

Upgrading Transmission Lines from the Air

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The use of helicopters versus conventional ground methods is becoming a viable option when it comes to refurbishing transmission towers in wetland right-of-way areas. In October, line crews began work on a 14-mile stretch of 115 kilovolt (kV) transmission line south of Boston between National Grid substations located in Brockton and Scituate, Mass. The route goes through some very difficult terrain.

Traditional ground crews performed work in all areas easily accessible by vehicle. However, working in swampy, remote wetland areas with limited vehicle access would have been costly, environmentally unfriendly and just plain difficult. Constructing access roads, laying down swamp mats and using hay bales would have been extremely disruptive to the environment. Therefore, the project team used a helicopter to set up staging areas and deliver personnel and materials to the wetland areas.

The helicopter first delivered four linemen to the work site – in this case, to the tops of the poles 70-80 feet in the air. Two of the linemen stepped off the helicopter at one pole and the other pair stepped off at an adjacent pole. The helicopter crews carefully transferred the tether on their safety harnesses from the helicopter to the pole, a procedure that is choreographed in advance and repeated throughout the project.

Next, the helicopter flew back and forth between the work site and staging area carrying old materials out of the site and delivering new materials to each pole from the staging area. The helicopter made six trips for each pole and the entire process was repeated by repositioning the line crews to the next set of poles, covering approximately 120 poles in total.

“Using an aerial construction method for this type of transmission work is the best way to minimize the environmental impact in wetland areas,” said Joe Luchini, director of Transmission Line and Field Construction Services. “The contracted crews are specifically trained for this work with public and personal safety being of the highest priority.”

The incremental cost of utilizing the helicopter crews on this project was offset by savings from the reduced need for environmental controls and the greater speed with which personnel and materials were delivered to each work site.

“With the understanding that every project is different,” said Brian Reynolds, senior engineer, “aerial construction can be two to three times more efficient in environmentally sensitive areas or where rugged terrain creates access challenges.”

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