

Energy Efficiency in Tarp and Packaging Manufacturing

J&M Industries has recently partnered with the Louisiana State University Industrial Assessment Center (LSU-IAC) for an assessment of their facility. LSU-IAC is committed to helping local industries improve their energy efficiency and sustainability.



J&M Industries produces various packaging products along with tarps and coverings.
Photo from J&M Industries on Facebook.

Assessment Benefits

- The report identified a total cost saving of \$57,584 per year.
- The utilization of higher efficiency bulbs will save ~83,866 kWh per year with a simple payback of 1 year.
- The implementations of our team's recommendations would reduce J&M Industries' carbon dioxide emissions by 63.31%.
- The cost of eliminating air leaks is only \$675 and would save the facility \$5,367 per year.

Summary

Louisiana State University Industrial Assessment Center (LSU-IAC) performed a complimentary energy assessment for J&M Industries in Ponchatoula, LA on May 25th, 2021. Six recommendations were made in the report estimating a total cost savings of \$57,584 per year. Additionally, an annual reduction of 226 tons/yr. in carbon dioxide emissions is estimated for the recommended changes. By working with J&M Industries, student engineers were able to perform energy assessments in a local packaging manufacturing company.

J&M Industries

J&M Industries manufactures and distributes packaging supplies, protective covers, and customs tarps. J&M Industries tailors their products to fit the needs of their customers. J&M Industries, Inc. converts and manufactures over 100 million square feet of industrial grade tarpaulin fabric on an annual basis and has a team of 100 employees that operates all year long. In Louisiana, the tarp industry is in high demand due to the frequency of hurricanes and heavy thunderstorms and the roof damages these disasters cause. Taking a tour of their new facility was a unique experience for our engineering students who participated in the assessment to explore.

Evaluation Approach

The LSU-IAC team consisted of four engineering students and three assistant directors. Once on site, the team worked with plant management to tour the facility and identify areas of possible recommendations. After a brief meet, students revisited potential recommendations to collect data for the final report process. The assistant directors worked with plant management on identifying areas of

Facility Highlights

- This site is a part of LSU-IAC rural outreach initiative to better help industries in remote areas of the state.
- J&M Industries, Inc. converts and manufactures over 100 million square feet of industrial grade tarpaulin fabric on an annual basis.
- Their new 120,000 square foot facility allows for improved tarp-building projects.
- J&M Industries is already working towards going green with their significant use of natural lighting and LED lighting where needed.

concern for additional recommendations. The plant manager was highly impressed with the student's attentiveness to details in the energy assessment process and was pleased to have the LSU teams work with J&M Industries to offer energy efficiency recommendation. The LSU team finalized and submitted the report July 24th, 2021 and has since coordinated with J&M Industries on the implementation of the recommendations.

Energy Savings with Solar

The biggest energy and money-saver the students and faculty found when touring the facility was to continue to install solar panels on the roof. The facility currently has a very large unoccupied roof with no shade, which makes for a perfect location for solar panels to lie. The company had partial installation prior to the assessment with IAC, but our team recommended they continue moving forward with this project. Installing solar panels would not only cut the cost of the facility’s electricity bills in half but would also provide major benefits to the

environment. With the use of solar power, J&M industries would reduce their carbon emissions by 161 tons/year. The facility’s current annual electricity cost is \$96,500 per year and with just the implementation of solar panels, this number would be reduced by \$40,438 (~ 45% savings)

Other Recommendations

While the main energy saver for J&M Industries is evidently utilizing solar energy, the LSU-IAC team provided the company with five other recommendations. Each of these

recommendations provide large kWh savings with a very quick payback, most being within a year, as broken down in the figure below. AR-1 was to install programmable thermostats in the office area to have the temperature increase when the area is not being used. AR-2 was to reduce the discharge pressure of the compressed air system. AR-3 was to eliminate compressed air leaks by implementing a preventative maintenance program. AR-4 was to switch all fluorescent bulbs with LED bulbs. Finally, AR-5 was to utilize energy-efficient belts for their fan motors.

Recommendations Presented by IAC

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Install Programmable Thermostats in Office Area	15,271 kWh	\$1,466	\$100	0.07 yrs.
Reduce the Discharge Pressure of the Compressed Air System	4,737 kWh	\$455	\$50	0.11 yrs.
Eliminate Leaks in Compressed Air Lines	55,913 kWh	\$5,367	\$675	0.13 yrs.
Utilize the Higher Efficiency Lamps and/or Ballasts	83,866 kWh	\$9,726	\$9,408	0.97 yrs.
Utilize the Energy-Efficient Belts for Motors	1,381 kWh	\$133	\$580	4.37 yrs.
Use Solar Heat to Generate Electricity	421,258 kWh	\$40,438	\$646,020	15.98 yrs.
Total	582,426 kWh	\$57,584	\$656,833	11.41 yrs.