

ELECTRICITY: FROM SHOCK HORROR TO HAPPINESS

A winery's quest to efficient
electricity usage and cost minimisation



Electricity Journey

- 1- Electric Shock
- 2- Electricity Check Up
- 3- Electrical Therapy
- 4- Results: The Electricity Happy Syndrome

1- Electric Shock

Annual Usage from Main Winery Meter



2- Electricity Check Up 2.1- The Audits

- Independent audit Level 1 performed in September 2010: 100% funded by Wirra Wirra.
- Independent audit Level 2 performed in August 2011: 25% funded internally, and 75% funded by the SA government through the Business Sustainability Alliance (BSA) : provided small to medium size businesses with grants to help them undertake an energy audit and identify real opportunities to become more energy efficient.

2- Electricity Check Up 2.2- Test results: bad news!

Areas for improvement:

- Understanding how energy was used
- After hours cooling only
- No Energy Management Plan
- Understanding Energy Tariffs
- Old refrigeration plant with many inefficiencies (Heat Plate Exchanger)
- Old and inefficient cooling system in barrel sheds
- Damaged and missing brine lines insulation

3- Electrical Therapy 3.1- First actions (2010/11/12)

- Night time cooling refrigeration trials:** Success! Outcome: permanent timer was installed: outside vintage, plant was shut down during the day.
- Electricity tariffs reviewed and supplier changed**
- Documentation:** creation of an Energy Management Plan and modification of our Capital Expenditure Policy: Energy efficiency has to be considered for any equipment purchased
- Staff awareness**
- Changes in lighting:** configuration of lights as well as type of lighting used.
- Metering of refrigeration plant consumption:** specific meter installed

3- Electrical Therapy 3.2- Latest actions (2013/14)

→ **Clean Technology Grant**

100 kW Solar system installation



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3- Electrical Therapy 3.2- Latest actions (2013/14)

New Refrigeration Plant

Decommissioning of old plant



New plant



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3- Electrical Therapy 3.2- Latest actions (2013/14)

Brine lines insulation upgrade

Before



After



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4- Results: The Electricity Happy Syndrome 4.1 - Results in graphs

Main meter: power drawn from grid



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4- Results: The Electricity Happy Syndrome 4.1- Results in graphs

Refrigeration plant monthly power consumption



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4- Results: The Electricity Happy Syndrome 4.2 - Results in figures

- On average, the company has reduced its electricity consumption by 60% since the installation of the new refrigeration plant.
- so far, the company has saved \$45-50,000 in electricity costs.
- Estimated electricity consumption for 2014 is about 100,000 kWh, which equates to 100,000 kWh less than 2011.
- Project payback period is 3 years.



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Conclusion

- ▣ Understand your electricity bill/tariffs, and where and how your winery consume, to better change your consumption habits: **audit**
- ▣ Good place to start: refrigeration plant
- ▣ Look for funding opportunities
- ▣ Buy energy efficient equipment where possible. Do your maths: capital invested VS operating costs savings