

Helping Protect Grid Integrity.

3M Aluminum Conductor Technology Satisfies Power Utility Requirements.

Photo by Mitch McPherson

3M™ Aluminum Conductor Composite Reinforced (ACCR) recently enabled a U.S. electrical utility to more than double the power capacity of a 25-mile transmission segment — and helped protect against lightning strike vulnerability by shielding wires — while using existing towers. With the proximity of this line segment to the Mississippi River levee, tower changes could have involved Army Corp of Engineers study, new permitting, and substantial project delays.

3M ACCR conductor is an advanced, all-aluminum, high-temperature, low-sag and high-durability power transmission conductor. It consists of aluminum oxide fibers embedded in high-purity aluminum, and offers high-temperature, low-weight and low-sag properties, along with high current capacity.

This utility customer faced a need to increase capacity of a route segment from 600 to 1600 amperes, and to add shield wire to help protect against a high rate of lightning strike damage and outages. 3M ACCR conductor helped the electrical utility meet both of these key objectives without new construction — while still saving the customer money in the process.

Based on enhanced 3M ACCR conductor performance, the construction crew was able to use 3 of 6 phase conductor positions from each tower, add shield wire protection, install fiber-optic cable for data transfer on the top two positions, and leave one position unused.



The new configuration has three phases of 3M™ ACCR 26/19 conductor cable, one 0.508-in. OPGW fiber optic cable, and one 7#8 Alumoweld® Aluminum-Clad Steel Overhead Ground Wire.

Additionally, 3M produced a specialized new large-core conductor version of 3M ACCR conductor to support a single span 4,200 foot Mississippi River crossing with 1,600 amp capacity. The unique physical and electrical properties of 3M ACCR conductor made this extensive crossing possible without reinforcement or tower modifications.

The 3M team supported this successful utility project with consulting and on-site best practice training for each project phase, contributing to a successful conclusion that was on time and on budget.



Photo by John Gorman

3M On-Site Best Practice Training

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