KENWORTH
(PACCAR AUSTRALIA)

FIVE ACTIONS FUEL FURTHER EFFICIENCY

Industry Greenhouse Program Key outcomes

Savings (p.a.)

Reduction in energy costs

Savings of approx. **$6,680**

Volume reductions

Reduction in Greenhouse Gas emissions

88 tonnes of CO_2-e
(Equivalent to taking 20 cars off the road)

Return on investment

Implementation costs (to date)	**$7,885**
Recovery of implementation costs	**1.2 years**

Additional project plan for 2008 (Lighting projects)

Savings (p.a.)

Reduction in energy costs

Savings of approx. **$58,000**

Volume reductions (p.a.)

Reduction in Greenhouse Gas emissions

800 tonnes of CO_2-e
(Equivalent to taking 186 cars off the road)

Return on investment

Implementation costs	**$175,000**
Recovery of implementation costs	**3 years**

Further information

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Saving 88 tonnes of greenhouse gas emissions is just the beginning for PACCAR Australia.

PACCAR, the manufacturer of over 2000 Kenworth trucks a year (plus parts), began its participation in the EPA Industry Greenhouse Program in 2003. This involved undertaking an energy audit, development and implementation of action plans and subsequent measurement of outcomes.

The energy audit of their 32 hectare Bayswater site identified just five actions, now completed, that have sliced $6680 a year off its energy bill.

Improvements to compressed air piping from an inbuilt hidden system to a more visible system enabled leaks to be detected and fixed more quickly. With an implementation cost of $500, payback was achieved in less than 2 months.

The other actions undertaken included installing sensor lights in offices, fitting a variable speed drive on the administration building's air conditioning unit and removing unnecessary lighting in the plant.

Managing Director of PACCAR Australia, Joe Rizzo, said that environmental responsibility is one of PACCAR's core values. "Even before the EPA Industry Greenhouse Program we had introduced a range of energy efficiency measures as part of our commitment to the community and future generations, as well as a way to enhance profitability, it makes good business sense. Many of our energy efficient measures any business can do."

Having completed its EPA Greenhouse Action Plan, PACCAR is already pursuing new energy saving actions including installing sensors on its external lighting, which are already reducing greenhouse emissions by 11 tonnes per year. Future plans include employment of a new lighting system for the factory that could reduce greenhouse gas emissions by a further 800 tonnes per year.

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>
> **Joe Rizzo,** Managing Director, PACCAR Australia

PACCAR'S winning energy saving ideas

Top tip
Install capacitors for power factor correction into the electrical system.

In the office
- Zone air conditioning and install timers
- Install area solar hot water system to supply amenities areas
- Delamp unwanted fluorescent lights and install triphosphor light tubes

In the factory
- Use electric hand tools in lieu of compressed air powered tools
- Install motion sensors in paint shop inspection bays to turn lights on
- Reduce over spray through use of electrostatic spray gun technology
- Install variable speed drives on spray booth fans
- High opacity white paint uses less paint and energy
- Recycle air compressor heat to heat the plant

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EREP - BUILDING ON THE SUCCESS OF THE INDUSTRY GREENHOUSE PROGRAM

Industry Greenhouse Program highlights

Realising the business benefits of energy efficiency.

EPA Victoria's Industry Greenhouse Program is the first regulatory greenhouse and energy efficiency program for industry, and one of the first in the world.

Large energy using and greenhouse gas emitting sites have been required to undertake an energy audit and implement any actions with a payback period of three years or less.

The projected final outcome for the program at the end of 2007 includes:

- Reduction in GHG emissions of 1.23 Mt CO_2-e per annum, an average of 3.0% reduction in the annual GHG emissions for these sites (from a 2003 baseline)
- Annual savings of $38.2 million in energy costs for Victorian Industry with implementation costs of just $64.6 million.
- Average payback on implementation of just 20 months.
- A total of 1377 actions were completed under the program to the end of 2006, and this is expected to increase to 2436 actions by the end of 2007.

With growing pressure on all our environmental resources, it is increasingly important that companies use energy and water as efficiency as possible and minimise waste production and disposal.

Building on the success of the Industry Greenhouse Program, EPA Victoria is currently developing a new program, Environment and Resource Efficiency Plans (EREP) program.

Under the program, Victoria's largest industrial and commercial users of energy and water will be required to assess energy, water and waste flows and implement identified cost effective actions.

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 daylight 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) systems. Consider optimising thermostat settings depending on the 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.

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).

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.

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/outcomes