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Hold the power tower, pass the conductor

Researcher: 'It's not so much that we've got a power shortage, it's that we don't have generation in just the right places.'

By: R. Cathey Daniels | Oak Ridger Staff
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When it comes to power lines draped over the nation's neighborhoods, resistance is measured in more than just ohms.

"There's a real resistance to building new transmission corridors, acquiring rights of way is tough, there's public resistance and environmental concerns," said Tom Rizy of the cooling, heating and power group at Oak Ridge National Laboratory.



ORNL

Oak Ridge National Laboratory researcher Tom Rizy takes a look at a sample of an advanced power line conductor that could replace conventional cable inside existing power line infrastructure.

into an existing right-of-way and pull out a conventional conductor of similar size and replace it with this (high

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Still, to avoid blackouts such as the one that occurred Aug. 14, capacity must be increased.

But instead of adding infrastructure, one option is to run higher temperature current conductors along existing lines.

To that end ORNL has built a testing center where the Tennessee Valley Authority and other utilities and industry can examine under low voltage conditions the possibility of heating up new lines, as well as existing conductors.

"The advantage is that you can come



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temperature current conductor), at 2.5 to 3 times the current," said Rizy.

"It's not so much that we've got a power shortage, it's that we don't have generation in just the right places," added Roger Kisner, senior scientist with the engineering, science and technology division. "So what we're trying to do is help the companies that are making conductors improve them so we can bring the power that's generated to the places where it's needed."



Kisner noted that measurement technology is critical to that endeavor.

"We measure the sag of the line, we measure the tension that's being pulled on the line, of course we measure current and voltage," said Kisner. "Testing is extremely important, but we want to invent and discover ways of measuring things that are important to transmission."

ORNL

The Powerline Conductor Accelerated Testing Facility, on Bethel Valley Road, is the first of four facilities planned for the Department of Energy's National Transmission Technology Research Center.

The outdoor facility on Bethel Valley Road is the first of four planned ORNL facilities that will comprise the Department of Energy's National Transmission Technology Research

Center.


The next facility in the line-up will be designed for high voltage transmission long-term testing. Plans call for the test area to be at the K-25 site, and the facility will be constructed in partnership with TVA.

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