

Part II: Impacts of Wind Turbine Fires



Meet the Panel



JP Conkwright - Panelist

Professor of Fire Protection and Safety
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Angela Krcmar - Panelist

Global Sales Manager - Wind
Firetrace



Sally Wright - Panelist

Principal Wind Turbine Engineer
DNV GL - Renewables



Steve Mulhall - Moderator

Business Development Manager - Wind
Firetrace





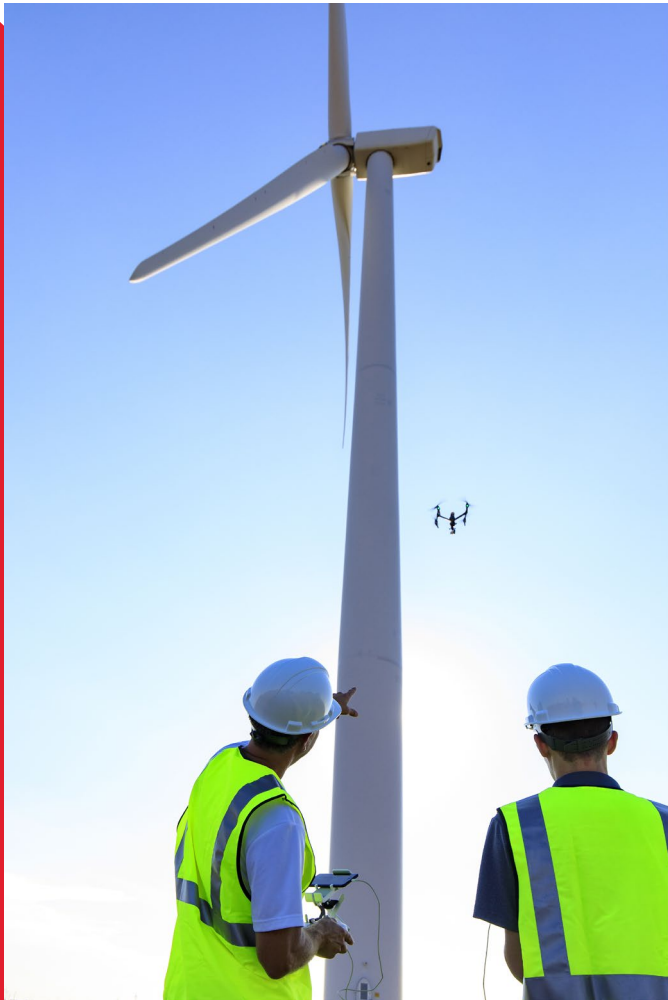
Questions from last session

- Some OEM's claim that fire's no longer a risk - discuss
 - Why is fire protection not included by the OEM?
 - Owners' motivation to retrofit fire suppression/ protection?



Questions from last session

- Industry data gathering - challenges
- User groups:
 - ESIG (Energy Systems Integration Group)
 - EPRI (Electric Power Research Institute)
 - AWEA → Clean Power



Part II: Impacts of Wind Turbine Fires Agenda

Emergency Response Plan

- *Identification*
- *Mitigation*
- Preparedness
- Response
- Recovery

Regulations & Requirements

- Recommended Practices / Guidelines
 - NFPA 850 - Recommended Practices
 - CFPA - Guidelines following VdS
 - VdS 3523 - Guidelines
 - DNV GL - Turbine certification
- Regulations: Local / U.S. State / National / International examples
 - Authority Having Jurisdiction (AHJ's) - Permitting based on risk
 - California and New Hampshire
 - Ontario and Germany
 - UK Safety Case



