

Pine Tree Wind Project

This is the largest municipally-owned wind power project in the U.S. Completed in less than two years, the project produces 135 megawatts (MW) of clean energy through 90 1.5-MW wind turbines and powers 56,000 households in the Los Angeles area. Kleinfelder led the geotechnical and geologic effort for this design-build project.

PROJECT RESULTS

The Pine Tree Wind Farm Project is the biggest contributor to the City of Los Angeles' goal to quadruple the amount of power coming from renewable energy sources. Kleinfelder's aggressive rock mechanics approach to cut slope design and continuous oversight during construction substantially reduced costs and kept the project on schedule.



EXTRAORDINARY SITE CHALLENGES

Situated on rugged and mountainous terrain, the project involved construction of 90 wind turbines and approximately 34 miles of access roadways, including two bridges spanning the Los Angeles Aqueduct System. An operations and maintenance building, power substation, and three permanent meteorological towers support the power generation system. Environmental regulations, numerous high fills/deep cuts for access roads, and embankment stability and foundation requirements posed extraordinary grading challenges.

SPECIALTY MAPPING AND EXPLORATION

Kleinfelder's rock mechanics experts performed specialty geologic mapping in difficult access conditions using mountaineering techniques, including climbing and rappelling. Working with the design-build contractor, Kleinfelder designed a program for subsurface explorations at 90 wind turbine generator locations typically situated on ridge lines throughout the site. Using data from surface mapping of the rugged terrain and subsurface exploration results, Kleinfelder developed recommendations for structure foundations, roadway cuts, and fills involved in the complex civil grading plan.

Location:

Tehachapi, California

Owner:

Los Angeles Department of Water and Power



Hoisting wind turbine blades



Rope-access inspection of rock cut

