LOUISIANA MEAT PROCESSOR

LSU AGCENTER WATER AND ENERGY CONSERVATION PROGRAM

Audit Highlights

- The team's report identified four recommendations that estimated annual savings at $86,318.
- The total implementation cost of projects is estimated at $452,486 with an average payback period of 5.24 years.
- The team recommended a water storage projects for security during boiled water advisories.

Facility Highlights

- This site is part of the LSU AgCenter's network of rural farming.
- The facility has advanced operational components including energy efficiency, water security and food sanitation program that overlap their industry expertise.
- The students were able to see a sustainable agricultural manufacturer and a very different type of processor for the state.

An LSU team observed the operations of a meat processing facility to assess its energy usage. LSU AgCenter photos

Summary

The LSU AgCenter Water and Energy Conservation Program in partnership with Louisiana Sea Grant and LSU College of Engineering worked with a red meat processor to help forecast sustainable projects for future implementation. As part of the U.S. Department of Agriculture Renewable Energy for America Program (REAP) funding, the team of students and faculty provided no-cost sustainability assessments for the processor. The team recommended projects including HVAC tune-ups, air compressor remediation, water storage, and new equipment upgrades. The assessment took place during the fall 2024 cycle with the goal to target a USDA REAP application for newer, energy-efficient industrial machines.

Application Processes

The USDA REAP has funding opportunities for stakeholders interested in energy efficiency and renewable energy projects. The program is designated for agricultural producers and small businesses. For more information, visit the USDA Rural Development website or email M.P. Hayes at mhayes@agcenter.lsu.edu with questions.

Water Security From Storage

After talking with the host, it was observed that the facility relies solely on city water for daily operations, consuming a significant volume each day. In recent instances, city water outages and boil water advisories have necessitated the rental of 18-wheeler water tanks to maintain operations, costing the facility thousands of dollars per outage. The team observed that significant savings could be achieved if the facility installed an on-site water storage system to provide water during these interruptions. This system would store enough water to meet the facility's daily usage needs over an extended outage period, providing resilience against unexpected interruptions in water supply.

Energy Savings
None

Total Cost Savings
$12,000/year

Implementation Cost
$10,000

Payback Period
0.83 years

HVAC Tune-Up

Energy Savings
29,074 kWh/year

Total Cost Savings
$2,529/year

Implementation Cost
$100

Payback Period
0.01 years

During the assessment tour, the LSU team found that the facility makes use of an air-cooled condenser (a total of 82.5 tons) in cooling the building. The facility management mentioned not having a regular HVAC maintenance program for the units at the facility. This could lead to reduced efficiency and higher energy consumption from the HVAC units. A tune-up and maintenance schedule helps to ensure proper cooling of the conditioned space and meeting the desired temperature requirement. The team obtained the energy efficiency rating (EER) from the nameplates of the units, which conforms with American Society of Heating, Refrigerating and Air-Conditioning Engineers building efficiency standards.

Equipment Upgrades

The facility expressed interest in purchasing new equipment. The LSU team found that the facility operates with two older automated packaging machines in its packaging department, all over 11 years old. Upgrading to newer machines could notably reduce labor and offer maintenance and energy efficiency improvements. The initial investment in this machine could be offset by these long-term savings. Furthermore, consolidating the packaging process into a more advanced machine can offer the facility additional flexibility for future operational needs or expansions.

Energy Savings
36,244 kWh/year

Total Cost Savings
$71,253/year

Implementation Cost
$442,396

Payback Period
5.24 years

Other Recommendations

The remaining recommendation made by the team was to eliminate air leaks from the compressor lines. The team observed an air leak in the compressed air distribution system with audible noise near the leak location. Using a handheld ultrasonic detector, the intensity of the leak was measured at 63 dB and 97 dB. The estimated savings from a remediation project was 6,164 kWh/year or $536. The outlined recommendations are a summary and not a comprehensive economic analysis of projects.

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