

Saving Energy for Southland Industrial Coating

The Louisiana State University Industrial Assessment Center (LSU-IAC) is committed to helping local industries take the next steps to energy efficiency and sustainability. Southland Industrial Coating has recently partnered with LSU-IAC for an assessment of their facility.



Southland Industrial Coatings produces customized steel structures. Photo from <https://www.gridstructures.com/capabilities/production>

Assessment Benefits

- The report identified a total cost saving of \$110,422 per year by optimizing equipment.
- The total implementation cost is \$76,273 leading to an average payback period of 0.69 years.
- The implementations of our team's recommendations will reduce their carbon dioxide emissions by 12.96%.

Summary

The Louisiana State University Industrial Assessment Center (LSU-IAC) is committed to helping local industries take the next steps to energy efficiency and sustainability. Southland Industrial Coatings has recently partnered with LSU-IAC for an assessment of their facility. The assessment took place in Amite, Louisiana on July 22nd, 2021. Ten recommendations were finalized in the report estimating a total cost savings of \$110,422 per year. An annual reduction of 406 tons/year is estimated for the recommended changes. By working with Southland Industrial Coatings student engineers were able to help a local company save money and go green!

Southland Industrial Coating

Southland Industrial Coatings offers galvanizing, metalizing, sandblasting, fireproofing, and painting service for Electric Utility and Renewable Energy Industries. This company is a division of Southland Steel. They have over 40 years of experience to provide their customers with the best products and service. The 49 employees keep this 16.5 facility running smoothly. LSU-IAC was impressed with the facility's energy efficient best practices in place prior to the assessment. These best practices include the implementation of metal recycling to reduce waste, the use of an economizer to reduce fuel usage, and the partial installment of LED lighting.

Evaluation Approach

The LSU-IAC team consisted of four 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 concern for additional recommendations.

Facility Highlights

- This site is a part of LSU-IAC rural outreach initiative to better help industries in remote areas of the state
- The total facility area is 720,000 square feet.
- Completely customized and designed for the most efficient galvanizing process.
- The facility is already working towards going green with their partial implementation of LED lights, the use of economizers, and the use of automation.

The team had a final meeting with the plant manager about the findings and returned to campus to conduct further research and calculations. The LSU team finalized and submitted the report September 20th, 2021 and has since coordinated with Southland Industrial Coatings on implementation of the recommendations.

Use Optimal Size Air Compressors

The LSU-IAC team discovered that Southland Industrial Coatings could save 759,646 kWh annually by replacing their four 400 HP compressors and chiller with one 100 HP compressor. The facility only requires a compressed air rate of 500 CFM, while the air compressors had a capacity of 1,900 CFM. Therefore, the team recommends downgrading to one 100 HP compressor to meet the 500 CFM requirement. The current compressors

require a 200-ton chiller to cool the compressors, which would not be necessary with this change to the one compressor. Not only would implementing this save kWh, but it would also save \$79,003 per year!

Other Recommendations

While the air compressor recommendation is a great option for cutting costs and energy usage for Southland Industrial Coatings, our team found nine other recommendations with high savings and low implementation costs! AR-1 was to

reduce air compressor discharge pressure. AR-2 was to install programmable thermostats. AR-3 was to eliminate air compressor leaks. AR-4 was to control lighting. AR-5 was to install occupancy sensors. AR-6 was to use higher efficiency lamps and ballasts. AR-8 was to use energy-efficient belts. AR-9 was to use flue gas to preheat combustion air. Finally, AR-10 was to optimize a power factor at the facility.

Recommendations Presented by IAC

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Air Compressor Discharge Pressure Reduction	47,121 kWh	\$4,901	\$25	0.005 yrs.
Install Programmable Thermostats	16,061 kWh	\$1,670	\$75	0.04 yrs.
Eliminate Compressed Air Leaks	83,055 kWh	\$8,638	\$675	0.08 yrs.
Lighting Control	14,920 kWh	\$1,552	\$300	0.19 yrs.
Install Occupancy Sensors	4,850 kWh	\$504	\$100	0.20 yrs.
Use Higher Efficiency Lamps	122,116 kWh	\$12,700	\$4,332	0.34 yrs.
Use Optimal Size Air Compressors	759,646 kWh	\$79,003	\$63,000	0.80 yrs.
Utilize Energy-Efficient Belts	2,935 kWh	\$305	\$318	1.04 yrs.
Use Flue Gas to Preheat Combustion Air	46 MMBTU	\$264	\$1,400	5.30 yrs.
Power Factor Optimization		\$885	\$6,048	6.83 yrs.
Total	1,050,704 kWh & 46 MMBTU	\$110,422	\$76,273	0.69 yrs.