

FORD AUSTRALIA
(BROADMEADOWS)

OPTIMISING ENERGY EFFICIENCY SINCE THE 1990s



Industry Greenhouse Program Key outcomes

Savings (p.a.)

Reduction in energy costs

Savings of approx. **\$248,600**

Volume reductions (p.a.)

Reduction in Greenhouse Gas emissions

more than 5,617 tonnes of CO₂-e
(Equivalent emissions of 401
average Australian households)

Return on investment

Implementation costs (to date) **\$304,000**

Recovery of implementation costs **15 months**

Further information

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While optimising energy efficiency has been an ongoing activity for Ford across all of its Australian sites since the early 1990s, recent results from the Broadmeadows plant have been notable.

Ford Broadmeadows is the site where assembly of the Ford Falcon and Territory range of vehicles takes place. With an assembly line of over 7 kilometres, 18 hectares of this plant are under roof. Broadmeadows is also the site of the company's Australian Head Office, Training Centre, Painting Facilities, Product Engineering and Research Centre and the Ford Customer Service Division servicing Ford dealers throughout Australia.

The EPA Industry Greenhouse Program energy audit conducted in 2003 identified opportunities to decrease energy use at Ford Broadmeadows. The resulting initiatives included reviewing lighting, employee environment awareness campaigns ('Protecting the Environment is Everyone's Job'), resetting of temperature gauges, upgrading of air compressor control systems and the monitoring and auditing of non-production energy usage.

Focusing on the paint line air compressors and the boiler house air compressor contributed most significantly to the final results. Maintenance and leak detection, as well as ensuring that the most efficient compressor is used for the task (on demand), provided almost half of the energy cost savings at a cost of less than \$13,000. In addition to this more than 60% of the greenhouse gas emission reductions were attributed to these actions.

'It is essential in a competitive manufacturing environment to be efficient in all aspects of our business. By integrating greenhouse management into business decisions, Ford Australia have improved energy efficiency, saved money and reduced Ford's carbon footprint'.

Tom Gorman, President,
Ford Australia

Ford Broadmeadows benchmarks their energy usage against other sites within the Asia Pacific region. Targets are set for peak and off peak usage. Energy usage is tracked on a weekly basis and communicated to senior management ensuring a vigilant focus throughout Ford on energy efficiency improvements.

Air compressor system
optimisation, maintenance
and leak detection:
\$12,000 investment saves
\$132,000 in energy costs and
3,525 tonnes of CO₂-e per year

Ford Broadmeadows recognise that their next challenge is to focus on their 'standing' or minimum energy use during periods of non-production to ensure that all equipment that can possibly be turned off is off at this time. Standing energy assessments and monitoring systems ensure that energy use is measured to facilitate identification of such equipment and will enable Ford Broadmeadows to compare themselves against Ford's international best practice levels.



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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 CO₂-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 efficiently 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 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.