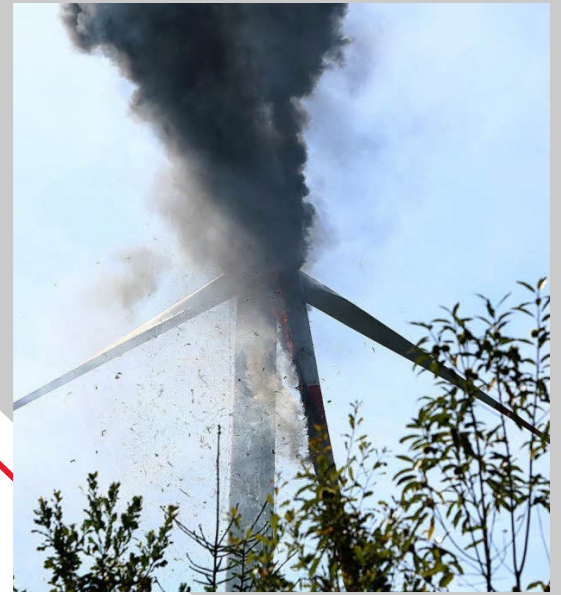
Preparedness

- Electrical isolation
- Access
- Landscaping
- Engage local fire services
 - Water supply
- Develop a response plan



Response

- Remote locations present challenges
- Volunteer fire service is typical
- Risk of wildfire
- Drought prone/ forested areas
- Examples
 - Klickitat County, WA - July 2019
 - 350 acres - evacuations
 - Nolan County, TX - July 2020
 - 3,200 acres burned





Recovery

- Loss of production
 - Costs
- ... and everything that goes along with it



Downtime: Loss of Production

- 1 year is common
 - Investigation / disputes
 - Crane delays
 - Replacement delivery time
- Business interruption (BI) coverage ?
 - How much time? What does it cover?
- Owner/operator staff time

Costs of a Fire

- Replacement
- Investigation
 - Personnel costs
- Dismantling
 - Cranes costs
- Environmental penalties and other liabilities



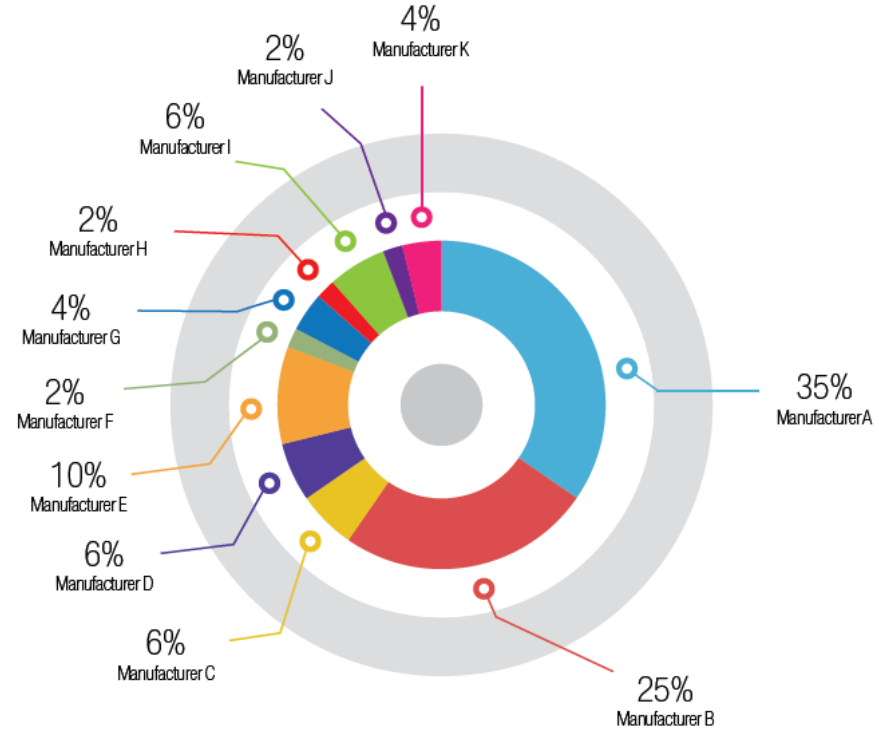


Handling the Aftermath

- Media, employees
 - Public relations
- Investigations
 - Managing the scene
 - Chain of evidence
 - Data
- Industrial hygiene / safety

Insurance Impacts

GCUBE FIRE CLAIMS BY MANUFACTURER 2008-2015



Questions & Answers?



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