



Bulbil, NSW Riverina

The Situation

Established in 1928, De Bortoli Wines is a family-owned company based in Bilbul, in the NSW Riverina. Today the business is managed by the third generation of the De Bortoli family and is Australia's sixth-largest wine company. The company employs more than 400 people in its Australian operations and has a turnover in excess of \$170 million a year.

De Bortoli Wines understands its customers are increasingly concerned about environmental issues, and is interested in minimising the environmental impacts of its manufacturing processes.

As part of a \$15m program of Clean Technology Works, The Solar Project and its alliance partners were chosen to implement a combined solar photovoltaic and thermal project: individually and combined the largest such solar arrays constructed for an Australian Winery to date.

The Solution

After an extensive review of siting and technology options for integration of solar PV and thermal (process heat pre-heating) arrays into their operations, a 230kW distributed photovoltaic generator and 200kW solar thermal process hot water pre-heater were selected.



Project Overview

230kWp Solar PV Generator

- 960 Hanwha QCell QPro solar PV modules
- 8 x PowerOne Aurora Trio inverters
- Energy Reduction: 349MWh p.a.
- CO2 emission reduction: 297 tonnes p.a.

200kWp Solar thermal Generator

- 100 Apricus AP-30 manifolds (3000 evacuated tubes)
- 2 x 6000L 2205 stainless steel tanks
- Energy Reduction: 1,107GJ p.a.
- CO2 emission reduction: 17 tonnes p.a.



The PV solution provides on-site electricity generation from 3 sub generators installed on two building and connected to three loads (including 2 refrigeration loads) and comprising European-made equipment including: 960 Hanwha QCells QPro polycrystalline silicon solar modules and 8 inverter blocks from Italian manufacturer PowerOne. The De Bortoli team selected for an industrial-grade solution, with technologies with a demonstrated track record of high performance in Australian conditions, for long system life, and delivery by an experienced project team.

The solar thermal solution provides preheated water for De Bortoli's expanded bottling line (up to 12,000L/day at up to 95°C), with 3000 Evacuated Tubes from Australian-owned manufacturer Apricus Australia – a perfect fit due to the in-built frost protection, low light and high temperature performance – and delivered by project alliance partner Fletcher Plumbing & Co, based in Albury.

The Outcomes

Each project respectively is resulting in significant savings on De Bortoli's energy demand for electricity from the grid but also natural gas consumption for water heating for the bottling line and washdown.

The Solar PV array achieved first power in August 2013 and is forecast to reduce electrical energy consumption by more than 349 MWh per year, resulting in a reduction of CO₂ emissions by more than 297 tonnes annually.

After commissioning the solar thermal array also in August, the system was powered on from 8am with a starting water temperature of 20°C. The system achieved 12,000 litres of storage at a temperature of 71°C by 3.30pm. Ambient temperatures were 10.9°C - 19.9°C. Annual reduction in energy from burning natural gas is forecast to be 1,107GJ (308MWh) and more than 17 Tonnes of CO₂ emissions will be saved each year.

Project Payback Times without government funding: under 6 years.



Project Partners



THE SOLAR PROJECT