CASE STUDY
IMPROVING RELIABILITY

S&C ELECTRIC COMPANY
Excellence Through Innovation

Texas Co-op Leverages Fiber Network for Grid Modernization

S&C Featured Solution: IntelliRupter®PulseCloser®Fault Interrupter and TripSaver®II Cutout-Mounted Recloser

Location: Texas, USA

Customer Challenge

Located in the Texas Hill Country, just west of San Antonio, is Bandera, a town just shy of 1,000 residents. The self-proclaimed "Cowboy Capital of the World" was growing rapidly, causing Bandera Electric Cooperative (BEC) to reevaluate some of its operations and technology.

Bandera's population expansion was making it more challenging and expensive for BEC to roll trucks to rural customers, especially during severe storms. At the same time, local businesses were installing more electric vehicle (EV) chargers, which BEC wanted to ensure it could support.

Among many public power utilities to leverage its infrastructure to bring broadband Internet to its customers, BEC recognized it could use its fiber-optic network as the foundation for grid-modernization efforts. High-speed communication would enable distribution automation advancements and allow BEC to evolve with its changing grid and provide an increased level of service to its customers.

S&C Solution

BEC chose S&C's IntelliRupter®fault interrupter, a fiber-ready device with a unique, low-stress fault-testing capability. With waterproof connectors and a virtual private network (VPN) that partitions devices from the customer network, the IntelliRupter fault interrupters could seamlessly and securely integrate into BEC's system. Because BEC had retrofitted its system with fiber, these built-in features of the IntelliRupter fault interrupter would expedite and reduce the costs of installation.

BEC projected how these innovative devices could maximize the investment it had already made in its fiber network and decided to purchase five IntelliRupter interrupters. Adding these new devices would increase the segmentation of its feeders, improving fault-management and reliability for its customers.

In addition to working with S&C to program and commission the IntelliRupter fault interrupters, BEC capitalized on S&C's expertise with fiber to help evaluate and refine how the devices would integrate with its network.

Continuing to leverage its fiber network, BEC furthered its grid-modernization efforts and began focusing on updating its lateral lines. BEC had been using hydraulic reclosers to test for single-phase faults but wanted robust communications and data collection all the way toward the edge of the grid—and to forego the expense from the routine maintenance required with hydraulic reclosers.

We are always looking for the latest technology to advance our grid, and our fiber network paved the way for increased automation with S&C."

– Thilo Janssen
Manager, Engineering,
Bandera Electric Cooperative

BEC's fiber network laid the groundwork for distribution automation.

BEC grew interested in S&C's TripSaver II Cutout-Mounted Recloser, a microprocessor-based device that uses vacuum technology to interrupt faults. The TripSaver®II Communications Gateway would enable BEC to easily transmit and integrate device data into its SCADA system.

Because BEC was interested in installing TripSaver II reclosers in some of the most remote areas of its system, the utility was attracted to their programmability. It could pick from dozens of TCC curves for the 30 TripSaver II reclosers it purchased and install them anywhere on the system without having to revisit the protection schemes in its legacy equipment.

As BEC ramped up to install the IntelliRupter fault interrupters and TripSaver II reclosers, S&C would be instrumental in providing various BEC teams hands-on training, including in how to configure, install, and operate the equipment.

Results

With S&C's innovations on its lines, BEC has experienced vast improvements in reliability. On average, its SAIDI has improved by 26% and its SAIFI by 35% on feeders with distribution automation equipment. Because BEC collects data from these devices, the utility has achieved greater visibility into its system performance and can continue to optimize future grid-modernization efforts.

As BEC continues to use the devices, it has also discovered additional applications. When a large automobile manufacturer unveiled an electric, half-ton pickup truck, the company decided to host a regional media event at Singing Waters, a winery in the BEC service territory. BEC quickly worked to source power for 16 Level 2 EV chargers, each supporting up to 19.2 kW at 240 Volts. BEC realized the total load would require unique protection, and it would be too challenging to modify its existing devices to support the increase in continuous current and still coordinate with the upstream devices.

An IntelliRupter fault interrupter installed on BEC's system.

However, with its lightweight design, simple installation, and flexible configuration, a TripSaver II recloser was easily slotted into the location—helping maintain reliable power for the high-profile launch and demonstrating its capability to serve the future of EV residential charging.

Priding itself on embracing the latest grid technology, BEC has experienced how its fiber network could serve as the foundation for increased distribution automation. Not only was the utility able to maximize its investment in fiber, but S&C's grid innovations have made it easier for BEC to manage it system and provide greater reliability for its customers.