



Improving Power Reliability by Land and Sea

By Paola Adler

The last leg of a power reliability project to strengthen an essential transmission line connecting the Pacific Northwest to Southern California has been completed. Spearheaded by LADWP's Power Transmission and Distribution Division's Overhead/Underground Transmission team, the Pacific Direct Current Intertie (PDCI) ground return system's ocean electrode was upgraded to improve power reliability and capacity for Los Angeles customers and other utilities that utilize the line.

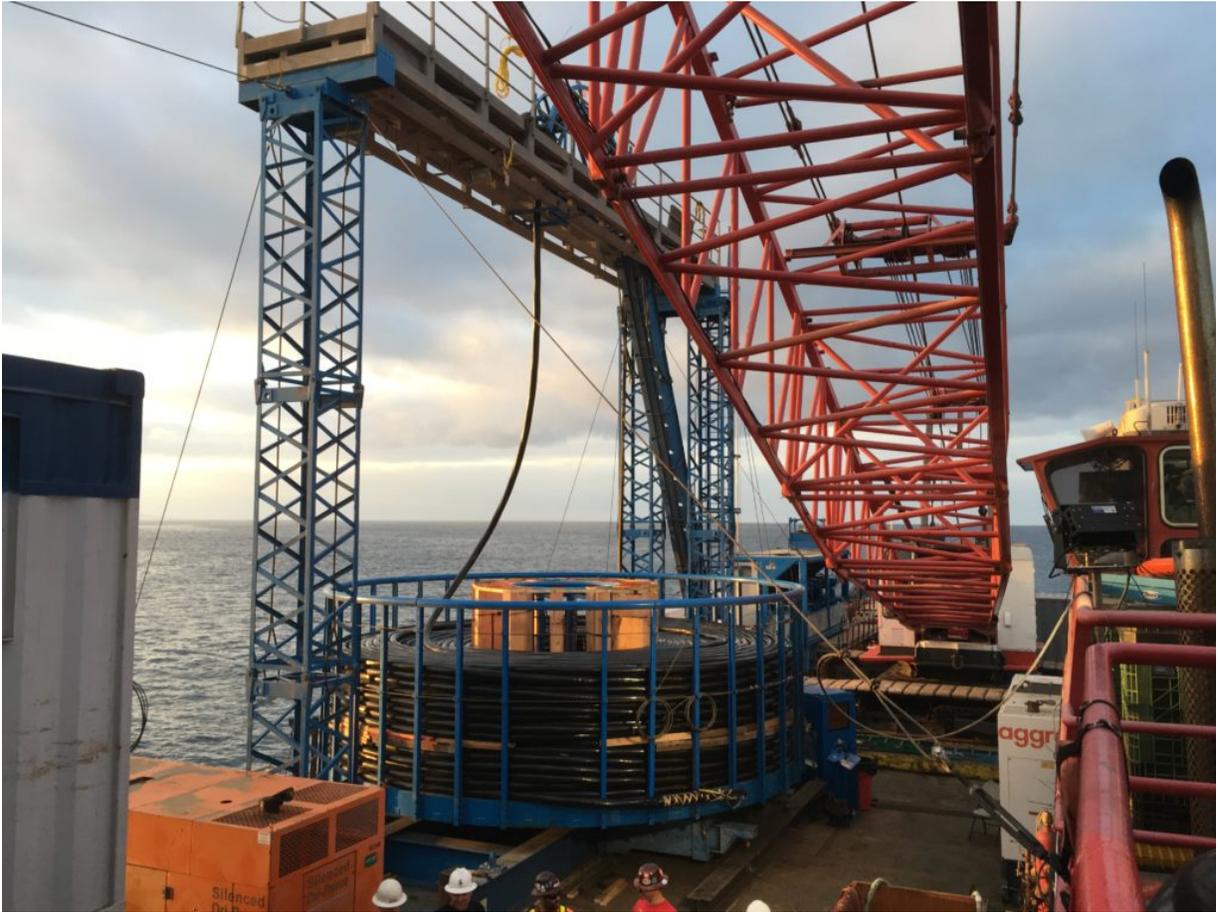
The PDCI is a DC transmission system that has a capacity of 3,220 MW, enough to power two million homes. The original system was put in service in 1970 and has been continually maintained and expanded, but the southern ground return connection had not been replaced since the PDCI was built.

Originating at Sylmar Converter Station and terminating in Santa Monica Bay, the ground return system is designed to carry current safely when the PDCI experiences an interruption and also ensures consistent flow of electricity. The ocean electrode component provides a "ground point" where electricity can travel through the earth. As the operating agent of the system's southern area, LADWP began a project to inspect and upgrade this portion of the line in 2014.

“This project was a unique challenge for LADWP because it included replacing both underground cable on land and submarine cable under 120 feet of water in the Pacific Ocean,” said Mohammad Khajavi, Power System electrical engineer and the project’s director. “There were a lot of technical challenges and moving parts we had to manage, but our biggest achievement is creating a team that worked well together to achieve a complete project at a cost lower than expected.”

Because the cables stretch more than four miles offshore, a barge and tugboats were used to carry equipment and work crews, and ocean divers were used to help properly install components underwater. LADWP used DC cross-linked polyethylene insulated cable for the project and installed 36 offshore vaults, using a design that exceeds safety standards and protects marine life and customers onshore.

More than 50 LADWP employees worked on the project, which was commissioned in November 2018. Divisions beyond the Power System also contributed to the project’s success through environmental monitoring and compliance, permitting and public outreach. The team’s efforts will help support reliable power flow to Angelenos for decades to come.



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