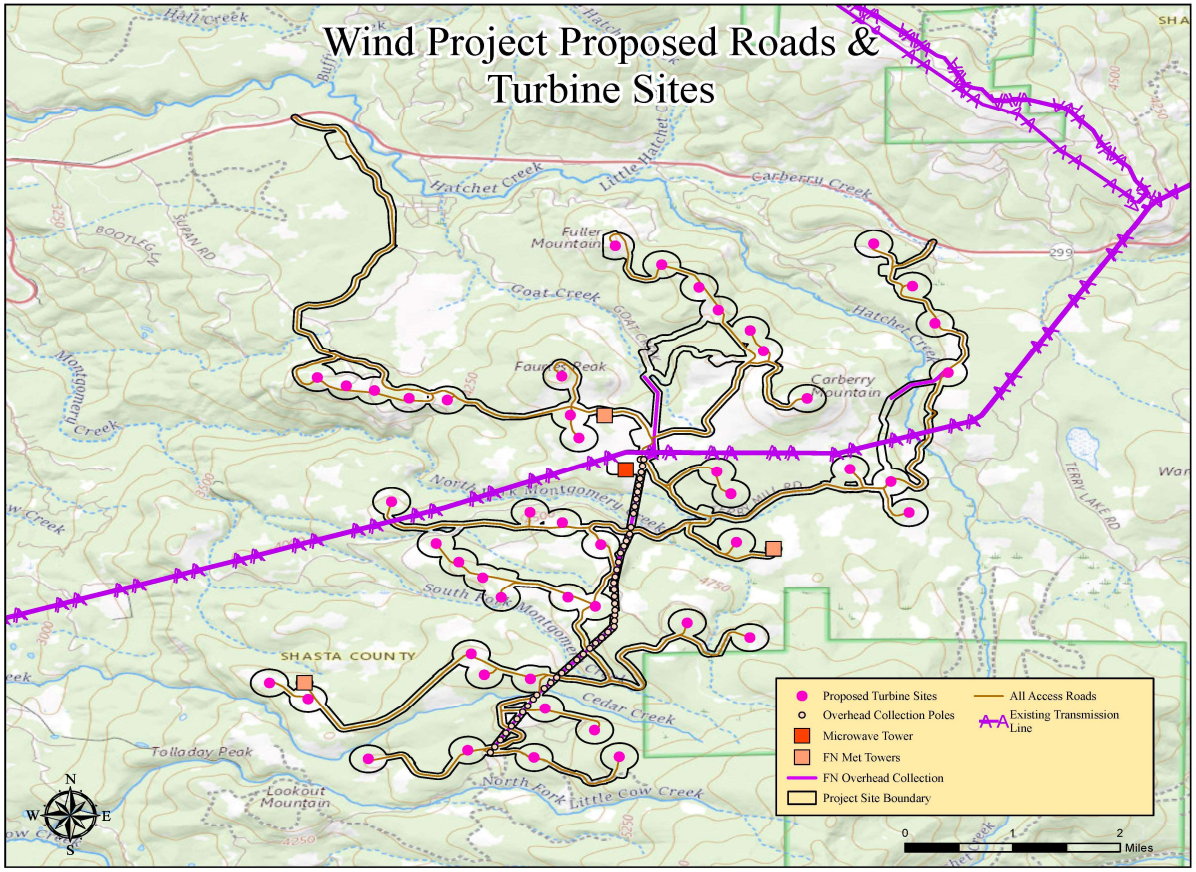
- Since 2019, California has made significant investments in a comprehensive forest and wildfire resilience strategy under the Climate Action Bill.
- This project assists in meeting that strategy by conducting 687 acres of fuel reduction within the project area.
- Strategic ridgetop fuel breaks, fuel reduction around the turbine and access road, and access to additional water sources will provide critical wildfire protection to surrounding communities.

Fire Cause History in Project Area

- Lightning Fires (2008 & 2009)
- Human Caused (Fountain)
- Lack of Access allowed rapid fire growth and challenged control operations
- Features of this Project increase access and lower risk

Project's Fire Risk Reduction Benefits (Access & Fuel Reduction)

- Fire Apparatus Access Roads will be provided with 200' of Shaded Fuel Breaks along Primary Access Roads; 100' on Secondary Access Roads
- Roads will be of an All-Weather Surface
- 2.5 Acre Cleared Area Around Each turbine

