

Late at night, two days before we began preparing to scare our neighbors with spooky costumes, fake blood, gory masks and a yard full of tombstones, my son and I decided to get into the Halloween spirit by watching a horror movie. The classic “Scream” seemed like a good choice with its borderline scary story, a bunch of dead people and a happy ending for the few lucky survivors.

Right in the middle of the bloody slicing and dicing of poor college kids, the lights in our living room started to flicker. We were expecting some early snow that Halloween, but frightening hardy New Englanders with Nor’easters is about as unlikely as “Chicken Little” telling us the sky will not fall. The lights came back on once, giving us a slight hope that we might see the end of the spooky film. Almost immediately, though, they went out again, and this time it was for good. For 12 incredibly long days, we were left in complete darkness, with no electricity, water or heat, and with desperate lines at the gas stations growing longer and empty store shelves not being restocked.

The October 29th storm of 2011 lasted two days and dumped heavy snow across the Northeast, downing scores of trees and utility lines. At the height of the storm, three million homes and businesses lost power. Connecticut was hit the hardest, racking up more than 830,000 outages, and leaving more than 37,000 utility customers without power.¹

At a November 1, 2011 press conference, Governor Dan Malloy estimated that damages in Connecticut exceeded \$3 billion.² Connecticut Light and Power, one of the major state power utility companies, wasn’t prepared to deal with such an overwhelming calamity and struggled to restore power for weeks.³

According to the 2014 National Weather Service (NWS) report, damage from hail alone resulted in \$1.7 billion in damages; flash flooding created damages costing \$2.5 billion; drought produced \$1.5 billion in damages; and winter storms caused \$56 million in damages. Taken together, these forces of nature resulted in a total of \$7.7 billion in damages, fatalities and injuries for all weather events.⁴

¹ http://www.huffingtonpost.com/2011/11/07/connecticut-outages-enter-second-week_n_1079489.html

² **Error! Hyperlink reference not valid.** http://www.shorelinetimes.com/news/connecticut-legislature-wants-new-standards-on-utility-response-to-outages/article_a0ccf078-e7ab-51fc-b405-2e116bd76cb9.html

³ <https://www.cga.ct.gov/2011/rpt/2011-R-0458.htm>

⁴ <http://www.nws.noaa.gov/os/hazstats/sum14.pdf>

While it is impossible to prevent Mother Nature's destructive acts, dealing with the aftermath of devastating storms is in the hands of government agencies, military forces and utilities companies who must work around the clock to restore electrical power lines and provide water supplies to bring life back to normal for people as quickly as possible.

Utility companies and industries around the world face increasing pressure to deliver reliable, high-quality electric power at affordable rates with minimal environmental impact. With the widespread usage of intelligent electronic devices (IEDs), utility-grade rugged IP routers and Ethernet switches, many utilities are moving to IP-based communications. The need for Ethernet network communications sans interruption in substations' automation processes has rapidly increased in power generation, transmission and distribution. Therefore, a rugged and reliable cabling solution is indispensable for networking communications in the harsh environments where electrical substations operate...

To fulfill this demand, OFS continues to support the automation of substations with highly reliable fiber optic cables and connectivity solutions. These products include Low Smoke Zero Halogen (LSZH) Cables with Graded Index HCS[®] Optical Fiber and easy-to-use crimp and cleave connectors.

Thanks to their ability to emit limited smoke and no halogens when exposed to high sources of heat, the advantage of using LSZH materials in environments where it is critical to protect people and equipment from toxic and corrosive gas is obvious. When faced with fire, a halogen-containing material, such as polyvinyl chloride (PVC), releases poisonous hydrogen chloride gas which forms hydrochloric acid when it comes into contact with water. The use of LSZH cables helps to reduce the amount of toxic and corrosive gases emitted during combustion. In addition, LSZH cables are often lighter than PVC cables helping to reduce the overall weight of the network.

Using GiHCS[®] Fiber Optic Solutions in substation automation also creates a wide range of advantages including:

- Immunity to Electro Magnetic and Radio Frequency Interference (EMI/RFI)
- Lightning protection with all-dielectric fiber optic cables
- Smaller and lighter in weight than traditional copper cables
- More secure data communications
- Higher bandwidth that supports higher data rates over long distances

Another major advantage of GiHCS Fiber Optic Solutions is their field termination capabilities. The simple steps for the field termination of optical fiber breakout cables involve:

1. Stripping the water-blocked outer jacket material
2. Crimping the connector directly onto the fiber optic coating for strong, solid connector retention
3. Cleaving to create an optical finish on the fiber, using the special precision cleave tool with a diamond blade.

Following these steps, technicians can easily repair a damaged fiber optic cable using OFS' simple hand tools and without using any messy adhesives or tedious polishing procedures. We simply call it "Crimp, Cleave and Leave".

Utility companies, government officials and ordinary citizens learned an important lesson from the storm of October 2011. In order to be prepared for natural disasters and quickly recover from them, we need to have a solid plan for recovery and take necessary preventative measures.

GiHCS Fiber Optic Cable Solutions from OFS offer a trustworthy resolution for electrical utilities for the efficient and effective restoration and maintenance of their network communications in automation processes. And, as for my son and me, we have decided to no longer watch scary movies during snow storms.