

Project Leaflet

500 kWp grid-connected large industrial single roof installation at Lourensford Wine Estate in Somerset West.



The solar photovoltaic (PV) plant installed at Lourensford Wine Estates' Wine Cellar generates electricity during sunshine hours and feeds this into the Lourensford electricity grid. The energy is used throughout the Wine Estate. At night the plant goes into stand-by mode.

The solar modules are connected to grid inverters which convert the generated Direct Current (DC) from the solar modules into a grid-compatible Alternating Current (AC). The outputs of the inverters are combined and fed to the Wine Cellars Main Distribution board, where the energy is used first by the wine cellar and the surplus is supplied to the rest of Lourensford's consumers. The plant has been designed to ensure that all of the energy produced will be used within the Estate.

The solar power generated will predominantly reduce the energy "bought" from Eskom (as the supplying utility) and will make a positive contribution towards reducing the maximum demand (MD) of the Estate.

The solar PV plant is only active when the utility provider is supplying electricity. The plant goes switches off for safety reasons during a power outage. The inverters have built in safety mechanisms to ensure optimal and safe operation of the plant. The solar plant therefore does not provide backup power in this configuration, which means that the plant will not generate energy when there is a power outage. Rather the energy generated by the solar plant is a complementary source of electricity to that provided by the utility. The energy generated by the solar PV power plant will always be utilized first, thus reducing the consumption from the utility.

The solar PV plant operates completely autonomously and requires no intervention by the owner. The solar PV power plant requires minimal maintenance, and Lourensford's solar modules will be cleaned six times a year to ensure optimal production. These solar modules will still be generating more than 90% of their original nameplate capacity (250Wp) at date of purchase after 20 years.

LOURENSFORD WINE ESTATE: 500 kWp SOLAR PV PLANT FAST FACTS

Solar PV plant size		500 kWp	COMPARITIVE STATISTICS
Roof Area Utilised	Approx. 3 300 m ²		<p>With 2 000 kWh (Units of Electricity) you can:</p> <p>Supply a day's worth of electricity to 138 average households</p> <p>Operate 4 000 fridges for 24 hours</p> <p>Run 800 washing cycles of a washing machine</p> <p>Travel 10 000 km in an electric car</p>
Construction start date	17 March 2014		
Commissioning date	23 May 2014		
Number of PV modules	2000		
Size of each PV module	250 Wp		
Type of Solar PV module	Trina TSM-250 Honey Module		
Number of inverters	33		
Type of inverters	Danfoss TLX 15kW Pro+		
Average plant specific yield	1515 kWh/kWp/annum		
Expected 1st year production	757 500 kWh (Units of energy)		
Expected 1st year CO2 emission reduction	750 tonnes		
Average daily production	2070 kWh (Units of energy)		
<p>THE ENERGY GENERATED BY THE SOLAR PV PLANT AT LOURESFORD WINE ESTATE WILL OFFSET APPROXIMATELY 15% OF THEIR ANNUAL CONSUMPTION, WHICH IS MORE THAN THE TOTAL AMOUNT OF ENERGY CONSUMED AT THE WINE CELLAR IN A YEAR.</p>			

