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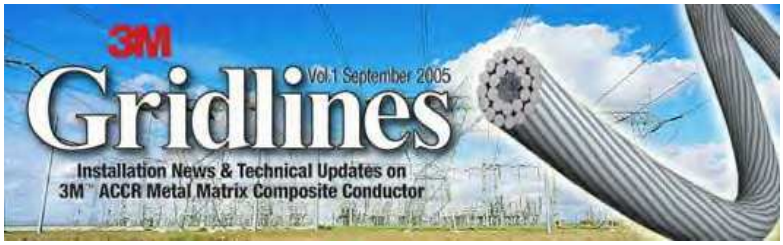
Gridlines Newsletter - September 2005



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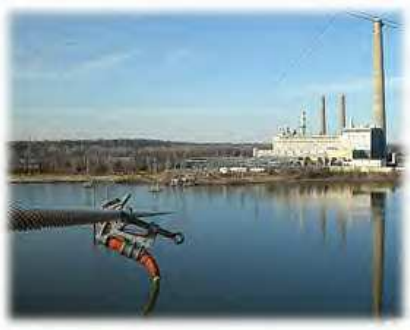
3M™ Aluminum Conductor Composite Reinforced

3M's New High-Capacity Overhead Conductor Is Installed And Activated on Xcel Energy's Black Dog-Blue Lake Transmission Line

First Commercial Application of Breakthrough Bottleneck Solution Will Add Peak-Demand Power for Twin Cities



Xcel Energy, which serves 3.3 million electricity and 1.8 million natural gas customers in 10 states, has installed and energized 3M new Aluminum Conductor Composite Reinforced (ACCR) overhead conductor on a 10-mile line that is an integral part of the electricity grid in the Upper Midwest. It is the first commercial application of the ACCR, which more than doubles the transmission capacity of conventional conductors of the same diameter, without requiring construction of new towers.

"Xcel Energy has assumed a leadership role in introducing the first major advance in transmission technology in decades," said Tracy Anderson, business development manager for 3M composite conductor program.

The new conductor was installed during an eight-week period on Xcel Energy Black Dog-Blue Lake line in Minnesota, which extends from Shakopee to Burnsville. The high-capacity conductor will support the expansion of the utility Blue Lake plant, which will provide additional power during peak demand periods in Xcel Energy Upper Midwest service territory.

"The ACCR provided a fast and cost-effective option for delivering additional energy from Blue Lake to our 1.5 million electricity customers in the Upper Midwest," said Doug Jaeger, transmission vice president for Xcel Energy. "Without it, we would have had to replace existing towers to accommodate larger sized conventional conductors. Use of the new conductor allowed us to boost capacity on the line while avoiding major construction in an area with sensitive wetlands."

3M ACCR is intended as a solution to thermally constrained transmission bottlenecks that have increasingly plagued electricity grids in recent years, causing brownouts and blackouts. According to Anderson, other major utilities are indicating strong interest in the high-capacity conductor.

"Energizing the Blue Lake line is a major milestone," said Anderson, noting that 3M anticipates closing additional sales of the ACCR within the next couple of months. "We believe the ACCR will play a significant role in making the national electricity grid more reliable," he added.

ACCR, a new type of bare overhead conductor containing a multi-strand core of heat-resistant aluminum matrix composite wires, retains its strength at high temperatures and is not adversely affected by environmental conditions, such as moisture or UV exposure. Because of its light weight and reduced thermal expansion properties, the conductor can be installed on existing towers and requires no visual changes to a line or additional rights of way.

The ACCR has been extensively tested in the laboratory and field tested for more than four years, including at Oak Ridge National Laboratory in Tennessee, under the auspices of the U.S. Department of Energy, and at locations operated by Xcel Energy, Western Area Power Administration (in North Dakota and Arizona) sites, the Salt River

Project, also an Arizona utility, Hawaiian Electric Company, and Bonneville Power Administration at a site in Washington state. The power line has been proven under a broad range of extreme conditions, such as saltwater corrosion, high winds, vibration and extreme heat and cold.

3M teamed with various companies, whose expertise in certain components helped to make 3M ACCR viable. Key contributors include Wire Rope Industries, Nexans Inc., Preformed Line Products Co. and Alcoa Conductor Accessories. Organizations playing key supporting roles in laboratory and field testing of the technology include: National Electric Energy Testing, Research and Applications Center (NEETRAC); Kinectrics, Oak Ridge National Laboratory (ORNL); and the U.S. Department of Energy Western Area Power Administration.

The technology 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.

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

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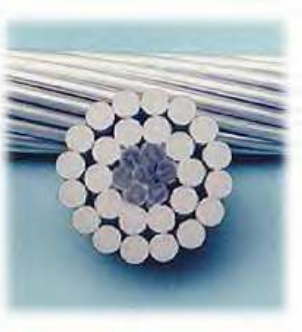
Two California Utilities Install 3M's Breakthrough High-Capacity Conductor

California Energy Commission and EPRI Take Interest as Metal Matrix Composite in Use Elsewhere in the U.S. Is Introduced in the State



A breakthrough high-temperature, low-sag overhead conductor from 3M, designed to help eliminate transmission bottlenecks that increasingly have plagued electricity grids in recent years, causing brownouts and blackouts, is getting its first use in California.

