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Hendrix Aerial Cable Withstands "The Forgotten Storm"

Hurricane Rita Hits Louisiana with 120-mph Winds

In the early 2000s, the city of Natchitoches, Louisiana, was working to install a new feeder that would continue a ring bus around the city. Much of the ring bus was built on new pole installations. But in an area that extended approximately one mile through sections of the city that were highly congested and heavily treed, it would be impossible to install new poles to carry the associated three-cable feeder.

The small city of Natchitoches, population 18,000, is the oldest settlement in Louisiana, boasting historic plantations from the 1700s and magnificent oak trees. These imposing, ancient, 200- to 300-year-old trees are the pride of the community. Some of the cable for the new feeder would have to run through these trees; however, standard cable could experience significant tree damage during storms or high winds. Trimming or cutting the trees is a very sensitive topic to residents who highly value the stately oaks, even if trimming would allow easier installation of the feeder and prevent weather-related power outages.

When heavy limbs come down on standard electric cable, the power is virtually guaranteed to be disrupted. In high winds, bare wire cables spark and flash if they touch one another, which can set fire to trees and nearby structures. Coated cable can also flash in storms and experience outages when birds or rodents get caught in it. For all these reasons, the city decided to move away from bare wire and individual coated cables in this location of the ring bus. Instead it looked for an alternative cable that was sturdy, durable and capable of withstanding damage caused by wind, trees and animals.

Because of the congestion in the area of the city where the feeder was being installed, city engineers knew installation of new poles would be cost prohibitive. The new 69kV circuit had to be installed on existing poles for this section of the feeder. The existing poles stand approximately 100 feet tall.

The feeder cable could only run where there was sufficient space — under the 138kV transmission line and above the lower voltage distribution lines that were already live and operating on the poles. In addition to placement constraints, the new 69kV cable would have to extend across 600- to 800-foot expanses between one pole and the next. This was a complicated installation.

After an extensive search, engineers from the city of Natchitoches determined that a newly available 69kV Aerial Cable System (ACS) from Hendrix would provide the strength and reliability required for this challenging overhead

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conductor installation. Designed for strength, the Hendrix ACS features three coated conductors that are supported by a heavy-gauge messenger wire to provide structural support, and polyethylene spacers that keep the cables from touching even under extreme stress. The system is specifically engineered to withstand high winds, falling trees, damaging storms and long spans.

Engineers at Hendrix consulted with the city of Natchitoches's utility to custom-design the feeder installation and provided project management services from the start to the close of the project. On behalf of the city, the Hendrix team coordinated installation of the cable onto the existing poles at approximately 70 to 75 feet above the ground.

Installation of the feeder cable in the one-mile stretch was completed in about a week. The Hendrix team accurately mapped the installation and created a customized kit of materials needed to complete the job. Hendrix engineers calculated the appropriate sag for the congested installation to ensure cables would not contact vegetation or other cables on and near the existing utility poles in high winds or under stress, and installed the ACS lines to meet these calculations.

"Once it was up and running, the Hendrix system worked flawlessly," said Charles Brossette, operations manager for the city's utility services. "Hendrix personnel were very helpful and extremely accurate during the installation phase of the project."

Not long after installation was completed, along came the Atlantic hurricane season of 2005, which rewrote the record books. Three of the most intense Atlantic hurricanes ever recorded, all category 5 storms, developed and two of these storms made landfall in Louisiana. This record-breaking year of devastation was most remembered for Katrina, the storm that gained notoriety for its damaging impact on New Orleans and its threat to human life. Katrina ranks sixth on the list of the most intense hurricanes on record.

While it devastated New Orleans, however, Katrina did not have any major impact on Natchitoches. But less than a month later, Hurricane Rita, the fourth-most intense Atlantic hurricane ever recorded and the fifth major hurricane of the 2005 season, stormed into Louisiana. On the heels of Katrina, the storm surge from Rita devastated coastal communities, and winds, rain, and tornadoes caused fatalities and a wide swath of damage from eastern Texas to Alabama. With sustained winds of 120 mph (195 km/h), Rita knocked out hundreds of electrical lines, disrupting service in many areas of Texas and Louisiana for weeks. People living in this part of the country consider Hurricane Rita "The Forgotten Storm," as the devastation it caused got far less attention than that of Katrina, mostly because it struck less populated areas and was less of a threat to human life.

Many areas in the city of Natchitoches lost power during Rita, keeping the utility busy for weeks. According to Brossette, "The newly installed Hendrix aerial cable stood up to Rita. We had no outages in that one mile of 69kV feeder. Lines around it came down, huge branches cracked off the old oaks and the winds whipped the trees for hours during the storm. But there was no damage to the Hendrix cable. It proved its strength during that massive storm and many smaller ones that have come through in the 10 years since."

The Hendrix ACS cable has been operational in the Natchitoches ring bus for well over 10 years now without a disruption in power related to the aerial cable.

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