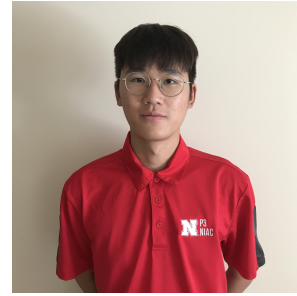


Project Overview

Intern: Shengwen Liu

Major: Mechanical Engineering

School: University of Nebraska, Lincoln



Background

As part of the Nebraska Industrial Assessment Center (NIAC) team, the intern assessed four companies during the summer. These includes Endicott Bricks, NE, a brick manufacturing company; Masaba, SD that makes mining equipment, SDI, SD who makes hog production equipment and hardware; and BD,NE who produce urine and blood collection vessels.

Project Description

As part of these assessments, examples of the recommendations that were prepared include:

- Steam trap inspection and repairment program.
- Reducing the operating pressure of the air compressors and purchase air storage tank. Reducing the high compressed air pressure close to the maximum requirement pressure saves energy and utility costs. Installing an additional air storage tank helps maintain the compressed air pressure.
- Installing high volume low speed (HVLS) fans on the main floor of the plant. The HVLS fan is able to move large amount of air with relatively low cost compared to personal fan. It also helps the destratification process during the winter which saves heating cost.
- Upgrading florescent lights to LED lights. It reduces electricity usage and demand costs with lower maintenance costs and longer lifespan.

Pollution Prevention Benefits

The benefits of the recommendations discussed above are summarized below in Table 1:

Table 1: Recommendations Savings and Benefits

Recommendation	Annual Cost Savings	Implementation Cost	Payback Period (years)	Energy Saving	GHG Reduction (MTCO2E/year)
Steam Trap Inspection Program	\$2,700	-	Immediate	491 MMBTU/year	26.0
Reducing Operating Pressure and Purchase Air Storage Tank	\$1,796	2,905	1.7	30,081 kWh/year	21.3
Install HVLS Fans	\$34,935	\$18,980	0.54	-	-
Replacing Florescent Lights to LED Lights	\$15,352	\$23,944	1.6	169,028 kWh/year	119.5
Total	\$54,783	\$45,829	0.84*	199,109 kWh/year 491 MMBTU/year	167

*The overall payback was calculated based on the total sum of all capital investments divided by the total sum of dollar savings from all the recommendations