Ford Motor Company of Australia Broadmeadows Assembly Plant

Case Study

Geelong Manufacturing Council in conjunction with Sustainability Victoria is conducting a program to assist manufacturers to be more resource efficient as part of their manufacturing activities.

Driving Quality & Reducing Impacts

Ford Motor Company is one of three motor vehicle manufacturers in Australia, with manufacturing facilities based in Geelong and an assembly operation in Broadmeadows. To remain competitive the company has improved its processes and made significant investments in both new products and facilities.

The Australian automotive industry is one of the most open and highly competitive in the world, with 61 brands and more than 350 models on sale. In 2007, Ford Australia sold 114,000 vehicles in Australia.

The Broadmeadows Assembly Plant was established in 1959 and employs around 950 people from over 60 different nationalities across the 133,000m^2 site. The plant is highly automated with over 300 robots and is both ISO 9000 & ISO 14001 accredited.

Quality is measured in a number of ways including defects per unit, customer satisfaction and warranty claims. Daily meetings monitor quality reports allowing fast resolution of problems. The 6 sigma approach is embedded throughout the organisation to further enforce the quality culture.

This approach has allowed Ford Australia to exceed targets for quality, and increase customer satisfaction.

The Opportunity

In 2008, Ford launched the FG Falcon range, the first Australian made vehicle to achieve a 5 star safety rating. To compliment the improved quality standards for the FG, Ford identified several areas where operating costs and environmental impacts could also be reduced.

The Challenge

The Australian automotive market is currently facing increased foreign competition, significant tariff reductions and a slowing economy, making it essential for Ford to focus on improving quality and reducing costs.

The Solution

The company has taken significant steps towards becoming a more sustainable business through its commitment to reduce its environmental impact. Process improvements and efficiency measures have led to reduced water consumption, greenhouse gas emissions and waste generation. Some of the initiatives undertaken to date include:

Energy Efficiency

Ford have moved to increase energy efficiency by measuring gas and electricity consumption on key operations, identifying actions and implementing projects to improve energy management. For example in the paint shop, a significant user of energy on the site, an energy saving mode has been recently introduced. This modification allows the air supply system to work at 20% of the normal rated capacity during non-production hours, resulting in savings of 80,450 GJ of energy per year and reduced greenhouse gas emissions of 11,570 tonnes CO_2-e.

Water Conservation

Ford gathers data from 40 water meters installed on key processes across the site to track the effects of water minimisation initiatives and, along with regular maintenance inspections, to identify unnecessary water losses.

The Paint Department exemplifies water conservation on the site. They identified the stages within the paint process where water could be recycled rather than discharged directly to trade waste. The subsequent process improvements to capture this wastewater have resulted in a saving of 12 million litres per year. Over the last two years Ford have reduced water consumption by 7% at the Broadmeadows plant.

Waste Management

Ford's manufacturing process produces both prescribed and general waste. Ford applies the following waste hierarchy to the reduction of all waste.

Refine → Reduce → Reuse → Recycle → Retrieve

Ford have an onsite resource recovery centre, which manages the sorting of recyclables from general waste. Timber, scrap metal, plastic, cardboard, paper, fabric, laminated glass, used oil and batteries are all recycled. Over 65% of total waste material is recovered and Ford also work with local suppliers to ensure parts are delivered in returnable packaging.

Improving Quality Operating System

Ford Australia's Assembly Plant have implemented the Ford Global Quality Operating System resulting in a substantial improvement in quality with the FG Falcon. The system includes:

- daily visibility of external feedback (particularly warranty claims);
- a requirement to introduce containment within 24 hours; and
- development of internal inspection points to reproduce errors and drive fixes.

All quality information from both external and internal sources is fed into a "Product Information Centre" for daily review and action. External quality surveys indicate a 20% improvement in quality and a 15% improvement in warranty.

Labour Efficiency

Line Speed and Shift Pattern Changes created opportunities to further progress lean manufacturing techniques such as component kitting and extensive use of tool and hardware trolleys to increase our efficiency. Kitting is the practice of grouping commodities into small kits for every vehicle and supply to the production line for fitment. The outcome is a dramatic decrease in the requirement of line side real estate for stock, creating an open, reduced stress environment, a reduction in part selection errors and reduced walking time. By optimising shift operating patterns a substantial save was also made in vehicle "work in progress" inventory.

Cost – Benefit Analysis

The benefits across the organisation are vast, some of the key savings include:

- Increase in quality and customer satisfaction;
- Reduction of CO_2 emissions;
- 7% reduction in water consumption over the past 2 years;
- Waste removal costs down by around 10%;
- Reduction in warranty costs;
- Increase in labour efficiency; and
- Inventory reduction

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For further information contact the **Geelong Manufacturing Council** on (03) 5223 2999