

GRID Alternatives

Coyote Ridge Community Solar Project

Courtesy GRID Alternatives (3)



Overview

DESIGNER: James Willett, design engineer, GRID Alternatives, gridalternatives.org

ELECTRICAL ENGINEERING: Andrew Humphrey Engineering, andrewhumphreyengineering.com

INSTALLATION LEAD: GRID Alternatives

AC SUBCONTRACTOR: Circuitus Energy Solutions, circuitusenergysolutions.com

DATE COMMISSIONED: September 2017

INSTALLATION TIME FRAME: 60 days

LOCATION: Fort Collins, CO, 40.5°N

SOLAR RESOURCE: 5.36 kWh/m²/day

ASHRAE DESIGN TEMPS: 89.6°F 2% average high, -9.4°F extreme minimum

ARRAY CAPACITY: 1.95 MWdc

ANNUAL AC PRODUCTION: 3,380 MWh

GRID Alternatives (GRID), working closely with the Colorado Energy Office and Poudre Valley Rural Electric Association (PVREA), developed a 1.95 MWdc community solar project on the southwest side of Fort Collins, Colorado. The project is the eighth community solar project installed as part of a statewide initiative to demonstrate scalable models for electric cooperatives to broaden the reach of solar energy and reduce energy costs for low-income households.

Coyote Ridge will serve a variety of off-takers, with 1.2 MW of the plant's capacity dedicated to low-income households, affordable housing providers and nonprofit organizations through PVREA's community solar subscription program. Individual subscribers expect

to save 30% or more on their monthly electricity costs.

Under GRID's community participation and workforce development model, job trainees, volunteers from the community and employees from the utility came together to work alongside GRID staff in the construction of the PVREA project. Even with this diverse crew, the entire installation took just under 60 days.

The project is sited on a former landfill provided by Larimer County, adjacent to transmission lines, and has two terraced planes, calling for an upper and lower array. Solar FlexRack's engineering team was on-site during foundation and tracker construction and responded quickly to resolve issues with the site's rocky substrate and to streamline tracker installation.



Typically, installers would trench for wiring; however, to reduce time and costs, the project transitioned to suspended cabling. Streamlined project management and tight coordination enabled GRID's team to install over 6,000 modules in just 2.5 weeks.

PVREA's Coyote Ridge Community Solar Project had a hard stop for project completion. To take advantage of specific wholesale rates and reap the financial benefits that made the project viable, the team needed to complete the contract by the end of September. Through effective and flexible management, GRID completed the project as agreed.

"The milestone community solar farm is paving the way for other affordable and scalable projects of its kind to come to fruition across Colorado and hopefully across the US."

—*Chuck Watkins, Executive Director, GRID Alternatives*

Equipment Specifications

MODULES: 6,102 Talesun TP672P, 320 W STC, -0/+3%, 8.63 Imp, 37.1 Vmp, 9.16 Isc, 45.5 Voc

INVERTERS: 3-phase 480 Vac service, 25 Yaskawa–Solectria Solar PVI 60TL, 60 kW rated output, 950 Vdc maximum input, 540 Vdc–850 Vdc MPPT range

ARRAY: 18 modules per source circuit (5,760 W, 8.63 Imp, 667.8 Vmp, 9.16 Isc, 819 Voc), 13 or 14 source circuits per inverter (for 13 source circuits: 74.88 kW, 112 Imp, 667.8 Vmp, 119 Isc, 819 Voc), 1.95 MWdc array total

ARRAY INSTALLATION: Solar FlexRack TDP single-axis tracking system, $\pm 45^\circ$ tracker rotation range, 178° array azimuth

SUBPANELS: Two 800 A, one 600 A, one 400 A, each with 100 A breakers

SYSTEM MONITORING: Locus Energy LGate 360 with Locus NOC data acquisition software platform