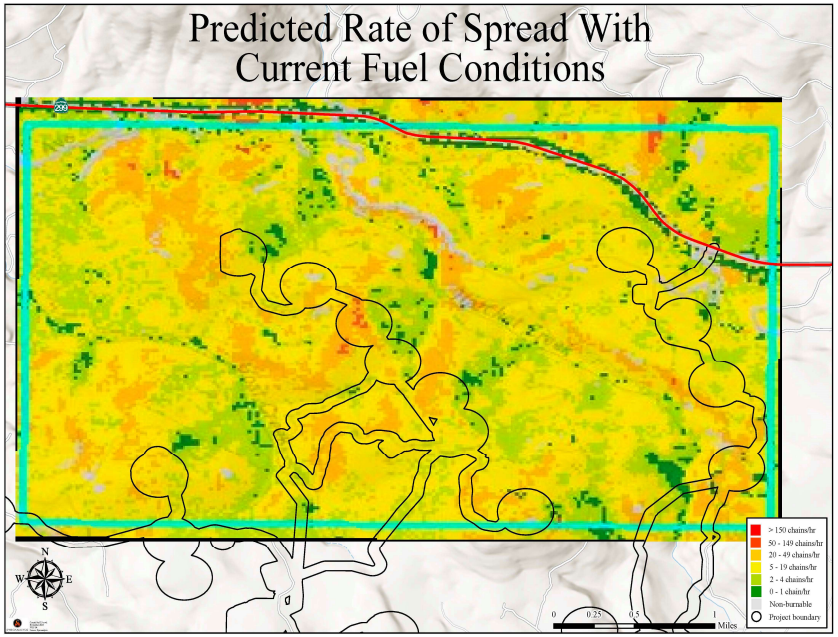


Risk *Reduction* Compared to Existing Conditions (Fuels Mitigation)

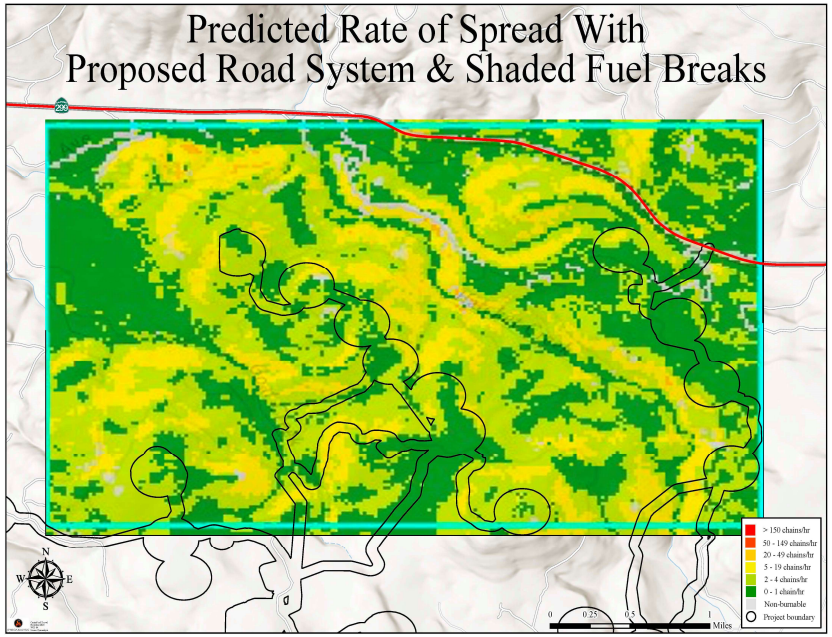
Existing Project Area

Simulated Project with Access Roads and Turbine Sites

Risk *Reduction* Compared to Existing Conditions (Fire Behavior)



