



Utility Enhances Reliability for 'Carpet Capital of the World'

S&C Featured Solution: IntelliRupter®PulseCloser®Fault Interrupter and IntelliTeam®SG Automatic Restoration System

Location: Dalton, Georgia, United States

Customer Challenge

The second-largest city in northwest Georgia and the "Carpet Capital of the World," Dalton is where 90 percent of wall-to-wall carpet is manufactured globally. With more than 150 carpet-manufacturing plants and more than 100 retail carpet outlets, much of the city's economic prosperity relies on the carpet industry.

With most of its customers consisting of carpet manufacturers and other commercial and industrial (C&I) businesses, Dalton Utilities was committed to improving reliability and deploying fiber-to-the-home networks to support efficiency within local businesses.

One of the first ways the public power utility sought to improve reliability was by reducing the number of C&I customers impacted by a fault on its distribution system. Dalton Utilities wanted to enhance system segmentation in response to this challenge. However, because the utility's existing conventional reclosers had limited coordination capability, adding devices to its system could risk miscoordination.

The conventional reclosers' high-energy fault-testing also was problematic because it would create voltage sags for C&I customers on adjacent, unaffected feeders. Reducing voltage sags was of utmost importance to the utility because even power quality issues could stop C&I customers' carpet yarn and extrusion machines, leading to lost production and revenue.

S&C Solutions

Familiar with S&C's underground distribution switchgear, Dalton Utilities trusted the company's high-quality innovations and was intrigued by the IntelliRupter PulseCloser Fault Interrupter. The fault interrupter's built-in fiber-optic compatibility was advantageous and would allow the utility to easily incorporate multiple devices onto its system while leveraging its fiber-to-the-home network for the devices' high-speed communications.

Having acquired 27 25-kV IntelliRupter®fault interrupters, Dalton Utilities would immediately experience the benefits of PulseClosing®Technology, a way the fault interrupters gently fault-test using only 5 percent of the energy conventional reclosers typically use when testing for faults. This technology not only would reduce stress on the overall system, but it also would dramatically reduce voltage sags for C&I customers on adjacent feeders unaffected by a fault.

"The success of the carpet industry is very important to our community. By installing the IntelliRupter fault interrupters on our system, we've increased grid performance, which has ensured our C&I customers have a more reliable distribution network."

*– David Keaton
Energy Engineering Manager,
Dalton Utilities*

Dalton Utilities reduced the number of C&I customers impacted by faults by adding IntelliRupter fault interrupters alongside conventional reclosers on their looped system.



To improve segmentation on its system, Dalton Utilities considered installing IntelliRupter fault interrupters alongside existing conventional reclosers. The IntelliRupter fault interrupters' "skinny" time-current (TCC) curves would enable them to properly coordinate with the conventional reclosers. Adding multiple IntelliRupter fault interrupters to its system would improve reliability by reducing the number of C&I customers in each feeder section, which in turn would reduce the overall number of customers affected by faults.

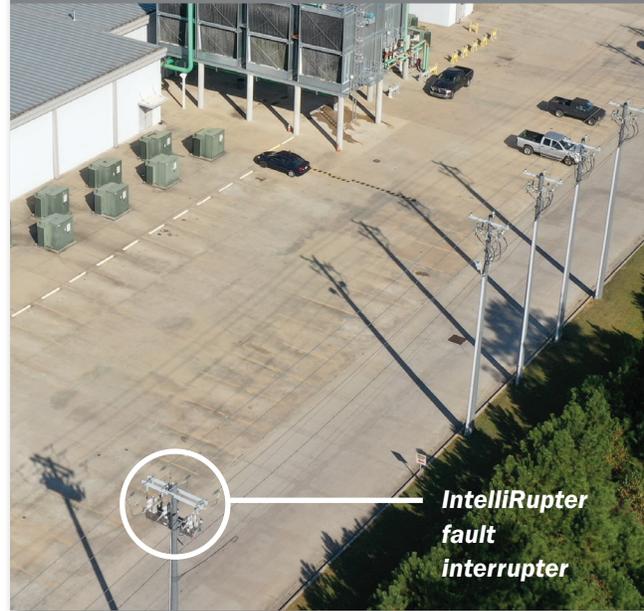
After improving system segmentation, Dalton Utilities explored other S&C solutions to enhance its response to faults. S&C's IntelliTeam® SG Automatic Restoration System appealed to the utility because it would enable distributed intelligence on its system and enhance the IntelliRupter fault interrupters' decision-making capabilities. Using the IntelliTeam SG system software, the fault interrupters would use real-time system data and work in "teams" to locate and isolate a fault to a single segment. It then would restore power from an alternate source to unimpacted segments. The system would prove invaluable for the utility's reliability because it could restore power to the utility's C&I customers faster than previously was possible.

To help expedite installation, S&C helped Dalton Utilities preconfigure the fault interrupters with tailored settings and trained their line crews on the IntelliRupter fault interrupter's operation and installation.

Results

Dalton Utilities' close collaboration with S&C on its reliability-improvement initiative was vital to its success. After increasing feeder segmentation using IntelliRupter fault interrupters and deploying the IntelliTeam SG system, Dalton Utilities' reliability metrics significantly improved. The utility's SAIDI (System Average Interruption Duration Index) was

One of Dalton Utilities' IntelliRupter fault interrupters installed on an overhead pole at the perimeter of a carpet manufacturing plant.



lowered from 168 to 121 minutes, or a 28 percent increase in reliability. The utility's SAIFI (System Average Interruption Frequency Index) was lowered from 1.02 to 0.74. By using the IntelliTeam SG system, the utility was also able to restore power to its C&I customers 99% faster.

S&C's IntelliRupter fault interrupters helped Dalton Utilities' grid meet the uninterrupted power needs of its C&I customers. The utility's proactive work to support these businesses by keeping the power on and maximizing uptime demonstrated its commitment to ensuring the grid could continue to support the industries central to the economic prosperity of Dalton.