

SQUEEZING THE MOST OUT OF EVERY DROP!



History of water saving

Reduction in water use per tonne of product

2004-05:	4% reduction
2005-06:	9% reduction

Key outcomes

Total savings (p.a.)

Reduction in water costs (subject to season length)	up to \$40,000
Payback (water initiative)	one month
Mitigated transformer upgrade requirement	up to \$100,000

Volume reductions (p.a.)

Water

Reduction in potable water used **up to 12 ML**

Energy

Reduction in peak electrical load **30%**

- Total electricity consumption reductions yet to be quantified

Other associated benefits

- Minimised risk of OH&S incidents
- Reduced wastewater costs
- Improved productivity

Further information

Ermes Gobbo

Plant Manager

Tel: (03) 5025 2879

Email: ermes.gobbo@sdsbeverages.com.au

Web: www.sdsbeverages.com.au

Or contact EPA

Tel: (03) 9695 2722

Email: business.programs@epa.vic.gov.au

Participating in a recent trade waste partnership between Lower Murray Water and EPA, SdS Beverages has built on existing knowledge to further reduce water use and trade waste discharges from its Merbein plant.

SdS manufactures a range of food and beverage products including juices, concentrates and pastes from carrots and other fruits and vegetables.

The project looked at reducing the volume and salt concentration of trade waste discharge, water consumption, and energy consumption.

A number of initiatives have been implemented.

- The inefficient refrigeration plant at the factory has been replaced with a modern ammonia plant located in the adjacent winery. SdS has identified that the peak electrical load on one of its transformers has been reduced by approximately 30% as a result. This has avoided the need to spend up to \$100,000 on a larger transformer and new main switchboard.
- Evaporator water at the de-stoner is now being recirculated. Water reuse has improved, with less water lost to drainage and less need to 'top up' the evaporator with fresh water. Potable water savings vary depending on the length of the season, but savings of between 5 ML and 12 ML and up to \$40,000 per year are possible.
- Spray nozzles have been fitted to hoses in order to reduce water used for washdown.
- Water management measures have been implemented, with weekly monitoring of trends in water usage, enabling identification of further potential savings.

Other savings to do with these initiatives include improved occupational health and safety (limiting water on floors, hence eliminating a slip hazard) and additional minor energy reductions from

'This joint project has enabled SdS Beverages to improve our knowledge of our site's water use, energy use and our waste. It is driving improvements in these areas and in our planning for future capacity increases.'

Paul Derrico, Managing Director

reduction of the amount of water needing to be pumped around the plant.

All heating and cooling stages throughout the production process have been fully profiled and analysed, identifying potential heat recovery and regeneration opportunities that are expected to significantly reduce the site's energy usage.

The future looks bright

Medium and long-term options were also identified by the project. These are still under consideration as they have longer payback periods, but will result in large water and solid waste savings by reusing and recycling water. These options include:

- further water recovery and recirculation of water at the de-stoner
- reuse of process water in the carrot peelers. Estimated savings of 50-80 kL per day
- improved treatment and reuse of wastewater. It appears possible to reuse 50 % of the wastewater that is presently discharged to trade waste for washdown and other purposes
- implementation of closed-loop systems to enable reuse of seal water on the evaporator vacuum pumps that presently consume up to 200 kL per day
- improved management of wastewater streams, removing the need for fresh water to dilute high-conductivity wastewater batches.

SAVE WATER, SAVE ENERGY, REDUCE WASTE AND SAVE MONEY! — HINTS AND TIPS

Save Water

Understanding where water is used and lost in your business provides opportunities to quickly save water.

- Can existing processes use less water? Vacuuming, sweeping and high-pressure trigger nozzle hoses can be just as effective as cleaning with water.
- Review tank & system cleaning processes to identify opportunities to automate or amend to minimise water required for cleaning.
- Minimise water use in cooling processes by recycling cooling water, using fogging nozzles instead of running mains water, and shutting off flow when not in use.
- Identify opportunities to reuse or recycle your rinse, waste and greywater – the final flush may be able to be used as the first rinse.
- Establish a regular preventative maintenance program for water pipes to ensure blockages are removed, and leaks and overflows are minimised.
- Reduce water pressure where possible to minimise volume of water lost to leakage.
- Install rainwater tanks for irrigation use.
- Use non-potable water for appropriate end-uses in place of potable water (for example, dust suppression, on-site toilet flushing).
- Replace existing fixtures with more water efficient fixtures (for example toilets, taps and equipment).

Save Energy

Energy source and use has significant impact on profitability, productivity and greenhouse gas emissions.

- Install variable speed drives (VSDs) on pumps and other equipment.
- Optimise your boiler performance with regular maintenance and tuning and consider insulation, fixing steam leaks and installing economisers.
- Optimise your compressed air systems through insulation, fixing air leaks and optimising operating pressures.
- Review your plant lighting including efficiency of lighting, motion and day sensors and removing unnecessary lighting.
- Ensure your hot water system is insulated and running at an optimal temperature.
- Explore heat recovery options in industrial processes such as collecting condensate for use as feedwater for your boiler or using waste heat for space heating.
- Assess your heating, ventilation and air conditioning (HVAC) by adjusting your thermostat dependent on the weather (26 °C in summer and 18 °C in winter). Ensure systems are switched off out of operating hours.
- Regularly review plant equipment as upgrading equipment can often improve productivity and deliver energy savings.

Reduce Waste

Reducing waste can save your business money as well as saving valuable resources and helping the environment.

- Choose products with less packaging and purchase raw materials in bulk to minimise packaging.
- Plan ahead and avoid waste by matching raw material quantities to batch sizes.
- Educate and involve all staff in waste minimisation projects with rewards for new and creative approaches.
- Regularly review causes of 'off-spec' product and adjust systems and processes to minimise these occurrences.
- Establish 'take back' loops with suppliers such as packaging waste, product, which is faulty, or at the end of its useful life.
- Minimise product residue in packaging by removing more raw materials.
- Avoid product spillage through installing conveyor and gutter guards.
- Evaluate product design and manufacturing processes to find ways to avoid producing prescribed industrial waste.
- Investigate whether your waste could be used as a resource elsewhere and find opportunities for reuse.
- Share recycling resources with other businesses in your community to reduce cost. For ideas, see www.wasteexchange.net.au.

Leadership and Life Cycle

Learning how to manage your product or service life cycle more effectively can uncover a wealth of business, environmental and social benefits.

- Life Cycle Management supports evaluation of design and business decisions with the goal of reducing impact over the entire life of a product.
- Encourage innovation and work with colleagues and business partners to discover new ideas and solutions for improving sustainability.
- Actively seek information to better understand and address life cycle issues as they impact your specific business operations.
- Encourage staff from all levels to get involved by establishing an environmental committee.
- Beginning at product design, assess the life cycle impact of your product or service, looking at all activities that go into making, selling, using, transporting and disposing of a product or service.
- Train employees in specific Life Cycle Management skills.
- Investigate the use of life cycle tools such as Life Cycle Assessment and Ecological Footprint.
- Explore outcome-focused partnerships with your suppliers and customers to enable product and service delivery with the least possible environmental impact.

These are just a few of the opportunities available to improve profitability, productivity and your business environment. For other helpful weblinks and information on what other businesses are doing to improve their resource efficiency and sustainability visit www.epa.vic.gov.au/casestudies.