



Delivering a Large, Energized Transmission Rebuild Project Safely and Ahead of Schedule

CASE STUDY

→ SNAPSHOT

In response to Eversource's increasing need for energized electrical transmission and distribution project work, MYR Group subsidiary [Harlan Electric](#) developed a live-line certification program to provide these capabilities.

Since initiating barehand live-line work for Eversource in 2020, Harlan Electric has successfully executed numerous energized projects, including the NECA award winning [X116/Z119/S188/R187](#) Structure Replacements project (or "X116 project"). This overhead transmission project included 252 structure replacements across four different 115kV lines, with the majority of replacements performed under energized conditions. Harlan Electric completed the complex project ahead of schedule and with zero injuries.

→ CLIENT INTRODUCTION

Eversource is New England's largest energy delivery company, serving more than four million customers in Connecticut, New Hampshire and Massachusetts.



→ PROBLEM

Eversource's service territory includes some congested, urban areas where it can be difficult to obtain line outages to perform transmission and distribution linework – especially in New Hampshire.

Outage constraints have led to Eversource New Hampshire's growing need to have this type of work performed under energized conditions – including complex transmission rebuilds like the "X116 project" – to ensure reliability for their customers.

This complex project required 227 of the 252 structure replacements to be performed while energized.



Replacing 252 structures across four transmission lines on the same right of way would be no easy feat – especially with 227 being converted while energized.



➔ SOLUTION

Harlan Electric has provided electrical construction services to Eversource since 2005, building a trusted relationship by providing quality work, exemplary safety, and completing projects on tight schedules.

Recognizing their customer's shifting needs, Harlan Electric spent two years developing a live line certification program to provide these capabilities.

They partnered with recognized industry organization, ESCL, to develop a training and certification program.

Harlan Electric's first class of lineworkers was certified to practice live line and barehand work in 2020. By training and certifying crews for energized work, they have helped meet Eversource's growing needs and have been selected to tackle complex, energized projects for the utility.

In 2022, Harlan Electric was awarded the "X116 project." The rebuild was needed due to problems with existing wooden laminate poles. Replacing 252 structures across four transmission lines on the same right of way, would be no easy feat – especially with 227 being converted while energized.

Work was scheduled to begin in June 2022 and to be completed in February 2023, but Harlan Electric set and met a goal to complete the line construction even sooner.

Making the project even more challenging, the state's Fish & Game agency issued new protections for several, rare, threatened or endangered species shortly after the project was awarded. It would be the first Eversource project to comply with the new wildlife protections.

Harlan Electric worked closely with Eversource to determine what changes and procedures would be necessary for compliance and ensured its access and environmental controls subcontractor built and maintained them, including matting, turtle tunnels, silt fence and more.

To safely and successfully deliver the project, Harlan Electric carefully planned and coordinated the switching of lines being worked on by crews (2-3 live line, 4 drilling and 4 access subcontractor crews). Each day, they discussed the working procedures for every task planned, identifying location hazards ahead of time and maintaining the awareness necessary to prevent unplanned outages.

"As one of the main corridors in a population-dense area that's five circuits wide, we had to be cognizant of what circuits we were working on and how close they were to other circuits. Our team needed to be especially mindful of what was behind and alongside them when positioning our bucket trucks and other equipment," Harlan Electric District Manager Chris Lenahan told [Line Contractor](#) magazine.

To work most efficiently, Harlan Electric pre-drilled holes in the ground, and support crews delivered all materials to the work sites before the live-line (structure) crews arrived each day.

The structure crews would set the new structures, fill around the pole, frame it up and set it, install the davit arms and transfer all the conductors over to the new structure using conductor line lifters. The line lifters provide more freedom of movement than hotsticks.



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*Harlan Electric District Manager Chris Lenahan
from interview with Line Contractor magazine*

➡ SOLUTION CONTINUED

After conductors had been transferred, the crews would transfer the optical ground wire (OPGW). Lastly, they would dismantle the old structure. Support crews would handle the removal so that the live line crews could move on to the next structure replacement.

Keys to performing the energized work safely included following established procedures that are practiced and discussed daily before the work begins. This includes conducting a thorough job brief and work plan, adhering to barehand procedures, and understanding roles and responsibilities.

➡ THE RESULTS

Harlan Electric completed the project while maintaining exemplary safety, protecting wildlife and accelerating the project schedule, earning them a 2023 NECA Project Excellence Award for overhead transmission. The project successes included:

- zero unplanned outages
- zero recordable incidents and no property damage
- complying with brand new measures to protect wildlife
- completed two months ahead of schedule (despite construction starting later to comply with new regulations)

In addition to the project excellence award, the Harlan Electric district earned the NECA Zero Injury and Safety Excellence Awards for the full year, which included the work on the “X116 project.”

➡ CONCLUSION

By understanding their customer’s needs, collaborating closely with the utility, and quickly adapting to the new environmental requirements, Harlan Electric delivered construction, environment and safety excellence on the project.

“We want to extend our sincere thanks to the project team at Eversource New Hampshire, who gave us a lot of flexibility in terms of the schedule we developed for the four circuits,” Lenahan said. “We appreciate the great communication and coordination they provided and thank them for having confidence in us and giving us a chance to hit it out of the park for them.”