

Audit Highlights

- The team's report identified six recommendations that estimated annual savings at \$151,419.
- The total implementation cost of projects is estimated at \$940,655 with an average payback period of 6.21 years.
- The recommended projects incorporate repurposing scrap plastics.

Facility Highlights

- The site produces water directly from aquifers with minimal to no contact with outside processes to create highly pure water.
- The facility has initiatives for waste reduction with yearly goals to minimize and reduce.
- Students were able to see an interesting logistical process for shipping plastic bottles and expanding them on site.



Large pumping systems offer water and energy savings opportunities. Photo by LSU ITAC students

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 repurposing scrap plastics and replacing equipment for more suitable and electrical options. The assessment took place during the summer 2025 cycle and will hopefully lead to a future successful funding application from the manufacturer.

Application Processes

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.



Repurposing Scrap Plastics

The team identified opportunities in improving scrap plastics management by recycling or regrounding excess material for reuse in production, reducing the need for new raw plastics. Reusable parts could be directed to secondary application, while unsalvageable plastics could be sold to external buyers. These measures would lower disposable costs, reduce material expenses and support the facility's sustainability goals through waste diversion and resource efficiency.

Energy Savings
None

Total Cost Savings
\$12,408/year

Implementation Cost
None

Payback Period
None

Replacing Existing Equipment With More Suitable Substitutes

Energy Savings
20,967 kWh/year

Total Cost Savings
\$55,591/year

Implementation Cost
\$576,000

Payback Period
10.36 years

The team identified opportunities to improve efficiency and sustainability by upgrading outdated equipment with more suitable substitutes. Replacing low-efficiency units with modern, high-performance models would reduce energy consumption, improve reliability and extend equipment service life. Substituting equipment better matched to operational needs could also minimize maintenance demands and operating costs. These measures would lower long-term expenses, enhance productivity and support the facility's sustainability goals through optimized resource use and reduced environmental impact.

Replacing Fossil Fuel Equipment With Electrical Equipment

The team identified opportunities to transition from fossil fuel-powered systems to electrically driven alternatives. Shifting to electric equipment would reduce onsite emissions, improve operational efficiency, and decrease reliance on nonrenewable energy sources. Electrical systems typically require less maintenance and provide greater compatibility with renewable energy integration. These measures would lower environmental impact, reduce long-term fuel expenses and support the facility's sustainability goals through cleaner energy use and improved resource efficiency. The negative energy savings reflects the implementation of new equipment, which is also reflected in the payback period.

Energy Savings
-18,720 kWh/year

Total Cost Savings
\$37,258/year

Implementation Cost
\$144,549

Payback Period
3.87 years

Other Recommendations

The team has additional recommendations for upgrading to programmable thermostats, a colored roof for solar loading and higher-efficiency lamps. The thermostat system is currently outdated, but upgrading could reduce electricity consumption while maintaining proper air circulation throughout the space, saving \$10,625 per year. Installing a colored roof could improve comfort levels and lower the overall

energy demand, saving \$5,344 per year with a \$26,721 implementation cost. Utilizing high efficiency lamps could reduce the lighting energy consumption and improve lighting visibility in a space, saving \$4,245 per year with a \$6,160 implementation cost. The outlined recommendations are a summary and not a comprehensive economic analysis of projects.

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P4066-C (online) 10/26

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