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Proactive Risk Mitigation for Wildland Fires

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The wildland fires ravaging California are symptomatic of recent dramatic increases in wildland fire frequency, severity, and cost. Historical records maintained by the National Interagency Coordination Center show that the years 2015 and 2017 rank highest in the quantity of U.S. acres burned.[1] Meanwhile, this year has already surpassed the ten-year historical average of annual acres burned.[2] In addition, the California Department of Forestry and Fire Protection (CalFire) spent $773 million on fire suppression efforts during the 2017–2018 fiscal year, the largest expenditure in four decades of published data.[3] A recent report from the U.S. Global Change Research Program predicts that these trends will continue for the foreseeable future, with an increase of 200–300% in the western United States predicted by the middle of this century.[4, 5]

Three key factors have contributed to the rise in wildland fire frequency and severity. Long-term drought conditions combined with extreme weather events that produce high winds and dry conditions are conducive for wildland fire ignition and rapid spread. Forest management practices have at times failed to adapt to climate change. Finally, the expansion of populations into the Wildland-Urban Interface (WUI) has increased the potential for human-caused fire ignition in areas prone to wildland fire. Today's businesses and residential communities can minimize the risk of fire-related infrastructure damage, negative public relations, multi-year litigation, and loss of life by adopting a proactive, localized approach to risk management.

A common blind spot in fire-related risk management is the reliance on past performance to guide future policies. Many recent wildland fires have ignited from everyday occurrences (such as electrical faults or equipment use) that would have either not resulted in a fire, or at worst kindled a small, easily contained fire, had it not been for extreme weather events. Businesses and homeowners alike can benefit from adapting their approach to wildland fire and risk management to align with current conditions. The National Fire Protection Association (NFPA) 1144 standard provides homeowners guidance on opportunities to reduce structure ignition hazards from wildland fire.[6] In addition to providing a methodology for assessing wildland fire ignition hazards around existing structures, NPFA 1144 provides requirements for new construction to reduce the potential of structure ignition from wildland fires. For example, homeowners can create defensible space around their residences by clearing and treating vegetation within 100 or 200 feet. As this boundary could likely infringe upon neighbors' properties, a community-based approach to wildland fire planning is essential.

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1 Wildland Fire Summary and Statistics Annual Report, National Interagency Coordination Center, 2017.
2 National Interagency Fire Center. Year to Date Statistics. https://www.nifc.gov/fireInfo/nfn.htm
3 California Department of Forestry and Fire Protection. Emergency Fund Fire Suppression Expenditures. http://www.fire.ca.gov/fire_protection/downloads/SuppressionCostsOnepage.pdf
4 U.S. Global Change Research Program, Fourth National Climate Assessment, Report-in-Brief, Vol. II, p. 34.
5 U.S. Global Change Research Program, Fourth National Climate Assessment, Appendix 5. Frequently Asked Questions, p. 59.
6 National Fire Protection Association 1144 Standard on Reducing Structure Ignition Hazards from Wildland Fire.

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The increase in wildland fire activity is predicted to have adverse effects on a broad range of areas including human health, agriculture, ecosystems, infrastructure, and recreation.[7] Businesses and residential homeowners can decrease wildland fire threat by incorporating both global and localized data into risk management plans. One industry particularly sensitive to wildland fire risk is electric power utilities.[8] Given the increased risk, severity, and cost of wildfires, some utilities are adapting operational and asset management practices. These conditions are not unique to California, with large-scale wildland fires occurring around the globe from Oklahoma and Texas to Canada, Australia, Portugal, and Greece in recent years. A localized, proactive approach to managing wildland fire risk can benefit communities that may be just one spark away from the next large-scale inferno.

Exponent's multidisciplinary team can help businesses and local communities rapidly investigate fire origin and cause, conduct subsequent ecological, slope stability, and air quality assessments, and develop plans to proactively manage risk before a fire event occurs.

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[7] U.S. Global Change Research Program, Fourth National Climate Assessment, Report-in-Brief, Vol. II, pp. 14–18.
[8] U.S. Global Change Research Program, Fourth National Climate Assessment, Report-in-Brief, Vol. II, p. 41, 71.

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