

Case Study

Age isn't always an indicator

Exelicon Energy's preventative maintenance program

By introducing CableQ's Non-Destructive Cable Testing to its existing cable rejuvenation program, Exelicon Energy learned that 355 underground cable segments on an injection schedule were in Good or Fair Condition. Exelicon now uses CableQ data to learn the true condition of their cables; by combining testing and injection they have seen a cost savings of 27% over the previous year.

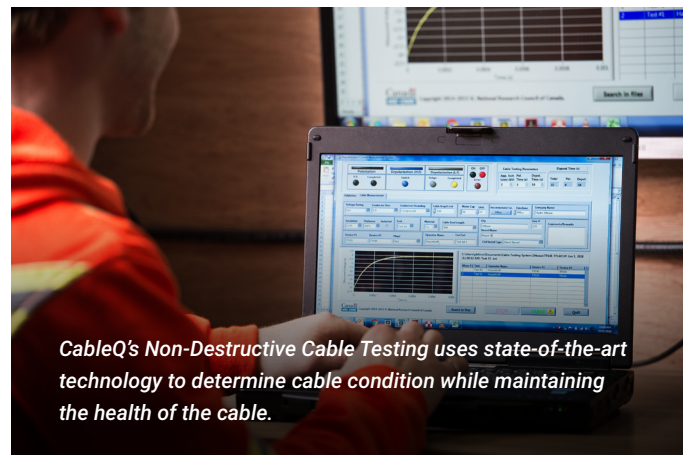
Background

Exelicon Energy (previously Veridian Connections) is the fifth largest municipally owned electricity distributor in Ontario and is responsible for the safe, reliable delivery of electricity to more than 121,000 residential and business customers in municipalities and communities in Central Ontario. As communities rely on the distributor for reliable electricity, Exelicon has taken a more proactive approach towards managing their cable assets, and specifically their aging underground cable.

Exelicon began to explore the possibility of a cable rejuvenation program using cable injection to maintain their aging system. While costs associated with replacement can diverge with different variables, it has a minimum cost of \$250/meter. At an average cost of \$73/meter, they saw a minimum savings of 71% (\$177/meter) by injecting rather than replacing.

The Opportunity

The success of the rejuvenation program spurred Exelicon to refine this program further by adopting the Non-Destructive Cable Testing offered by CableQ as one of several measures to determine which cable to inject or replace. By adding cable testing to the formula, Exelicon predicts a reduction cost of cable injection due to more information about the cables and the area they are injecting.



CableQ's Non-Destructive Cable Testing uses state-of-the-art technology to determine cable condition while maintaining the health of the cable.

"Our previous approach was purely based on a statistical analysis, where we looked at the number of faults in a geographical area/cable length. Now we have added a Diagnostic Parameter Value to select the segments of cables to be addressed."

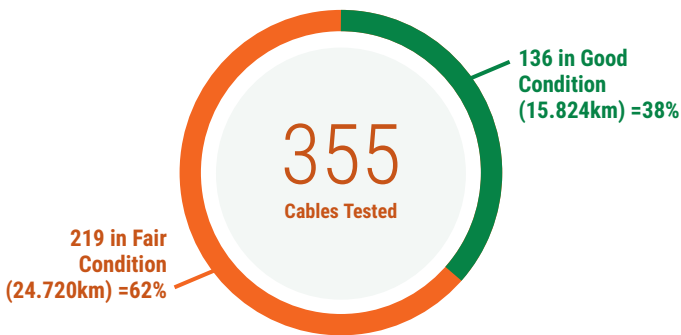
– Hocine Boudhar, Asset Management and Planning Technician, Exelicon Energy

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For Exlexicon, CableQ's Non-Destructive Cable Testing has become an inseparable part of their cable rejuvenation program. By combining testing and injection into one program, Exlexicon has saved 27% over what was spent the previous year.

The CableQ Solution

CableQ's commitment to empower utilities to manage their underground cable closely aligned with Exlexicon's desire to take a more proactive approach and rely less on age as a sole indicator. Thus, in 2017 Exlexicon began working with CableQ and its Non-Destructive Cable Testing.



The majority of the cables Exlexicon selected for testing were direct-buried residential cables from the 1970's and 1980's. With the majority of the cables being 40+ years old, they had theoretically reached the end of their nominal life expectancy. However, CableQ's Non-Destructive Cable Testing provided Exlexicon with a health score for the cables, demonstrating that this was not the case.

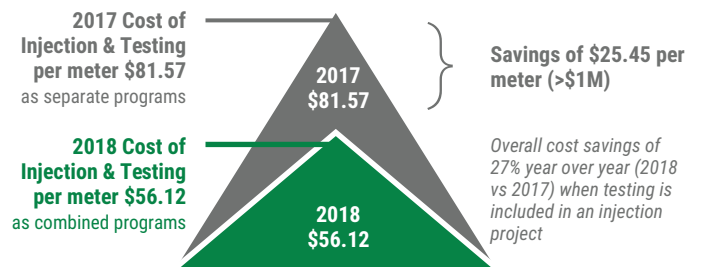
Exlexicon's testing showed that of the 355 cables (approx. 40km) tested, most were candidates for injection. The cable health scores showed: 38% in Good Condition (requiring no action); 62% in Fair Condition (candidates for injection); and 0% in Poor Condition (candidates for replacement).

The Results

Rather than an all-out cable replacement or injection program based solely on age, Exlexicon is moving ahead with a cable injection project based on actual cable condition. The data provided by CableQ not only indicates the condition of cables, but it helps identify where to inject or replace a cable. As a part of testing, CableQ identifies the location of splices, which helps Exlexicon in planning work. Splices have to be dug up and replaced as part of the injection process, and this data prevents costly guesswork.

And the savings are impressive. In 2017, Exlexicon Energy spent \$76.96 per meter on injection compared to just \$51.33 per meter in 2018, a savings of \$25.63 per meter, and a direct result of implementing cable testing and improved project planning based on results. What's more, CableQ delivered these significant savings at a cost of only \$4.78 per meter for 2018.

Exlexicon Energy saw additional savings by capitalizing the cable testing work as a part of their asset management programs.¹ Cable testing is now the number one criteria for determining which cable should be injected.



CableQ Benefits at a Glance

- ✓ Condition-based data provides objective evidence to justify capital expenditures on cable rehabilitation
- ✓ Traceable results allow utilities to repeat testing and validate change in cable health
- ✓ Splice identification ahead of rejuvenation enables more efficient project execution
- ✓ Non-Destructive testing sees no failures during testing and allows for tests to be repeated without damaging cables

1. International Financial Reporting Standards (IAS16.14) allows for capitalization of regular major inspection costs. Capitalization policies may vary by utility, please consult your Finance department.