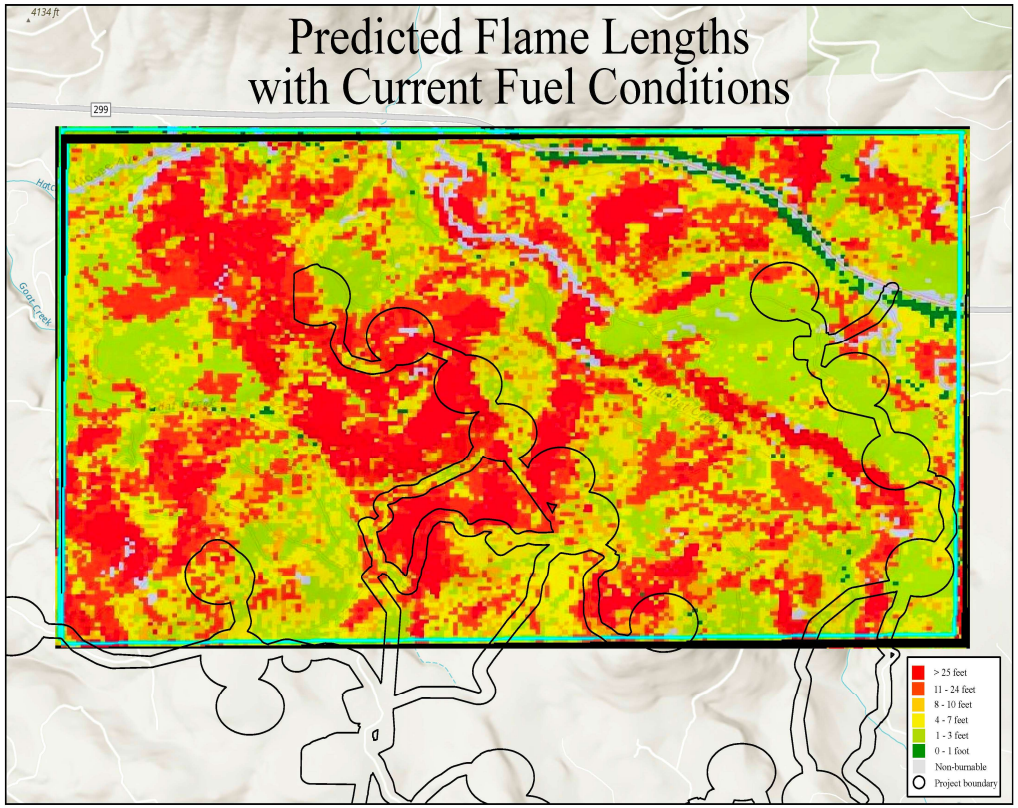
3,300 Feet Per Hour



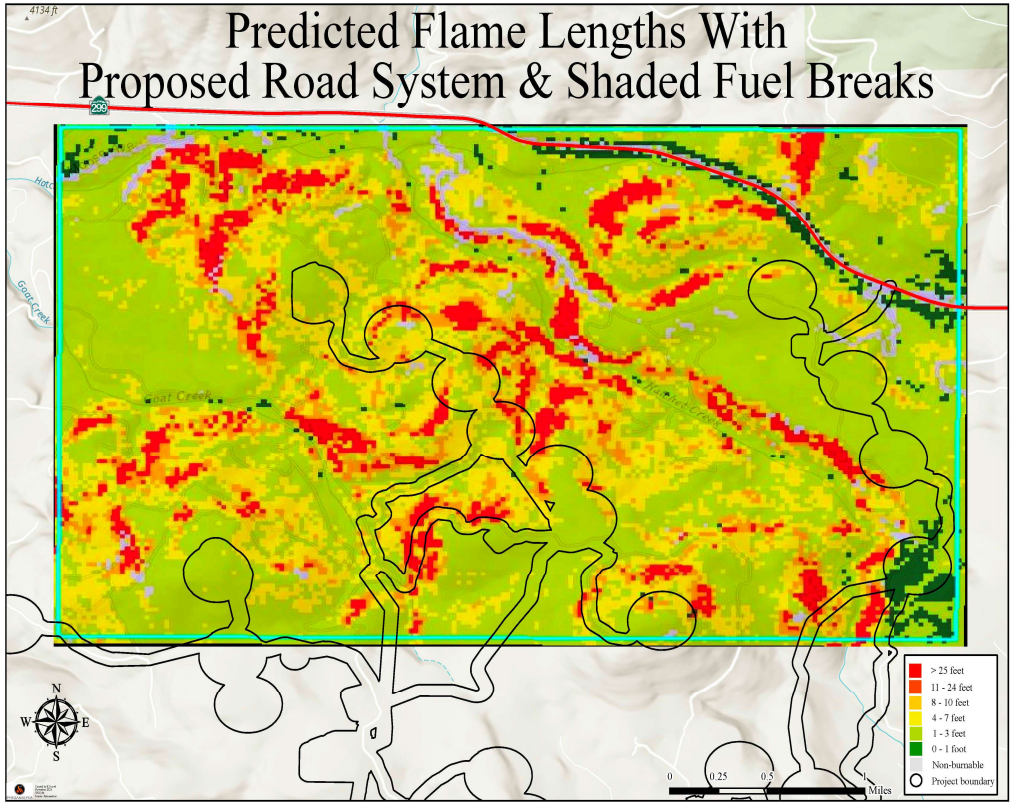
330 Feet Per Hour

Project reduces rate of fire spread by **10 times.**

Risk *Reduction* Compared to Existing Conditions (Fire Behavior)



