



# Solar Panels on the Materials List for Construction of State-of-the Art Winemaking Facility

Trinchero Family Estates has a long and successful history producing some of California's finest wines. From its Napa Valley tier, which offers small production, site-specific luxury-class wines, to its Family wines, representing great values in today's market, Trinchero cover nearly all classes and spectrums of wines.

With acre upon acre of vineyards, located in regions as different as Santa Barbara, to the Central Valley and in and around the Napa Valley, no two wines are the same. Although, the terrains and climates may be diverse, Trinchero Family Estates maintains consistency in its commitment to producing the best wines possible and to environmentally responsible practices in every aspect of its winemaking operations.

The company constantly strives to improve its programs, not only for the benefit of the environment, but to serve the best interests of its employees, customers and neighbors. In addition to employing techniques such as water and waste recycling programs, as well as organic pest control methods, when Trinchero Family Estates decided to build a new state-of-the-art winemaking facility in Lodi it chose solar to help power the plant.

## SOLAR FROM THE GROUND UP

While laudable in making such a choice, as the clean, renewable energy from the solar panels will help lessen the load

### Project Overview

Project locations . . . . . Lodi and Clements Ranch, CA  
 System Completion . . . . . December 2008  
 Solar System Types . . . . . Roof & Ground Mount  
 Total System Size . . . . . 825 kW-DC

### System Configuration

Roof Mount System Size . . . . . 761kW-DC  
 PV modules used . . . . . 1024 GE 200W modules  
 . . . . . 2420 SunPower 230W modules  
 Ground Mount System Size . . . . . 64kW-DC  
 PV modules used . . . . . 320 GE 200W modules

### Performance Facts<sup>1</sup>

Roof Mount estimated annual production . . . . . 973,307 kWh  
 Total kWh Usage reduced up to . . . . . 80% of current usage  
 Ground Mount estimated annual production . . . . . 92,597 kWh  
 Total kWh Usage reduced . . . . . up to 71% of current usage

### Economic benefits

Percentage of bill reduced . . . . . up to 100%  
 How long until the system pays for itself . . . . . 9 years

### Environmental benefits, annually:<sup>2</sup>

Greenhouse gases reduction (CO2) . . . . . 1,672,180 lbs  
 Gasoline not consumed . . . . . 86,094 gallons  
 Oil not consumed . . . . . 1,764 barrels  
 Coal not burned . . . . . 4 railcars

### Sources:

<sup>1</sup> PV Watts Solar Energy Calculator (<http://www.pvwatts.org>)  
<sup>2</sup> U.S. Environmental Protection Agency  
<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

on the grid and offset the emission of green house gases into the atmosphere (not to mention reduce the facility's electricity bill), the unique aspect of this system is that it was included in the facility's design at the planning stage.

The plans for the processing facility include storage, plumbing, heating and ventilation specifications (among other things one would expect to see). However, it also incorporated ladders, walkways and hose bibs specifically to ease maintenance of the solar arrays. Because they are part of the design, installation of the arrays and their component parts required no additional trenching, conduit, junction boxes or retrofitting of any kind, greatly reducing labor costs and streamlining the overall construction process.

“When we launched the construction of the Lodi facility, sustainability and environmental conservation were the focal points of the design,” said Bob Torres, principal and senior vice president of operations. “We strive to be environmental pioneers and aim to set industry standards in sustainable farming, waste reduction, water conservation, recycling and energy efficiency. We hope that other industry leaders can see the short and long term benefits of these systems and incorporate green initiatives into their winemaking practices as well.”

#### SOLAR AND CONSTRUCTION EXPERTISE

Working through a consultant, Trinchero Family Estates brought in a select few of California's top solar integration and installation companies to submit plans for building a solar power system in conjunction with the facility's construction. Trinchero Family Estates chose Premier Power Renewable Energy, noting that of all the companies that participated, Premier Power was the only solar energy business that also had more than 20 years of design and construction experience.

Premier Power led the development, permitting design, construction, establishment and commissioning of the project, which it completed in December 2008 – on time and under budget. Premier Power installed photovoltaic systems on the rooftops of facility's Press Canopy, Filtration and Dry Goods buildings, all of which incorporate a standing seam design. Although the location of the winemaking facility is subject to high winds as well as shading issues from the high-mounted gravity-feed storage tanks, Premier Power was able to design a system that would overcome these challenges and still meet the facility's solar energy goals.

The total system size is 761kW. Included in its bid, Premier Power also installed two ground mount arrays with a capacity 64(kW) at Trinchero Family Estates' nearby Clements vineyard. Premier Power designed the solar system to offset nearly 100 percent of the electricity bill for the site's two irrigation water pumps.



Before Solar



After Solar



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