

Alliant Energy, Cooper Power Systems team up for field test



CEDAR RAPIDS — Alliant Energy will launch a field test on Monday, Oct. 29 to determine the impact of Envirotemp® FR3™, an environmentally-friendly vegetable oil-based coolant produced by Cooper Power Systems, has on the capacity and life expectancy of traditional substation transformers.

First introduced in 1997, Envirotemp FR3 fluid has been shown to enhance the loading performance of new, small-scale transformers by about 20 percent or extend their insulation life by up to 500 percent. It is expected to have a similar rejuvenating impact on larger units already in service, such as those found in electric substations.

Alliant Energy is one of the first utilities in the United States to partner with Cooper Power Systems in testing the rejuvenation theory.

For the test, Alliant Energy will replace mineral oil coolant with the Envirotemp FR3 fluid in a 50-MVA transformer at its Eighth Street substation in Dubuque. Using a tank, truck and hoses, workers will begin draining the transformer at 6 p.m. Sunday, Oct. 28.

The following morning, 8,000 gallons of the biodegradable, non-toxic

alternative will be pumped into the transformer. The refill process is expected to take approximately 72 hours.

John Larsen, executive manager at Alliant Energy said, “If the test results are as promising as we anticipate, this alternative could offer us and our customers significant financial relief in equipment purchases and maintenance costs, reduce the risk of fire, and benefit our environment.”

Transformer capacity and other performance indicators will be monitored at the substation for several years, however, company officials will have a good indication of whether the vegetable oil is making a difference within 12 months. Service to customers in the Dubuque area will be unaffected during the refill.

The financial, fire safety and environmental costs associated with transformer liabilities are a constant concern for electric utilities — from potential spills of transformer coolant to the threat of fire resulting in disrupted service.

“Soil and groundwater cleanup for a mineral oil spill is extremely challenging,” said Daniel Wycklent, dielectric fluids

product manager for Cooper Power Systems. “Envirotemp FR3 is vegetable oil-based fluid that is biodegradable, nontoxic and poses no danger to animals or people. It is also much more fire resistant than mineral oil. This enables transformers to be located closer to or even inside buildings and still meet the requirements of the National Electrical Code. Overall, it’s better for the environment and safer for us.”

Because Envirotemp FR3 fluid is made from vegetable oils and other food grade additives, it is more expensive per gallon than transformer grade mineral oil. Alliant Energy’s investment in the project totals \$72,000.

“If we can achieve better performance with existing equipment, we’re confident this initiative can pay for itself,” said Larsen. “It’s a one-time cost to retro-fill the transformer and there are many potential long-term benefits.”

Larsen predicts that as the vegetable oil-based fluid becomes more widely used, prices will come down.

“In the meantime, we’re partnering to advance technology research, supporting our vast agricultural customer base by using a renewable resource, and safeguarding the environment,” said Larsen. “We’re enthusiastic about being a test site for Cooper and are optimistic the project will lead to great things for the electric utility industry and our customers.”

Cooper Power Systems, based in Waukesha, Wis., is a leader in dielectric fluid development and electrical distribution equipment research, design and production. Alliant Energy, headquartered in Madison, Wis., is a growing energy services provider with operations both domestically and internationally.

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