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Maui Electric upgrading poles, testing new system to protect lines from high winds, falling trees

Project aims to reduce outages in wooded area of Olinda, Pi'iholo

KAHULUI, June 26, 2019 – Maui Electric Company is upgrading utility poles and using new insulated conductors in parts of Olinda and Pi'iholo, part of a pilot project to prevent wind and tree-related outages and to make the island's electrical grid more resilient.

The mile-long stretch of power lines in the heavily forested area will be the first in Maui County to use "spacer cables" designed to withstand the force of falling branches and trees.

Last year, branches and trees falling onto power lines caused nearly 30 percent of all outages. Most of these outages affected about 2,600 customers in the Olinda-Pi'iholo area when large limbs or entire trees fell onto electrical equipment.

"While we proactively manage vegetation encroaching on power lines, this Upcountry area is serviced by power lines surrounded by protected groves of pine and eucalyptus trees that often come down during high winds or storms," said Chris Reynolds, system operations director at Maui Electric. "The spacer cables are being installed on spans where trees are prone to falling on the electrical equipment and causing extended outages."

Known as the Hendrix Aerial Cable System, the cables consist of three coated conductors supported by a heavy-gauge wire that provides structural support. The cables are cinched into polyethylene spacers placed every 30 feet along the spans to prevent the cables from touching, even under extreme stress. The system does not require cross arms or a neutral wire on the poles, reducing visual impact.

The cable spacers are specifically engineered to withstand high winds, falling trees, and long installation spans where undergrounding electrical equipment isn't practical.

As part of the eight-week construction project, crews replaced about a mile of power lines stretching across 22 spans and replaced 15 poles with ones rated for higher wind gusts. For several spans over particularly steep terrain where a bucket truck could not be used, crews used climbing gear to ascend the 45-foot poles and a seat harness that fastens the lineman directly to the heavy-gauge support wire. For workers to safely complete the installation, planned outages were scheduled and communicated to affected customers.

"We're always looking for ways to strengthen our electrical system with resilient energy solutions, especially as our islands are experiencing increasing and intensifying storms," Reynolds said. "Installation of stronger poles and the spacer cables designed to weather the elements mean we can bounce back faster to restore power to one of the more remote communities after a storm."

The pilot project will expand in the future to include an area in Lahaina and parts of East Moloka'i. The system is also being evaluated for use on O'ahu and Hawai'i Island.

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