# Fort Mojave Tribal Utility Energizes 3M ACCR High-Capacity Line, Linking It to Western Area's ACCR Upgrade on the Colorado River

Aha Macav Power Services Brings More Reliable Electricity Delivery To Reservation in Three States and to City of Needles, CA

Seeking to end power constraints that have caused brownouts and impeded economic development, Aha Macav Power Services, a utility owned and operated by the Fort Mojave Tribe in the Southwest, has installed and energized a new four-mile line using 3M Aluminum Conductor Composite Reinforced (ACCR).

The new line, which crosses the Colorado River, is linked to Western Area Power Administration's Topac-Davis line, which was just recently upgraded with 3M ACCR.

Aha Macav becomes the first Native American utility to deploy 3M ACCR. Under an agreement with Western Area Power, the tribal utility has linked a new substation in Arizona to a switchyard in Needles, a city on the western bank of the Colorado River. The utility serves Needles and the Fort Mojave Reservation, portions of which are in California, Arizona and Nevada.

3M ACCR can carry more than twice the current of conventional steel-core conductors of the same diameter. Because of its lighter weight and lower sag, when used to upgrade an existing line it generally does not require new tower construction or rebuilding.

Tim Koenig, who heads 3M's High Capacity Conductor Program, notes that: "Because 3M ACCR is installed on existing structures and can match the sag and tension of the existing conductor with less weight, utilities can reduce the costs and risks associated with major transmission construction projects, without adding any risk to the existing system."

"This has been an eagerly anticipated event that opens the door to a much greater level of new economic development," says William Cyr, general manager of Aha Macav Power Services. "We're very pleased to be the first tribal power company to apply this technological advance in electricity transmission." He notes that summer power disruptions in the desert region "pose a threat to health and safety."

Mr. Cyr adds that the 3M ACCR line installation "exemplifies the Fort Mojave Indian Tribe's eagerness to work with surrounding communities and government agencies to enhance the quality of life and opportunities for mutual growth."

Mr. Koenig says deployment of 3M ACCR by utilities is accelerating because of the technology's proven performance under a wide range of rugged climate conditions. For example, 3M ACCR is in use in desert conditions by Arizona Public Service in Phoenix, and has been field tested by Salt River Project outside of Phoenix and Western Area Power in heavy wind and icing conditions near Fargo, he observed.

The breakthrough conductor is already providing reliable service in several major metropolitan areas in the U.S., and in Shanghai, China's largest city. Companhia de Transmissao de Energia Eletrica Paulista (CTEEP) will soon be installing 3M ACCR in Brazil as well.

"Interest from utilities on an international basis is building momentum, because decision-makers realize we

have a proven and ready solution to problems that often limit the capacity of conventional transmission lines, resulting in constraints and bottlenecks," said Koenig. "The performance and reliability of 3M's high-performance conductor have been persuasively established through several years of use in commercial applications under harsh environmental and operating conditions, as well as in field and lab tests."

"In addition, 3M has invested in a state-of-the art manufacturing infrastructure to meet the growing demand for alternative solutions to problems afflicting the power grid. Process Design and Control is one of 3M's 45 core technology platforms. Plus, 3M's global presence, with operations in nearly 60 countries, enables us to provide reliable technologies and be wherever our customers are located," he continued.

3M ACCR was developed with the support of the U.S. Department of Energy, which tested the conductor at its Oak Ridge National Laboratory (ORNL) in Tennessee, and with early contributions by the Defense Advanced Research Projects Agency. The ORNL tests demonstrated the conductor retains its integrity after exposure to temperatures even higher than the rated continuous operating temperature of 210 degrees Celsius and the emergency operating temperature of 240 degrees Celsius, which provides a significant safety factor. It has the durability and longevity of traditional steel core conductors, even when operated continuously at high temperatures. Also, since 3M ACCR is based on aluminum, it is not adversely affected by environmental conditions, such as moisture or UV exposure, and has the corrosion resistance typically associated with all-aluminum conductors.

3M ACCR's strength and durability result from its core, composed of aluminum oxide (alumina) fibers embedded in high-purity aluminum, utilizing a highly specialized and patented process. The constituent materials are chemically compatible with each other and can withstand high temperatures without adverse chemical reactions or any appreciable loss in strength.

3M holds 18 patents on the ACCR technology, which has been recognized by *R&D Magazine* with an R&D 100 Award as one of the most technologically significant products introduced into the marketplace, and by the Minnesota High Tech Association with a Tekne Award for innovative development. In addition, 3M ACCR was one of the technologies that President George W. Bush viewed during a visit to 3M in 2006.

3M has been a full-solutions provider to the utilities industry for decades. 3M Electrical Markets Division designs, manufactures and markets products for electrical utilities, electrical construction and maintenance, and electrical/electronic device manufacturers. EMD has more than 60 years of experience serving customers with highly reliable products, including high capacity transmission conductors; power cable splices and terminations; electrical wire connectors, terminals and tools ; wire marking products; cable ties; electrical insulating tapes; electromagnetic shielding and absorbing materials; heat shrinkable tubing and molded shapes for electrical insulation; and cold shrink sealing and insulating tubes.

More information about the 3M High Capacity Conductor is available at www.3M.com/accr.

About 3M

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