Flame Length **>25 Feet** with Long-Range Spotting

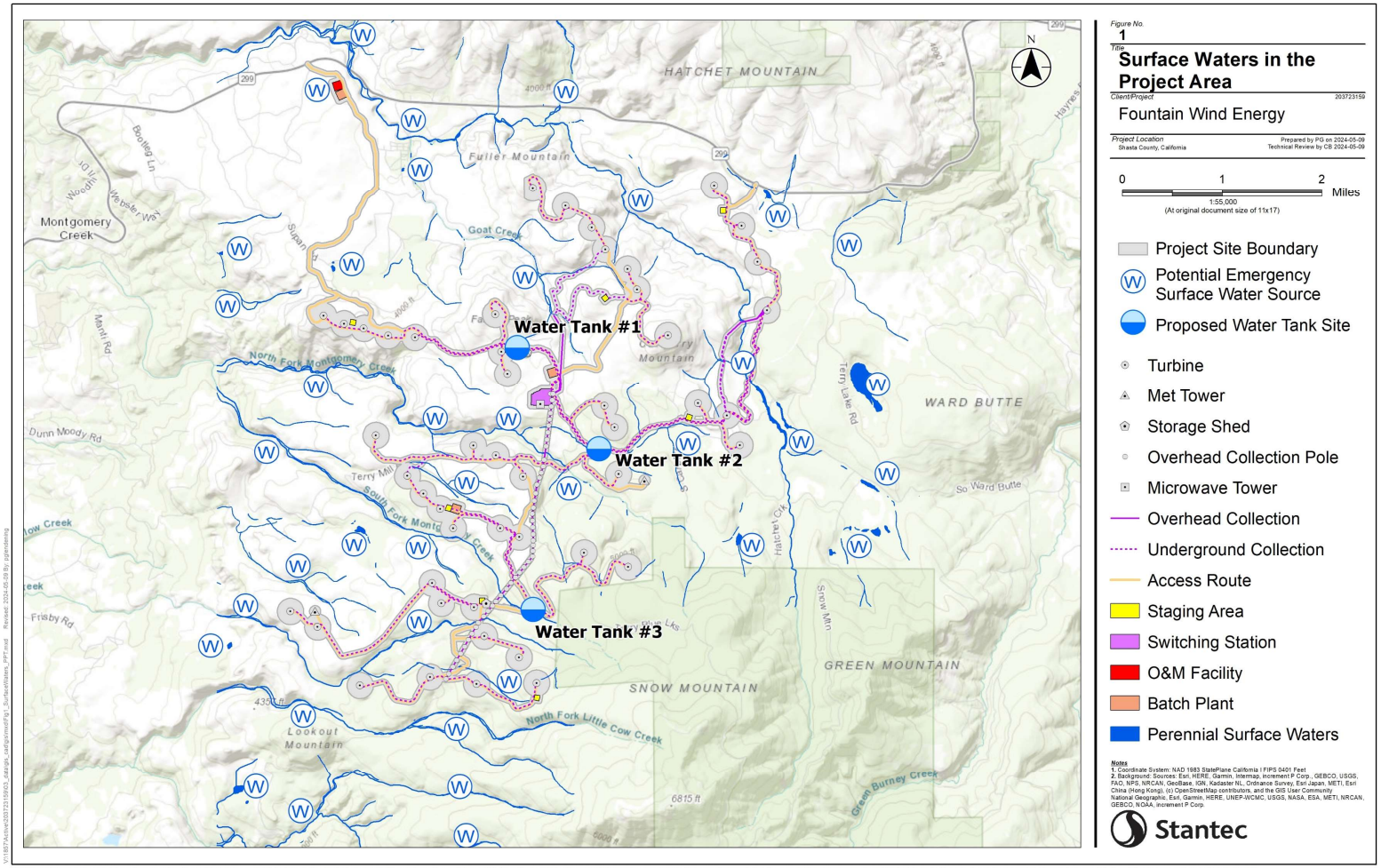


Flame Lengths **0-7 Feet** with Short-Range Spotting

Project's Fire Prevention & Mitigation Measures

- 35 thousand gallons of water will be stored in tanks at the project or near the project site for immediate refill of fire engines.
- Fire engine water tanks are 500 gallons (typical)
- Shasta County Fire Department Water Tenders can quickly refill prepositioned tanks for fire control operations.

