AFL CASE STUDY

FAIRFIELD ELECTRIC COOPERATIVE

CHALLENGE

Products were incorrectly installed and unfinished by contractor on a new substation and replacement products were not available within the tight deadline of five days or less.

SOLUTION

Fix the substation products using AFL's Swage Aluminum Bus Accessories which install in minutes rather than hours, do not require the use of a welder and can be installed in inclement weather—even sub-zero temperatures—thus preventing costly installation shutdowns.

RESULTS

Replaced the incorrectly installed fittings.

Completed installation with Swage Bus Accessories in two days.

Created opportunity to upgrade other substations in area by allowing offloading power to this substation.

CHALLENGE

Fairfield Electric Cooperative is a not-for-profit electric distribution cooperative with offices in Blythewood and Winnsboro, South Carolina. One of 20 electric cooperatives in South Carolina, Fairfield Electric serves more than 27,000 customers with 23 substations located in Fairfield, Kershaw, Richland, Chester and York counties.

To support 1,880 customers in Elgin, SC, Fairfield Electric built a new substation in the first quarter of 2015 to shed the load of two larger substations. The capacity of the new Woodcreek substation is 20 MVA with 2,000 Amp bus. As part of the construction process, a contractor was selected to install another manufacturer's connectors and fittings.

However, the contractor installed these products incorrectly—at odd angles rather than perpendicular on the bus pipe, left other parts of the substation unfinished (e.g. switches were not connected to the bus pipe) and would not return to fix their work without charging additional fees. Furthermore, the other manufacturer was backlogged on production of these fittings and could not deliver replacements to meet Fairfield Electric's construction deadline.

Incorrect installation of tee fittings

Faced with these big challenges, Fairfield Electric needed a solution to help them quickly complete construction and get the new Woodcreek substation energized and operational as soon as possible. Additionally, there were non-standard angles of bus pipe on the substation which required a unique resolution for bending the pipe to 30 and 45 degree angles.

SOLUTION

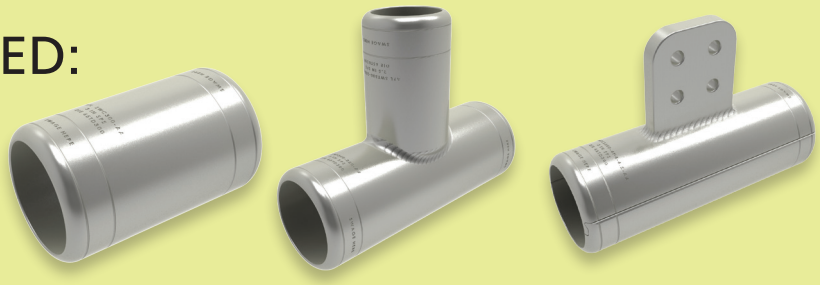
A few months prior, AFL and Utility Lines Inc.—a manufacturer's representative serving the electric utility industry that specifically represents AFL's solutions—presented a demonstration and installation of AFL's 2-inch Swage Bus Accessories to three Fairfield Electric linemen at their Lockhart substation in Chester, SC. These linemen were extremely impressed with the quality and ease-of-use of installing AFL's Swage accessories. The linemen recommended to the manager in charge of the Woodcreek Substation to use AFL's Swage fittings to fix the contractor's issues.

Fairfield Electric contacted Utility Lines which specifically represents AFL's Substation Fittings, Swage, Standard Compression, Welded, Bolted, Motion Control Devices and ADSS/OPGW Cable Hardware products. For Fairfield's Woodcreek substation, Utility Lines specified AFL's line of Swage Bus couplers, tee connectors and press assembly. Additionally, AFL's substation product manager personally delivered the Swage products, helped train the linemen on installation using the Swage press assembly and assisted in the installation.

Ranging from 230 kV to 500 kV, AFL's Swage Bus Accessories use a compression technology process called "swaging" that enables installation of aluminum bus accessories without the need of a welder. These Swage products allow linemen to

AFL COMPONENTS USED:

- Swage Bus Taps, Tees and Couplers
- Swage Press Assembly, Press Head and Dies



install the accessories faster and more efficiently with lower installation costs over the welding process. Since installation is complete in minutes rather than hours, Swage products can be installed in inclement weather—even sub-zero temperatures—thus preventing costly installation shutdowns.

To compress accessories, a portable Swage Press Assembly is used to "swage" bus accessories onto a bus pipe. The Swage press assembly produces 360 degrees of compression on Swage accessories ensuring that the connection is electrically and mechanically sound. AFL is the only manufacturer to loan a Swage press for up to eight weeks at no cost.

RESULT

Fairfield Electric replaced all the incorrectly-installed fittings with Swage Bus accessories and completed construction on the new substation in two days. The Fairfield Electric linemen also undertook and accomplished bending the bus pipe to 30 and 45 degree angles. This new substation has a 20 MVA transformer and uses 2,000 Amp bus. To support its 1,880 customers in Elgin, SC, Fairfield Electric shed the load off of two larger substations to this one. When they are ready to upgrade or build substations in the future, power can be offloaded to the Woodcreek substation and support additional customers.

"We called and AFL supplied a solution within our tight time frame, got it to the job site AND helped us install it. Once AFL demonstrated how to use the Swage tool on the bus tees and couplers, together we fixed all the incorrectly-installed fittings and completed the installation in two days to get the substation energized and operational."

– Kevin Shull, Assistant Manager of Operations and Engineering, Fairfield Electric Cooperative

ABOUT AFL

AFL is an industry-leading provider of products and services to the electric utility, broadband, communications, enterprise and factory markets as well as the emerging markets of oil and gas, mining, nuclear, avionics, renewables and transportation. The company's diverse product portfolio includes fiber optic cable, transmission and substation accessories, outside plant equipment, connectors, fusion splicers, test equipment and training. AFL's service portfolio includes market-leading positions with the foremost communications companies supporting OEM, outside plant, enterprise and wireless areas.

Founded in 1984, AFL is proud to offer engineering expertise, exceptional products and reliable service that help our customers improve their critical and electrical infrastructure. AFL has operations in the U.S., Mexico, Canada, Europe, Asia and Australia. The company is headquartered in Spartanburg, SC and is a wholly owned subsidiary of Fujikura Ltd. of Japan. For more information, visit www.AFLglobal.com.