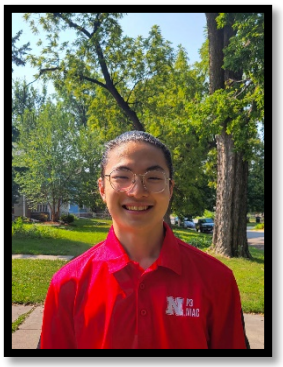
Project Overview



Over the course of Summer 2021 with the Nebraska Industrial Assessment Center (NIAC), I was in charge of assessment at 3 different facilities. These companies are:

- McCain Foods – Grand Island, NE: Onion Rings Manufacturing
- Nebraska Plastics – Cozad, NE: Fence, Deck & Railing Manufacturing
- ASC Capacitors – Ogallala, NE: Capacitors Manufacturing

During the assessment, I was able to provide recommendations to the facility as part of pollution prevention benefits. The recommendations are:

- **Replace Standard V-Belts with Cogged Belts**: Because of slippage and bending, a motor can see loss of speed and efficiency when using a standard belt. Friction in a standard V-belt can also generate heat, resulting in shorter belt life. A cogged belt reduces slippage and allows the belt to bend more easily, leading to reduced energy usage by motors.
- **Shut Off Production Line Motors**: Motors for production lines were running 24/7, even when the facility is shut down for cleaning every week. Leaving the motors running 24/7 wastes electricity, which will result in higher electricity cost.
- **Install Insulation Covers on Fryer**: The covers on the side of the fryer currently installed are metals. During the weekly cleaning process, a lot of heat will be lost after being sprayed down. Replacing the current fryer covers with insulation covers would reduce natural gas usage at the facility resulting in cost savings.
- **Managing Electricity Peak Demand**: The purpose of a managing electricity peak demand is to save money by decreasing peaks in demand. Companies can achieve this in multiple different ways.
- **Install Occupancy Sensors**: Occupancy sensors reduces the time the lights are on and will automatically turn the lights on when an employee enters the area. These sensors will reduce the operating hours of the lighting in the building which will both save money and energy.

A summary of the ARs (assessment recommendations) and other measures are included in Table 1.1-1.

Table 1.1-1: Summary of Project over the Summer

ARs/Other Measures	Annual Savings		Capital Investment ($)	Payback Period (years)
	Resource (unit/year)	Dollars ($/year)		
Replace Standard V-Belts with Cogged Belts	4,943 kWh	$247	$1000	4
Shut Off Production Line Motors	37,893 kWh	$1,895	$64	0.03
Install Insulation Covers on Fryer	4,000 MMBtu	$6,000	$19,200	3.2
Managing Electricity Peak Demand	650 kW	$11,300	-	-
Install Occupancy Sensors	18,989 kWh	$702	$4,153	5.6
Total Sum*	**61,825 kWh 650 kW 4,000 MMBtu**	**$20,144**	**$24,417**	**1.21**
*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				