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You Can Bury Power Lines, but Not All the Problems
Issues are Often Harder to Fix, Even with Fewer Outages

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Like many homeowners in The Woodlands, Tonya Briney didn't spend a lot of time thinking about her electricity service before Hurricane Ike.

But when power was restored to most of The Woodlands within days while she and about 1,800 neighbors sat in the dark for nearly two weeks, Briney did some homework.

Her findings: Even though her backyard power lines were underground, the transmission lines feeding her neighborhood weren't — so they suffered more storm damage than the 90 percent of lines in her growing community that are subterranean.

"To live in this great master-planned community where I pay my taxes and assessment fees like everyone else and suddenly learn that my infrastructure is so different was a real surprise," she said. "It seems to me the hottest topic in the state right now should be burying power lines." Briney is hardly alone. Throughout the region, customers who were without power for days after Ike struck are asking why more power lines aren't buried to protect them from wind and falling trees.

Buried in new projects

Most new construction in the Houston area and in much of the country uses underground utility lines, say officials in power and development businesses.

CenterPoint Energy, the power distribution company for much of the Houston area, has installed 12 times as many miles of underground residential lines as overhead lines in the past two years: 924 miles versus 77.

"In the marketplace for new homes it's assumed you'll have underground lines," said Doug Konopka, president of DHK Development.

Going back, however, and burying existing lines in older areas, or even the higher-voltage lines that feed new developments with underground lines, is significantly more expensive.

Where an above-ground line might cost about $20 per foot, below-ground service can exceed $400 per foot, said Terry Finley, vice president of distribution engineering and services for CenterPoint.

Even though buried lines tend to fail less frequently, the durations of underground outages tend to be longer because it's often harder to locate and repair damage.

A 2003 study of outages among Virginia utilities found underground lines on average were out 2.25 times longer than above ground lines. But those results varied widely among the utilities, with one reporting underground outages lasting seven times as long and another reporting them as lasting less than half as long.

Houston's Galleria area had relatively few power outages following Ike, which area boosters attribute largely to projects to bury above-ground lines.

The Uptown Houston District, created by the state in 1987 to oversee public improvements in the Galleria area, has spent close to $10 million in recent years to move or bury power lines, said John Breeding, president of the district.

"We may be known for the arches and rings at the intersections in our area, but we've probably spent more on burying power lines than anything else in recent years," Breeding said.
Projects to bury lines in the district cost $500 to $750 per foot, or between $2.6 million and $4 million per mile, Breeding said.

"You're not just burying the lines but the switches and transformers," he said. "So, something that you just attach to a pole up in the air becomes a $50,000 cost to put underground."

Floyd LeBlanc, a spokesman for CenterPoint who has worked with the district on those projects, said the original estimate to bury all the lines was closer to $40 million. When the company realized the district was concerned first about the aesthetic drawbacks of the above-ground lines, workers found less expensive ways to move some lines behind buildings, where they were less visible, rather than bury them.

In the case of The Woodlands, the planned community is served mostly by the Texas arm of New Orleans-based Entergy.

When The Woodlands development began in the 1970s, Entergy's predecessor agreed to install all but the largest transmission lines underground. As the project expanded into areas served by CenterPoint — including Briney's neighborhood — the developers weren't able to get the same commitment.

Finley said that's because the company recovers its costs though a monthly base rate included on every electricity customer's bill. That rate requires approval of the Public Utility Commission of Texas.

"We're not willing to go to the PUC and say, 'We think we should have the rest of our customers pay for putting the lines underground in this community,'" Finley said.

Analyzing benefits

Many developers, however, believe that CenterPoint should do just that.

"I feel like burying lines should be something CenterPoint is allowed to put into the rate base," Breeding said. "At 10 a.m. Saturday after the storm, I walked into my building on Post Oak, hit the elevator button and went up to an office that was fully functional. It was like that for most of the area. Just think about the economic losses if a whole office building is without power."

In most cases, though, potential economic benefits don't justify burying existing lines, said Mark Jamison, director of the Public Utility Research Center at the University of Florida.

Jamison and his colleagues developed a software model for Florida utilities to use when doing cost-benefit analysis on line-burying projects.

"We couldn't find a situation where it was just economics alone that says you should do such a project," Jamison said. "That's not to say such a case isn't out there. But you needed to take into account other factors, such as aesthetics, to justify the projects."

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