Multiple On-Site Water Sources

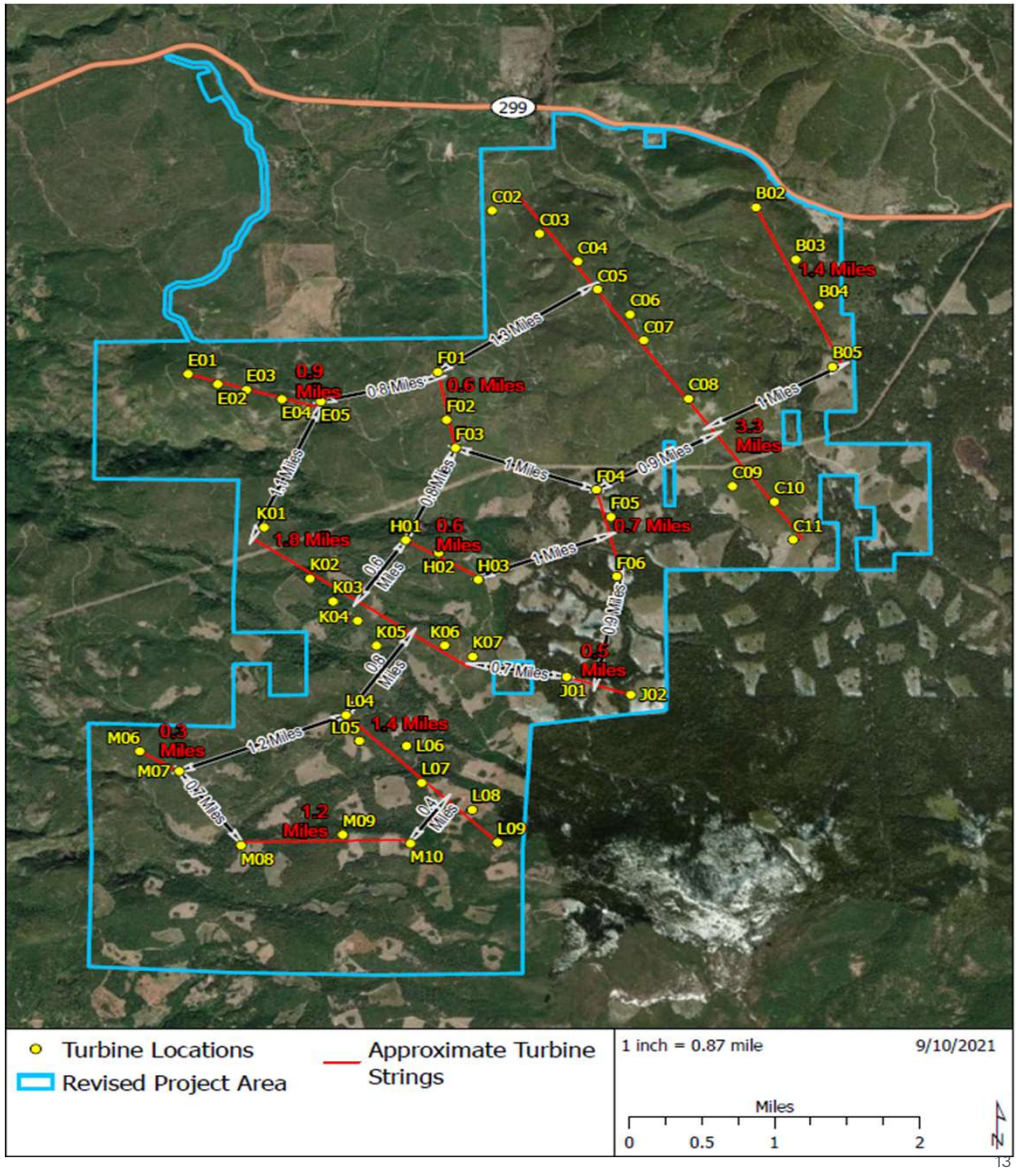


Aerial Fire Fighting (Overview)

- CALFIRE has a diverse fleet of aircraft to provide effective aerial firefighting support in different environments.
- Aerial Hazards exist throughout California and the aerial firefighting community has successfully navigated them for decades.
- CALFIRE Unit Chief Bret Gouvea stated: “Aerial hazards do pose a safety concern for aerial firefighters; however, they are something we must work around on a daily basis” (Gouvea, 2021).
- CALFIRE has successfully used firefighting aircraft in and around wind turbines.

