Dial Corp.

CASE SUMMARY 5

DIAL CORPORATION

Fort Madison, Iowa
Lee County

Intern: Ryan Daly
Major: Mechanical Engineering
School: The University of Iowa

The Company

The Dial Corp. has manufacturing and distribution facilities across the United States. Dial Corp. is the producer of the world-renowned Dial soap. The Fort Madison plant produces shelf stable foods, canned meats, microwaveable meals, dried beef and consumer-sized packages of cornstarch.

Project Background

The Dial Corp. has a pollution prevention policy statement and has implemented the following pollution prevention projects:

In 1990, most chemical supplies were changed from drums to bulk, thus minimizing empty drum cleaning and disposal requirements.

In 1991, a substitution was made to the solvent used to melt and glue the ends of foam labels, reducing usage by 20 percent.

A hazardous waste minimization program has been in place since 1992.

In 1995, a replacement ammonia refrigeration system was installed with many extra design features to minimize refrigerant releases.

Plant efficiency in terms of pounds of product produced per total energy units used has been tracked and has increased six of the last nine years. From the initial year of tracking to last year, an overall increase of 6.5% in production units per energy units has occurred.

Incentives to Change

The Dial Corp. desires to reduce the kilowatt peak demand that occurs monthly. By reducing this kilowatt demand, Dial Corp. will see a reduction in operational costs and reduce coal consumption required by the power company to supply this extra energy.

Results

Three opportunities for potential annual saving are:

- **Power Factor Correction Capacitor Bank** - $43,000. Power factor correction capacitors will be placed on Substation 3, a main substation in the plant. These capacitors will be used to reach an overall plant power factor of 0.97-0.99. This overall plant power factor will achieve a credit towards Dial Corp.'s monthly demand charge. This credit will depend on the actual power factor for that particular month and should fluctuate between $2,000-$4,000. Using energy bills from the previous year, the total actual annual savings has been calculated for two different capacitor sizes. At a capacitor bank size of 800 KVAR the projected annual savings would be $35,000. At a capacitor bank size of 1000 KVAR, which is most feasible, the projected annual savings would be $43,000. Along with the cost savings, the increased power factor will reduce the load from Substation 3's transformer and will promote the efficiency of motors that are run off this substation, thereby increasing their lifetime.

- **LED Exit Lighting** - $425. Exit lights used in the Dial facility will be changed to LED lights. LED retrofit replacement bulbs were used to replace incandescent bulbs where applicable. The remainder of the exit signs have fluorescent lamps, which will slowly be replaced by complete LED exit signs as the lamps need replacement. The annual projected savings for the LED retrofit bulbs is $237 and the annual projected savings for the full LED replacement sign is $187, for a total annual savings of $425. The total kWh would be reduced by roughly 9,000 kWH per year.

- **Variable Frequency Drives** - $2,900. VFDs will be placed on well pump motors to eliminate the use of a pinch off valve and to reduce kWh. VFDs regulate the frequency of the voltage going into electrical motor, which then changes the speed of the motor itself. The VFD will be used along with a computer instead of a pinch off valve to regulate flow. Along with annual savings of this project, the VFD would increase the lifetime of the motor and conserve 80,000 KWh annually.

Total opportunities for the Dial Corp. amount to $46,000 annual savings, with a reduction of 90,000 kWh and a significant increase in overall motor lifetime.