

MANZANA Wind Power Project



Project Overview

The Manzana Wind Power Project resides in a part of the country rich in wind farm history - in the windy Tehachapi region near the town of Rosamond in Kern County, California. Avangrid Renewables developed, owns and operates the high-tech project which features 126 modern wind turbines. Completed in late 2012, the project is generating clean, renewable electricity for our customers, and significant new local revenue. Manzana is the sixth California wind farm in Avangrid Renewables' U.S. fleet of more than 50 renewable energy projects.

Project Details

Project Capacity: 189 Megawatts (MW)

Number of wind Turbines: 126 GE 1.5 MW wind turbines on 65 meter towers

Project Location: Near the town of Rosamond in Kern County, California. While the project boundary covers nearly 80 square miles, the total impact of the project is less than 1 acre per turbine, including access roads and the maintenance building.

Project Status: Reached commercial operation in December, 2012.

Households Served

The total project can power approximately 60,000 homes annually.

Technology

The turbines are on 213-foot (65 meter) towers and have 252-foot (77 meter) rotor diameters for a total height of more than 330 feet.

Turbines start producing energy when wind speeds reach 7-8 miles per hour (mph) at the hub height; they turn off at 45 mph to save wear and tear on the components.

Developer and Owner

Avangrid Renewables is a subsidiary of AVANGRID, Inc. (NYSE: AGR) and part of the IBERDROLA Group, an energy pioneer with the largest renewable asset base of any company in the world. Avangrid Renewables is headquartered in Portland, Oregon, and currently operates and contracts for more than 6,000 MW of renewables in the U.S.



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Customers

The entire project output is under long-term contract with three repeat customers, San Diego Gas & Electric (SDG&E), which is buying 100 MW/year for 20 years, the City of Santa Clara's Silicon Valley Power (SVP), which is buying 50 MW/year for 20 years, and the Los Angeles Department of Water and Power (LADWP), which is buying 39 MW/year for 10 years.

SDG&E is a regulated public utility that provides safe and reliable energy service to 3.4 million consumers through 1.4 million electric meters and more than 860,000 natural gas meters in San Diego and southern Orange counties. The utility's area spans 4,100 square miles. SDG&E is a subsidiary of Sempra Energy (NYSE: SRE), a Fortune 500 energy services holding company based in San Diego.

Silicon Valley Power is the trademark adopted for use by the not-for-profit electric municipal utility of Santa Clara, CA serving residents and businesses for over 100 years. SVP provides power to more than 50,000 customers.

The Los Angeles Department of Water and Power (LADWP), the nation's largest municipal utility, provides reliable water and power service in a cost effective and environmentally responsible manner to the residents and businesses of Los Angeles. Founded over 100 years ago, LADWP is guided by a five-member Board of Water and Power Commissioners, appointed by the Mayor and confirmed by the City Council. LADWP is a proprietary agency of the City of Los Angeles.

Local Economic Benefits

Manzana will be an economic engine for years to come. This project will support the local economy with property tax payments estimated to be more than \$50 million and lease payments expected to be more than \$30 million over the life of the project. The property taxes will support schools, public health, fire, library and other necessary services in Kern County. During construction, the project created 216 construction jobs at its peak and resulted in \$10.3 million spent locally.

Local Manufacturing Jobs

Ninety of the GE turbine "nacelles" used for the project — those Winnebago-sized components on top of the tower that house the generators, gearboxes, drive trains and brake assemblies — were manufactured less than an hour's drive from the Manzana site at GE's Tehachapi factory. The rest were manufactured in Florida. The turbine towers were delivered through the Port of San Diego.

Energy and Environmental Benefits

The total project provides 189 MW of clean energy to our customers, representing an offset in carbon emissions comparable to removing more than 21,500 cars off of California's roads each year.

Legacy of Caring

With four miles of the 2,663 miles long Pacific Crest Trail (PCT) running through Manzana, the wind farm represents the company's legacy of caring for the environment in many ways. The project supported the Kern County Sheriff's Office with GPS-capable helmet cameras to survey trail damage, dirt bike tires that are specially designed to leave little to no scarring on the trail, and a selection of outdoor trail cameras that will enable deputies to collect images of illegal trail activity 24 hours a day. With a 110-gallon water tank for public use, the project is the only water source in the midst of an 80-mile stretch on the PCT for hikers and other outdoor enthusiasts. In 2015, Manzana won the company's Wildlife Protection Program (WPP) award for their outstanding efforts to preserve wildlife in the area, as well as the environment as a whole. From supporting efforts to improve the quality, safety and experience of the trail, to safeguarding wildlife and critical habitat, to producing emissions-free energy for our customers, Manzana demonstrates the company's commitment to operate in an environmentally sustainable manner.



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