

Identify cost savings with an Energy Audit

Why conduct an energy audit?

An energy audit is a survey or analysis of energy use within a facility or process. Energy audits are typically used to identify opportunities to reduce energy costs and improve process efficiency.

Energy audits can be used to identify energy usage patterns and times of peak demand, as well as process areas with particularly high energy requirements. For this reason, an energy audit is a useful next step following a carbon footprint analysis, as it serves as a guide to the best opportunities for improvement.

Energy audits range in detail and complexity, from a simple evaluation of energy tariffs and peak versus off-peak use, to in-depth analysis of energy load profiles and sub-metering.

What type of audit?

According to the Australian Standard AS/NZS 3598:2000 'Energy audits':

- Level 1: A level 1 audit (or overview) allows overall site energy consumption to be evaluated, to determine whether energy use is reasonable or excessive. A level 1 audit provides initial benchmarks of a facility's energy use, so that the effect of improvement measures can be tracked and identified.
- Level 2: A level 2 audit will identify the sources of energy to a site, the amount of energy supplied, and what the energy is used for. It also identifies areas where savings may be made, recommends measures to be taken, and provides a statement of costs and potential savings.
- Level 3: A level 3 audit provides a detailed analysis of energy usage, savings which could be realised, and the cost of achieving those savings. It may cover an entire facility or may concentrate on an individual process or equipment item. Local metering or data-logging may be required.

Where to start?

For many wineries and vineyards seeking to identify opportunities to improve their carbon footprint, a Level 2 audit will be a helpful starting point. The same audit could also be used to identify water saving opportunities as well.

After consulting AS/NZS 3598:2000, the first step would be to draw up a process map by examining each stage of the winemaking process. Then, identify all winery operations and equipment used for each stage, and for each item record the amount and frequency of energy and water use. Associated site infrastructure, such as offices, warehouses, bottling, vineyards and gardens should also be included, as should utilities such as refrigeration, air conditioning, compressed air, hot water, fuel and lighting. Each process and unit operation should finally be evaluated for efficient operation or an opportunity for equipment substitution.

By collating this information, a breakdown of energy use by process area can be determined, as shown in Figure 1.



Potential process areas where significant high impact and/or low cost energy efficiency improvements might be found include:

- Refrigeration and air conditioning
- Waste heat recovery
- Hot water generation and reticulation
- Compressed air systems
- Pumps and drives
- Pipe design
- Tank, cellar and office insulation
- Lighting
- Wastewater treatment
- Power factor
- Electrical load balancing to reduce peak demand

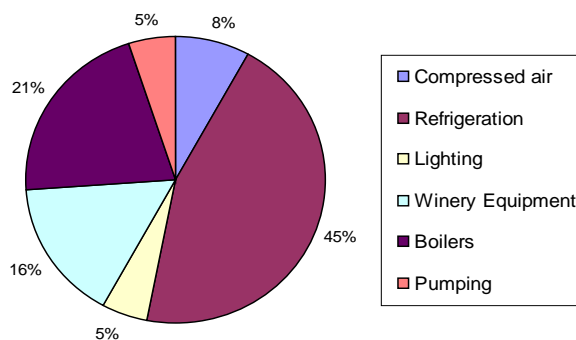


Figure 1: Winery energy use by process area

Key points

- An energy audit is a useful next step following a carbon footprint analysis.
- Consult Australian/New Zealand Standard AS/NZS 3598:2000 'Energy audits', and draw up a detailed process map.
- This will establish a baseline for future comparison and to indicate areas that present the best opportunity for improvement.
- Identify usage patterns and times of peak demand, as well as areas of high energy usage.

Where can I find out more?

For further information visit the AWRI Environment Portal. Here, you can search the AWRI's dedicated database of environmental articles; use the Environment Search Engine to search across multiple relevant websites in one place; or browse a range of specially-selected links clustered by topic.

http://www.awri.com.au/industry_support/environment/

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