



LOUISIANA FEED OPERATION

LSU INDUSTRIAL TRAINING AND ASSESSMENT CENTER

Audit Highlights

- The team's report identified eight recommendations that estimated annual savings at \$82,705.
- The total implementation cost of projects is estimated at \$129,742 with an average payback period of 1.57 years.
- The recommended projects include increased use of automation.

Facility Highlights

- The site is part of the LSU AgCenter's network of rural processors.
- The facility produced various types of feedstocks, providing many of their products to well-known commercial retailers.
- Students were able to see an agricultural processing facility with unique robotics and automation.

Summary

The LSU Industrial Training and Assessment Center (ITAC), hosted by the LSU College of Engineering, in partnership with the LSU AgCenter, worked with local chemical manufacturers to take the next step into a sustainable future. As part of the U.S. Department of Energy Office of Manufacturing and Energy Supply Chains (MESCC) funding, the team of students and faculty provided no-cost sustainability assessments for the manufacturer. The team recommended projects including utilizing a baler and selling the cardboard, increasing use of automation and installing control systems for existing equipment. The assessment took place during the spring 2023 cycle and will hopefully lead to a future successful funding application from the manufacturer.



*Students use tools to collect data during site visits.
Photo by LSU ITAC students*

Application Process

To take part in an assessment with the LSU team or for more information, visit the DOE-ITAC website or email M.P. Hayes at mhayes@agcenter.lsu.edu with questions. This program is designed for manufacturers with annual utility costs of \$100,000 to \$3,500,000 and annual revenue less than \$250 million. Other programs may be available for facilities that do not meet this requirement. In previous years, there have been funding opportunities associated with recommendations for implementations for eligible manufacturers through various federal agencies.



Lease/Purchase Baler; Sell Cardboard to Recycler

The LSU team observed that the facility has a large amount of loose cardboard waste. By implementing a lease or purchasing a baler, the facility can compress cardboard and resold. Instead of a disposal fee, the facility can sell the processed cardboard directly to recyclers. In addition, the facility indicated an interest in composting operations to support additional feedstock capacity. Current studies are in process to work with the industrial partner to show benefit use for waste materials.

Solid Waste Savings
\$1,380 pounds/year

Total Cost Savings
\$1,380/year

Implementation Cost
None

Payback Period
None

Increase Use of Automation

Energy Savings
None

Total Cost Savings
\$22,704/year

Implementation Cost
\$21,000

Payback Period
0.92 years

The team identified opportunities for integration of automated systems. The production line currently relies on manual intervention. By integrating automation, the system can maintain a constant rate in production without interruption. Furthermore, automation eliminates downtime in production from employee breaks while also decreasing costs of labor and safety risks. Since the facility already has some parts converted to automation, additional implementation can complement existing SCADA systems.

Level Zero-Install Control Systems for Existing Equipment

During the team's visit, the students observed that the facility's systems rely on manual adjustments by operators. A deviation in temperature, pressure or speed can cause suboptimal energy consumption. By implementing level zero control systems, the facility can achieve precise automated regulation of existing assets. This increase in precision reduces energy waste, prevents equipment from overworking and optimizes equipment lifespan.

Energy Savings
None

Total Cost Savings
\$30,000/year

Implementation Cost
None

Payback Period
None

Other Recommendations

The team has additional recommendations for upgrading to higher-efficiency equipment. For the lighting system, it is currently outdated, but upgrading could reduce electricity consumption while maintaining proper illumination

throughout the space saving \$10,110 per year with \$3,822 implementation cost. The outlined recommendations are a summary and not a comprehensive economic analysis of projects.

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