

## Case Studies – Energy Management in Swan Valley Wineries



### Jane Brook Estate Wines

Jane Brook Estate Wines, a family owned and operated business that produces around 300,000 bottles of wine each year, faced the prospect of having to upgrade its electricity supply.

Rather than spend \$80,000 to do this and enable more electricity to be used, owner David Atkinson decided instead to invest the money on reducing energy use. The small winery produces around 300,000 bottles of wine each year and the site operates as a winery, cafe, cellar room, vineyard and house/office.

David became aware of the work that Perth Region NRM was conducting in the area of improving business energy efficiency in wineries and contacted them. Faced with the prospect of having to meet the cost of an expensive upgrade, David was very motivated and quickly embarked on a system of reducing energy use.

***This process of energy reduction has very much been driven by David and the staff at Jane Brook.***

A small, borrowed power meter quickly identified inefficient display fridges which were either maintained or removed and also gave David an understanding of how much electricity was being used by various plug in appliances. Heat pumps were installed to replace the Cafe's instant electric hot water system and timers were placed on drink refrigeration units to take advantage of off-peak tariffs.

Staff engagement was critical and they helped reduced energy wastage by turning equipment and lights off whenever possible. Powers saving features were enabled on computer, photocopying and printing equipment.

As with most wineries, chilling systems are a main user of energy that cost a lot to run. Improving efficiency can return good savings so a new refrigeration system was installed (in a well ventilated and shaded location). A second brine tank was added for warm return brine and to increase brine capacity which is chilled during off-peak periods. A variable speed controller has also reduced energy used to circulate brine around the winery.

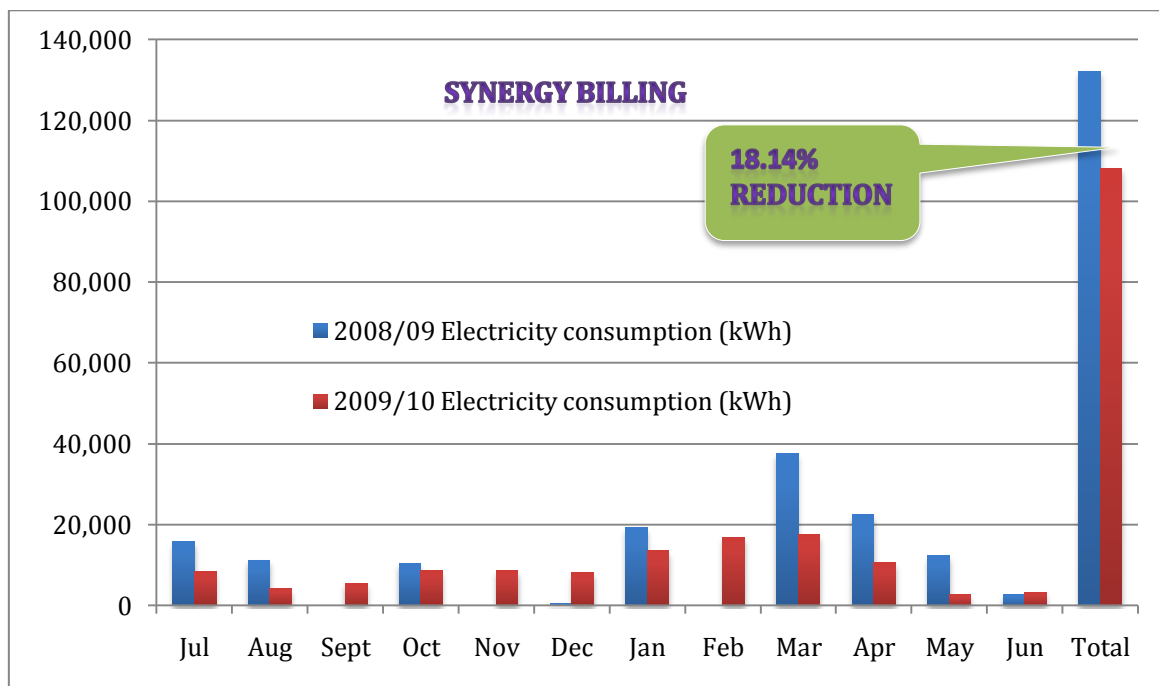
A review of lighting identified better lighting options. This involved using LED tubes instead of older fluorescent tubes, using LED spotlights instead of PAR38 floodlights and replacing 400 Watt high bay

lamps with Compact Fluorescent lamps and recently, Magnetic Induction Fluorescent lamps. Where possible, over-lit areas such as storage areas were de-lamped or smaller lamps installed. Another benefit of the lighting retrofit was that the efficient lights emitted significantly less heat than the older high bay lamps leading to further savings in refrigeration and cooling.

Reduced heat loading in the barrel store and winery was achieved by providing insulation to walls and the ceiling. This reduces the energy used by the refrigeration system on storage and fermentation tanks. The insulation of all external tanks is planned for 2011.

The use of renewable energy to supplement mains supply is also being trialled at the site with the recent installation of a Photovoltaic System on a solar tracker.

The business is already starting to reap the benefits of the efficiency drive with 2009/10 electricity use down by 18% on 2008/09 levels. With the continuing improvements this financial year and the addition of the Photovoltaic solar system, 2010/11 should see an even greater reduction in energy use.



Further measures to reduce energy use include the insulation of the external fermentation tanks in 2011. Improvements in refrigeration technology are also being considered by David who is investigating technology that could lead to further energy savings in the years to come.