Project Overview

Intern: Ryker Van Brocklin

Major: Biological Systems Engineering

School: University of Nebraska-Lincoln

Background

Over the course of the summer of 2021 the intern visited Nebraska Plastics, Collins Aerospace, ASC Capacitors, and the Yankton WWTP to make assessment recommendations.

Project Description

Through these assessments, he made recommendations on the following items:

- *LED Lighting:* Upgrade current fluorescent, metal halide, and incandescent lighting to LED equivalents. Replace fluorescent exit signs with low-wattage LED signs.
- *Occupancy Sensors:* Install motion sensors in unoccupied areas to reduce operation hours of light bulbs and save energy.
- *HVAC Upgrades:* Install an air-cooled chiller to replace eight smaller HVAC units. This will reduce the overall demand and energy costs, as well as future maintenance costs.
- *Motor Upgrades:* Install new motors to replace older motors that are degrading in efficiency. This will result in lower energy consumption

Pollution Prevention Benefits

The benefits of all recommendations over the summer are summarized in Table 1.

Table 1: Summer 2021 Recommendation Summary

AR	Electricity Savings (kWh/year)	Demand Savings (kW-month/year)	Total Cost Savings ($/year)
Upgrade Facility Lighting	90,413	228	$7,325
Install Occupancy Sensors	9,220	-	$286
Upgrade Facility Lighting	48,952	92.8	$4,369
Install Occupancy Sensors	21,175	-	$896
Install an Air-Cooled Chiller	67,709	141	$5,600
Upgrade Facility Lighting	19,464	72.4	$1,947
Replace Blower Motors	13,238	-	$583
Total Savings	**270,171**	**534.2**	**$21,006**