Tone Brothers, Inc.

CASE SUMMARY 24

TONE BROTHERS, INC.

Ankeny, Iowa
Polk County

Intern: David Asuzu
Major: Mechanical Engineering
School: Iowa State University

The Company

Tone Brothers, Inc. is a spice company that imports, grinds, mixes, packages and stores various spices for distribution. Tones' only facility, located in Ankeny, Iowa, is the single largest spice manufacturing plant in the world, with an area of more than 750,000 square feet.

Project Background

The goal of the summer internship was to reduce the electrical energy bill by about 4 percent through energy efficiency upgrades. Previously, Tones hosted P2 interns to work on solid waste recycling improvements throughout the facility. Also, prior to this summer, the company had purchased energy monitoring software and had started a relighting project to replace HID fixtures in the distribution warehouse with more efficient T8 fixtures.

Incentives to Change

Several factors contributed to the initiation of the energy project, including high energy costs, the results of previous energy audits, previously purchased energy monitoring software and possible energy rebates.

Results

Proposed and implemented energy saving projects amounted to about 20 percent of the annual energy costs. MidAmerican energy rebates provided more than $50,000 in additional funding for the lighting and compressor projects, greatly lowering the total project costs.

Several projects were identified in the area of lighting, the air compressor system, and air infiltration.

Lighting

A lighting upgrade will replace existing HID fixtures with fluorescent T8 fixtures. Motion sensors installed in low-use areas of the warehouse will further reduce energy demands. Lights at the loading dock can be replaced with a lower wattage, longer life alternative.

Programmable panels were installed several years ago to allow a shutdown of lighting in areas of the plant that were not in operation. However, difficulty in accessing the control unit eventually led to discontinuing use of the system. Installing new software and a modem will make the system user-friendly and

create the opportunity for energy savings.

Air infiltration
Repair or replacement of vinyl insulating doors to the cold storage area will minimize air infiltration and reduce cooling requirements for this storage area.

Compressed air
Compressed air was used to cool bearings on equipment in the milling process. A new oil pump was installed to prevent overheating and the air use was no longer needed. Air leaks throughout the system were also identified using an ultrasonic leak detector. Air intakes for the three compressors were relocated from the top of the unit to allow an outside air intake. The reduced air intake temperature will decrease energy demands for the system.

Project Summary Table

Project Description	Environmental Impact	Economic Cost Savings	Status
Light Fixture Changes	2,556,000 kWh/year	$102,240	Recommended/ implementation in progress
Automatic lighting controls	676,525 kWh/year	$27,061	Implementation in progress
Cold storage door replacement	163,830 kWh/year	$6,553	Recommended
Mill 5 lubrication	144,825 kWh/year	$5,793	Implemented
Dock light replacement	164,525	$6,581	Recommended
Air leaks	118,800 kWh/year	$4,752	Implemented
Compressor air intake	141,944 kWh/year	$5,678	Implementation in progress