Sittella is a small winery which crushes approximately 140 tonnes of fruit a year. The site contains a vineyard, winery, restaurant and cellar door.

In September 2008, Sittella was selected as a demonstration site for wineries as part of Perth Region NRM's *Development of Sector Specific Energy Management Action Plan Program,* supported by the State Government's Office of Energy.

An Energy Audit of the business was conducted which identified ways in which the business could improve its energy use.

This involved collecting real time and historical energy use data, the compilation of an equipment inventory, staff surveys and analysis of this information.

An examination of energy use in the business was conducted by reviewing billing for a previous 24 months, conducting an equipment inventory as well as real time energy monitoring in combination with staff equipment use logs. This indicated that the winery, restaurant, office and vineyard used approximately 236,414 kWh of electricity in 2007 and 209,880 kWh of electricity in 2008. Electricity use was categorised into the areas of:

- Winemaking and
- Commercial cooking

While the Energy Audit covered the whole site and included recommendations for both winemaking as well as commercial cooking, the main efficiency drive was undertaken by Sittella's "Energy Champion", Winemaker Matt Bowness who targeted the winemaking area of the business.

Actions:

Following the receipt of the Energy Audit Report and recommendations, Matt was keen to implement some energy saving initiatives at the winery.

Staff Awareness & Training – Staff in the winery were informed of Sittella's commitment to energy reduction specifically their participation in ENTWINE, an Environmental Management Program run by the Winemakers Federation of Australia and Perth Region NRM's Energy Mapping Action Plan Project.

Staff actions included being aware of energy and water use, as well as being actively involved in energy reduction by turning lights and equipment off when possible, keeping refrigerator and external doors to the winery closed, raising temperature set points on air conditioning units,

reporting equipment faults such as compressed air leaks to management and discussing energy initiatives with customers of the winery to raise awareness of what was being undertaken.

Lighting – Lighting use in the main winery building and barrel store has been halved. Only half the lights are ever turned on in these areas. The retrofitting of energy efficient lighting in other areas of the business is also being investigated.

Refrigerators and Coolrooms – Maintenance has been performed on the refrigerators. New seals have been installed on the freezers and the freezer condenser unit has been re-gassed.

Air Conditioning – Air conditioner use in the winery has decreased by restricting use to approximately two weeks a year instead of eight. The doors to the winery are kept closed to reduce heat gain into this area.

Refrigeration and Brine System – The installation of a new, energy efficient brine chiller with increased capacity to replace the old chiller will reduce the system load. By increasing the volume of brine in the system, off-peak power is utilised to chill brine which is then circulated throughout the winery. Increasing day time set points means that this chilling can occur overnight when electricity is cheaper to purchase.

Shading, which will significantly increase the efficiency of the chiller for the brine chiller, will be installed in November 2010.

Vineyard Pumps – The use of Variable Speed controlled pumps for winery reticulation is being investigated by Matt. The new reticulation system will reduce both energy and water use associated with the vineyard. Shifting pump operating times to off-peak periods has reduced electricity costs.

Tank Insulation – Matt has been insulating an average of two fermentation tanks a year for the previous two years, with plans to insulate four 5,000L tanks in 2011. This will significantly reduce heat transfer for the tanks and lead to refrigeration (brine system) energy savings.