**Intern: Aidan Johnson**
**Major: Mechanical Engineering**
**School: University of Nebraska-Lincoln**

**Background**

Aidan split his time between the Industrial Assessment Center and the P3 Program. For the IAC, he worked on an AR recommending upgrading the lighting to LED Lamps for the Auburn Wastewater Plant, Power Plant, and Water Filtration Plant. These facilities provide wastewater treatment and filtration to the city of Auburn as well as additional power when needed. In addition, two AR's were written for the P3 program and more specifically for Todd's BBI. Todd's BBI is a midsized food processing plant that specializes in the making of sauces in the Madison Branch.

**Project Description**

Over the course of the summer, the majority of the assessment work was on the below recommendations.

1. Upgrading Existing Lighting
   Upgrading to LED lamps from fluorescent or mercury halide bulbs comes with several advantages. LED lamps consume significantly less energy than other types of bulbs. This reduces both usage and demand charges associated with lighting. In addition, they also have longer lifespan than alternative lighting options.

2. Implement Deduct Meter for Water Use
   At the facility, there is a mist cooling tunnel that consumes a significant amount of water when operating. This tunnel helps cool hot filled bottles quickly, so they are at an appropriate temperature in order to be packaged. After cooling the bottles, the water is then sent down the drain. Since the water does not need to be treated after cooling the bottles, wastewater costs can be deducted from this usage of water. This deduction was agreed upon before the student started working for the company, however, due to an accounting mistake, the water was not being deducted from the company's bills. In addition, any water that leaves the facility in product does not need to be treated and can be deducted as well.

3. Install a Tap Water Air Conditioning System
   As described above, the water in the mist cooling tunnel has only one use before it is sent down the drain. It was recommended that Todd's BBI install a water to air heat exchanger system help cool down the cooking area during the summer. This gives an additional use for the water that does not interfere with its original use because most of the cooling of the bottles comes from an evaporative process.

**Summary of Impact**

Summary of Potential Impacts

| Facility | Recommendation | Cost Savings | Energy Savings (kWh) | Implementation Cost | Payback Period (Years) |
|---|---|---|---|---|---|
| Auburn | Lighting Upgrade | $2,009 | 13,723 | $5,975 | 3.0 |
| Todd's BBI | Water Deductions | $10,620 | -------- | $120 | 0.01 |
| Todd's BBI | Tap Water Air Conditioning System | $1,035 | 22,500 | $1,925 | 1.9 |