

BEST PRACTICES

- Tax Equity Investment
- State and Local Solar Incentives
- No-cost Site Lease

Project Name:

RANCHO VERDE APARTMENTS

Solar + energy storage deployed in an affordable housing development for Ventura County farmworkers

Size: 92.97 KW_{DC}

Energy Storage: 26 KWh

Location:

10503-10599 Los Gatos Street, Ventura, CA 93004

of LMI customers:

24

Project Website:

https://www.hacityventura.org/housing/affordable_housing/rental_properties/rancho_verde.php



Overview

The Rancho Verde Apartments are a multi-family rental development exclusively for low to very low-income farmworker households. The development offers 24 one to four bedroom apartments and a community building. Ventura County's \$2 billion agriculture industry is one of the largest in the nation, employing over 40,000 workers to harvest the county's many crops, including strawberries, lemons, avocados, and peppers. The workers' incomes are about the same as the area's median yearly rent. The high cost of housing has forced many workers to live in substandard and/or overcrowded housing. The Rancho Verde Apartments, operational in 2019, are a step towards addressing this critical need. The living quarters, solar, and energy storage were designed together, producing an integrated, well-thought out development.

The land for the Rancho Verde Apartments came from a land trust established by Thelma Hansen, the sole survivor of a long-time Ventura County farming family. Two parcels were donated from the land trust to the [Housing Authority of the City of San Buenaventura](#) (HACSB). Ms. Hansen stipulated that the land be used exclusively for farmworkers, and that environmental impacts are minimized.

The solar arrays are spread across eleven buildings and a stand-alone community building. The energy storage system (Eguana Technologies LG Chem lithium-ion) is located on the community building, and is charged only from the 10 KW solar panels on the building's roof. During normal operations, the project's solar and energy storage capability meets the community building's load. When the load exceeds energy production, the battery system is deployed to fill the gap. When energy production exceeds the load, the batteries are charged. Excess



solar production is sold to the local utility, [Southern California Edison](#), via a net metering arrangement. The building’s solar and energy storage offsets utility costs for the building by about 80% annually.

HACSB developed and owns the Rancho Verde Apartments. Mainstreet Architects + Planners (now a part of [RRM Design Group](#)) provided architectural services. Spectrum Energy Development designed the photovoltaics and battery system. [Green Dinosaur, Inc.](#) provided sustainability consulting. [Promise Energy](#) designed the photovoltaic (PV) arrays.

Residents save approximately \$800/year in electricity costs. The original energy savings commitment was 80%, but in practice the development is very close to [net zero](#). The apartments provide many other benefits to residents in addition to near zero electricity costs. Each all-electric unit, in keeping with Ms. Hansen’s sustainability goal, has high performance insulation, a fresh air system, high efficiency heating/cooling, and energy and water efficient appliances. Residents also benefit from the community building’s computer learning center, office space, recreational room, and small kitchen. HACSB provides “green training”, so that residents can learn how to use the features of their home, and reduce their carbon footprint. A smartphone app [Sense](#) shows energy usage data across appliances and provides real-time readings. Rancho Verde provides electric vehicle charging on site.

The apartments are available only to income qualified households – residents must earn no more than 60% of the [area median income](#). Some of the residents receive a USDA [rent subsidy](#) so that rent paid does not exceed 30% of household income.

The Rancho Verde Apartments earned a Platinum level certification in the [Leadership in Energy and Environmental Design](#) (LEED) for homes program. In addition, a greywater system (designed and installed by [Biohabitats](#)) that uses the community’s laundry facility greywater, irrigates at least 50% of the development’s landscaping. The system can recycle approximately 600 gallons of water per day.

The project earned several industry awards:

- [2020 winner of US DOE Zero Energy Ready Home – Housing Innovation Awards](#),

- The [Journal of Housing & Community Development](#) (NAHRO) [2020 award for excellence](#),
- The [2019 Beyond LA Housing Development](#), awarded by the [Southern California Association of Non Profit Housing](#) (SCANPH).

The \$14 M development cost was financed through three primary sources (See Table 1). Most of the funding was [Low-Income Housing Tax Credit](#) (LIHTC) equity. In addition, HACSB provided two loans, and the [U.S. Department of Agriculture](#) (USDA) supported the project with a [Farm Labor Housing Loan](#).

Table 1: Rancho Verde Financing*

LIHTC equity (Low-income housing tax credit equity)	\$7,813,000
USDA Farm Labor Housing loan	\$3,000,000
HACSB development loan	\$840,000
HACSB carryback loan	\$1,600,000
Federal Home Loan Bank of San Francisco	\$276,000
Ventura County Farmworker Housing funds	\$240,000
Deferred developer fee	\$219,000
Total	\$13,988,000

*Source: <https://www.huduser.gov/portal/casestudies/study-091122.html>

Rebates from the [Self-Generation Incentive Program](#) (SGIP), offered by the [California Public Utilities Commission](#) (CPUC), offsetted the project’s energy storage costs by approximately 30%. The SGIP Equity funds are only available to projects in state-designated [Disadvantaged Communities](#). [Clean Energy Group](#) awarded Spectrum Energy Development a [Resilient Power Technical Assistance Fund grant](#) to conduct technical and financial feasibility analyses for the solar plus storage implementation.

Innovative Approaches

- Involvement across many expert stakeholders yielded [modern, aesthetically pleasing, energy efficient, sustainable housing](#).
- The units offer high performance insulation, comprehensive draft protection, a fresh air system for cleaner indoor air, energy efficient appliances and advanced lighting technology.

Photo Credit: Courtesy of Spectrum Energy Development



- The carpets in the units earned a [Green Label Plus](#) rating, which ensures the [lowest chemical emissions in carpets, cushions, and adhesives](#).
- The greywater system from Biohabitats irrigates approximately 50% of on-site landscaping by collecting and treating the community's laundry facility wastewater. [The system is capable of recycling about 600 gallons of water per day](#).
- Tenants can monitor their energy use with a smartphone app – providing [energy efficiency knowledge and awareness](#).
- Not only did HACSB learn about the new, innovative features of the development, but they [passed on this education to tenants prior to move-in via resident meetings](#).



Lessons Learned

- To align with Rancho Verde's goal of sustainability, the development was built with all-electric appliances. This created an additional electricity load, and the photovoltaic system had to be made larger.
- Due to USDA and land grant sustainability requirements, HACSB needed to incorporate new features that they had not used before: 100% electric, energy storage system, and greywater recycling.
- HACSB had to ensure that all stakeholders in the design and development of the project understand and comply with the LEED certification requirements, so that there are no problems discovered at certification time.
- The site maintenance team needed to be trained so that the new systems could be supported properly.

This case study is a part of the LIFT Toolkit initiative. To explore more case studies and best practices visit LIFT.Groundswell.org research@groundswell.org