Aerial Fire Fighting (Project Impacts)

- Project layout creates corridors of operations.
- Limitations due to aerial hazards are based on environmental factors and not necessarily on agency policy.
- Actual separation distance from aerial hazards are determined by pilot comfort based on the environmental factors (Smoke, Terrain, Sun Angle, Wind, etc.)



Aerial Fire Fighting Examples in CA


Courtesy CALFIRE Santa Clara Unit


Courtesy CALFIRE Santa Clara Unit

Aerial Fire Fighting Examples in CA

Aerial Fire Fighting (Conclusion)

- CALFIRE aircraft *will* be able to operate in and around the project area.
- Vegetation clearance around each turbine will minimize the need for firefighting aircraft adjacent to the turbines.
- Benefits of additional fuel reduction, better road access and additional water sources will outweigh any aerial firefighting limitations imposed by the turbines.

Modern Wind Turbines Do Not Have a History of Fires

Legacy turbines have caught on fire

- Fires have occurred in older turbines that were not equipped with fire suppression technology: Alameda, Riverside and Kern Counties.

- These fires have been successfully contained and extinguished.

History of Wildfires at other Wind Projects in California

- CAL FIRE Riverside County Reports NO Turbine related wildfires in over 10 years
- CAL FIRE Santa Clara Unit (Altamont Pass Wind Farm) reports NO fire related issues with Turbines replaced or installed in the last 10 years
- CAL FIRE Shasta County reports NO fires at the Hatchet Ridge Wind Project
- Montezuma Fire (Solano Wind Project)

Other Wind Energy Projects in Forested Landscapes

There are dozens of wind farms operating in forested landscapes across the U.S.

Our research shows that wind farms have safely operated in forested environments throughout the U.S. Our research has identified NO instances where modern turbines with fire suppression systems, as proposed with this Project, resulted in wildfires.

Photo credit: Skookumchuck Wind Facility, courtesy of Southern Power

Fire Suppression Technology in Modern Wind Turbines

Fires in modern wind turbines are extremely rare and comparison to older wind technology does not provide useful comparison in assessing fire risk today.

All modern turbines contain fire detection systems. Fountain Wind turbines will be equipped with an *additional fire suppression system*.

The fire suppression system will **not** be activated simply by the detection of smoke, heat is also needed for activation.

The suppression system will activate if there is detection of a 'fire-in-the-making', which is triggered by a combination of optical smoke sensors and heat sensors

Once activated, the system actively suppresses fire at the source by de-energizing the hazard zones and releasing a suppression agent (typically an inert gas)

