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Is Undergrounding the Answer?



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With electrical equipment the likely cause of recent wildfires in California, the case has been made for placing power lines underground — a practice known as undergrounding. This action would also protect the equipment from damaging weather such as tornadoes, hurricanes, and snowstorms, which have destroyed utility poles and wires. However, undergrounding is expensive, and may not actually solve all of these problems.

Benefits and Drawbacks

The benefits of undergrounding are fairly clear. The practice helps reduce the risk of wildfire, moves equipment out of the way of damaging weather, improves grid resiliency, improves the appearance of landscapes, and enhances the safety of repair and maintenance crews and citizens.

But, undergrounding is expensive, involves a complex array of logistical issues, and may not actually improve some of the issues it sets out to resolve. According to a [CityMetric](#) article, “In terms of reliability, it is not correct to say that burying power lines protects them from storm damage. It simply shifts the risk of damage from one type of storm effect to another.”

Utility and Community Costs

The cost issue works both ways: utilities can get dinged by power outages caused by weather-related equipment damage. A [Popular Science](#) article states, “Numerous analyses show even a one hour power outage can cost commercial and industrial facilities tens of thousands of dollars — and outages often last much longer.”

But, the financial outlay for undergrounding the equipment can run into the billions of dollars. That cost often gets passed on to utility customers. Utilities must consider whether those costs are greater than that of repairing damaged above-ground power lines. Whatever they decide, no system is foolproof, and there are bound to be addi-

tional maintenance and repair costs down the line.

Vegetation management, smart grid strategies, and other solutions provide alternatives to undergrounding. Vegetation management, the practice of selectively pruning trees and bushes around power lines, can go a long way toward preventing weather-related equipment damage. Smart grid and drone technologies contribute by alerting repair crews to the exact location of damage, speeding up the recovery process.

The CityMetric article states, “Alternatives, such as proper vegetation management practices, replacing wood poles with steel, concrete or composite ones, or reinforcing utility poles with guy wires, may be nearly as effective in mitigating storm damage [as undergrounding] and may cost less.” These methods should all be taken into consideration when determining the potential efficacy of undergrounding.

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Not All or Nothing

While many consider undergrounding to be a panacea, the decision to bury power lines underground doesn't have to be an all-or-nothing proposition. Utilities and municipalities should work together to determine how undergrounding can be used strategically to improve certain areas, such as high-risk locations, or to upgrade older equipment.

In addition, as is already being done in some areas, new development areas are a good place to use undergrounding with initial construction. For example an article published by [The Invading Sea](#), “Newer developments, such as [Doral](#) in [Florida's] Miami-Dade County and Weston in Broward County, already planned for underground power lines during initial construction. Older neighborhoods, such as Oakland Park and Sunrise Key, for the most part, have above-ground lines.”

The “right answer” for each community and each utility will be completely different when deciding if or how much to underground power wires. Involved parties should take the time to evaluate the situation from all angles, and determine where undergrounding will have the most positive impact.

Has your utility installed power wires underground? If so, what was the thinking that went into doing so? What have been the positive or negative outcomes? Please share in the comments.

[#undergrounding](#) [#vegetation-management](#) [#smart-grid](#) [#wildfires](#) [#storm-damage](#)



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