# **CASE STUDY**

### PROJECT

Green Olive at Red Hill 9 kW Solar Photovoltaic System Commissioned October 2013



Located on 27 acres of rich fertile soil, Green Olive at Red Hill takes what this nutrient-rich soil has to offer and cultivates brilliance from farm to fork.

Bradford<sup>®</sup>

The business has been in operation since 2003 with the current restaurant, cellar door and farm shop opening in 2010. Greg and Sue O'Donoghue, along with their children Sam and Sophie, produce premium-quality food without taking a toll on the environment.

With over 600 olive trees, the farm's cold-pressed olive oil is sourced from the fruit of Picual, Frantoio and Leccino trees, whereas the table varieties come from Kalamata and Manzanilla.

Complete with its own vineyard, the farm produces exceptional Pinot Noir and Pinot Gris. Much care is taken with the vines, with every step from pruning to picking being completed by hand, as well as many hours being consumed spreading biological compost to ensure optimum fruit for that perfect drop every year.

Sustainability plays a key role in the farm's practice. Water is collected and stored in large above ground tanks, and irrigation comes from the farm's large dam that collects water from a natural spring and general runoff. State of the art aeration waste management system processes all onsite waste naturally and irrigates the paddocks.

Following the installation of a 9kW solar system, a significant proportion of the electricity consumed is now generated through photovoltaic panels installed on the roof of the Farm Shop..

## **PROJECT SUMMARY**

#### **ENERGY SAVING INITIATIVES**

Solar Photovoltaic	9kW
Approx. annual electricity Consumption in Kwh	75,000 kWh
Approx. electricity bill	\$ 19,000 per annum
RESULTS	
Approx. annual Electricity generation	7,600 kWh
Approx. Savings	\$1.900 per annum

As percentage of day time
<u>Consumption</u> (Oct'13 - Feb.'14)







#### SMALL OR LARGE SYSTEM - WE DON'T COMPROMISE:

For BES any commercial system is treated with same in-depth analysis and planning as for a large system. May it be just a 5kW system on a small business premises or a 100kW system on a manufacturing plant – same attention to detail is given to every project. That's the CSR Bradford Energy System way.

The Olive Green project started with a request for a 30kW system. The BES team analyzed the daily electricity demand on 30 minutes intervals for all 365 days of the year and recommended a smaller 9kW system which would ensure that the solar generation would be to a very large extent consumed internally and not sent back to the grid for maximization of return on investment.



The site was mapped. Orientation of panels, angle of elevation, irradiance for that longitude and latitude is checked and then placement of panels suggested.

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The suggested solar system output was mapped and the solar generation plotted on 30 minute intervals against the consumption patterns to arrive at an optimum size which would ensure maximum utilization of generation.

8.7kW	PV Usage	PV Out	Usage	Import	Export
Jan	100%	1,306	7,928	6,622	
Feb	100%	1,171	7,161	5,990	
Mar	100%	1,170	7,928	6,758	1.04
Apr	100%	914	7,672	6,758	
May	100%	720	7,928	7,208	
Jun	100%	584	7,672	7,088	
Jul	100%	685	7,928	7,243	-
Aug	100%	806	7,928	7,122	
Sep	100%	968	7,672	6,704	1
Oct	100%	1,135	7,928	6,793	52
Nov	100%	1,190	7,672	6,482	
Dec	100%	1,273	7,928	6,655	<u></u>
	100%	11,920	93,344	81,424	

A final recommendati on for the full years PV generation usage was done to maximize saving to arrive at the most suitable and

#### **INSTALLATION AND MONITORING**

To ensure that our customers can monitor the performance of their solar system and verify that the system is performing at a level that meets or exceeds the output levels promised, CSR Bradford has partnered with Solar Analytics to develop monitoring systems specifically designed for commercial and industrial applications.

These units provide actual and expected outputs to a web platform. They have inbuilt fault and error reporting capability to enable both the customer and CSR Bradford to monitor <u>performance for</u> the life of the system.



SolarAnalytics installed on site monitors the performance and health of the system on an hourly basis.



Daily snapshot views of online hourly performance monitoring of the system



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