Four years ago, Northeast Utilities (NU) and its subsidiary, Connecticut Light & Power (CL&P), received approval from regulators to begin a major upgrade to its transmission system in one of the most power-constrained regions of the country. The Middletown/Norwalk (MN) project consists of 69 miles of new 345-kV transmission line, including three new substations, 45 miles of overhead line and 24 miles of underground line. The MN project was part of an effort to bring needed power and improve system reliability in southwestern Connecticut.

CL&P also needed an innovative way to manage this $1.4 billion effort, the largest capital transmission project in the country at that time.

**Challenges**

The route crosses some of the most densely populated areas of Connecticut, affecting more than 7,000 homeowners and businesses. The vast scope of the MN project, combined with several other projects planned or under construction, required CL&P to look for a new approach where it could manage the overall project without adding significant internal resources.

“CL&P was looking for a partner experienced in the design and construction of large-scale capital projects,” says Brett Williams, program manager for the MN project. “It needed to hand off the bulk of project responsibilities and details to someone else and focus its core staff on the overall management of the project. A program management contract was the perfect solution.”

This massive project cut through the back yards of many Connecticut residents and disrupted travel on Connecticut Route 1, which parallels I-95 along Long Island Sound and becomes an alternate commuter route for overflow traffic from the interstate.

Project managers and field operators needed to track construction progress efficiently and address numerous public concerns.

“Maintaining positive community relations is extremely important to CL&P. This project touched many residents and businesses along our route, and we needed to consider the impacts. For example, if they had concerns about the safety of their livestock, access to their business or specific requests for landscaping, we wanted to be able to address these concerns and honor those commitments,” says Jim Hogan, director of engineering for the Burns & McDonnell Transmission & Distribution Group.

**Solutions**

CL&P opted for a program management approach, giving them flexibility and providing single-source accountability from design through construction. As program manager, Burns & McDonnell provided engineering, procurement and construction management, as well as other services, integrating project managers from both Burns & McDonnell and CL&P. Using this model, the CL&P staff was able to manage the overall design, budget and construction of the project, while Burns & McDonnell selected and oversaw subcontractors and coordinated the day-to-day details.

“The software made the project run much more smoothly than conventional means. With daily updates to the graphical designs, everyone from project managers to field operators, gained almost real-time data on the project’s status and could easily determine any property owner concerns as the team moved through a particular area,” Hogan says.

**Outcome**

Because of the program management approach and the innovation of OneTouchPM®, the entire project was completed one year ahead of schedule and $100 million below budget. With a peak cash burn of $1.5 million per calendar day, the controls provided by program management and OneTouchPM® were invaluable.

“There’s no doubt in my mind that managing 62 prime contractors and vendors on MN was improved by this technological tool and by the program management method.”

**Innovative Technology Allows Completion of Transmission Line Project Ahead of Schedule and Under Budget**

Efficient communication was critical to the success of the project. Burns & McDonnell created OneTouchPM®, an innovative geographic information system that integrates design information with key project management software into a three-dimensional project model. As construction moved into a new area, site managers could remotely access OneTouchPM® through a WiFi connection on mobile workstations. They immediately knew about issues or concerns registered by area residents or businesses so that unnecessary delays or shutdowns were avoided.

For more information, contact Brett Williams, 203-284-8590.

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**MN FAST FACTS**

- Completed nearly a year ahead of schedule and $100 million under budget
- Encompassed more than 2.6 million work hours
- Completed 1.7 million work hours before a recordable incident
- Achieved a 0.14 days away/restricted time rate (DART), much lower than the national average
- Installed more 345-kV cross-linked polyethylene (XLPE) underground cable than previously used anywhere in the United States
- Procured XLPE cable from France, Italy and South Korea

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**M|N PROJECT MANAGEMENT STAFF**

- Burns & McDonnell
- CL&P

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**For more information on the M|N project, visit [www.burnsmcd.com/mn](http://www.burnsmcd.com/mn).**