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<https://www.windpowermonthly.com/article/1697822/fires-wind-farms-underreported-fears-reputational-damage>

Underreporting - In 2020, Wind Power Engineering magazine estimated that **one in 2,000 turbines** would catch fire, while one in 10,000 was the figure offered by Fire Protection Engineering magazine in 2019.

And Firetrace cites an independent fire expert who says that the risk of a catastrophic fire, where a turbine is destroyed, is one in 15,000.

Firetrace added that if one in 2,000 turbines catches fire each year, it suggests that **a typical wind farm with 150 turbines would be hit by one or two fires in 20 years** of operation.

It also stated that the **risk of wind turbine fires will change alongside the climate** and technological trends.

Examples: The research cites examples where turbines have been struck by fire.

- A turbine fire at the [120.6MW Buffalo Gap](#) wind farm in Texas in August 2019 sparked the 1km² Rhodes Ranch 3 Fire in Mulberry Canyon.
- In July 2020, another turbine fire in Texas that caused a 13km² wildfire in Nolan County.
- In July 2019, a turbine fire at the [151.2MW Juniper Canyon Phase 1](#) wind farm in Washington state ignited the surrounding grass and brush after melted sections fell to the ground. The blaze sparked a 1km² wildfire.

The research points to such fires exposing operators to legal claims from neighbouring landowners even if there was no negligence by the operator, potentially provoking legal battles between insurers, manufacturers and operators.

The research suggests risks with older machines may be well-known, but that this may not be the case with materials in new turbines, such as fibreglass used in blades.

Firetrace cites JP Conkwright, turbine fire investigator and assistant professor of fire protection and safety engineering technology at Eastern Kentucky University, who said that making turbine blades out of fibreglass may expose workers to "explosive dust" during repairs.

He said: "We're doing a lot of blade repairs. We're doing a lot of internal blade repairs, and the fibreglass dust is much more explosive than normal dust. We're inside a confined space, 300 feet in the air, creating fibreglass dust with a grinder."

<https://www.powerengineeringint.com/renewables/wind/the-burning-issue-of-wind-turbine-fires/>

Additionally, as wind farms scale up from dozens of turbines to large, 100+-turbine projects, owners must account for the greater probability that their largescale projects will experience a fire over the course of the project's 25-year lifetime.

Most wind turbine fires completely destroy the turbine. Given projects tend to be sited far away from the community, by the time the local fire authority reaches the sight, the fire will have reached a size that spreads from inside the nacelle to throughout the turbine.

Once a fire reaches this size, there is no way to put it out. As the average turbine hub height is over 80m, a fire at the nacelle is out of range for ground-based firefighting, while sending a team up to put the fire out would constitute a significant health and safety risk.

An automatic fire suppression system detects a fire and snuffs it out, either at the point of detection (direct) or by flooding the nacelle with a suppressant agent (indirect).

Installing a fire suppression system at the three most common ignition points in the nacelle will ensure that any fire damage to the turbine is minimal and allow it to continue operating without replacement.

A growing list of authorities in Germany, and a number of both local and state governments in the US, are acknowledging that fire suppression is necessary to protect new wind farms and their surroundings in the event of a fire in a wind turbine.

Regulators in Ontario, Canada have taken it a step further, enabling local authorities to insist that fire suppression is retrofitted to existing sites.

In addition to compliance with government regulators, wind farm owners and operators must also communicate their commitment to fire prevention and protection with landowners and other community stakeholders.

<https://bangordailynews.com/2011/06/29/opinion/forest-fires-and-wind-turbines-the-danger-no-one-is-talking-about>

In California, one such fire burned 68 acres, another 220 acres, and in Palm Springs several “spot fires” had been generated in surrounding areas.

<https://www.oregonlive.com/news/2019/07/wildfire-in-southern-washington-reportedly-caused-by-burning-wind-turbine.html>

A wildfire in southern Washington (22.7.2019) that has burned more than 350 acres was caused by melting sections of a wind turbine that fell to the ground after the turbine’s generator caught fire, fire officials said.

Fire engulfed the turbine 300 feet above the ground, causing melted pieces to fall to the ground, igniting grass and brush, according to the release. Gusting winds helped spread the wildfire, called the Juniper Fire, to between 350 and 500 acres by Saturday evening. By 10 p.m. the fire was estimated to be about 20% contained.

<https://www.windpowerengineering.com/the-true-cost-of-wind-turbine-fires-and-protection/>

A high-profile fire can not only devastate current projects, but also jeopardize the prospects of future development across the industry – and this risk only grows as turbines get bigger and move into more remote sites on- and offshore.

However, to date, the industry has underestimated the risk and cost of wind turbine fires. Even assuming an average of one fire per 2,000 turbines per year, based on incomplete reporting of fire incidents, a wind farm can expect to face one to two fires over the course of its operational lifetime.

Turbine fires can have costs beyond the wind farm. A fire can spread down the tower to land surrounding the project if not carefully managed. This can potentially result in wildfires, causing extensive damage to the wider area and ultimately leading to significant reputational damage not only for the individual site but for the industry as a whole.

Wind turbines catch fire for the same reasons as other heavy machinery – components inside the turbine fail, generating heat or sparks and igniting flammable materials such as plastics, resins, fiberglass and hydraulic lubricants. Most turbine fires originate in the nacelle, typically at three points of ignition: converter and capacitor cabinets, nacelle brake and transformer.