Pacific Gas & Electric (PG&E) and a second utility in Southern California have installed 3M's Aluminum Conductor Composite Reinforced (ACCR) on short line segments near substations in Santa Clara and Oceanside (just north of San Diego), respectively. The Oceanside installation was funded, in part, by the California Energy Commission. The Electric Power Research Institute will monitor the line's performance. PG&E funded its own installation and is performing its own monitoring.

Three other major U.S. utilities have installed, or announced plans to install, the new conductor on transmission lines in the West, Midwest and South.

"Parts of California have experienced record demand for electricity this summer which puts stress on the power grid," says Tracy Anderson, business development manager, 3M Composite Conductor program. "3M's ACCR provides a quick and reliable solution to increase the capacity of existing transmission lines by as much as 100 percent without requiring new towers or new rights-of-way."

Anderson notes that Xcel Energy, a major utility, is already using the ACCR to relieve congestion on a 10-mile line in the Minneapolis-St. Paul region. In addition, the Western Area Power Administration recently said it will install the ACCR on a key 80-mile line in Arizona, and Alabama Power Company plans to install the new conductor on a critical 10-mile line in the eastern part of the state.

The ACCR is a new type of metal overhead line that contains a multi-strand core of heat-resistant, aluminum-matrix composite wires. The conductor retains its strength at high temperatures and is not adversely affected by environmental conditions. Its lightweight and reduced thermal expansion properties are what enable installation on existing towers, with no requirement for visual changes to a line or additional rights-of-way.

Prior to being commercialized, the ACCR underwent four years of rugged, extensive field testing by several utilities, partially funded by the Department of Energy, and met all expectations.

Anderson points out that the first two purchases of the ACCR were made by utilities that participated in field testing, for installation in areas subject to extreme weather conditions. "I think that's a powerful endorsement of ACCR's performance," he says.

In addition to the Department of Energy and the utilities that field-tested the ACCR, 3M retained the National Electric Energy Testing, Research and Applications Center, Georgia Institute of Technology, to test the conductor during development.

The ACCR's technology 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.

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

Alabama Power Company Chooses 3M's New High-Capacity Conductor

Unit of Southern Company to Install Aluminum Conductor Composite Reinforced To Boost Transmission Capacity on Existing Line

Alabama Power Company, which supplies electricity to 1.3 million homes, businesses and industrial facilities, will become the third major utility to install 3M breakthrough electricity conductor, the Aluminum Conductor Composite Reinforced (ACCR). The ACCR is a new type of metal matrix overhead line that can double the transmission capacity of conventional conductors of the same diameter, without requiring new towers or any visual changes.

The ACCR will replace a key 10-mile (16-kilometer) line in northeastern Alabama. The change is being made because the existing conductor would be at capacity for certain contingencies resulting from the addition of new generation during summer peak loads, beginning in 2008. Installation of the ACCR is expected to begin in January 2006.

The new 3M conductor, which is heat-sag resistant, was developed to reduce the potential for thermally constrained transmission lines that increasingly have plagued electricity grids in recent years, causing brownouts and blackouts across the country. In addition, the ACCR provides the industry with a metal matrix overhead conductor solution.

Alabama Power, the second largest unit of Southern Company, supplies energy to two thirds of the state. Its selection of 3M ACCR to improve capacity on a key line follows similar decisions by Xcel Energy, for a 10-mile line in Minnesota, and the Western Area Power Administration, for an 80-mile line along the Colorado River in Arizona. 3M expects to announce additional sales of the conductor to utilities around the nation in the coming months.

"The use of the 3M conductor for this project allowed us to avoid the replacement of 22 transmission structures and the installation of eight additional structures," said Andy Wallace, transmission line manager for Alabama Power. "This will significantly reduce our construction time frame and allow the line to be taken out of service for this project without impacting the reliability of our grid."

Tracy Anderson, 3M project manager for the ACCR, said interest in the new conductor "is building quickly as a cost-efficient and reliable way to relieve many of the national grid potential bottlenecks. Before bringing this product to market, we devoted four years to rugged, extensive field testing with several utilities and the Department of Energy, under virtually every conceivable atmospheric condition. The ACCR met every expectation."

Anderson noted that the first two purchases of the ACCR were made by utilities that participated in the field testing, for installation in areas subject to extreme weather conditions. "That is a powerful endorsement of the product performance," he said.

The ACCR contains a multi-strand core of heat resistant aluminum matrix composite wires. The conductor retains its strength at high temperatures and is not adversely affected by environmental conditions. Its light weight and reduced thermal expansion properties are what enable installation on existing towers, with no requirement for visual changes to a line or additional rights of way.

In addition to the Department of Energy and the utilities that field-tested the ACCR, 3M retained the National Electric Energy Testing, Research and Applications Center (NEETRAC) at the Georgia Institute of Technology to test the conductor during development.

The ACCR technology 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.

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