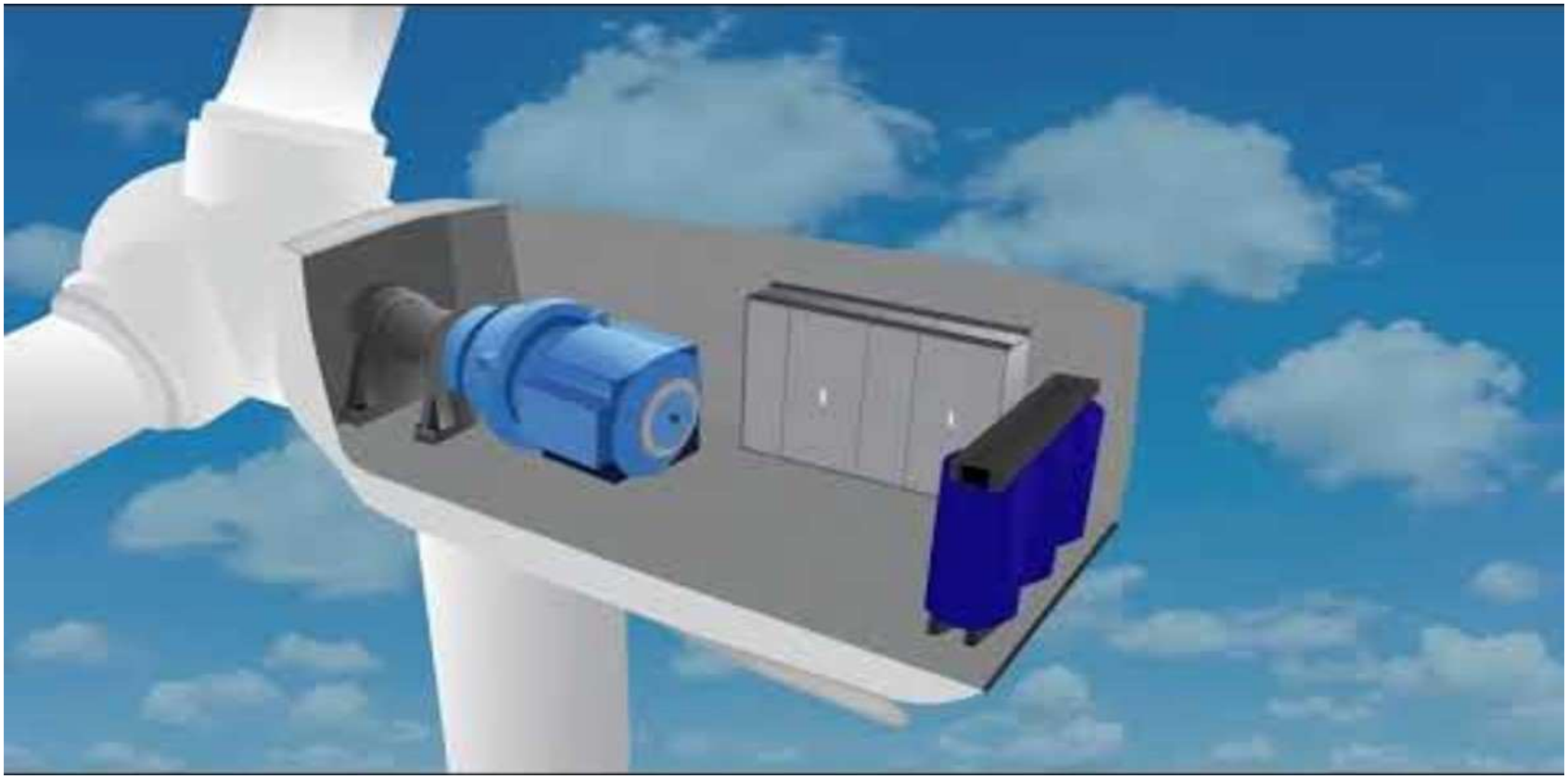
Illustration of fire detection and suppression system placement in a V136-3.45 MW *

Benefits of Modern Fire Suppression Technology

- **Early Detection:** Systems detect fires instantaneously.
- **Quick Response**: Systems automatically respond to a fire, extinguishing it before it can cause significant damage.
- **Remote Monitoring:** Fire suppression systems are equipped with remote monitoring capabilities. System can be monitored and controlled from a central location, even if the turbine is located in a remote area.

Illustration of fire detection and suppression system placement in a V136-3.45 MW *

How do fire suppression systems work?

