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The Voice of Ontario's Electricity Distributors

Boosting Oakville Hydro's asset management plan with state-of-the-art cable tests

By: Energy Ottawa

Asset managers, responsible for prudently spending as part of a utility's distribution system plan, often seek to maximize their capital dollars. Looking to innovate, Oakville Hydro recently completed a pilot project of a non-destructive method to diagnose the health of its XLPE cable.

"Oakville Hydro's previous practice was to replace cable at the end of its financial useful life," says the utility's Chief Operating Officer Mike Brown. "Continuing this process of destructive testing to find out where potential cable failures would occur seemed to be like a lose-lose game for us."

That's where Energy Ottawa's state-of-the-art cable testing service comes in. Developed by the National Research Council Canada (NRC), the Government of Canada's premier research and technology organization, this technology diagnoses the health of XLPE cables in a non-destructive way. Unlike other methods, the testing does not reduce the remaining cable life.

"With the data from this cable testing, asset managers can make a more informed decision on what assets need to be replaced first," explains

Glenn Magill, General Manager of Infrastructure Management with Energy Ottawa. "It is non-destructive in its nature of testing, it is traceable to an accuracy of plus-or-minus one per cent, and it is very fast to complete."

Age is not the only indicator of an underground cable's condition. Soil type, geography, circuit loading, water, and weather are all factors that, in addition to the infrastructure's vintage, impact whether a cable has reached the end of its useful life or is not yet ready to be replaced.

"Replacement based on age is not an option," says Magill. "So, utilities need more data to determine asset condition."

NRC's experts have been developing the technology for more than 30 years, and conducted over 10 years of testing and research on it for Hydro Ottawa, Energy Ottawa's sister company.

This extensive research and trial period was an important factor in Oakville Hydro's consideration and part of the reason the testing technology stands in a league of its own in the industry.

"The features of this technology make it unique," says Magill. "It is essentially the only type of testing of its kind that I know of globally."

Unlike other cable testing solutions that deliver a pass-or-fail outcome, Brown says the health score from this technology means cables in good health can remain in service beyond their financial useful life, and funding can be optimized for maximum risk reduction.

"It was perfect because we have a lot of underground development, similar to Ottawa, and it's at the age where we really don't want to wait for failures to occur and create outages; we'd rather have more predictive capability," says Brown.

"The unique, non-competitive space in which LDCs operate facilitates the sharing of best practices and working together..."

Oakville Hydro now has finite cable health indexes for about 80 cable segments on its distribution system. "Using these results, the team can now plan a mitigation strategy for how to deal with either replacement or rejuvenation of the cables that are at an advanced state of condition," says Magill.

To that end, Oakville Hydro is equipped with the health score to inform a long-term cable investment strategy that optimizes both spending and risk reduction. Brown says they plan to incorporate this quantifiable score into their Asset Management Process for project planning and optimization – a pre-emptive approach unavailable to them using the former model.

What made the recent pilot with Energy Ottawa even more of a win was the level of collaboration among the peer utilities throughout the process – a model easily replicable by neighbouring LDCs facing similar asset woes.

The unique, non-competitive space in which LDCs operate facilitates the sharing of best practices

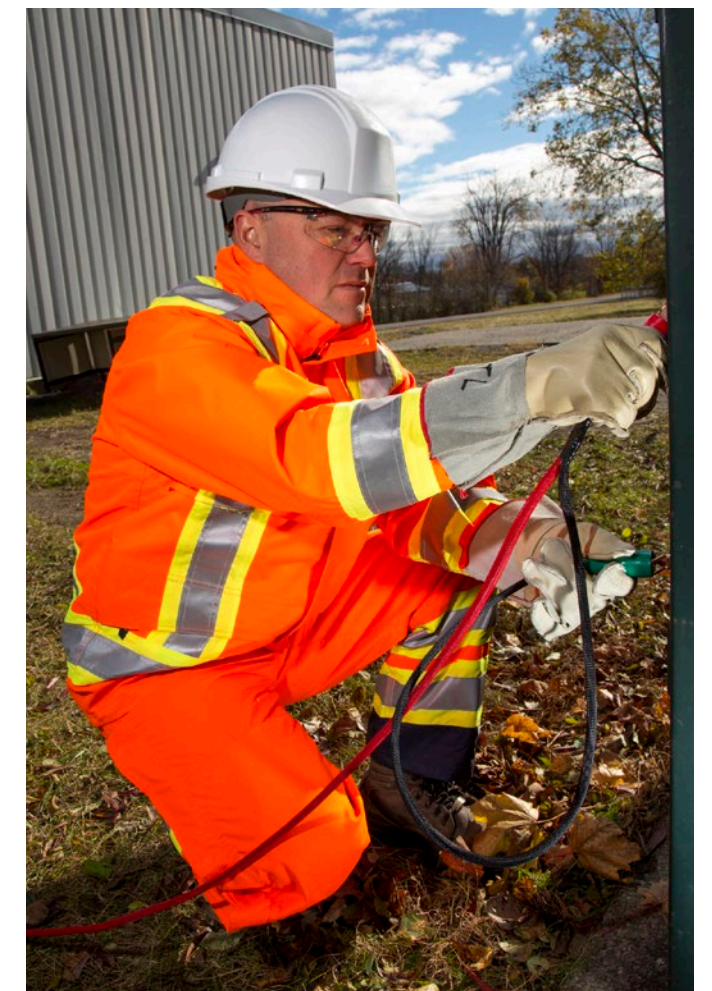
and working together, says Brown. "This is absolutely one of the best examples of a fulsome, high-scale level of collaboration," he concludes. "This is the way it should work in our industry and this, I think, is a really telling example of that."

ABOUT ENERGY OTTAWA

Energy Ottawa's Infrastructure Management Division offers a range of services, including cable testing, power quality monitoring and engineering solutions. Energy Ottawa is a wholly owned subsidiary of Hydro Ottawa Holding Inc.

ABOUT OAKVILLE HYDRO

Oakville Hydro delivers reliable and safe electricity to more than 69,000 households and businesses in Oakville. Oakville Hydro received the 2015 Performance Excellence Award from the Electricity Distributors Association (EDA), recognizing the organization as an exceptional leader in the industry.



Powerline maintainer hooks up equipment to transformer to perform non-destructive test.