

MAKING THE SWITCH TO FIRE-RESISTANT, ENVIRONMENTALLY FRIENDLY OIL

United Rural Electric Membership Cooperative (REMC), electrical provider to approximately 10,000 customers in a seven-county area in Northeast Indiana, confirmed it will be the state's first utility to use a substation with a fire-resistant, biodegradable, vegetable-based coolant made by Cooper Power Systems.

The utility announced it will install a new substation with the safer soy-based product, eliminating the need for a hazardous petroleum-based coolant. Approximately 3,000 gallons of soy-based fluid will be used to serve an industrial park that provides power to several new housing developments and numerous local businesses, including the new corporate center for handbag and accessory designer, Vera Bradley.

Cooper Power Systems' Envirotemp FR3 transformer fluid is made from soybeans, one of the largest agricultural cash crops in the United States. In addition to public safety and environmental benefits, United REMC's switch to the FR3 fluid will reduce the need for imported petroleum, while supporting soybean farmers in Indiana, one of the nation's leading soy-producing states.

Petroleum-based fluids are flammable at 311 degrees Fahrenheit, costlier to clean up in the case of spills, harmful to the environment and contain known carcinogens. FR3 fluid has the highest flash (626 F) and fire (680 F) points of any fluid currently on the mar-

ket.

"Cooper's FR3 fluid will not only positively impact our electrical system and utility business, but the environment all around us," said John Klingenger, corporate relations manager, United REMC. "The added safety benefits will bring ease to our workers and the public at large."

In the early 1990s, Cooper Power Systems began the development of a vegetable-based transformer oil. In 2004, it partnered with Cargill Inc. to produce and distribute the



Transformer filled with new soy-based fluid.

FR3 fluid that was designed to enhance transformer performance, increase worker and improve environmental safety, all essentially lowering costs for utilities. Due to its very high fire-ignition temperature, no transformers with FR3 fluid have caught fire.

Envirotemp FR3 fluid received the U.S. Environmental Protection Agency's Environmental Technologies Verification, confirming its environmental attributes. In addition, the FR3 fluid has shown to be non-toxic, and has the highest EPA classification for biodegradability. Because the fluid also has excellent fire-resistant qualities, Underwriters Laboratories (UL) and Factory Mutual (FM) allow the FR3 transformer installations outdoors and indoors, typically without costly fire protection and insurance devices required of petroleum-filled transformers.

"With a high biodegradability rate and non-toxicity, Envirotemp FR3 fluid can be safely installed in different types of highly populated areas such as neighborhoods, parks and shopping centers, reducing the likelihood of harming the general public or the environment," said Patrick McShane, Cooper Power Systems' dielectric fluids product line manager.

The fluid extends paper insulation life, lowering life-cycle costs. The increased insulation life translates to extended and enhanced transformer life, or the ability to carry higher loads during peak demand periods without leading to premature insulation failure.

More than 15,000 new and retro-filled transformers in more than 70 municipal and rural electric cooperatives are using Envirotemp FR3 fluid today. Utilities including Alabama Power, Baltimore Gas & Electric, Monroe County (St. Louis, Mo.), Sacramento Municipal Utility District, and Seattle City Light are using soy-based transformer fluids on their systems.

RURAL ELECTRIC CO-OPS BENEFIT FROM NEW SOY-BASED TRANSFORMER FLUID

Americans use more than 1.06 billion kilowatt-hours of electricity a year for residential purposes alone. Most of this electricity passes through thousands of power and distribution transformers, which can fail and result in potential fires. To counteract these dangers, Cooper Power Systems developed Envirotemp FR3, a high-fire-point soy-based fluid. Cooper recently joined with Cargill to manufacture the fluid worldwide. The soybean checkoff helped fund research done cooperatively by Cargill's Industrial Oils and Lubricants division, Waverly Light and Power, and the Electric Research and Manufacturing Cooperative.

Tipmont Rural Electric Cooperative in Indiana is one of the first electric co-ops to convert to 100 percent use of Envirotemp FR3 fluid and has reported great results. Because Envirotemp FR3 draws out retained moisture and absorbs water from aging transformer paper, the paper life is extended and transformer life cycle costs are lower. Tipmont Rural Electric Co-op projects extended life for all of their Envirotran transformers, making them more cost-effective and a better option than conventional transformer fluids.