Industrial Assessment Center

LSU and Louisiana Craft Brewers Guild

U.S. DEPARTMENT OF ENERGY

Summary

The Louisiana State University Industrial Assessment Center (LSU-IAC) is committed to helping local industries take the next steps to energy efficiency and sustainability. The Louisiana Craft Brewers Guild has recently partnered with LSU-IAC for assessments with its active members. LSU-IAC has worked with seven different breweries to provide recommendations to reduce their energy footprint. In total, there have been 45 recommendations with a reduction potential of 1,059,385 kW and an annual CO_2 reduction of 546 tons/year. By working with smaller breweries, our student engineers were able to help these local companies save money and go green!

LA Craft Brewers Guild helps advance breweries across the state *Photo from https://www.labeer.org/*

Louisiana Craft Brewers Guild

The LA Craft Brewers Guild is an association dedicated to the advancement of breweries across the states. They advocate and promote the Louisiana craft beer industry not only for the delicious creations of each brewery, but also for the local investment into unique business stories, creative workforce development, and community atmosphere. The tools and resources LA Craft Brewers Guild provide emphasis the impact each local brewery has on the community and provides new opportunities for blossoming craft brewers to thrive in the industry! Focused on public education and legislative outreach, this association is the framework for the craft beer industry in Louisiana.

Evaluation Approach

The LSU-IAC team consisted of diverse engineering students and three directors with various backgrounds in energy and sustainability. Once on-site, the team worked with plant management to tour the facility and identify areas of possible recommendations in energy management, waste prevention, and productivity increase. The directors worked with plant management on identifying areas of concern for additional recommendations. Once the students collected data at each location, the team had a final meeting with the plant manager about the findings and returned to campus to conduct further research and calculations. The LSU team finalized and submits the reports for DOE approval and works with the local breweries on recommendation opportunities and incentive opportunities through local energy partnerships. After 9 months, a follow-up conversation will take place to determine if any recommendations were implemented.

Assessment Benefits

1. The reports identified a total energy saving of 1,059,385 kWh/yr.
2. The total implementations have an average payback of 2.65 years.
3. These implementations would reduce carbon emissions by 546 tons/yr.

Basic Building and Grounds

The LSU-IAC team has discovered that basic lighting, ventilation, space conditioning, and building envelope recommendations can be taken advantage of at almost every site. Recommendations in LED upgrades, occupancy sensors, and high-speed air curtains are typically incentives by LSU-IAC energy partners and have quick payback periods. Sometimes opportunities like programable thermostats or simple practices like turning off lights can be easily overlooked, but can result in big savings. These basic recommendations would save $41,216 and a total of 482,834 kWh per year at the seven sites our team worked with!

Motor Systems

A more technical area for recommendation involves optimizing motor systems including pressure setpoints on air compressors, leak remediations, and using energy-efficient belts. Small modifications to motor systems can not only reduce the energy footprint, but also increase the efficiency of your equipment. In one particular brewery, it was estimated that a leak remediation program with a payback period of ~1 month would save the company over $3,000 per year and reduce the energy footprint by almost 30,000 kWh!

Recovering Waste Heat

With the heat intense process of craft brewing, other areas for recommendations include a reduction in natural gas use by using wasted flue gas to preheat during the process. This particular recommendation had an average payback period of 2 years at three different breweries with a total savings of $18,023 in natural gas. These three breweries would have an annual CO_2 reduction of 120 tons/year from their natural gas savings. This particular recommendation is valuable for prospective breweries to think about when designing the production layout!

Productivity Enhancements

LSU-IAC encourages companies to think about additional areas for optimization in both productivity and labor. Recommendations for the installation of automatic packing equipment may need an upfront investment for the technology but has a payback period of ~2.5 years in most cases. As a brewery, the focus on scaling operations is a major business decision. By utilizing automated packing equipment, the packing process is more efficient and reduces labor needed in that area of your operation. With an average labor savings of $54,000 per year, the packing equipment has value in both labor reduction and increasing production potential.

Advanced Recommendations

For companies looking to make a long-term investment while drastically decreasing their energy footprint, LSU-IAC can tailor advanced recommendations in both coloring roofs for solar loading and solar power calculations for facilities. In warehouse style settings, cool roof opportunities not only benefit solar loading but also reduce the thermal impact on the buildings inside temperature. A cool roof addition to your facility will have a longer payback period (+3 years) but will impact temperature setpoints, employee ergonomics, and set up the facility to increase the solar load potential. Our team has recommended cool roof opportunities at various other types of facilities and seen an average savings of 192,225 kWh.