

## Coca-Cola Amatil (Aust) – High Bay Lighting Control

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### Background

Coca-Cola Amatil (CCA) is Australia's market leader in the manufacture and distribution of soft drinks, including Coca-Cola, Fanta, Sprite and Mount Franklin. The company operates in six countries in the Asia-Pacific region - Australia, New Zealand, Fiji, Papua New Guinea, Indonesia and South Korea. In Australia, the company has six bottling plants and employs about 3,500 people.

CCA is "...committed to understanding and minimising any adverse environmental impacts..." (*Managing Our Environment – Coca-Cola Amatil, 2000*). The company undertakes many activities that support this commitment. For example, it is a member of the Beverage Industry Environment Council and the Greenhouse Challenge Program, supports organisations such as Keep Australia Beautiful, and is a signatory to the National Packaging Covenant.

The company aims to continually identify and implement methods of increasing the energy efficiency of its operations. In 1998, with lighting representing between 15 to 20% of total electricity consumption across its Australian sites, the company investigated new ways of improving lighting efficiency. The Western Australian bottling site at Kewdale was the first site in Australia to implement an energy saving lighting project.



Coca-Cola Amatil (Aust) factory in Kewdale, Western Australia

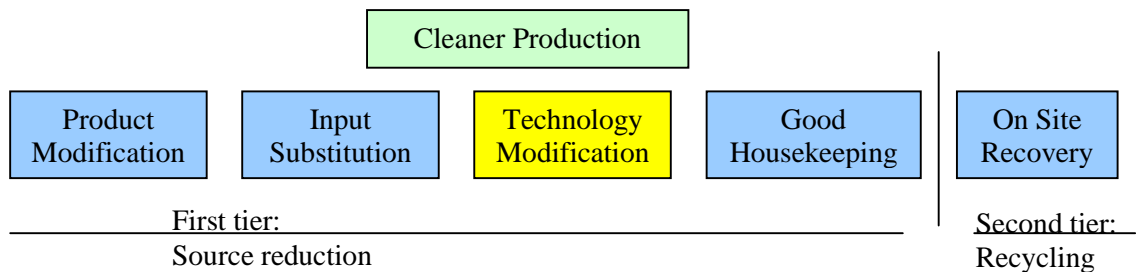
## The Process

CCA mixes its products at the Kewdale site prior to packaging them. The site includes a number of bottling and canning lines, a postmix line, bottle blowing packaging division, and also houses the State Administration and Technical Services groups. The site also contains enough warehouse space to hold up to a week's supply of products. The warehouse area, all process lines and the areas used for bottle blowing and technical services are all lit by high intensity discharge lamps. As colour rendition is important in CCA's operations metal halide lamps are used.

## Cleaner Production Initiative

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### Cleaner Production: Prevention Practices



In 1998, after reviewing a number of different control systems, including both dimming and switching, CCA decided on the Australian designed and manufactured Clipsal C-Bus system. The system consists of photo-electric cells that continuously measure ambient light levels, electronic relays fitted to each lamp and Category 5 networking cable (to keep communications separate to the mains power) to facilitate control from a remote personal computer.



**Relay box attached to metal halide lamp fitting.**

There are three levels of lighting control set. When daylight levels are high, all the lamps, apart from those in critical work areas, will turn off. As daylight levels drop, a proportion of the lamps will be turned on and at night, or when daylight levels are very low, all the lamps will be on. To prevent lamps constantly turning on and off there is a band of about 200 lux on either side of the targeted lux level in which lamps will not turn on or off.

In addition, the system is set up to limit the number of lamp changes per hour in order to preserve lamp-operating life. Operating life of high intensity discharge lamps is reduced when they are switched on and off continuously. However, since the actual operational hours are significantly reduced by the control system it was possible to calculate the number of switches allowable in an hour to maintain an equivalent lamp life to that achieved prior to the project. After this predetermined number of changes in any one hour, the lamp will remain on for an extended period.

One of the key distinguishing features of the system is the control of individual lamps as opposed to control of entire circuits, which is conventionally the only way of controlling high bay lighting. The system is highly flexible, and can be easily reprogrammed when requirements change, without wiring alterations.

It is also possible to control groups of lamps together and CCA has used this capability to contour the lighting levels according to the functional areas within the factory. This ensures that lights in critical areas around operating lines remain on whenever the line is operating and that areas with no, or limited daylight, remain lit whenever required. In 1999, in order to achieve better control, the Clipsal C-Bus control system was incorporated into a CITECT system. This has allowed CCA to control the lighting levels according to production schedules, so lights are on in a given area only if it is in use.

### **Advantages of the Process**

Since being fully commissioned in 1999 the lighting system has continued to deliver energy savings to CCA. The company's lighting electricity consumption has dropped by 30 to 40% at all its Australian sites. At a financial level this represents an annual electricity saving of about \$45,000 per annum at the Kewdale site. In terms of greenhouse gas abatement, the WA lighting project is working to reduce greenhouse gas emissions by more than 400 tonnes of CO<sub>2</sub> per year.

**Table 1. Financial and Environmental Benefits of Western Australian Lighting Control Project**

Energy Savings	~ 30-40%
Annual Energy Cost Savings	~ \$45, 000
Expected Payback Period	~ 2 yrs
Annual Greenhouse Gas Emission Reductions	~ 400 tonnes CO <sub>2</sub> equivalent

In addition to the direct energy savings and associated benefits the project has also resulted in a considerable heat reduction within the factory. Cooling is a significant cost to CCA as products must be cooled to allow carbonation. By reducing the temperature of the factory, cooling requirements are also reduced, thereby delivering further energy savings. It also makes the factory a more comfortable work environment for employees.



**When sufficient natural light is available only a proportion of the metal halide lamps are required to operate.**

### **Cleaner Production Incentive**

As part of Coca-Cola Amatil's ongoing commitment to responsive and effective environmental management, the company became a Greenhouse Challenge partner in 1999. Consistent with the company's aim of improving the efficiency with which they use all resources, the Greenhouse Challenge voluntarily committed CCA to reducing greenhouse gas emissions from its Australian operations.

### **Barriers**

There were no significant barriers to the implementation of this project.

### **Contact**

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