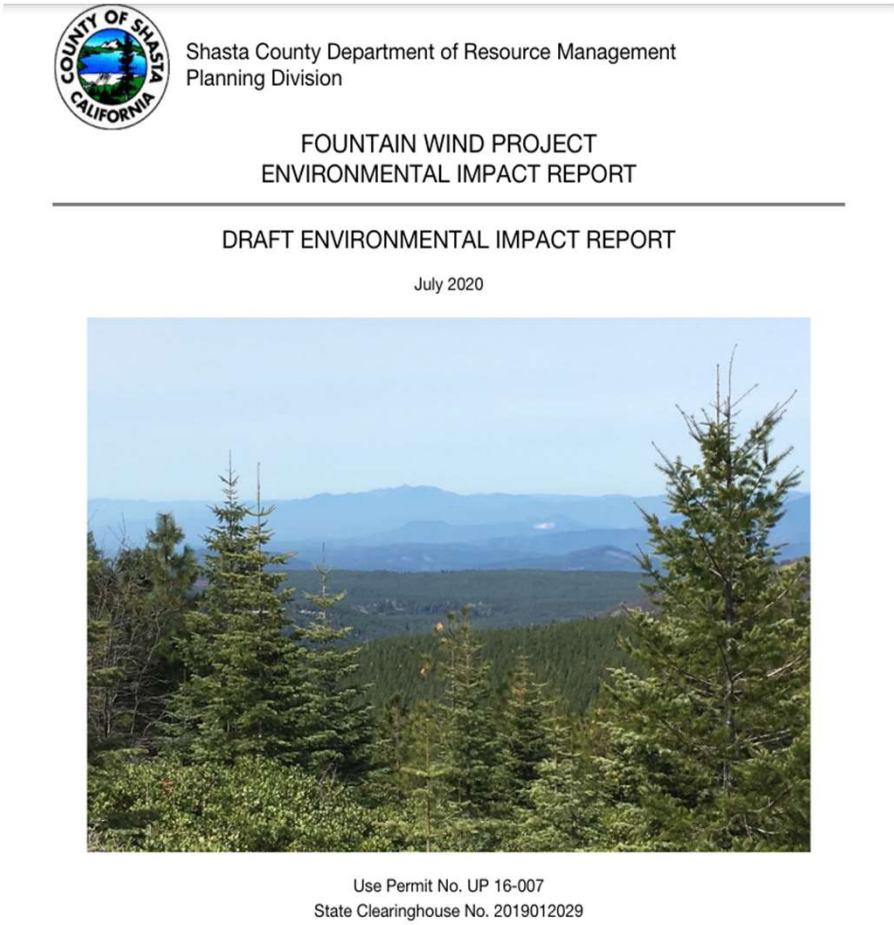


Shasta County Fountain Wind EIR: Less than Significant Fire Impacts

Shasta County's 2021 EIR concluded wildfire impacts are <u>less than significant</u> for Fountain Wind

Project's impacts to wildfire risk would be **"Less than Significant with Mitigation"**

Fountain Wind has agreed to these measures



Shasta County Department of Resource Management
Planning Division

FOUNTAIN WIND PROJECT
ENVIRONMENTAL IMPACT REPORT

DRAFT ENVIRONMENTAL IMPACT REPORT

July 2020

Use Permit No. UP 16-007
State Clearinghouse No. 2019012029

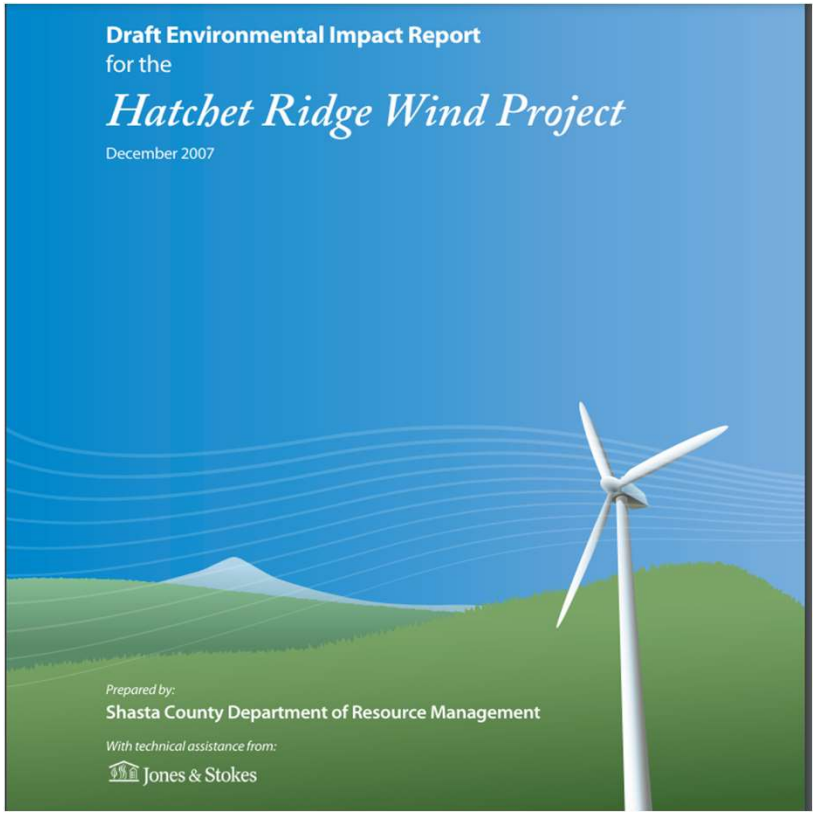
Shasta County's Hatchet Ridge EIR: Less than Significant Fire Impacts

Shasta County's 2008 EIR concluded wildfire impacts would be <u>less than significant</u> for Hatchet Ridge Wind

<u>No</u> significant and unavoidable wildfire-related impacts

Fountain Project is immediately adjacent to Hatchet ridge and incorporates more wildfire mitigation measures than Hatchet project.

No fires at Hatchet Ridge since it went into service 13 years ago.



Conclusion

- **Project will *improve* fire safety over existing conditions**
- **Modern turbines with fire detection and suppression systems are low risk for fire**
- **There will be adequate water supplies to fight fires**
- **Aerial fire-fighting will not be precluded**
- **Wind energy combats global warming. Global warming exacerbates wildfire risk.**

Based on its design and mitigation measures, Fountain Wind's environmental impacts related to wildfire are less than significant.