

Audit Highlights

- The team's report identified six recommendations that estimated annual savings at \$69,647.
- The total implementation cost of projects is estimated at \$146,666 with an average payback period of 2.11 years.
- The recommended projects incorporate waste recovery for resale, automatic packaging equipment and improving mechanism.

Facility Highlights

- The site is part of the LSU AgCenter's network of rural processors.
- Students were able to see a completely customized manufacturing facilities built primarily by the family-owned business.
- Due to the location, the facility has designed many of the processes around potential challenges from storms and developed a framework for resilience.

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 (MESC) funding, the team of students and faculty provided no-cost sustainability assessments for the manufacturer. The team recommended projects to increase the amount of waste recovered for resale, install automatic packing equipment and utilize energy-efficient belts. The assessment took place during the summer 2025 cycle and will hopefully lead to a future successful funding application from the manufacturer.



Waste streams from seafood processes can be a value byproduct. 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.



Recovering Waste for Resale

The team identified opportunities to increase the amount of waste recovered for resale by capturing byproducts such as shells, heads and trimmings for use in secondary markets like animal feed, fertilizer or specialty food products. A chemical characterization was performed on the solid waste materials to quantify the composition for beneficial use. Improved handling and storage practices would help maintain material quality and maximize value, while nonedible waste streams could be directed to external buyers. These measures would create additional revenue streams and reduce disposal costs, improving sorting, collection and storage practices to maximize material quality and value.

Energy Savings

None

Total Cost Savings

\$12,200/year

Implementation Cost

None

Payback Period

None

Automatic Packing Equipment

Energy Savings

Unable to Estimate

Total Cost Savings

\$36,000/year

Implementation Cost

\$50,000

Payback Period

1.39 years

During the site visit, opportunities were found to improve efficiency and reduce cost through the installation of automatic packing equipment. Automation would streamline packaging operations, decrease manual labor and ensure consistent portioning and product quality. The system could integrate weighing, sealing and labeling functions to improve traceability and reduce the risk of mislabeling. By minimizing handling time and packaging errors, the equipment would help maintain food safety standards, extend product shelf life and meet customer and regulatory requirements. This measure would increase overall productivity, lower operational expenses and improve efficiency.

Utilize Energy-Efficient Belts and Improved Mechanisms

During the team's visit, opportunities were identified to reduce energy consumption and improve overall performance by upgrading to energy-efficient conveyor belts and enhanced mechanical systems. These improvements would reduce friction losses, extend equipment life and lower maintenance requirements while ensuring smooth product flow during processing and packaging. Incorporating variable speed drives and optimized belt designs would allow for better control of production rates, minimizing downtime and energy waste. In addition, modern mechanisms can improve worker safety, reduce noise and support higher throughput without sacrificing product quality.

Energy Savings
6,646 kWh/year

Total Cost Savings
\$1,376/year

Implementation Cost
\$300

Payback Period
0.01 years

Other Recommendations

During the team's visit, opportunities were identified to reduce energy consumption and improve overall performance by upgrading to energy-efficient conveyor belts and enhanced mechanical systems. These improvements would reduce friction losses, extend equipment life and lower maintenance requirements while ensuring smooth product flow during processing

and packaging. Incorporating variable speed drives and optimized belt designs would allow for better control of production rates, minimizing downtime and energy waste. In addition, modern mechanisms can improve worker safety, reduce noise and support higher throughput without sacrificing product quality.

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