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# Storms will hit; so will outages

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For the present, at least, electric companies can't eliminate the power outages that accompany storms, whether they be just high winds, hurricanes or tornadoes.

"Electric systems are technology," said Karen Ryan, spokeswoman for the Lee County Electric Cooperative. "I would say there is an outage somewhere right now. Your computer is technology. Put it outside during a storm and something is going to happen to it."

But storms bring lessons and improvements that might alleviate future damage.

This comes in the aftermath of Tropical Storm Fay, which hit the Southwest Florida shoreline Tuesday morning and then headed northeast, putting much of Southwest Florida, including Fort Myers, on its weaker west side.

Fay brought heavy rain, but anemic wind gusts when you compare them with Category 4 Hurricane Charley that roared through Lee County with 145-mph sustained winds four years ago. Charley left 500,000 homes without power in Southwest Florida.

Fay's wind speeds of 40 to 60 mph, gusting to around 70, were well less than half of Charley's brute force.

Still, at one point Tuesday, the storm left about 60,000 Southwest Florida homes without power, when you combine the outages of Florida Power and Light and LCEC, the two electric companies in this area. FPL spokesman Mayco Villafana said those numbers might be too high because some neighborhoods might have been counted twice as a result

**Stronger lines**

Until the two big hurricanes of 2004 and 2005, FPL had followed National Electric Safety Code Standards for overhead systems, calling for lines able to survive 120-mph winds.

Afterward, it became the first electric company to upgrade those standards with lines able to survive 149-mph winds leading to critical services, which include hospitals, police and fire stations, and water systems.

In addition, FPL upgrades lines leading into gasoline stations and grocery stores to get the community up and running more quickly.

"The idea was to mitigate the impact of a storm," Villafana said. "If there are fewer of those critical sites going out, then we can switch our resources to residential."

Ryan credits both what she considers to be a low number of outages and the quick repairs to an aggressive LCEC maintenance program of tree trimming and the like. That includes an new infrared tracking system.

Linemen drive along all of their lines and take infrared pictures, which show hot spots that indicate defects. Lines and equipment with defects are the first to go during a storm. LCEC crews repair the defects so there's a greater chance equipment will survive a storm.

This leaves the question of why utilities don't put their lines underground, away from the wind.

"Wire outages occur for a number of reasons, all due to the storm." he said. "Wind, flooding and lightning are the root causes. The wind brings trees and debris that take the wires down.

"Flooding plagues the underground equipment. Fast-moving storm water surges virtually destroy underground equipment. They just wipe it out."

**Study commissioned**

The people who install the lines and deliver the electric power have commissioned a major study to explore that continuing debate, questioning whether putting more lines underground will be worth the cost, which the study estimates at about $1 million per mile of line.

The two-year study, headed by Mark Jamison, director of the University of Florida's public utilities research center, is almost complete. It includes computer models of what it would cost to convert from overhead to underground wires in different communities.

"In all cases, going underground is very costly," Jamison said. "Chances are it won't pan out."

The eight electric companies paying for the study, including FPL and LCEC, are taking those computer models and applying them to real-life situations.

The models done by the study project per-customer residential costs of $2,500, plus feeder line costs of $11,000 — or a total to each consumer of $13,500. Business customer costs were estimated at $37,000 each.

"Cost is the main reason people don't put underground in," said LCEC's Ryan. LCEC gives customers an option: You can have an underground line coming from the street to your home if you want to pay for them.

Ryan estimates that 30 to 40 percent of LCEC's nearly 8,000 miles of wires are underground, most in newer areas.

FPL, with a system 37 percent underground, allows contiguous homes in a community or neighborhood to go underground, again as long as customers pay for it.

As an inducement, FPL allows a 25 percent discount for municipalities that want to convert to underground — something it inaugurated after the hurricanes.

"We realize there is a value in undergrounding lines," said FPL's Villafana.

Utilities do not keep track of such matters as how often underground systems go out as opposed to overhead systems. They hope to get that sort of information from the study, Ryan said.

Going underground is not easy.

“When you put wires underground in a new development you dig trenches in a big, empty field with nothing in the way,” Ryan said.

“When you convert in an established area, you have to use directional drilling, going under sidewalks, driveways, buildings, she said. “It is very disruptive to what is in its line, existing buildings, roads, landscaping trees. Trees are especially bad. If a big tree goes down, its roots can take out the line all the way from the road to the house.”

Ryan and the underground study pretty much agree on the drawbacks to overhead and underground wires.

They said the underground wires cost more to maintain, take longer to repair, are subject to flooding, require special equipment to locate and repair and don’t hold up as long as overhead lines.

The advantages are they are not bothered by wind, save tree-trimming costs, are connected with fewer motor vehicle accidents, have fewer outrages during a storm and look better.

The study concluded aesthetics may be the only reason to go underground.

Will we ever get an outage-proof system?

“I talked with my engineers and they said we could theoretically have one right now,” Ryan said. “But we do not believe the customer would pay the cost.”

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