



## Saving Energy for Gulf South Machine

The Louisiana State University Industrial Training and Assessment Center (LSU-ITAC) is committed to helping local industries take the next steps to energy efficiency and sustainability. Gulf South Machine partnered with LSU-ITAC for an assessment of their facility.

### Assessment Benefits

- The report identified a total cost savings of \$66,456 per year.
- The total implementation cost was \$683,094 leading to an average payback period of 10.28 years.
- The implementations of our team's recommendations would reduce their carbon dioxide emissions by 31.69%.

### Summary

The Louisiana State University Industrial Training and Assessment Center (LSU-ITAC) is committed to helping local industries take the next steps to energy efficiency and sustainability. Gulf South Machine, Inc. partnered with LSU-ITAC for an assessment of their facility. The assessment took place in Ponchatoula, Louisiana on October 14th, 2021. Ten recommendations were finalized in the report estimating a total cost savings of \$66,456 per year. An annual reduction of 90 tons/year is estimated for the recommended changes. By working with Gulf South Machine, Inc., student engineers were able to help a local company save money and go green!



Gulf South Machine, Inc. Ponchatoula, Louisiana.  
"Providing Precision Machining and Manufacturing Since 1969."

### Gulf South Machine, Inc.

Gulf South Machine, Inc. is an integrated CNC machining and manufacturing facility. The company specializes in many areas such as oil and gas equipment, flow control components, heavy equipment and transportation, food service, medical, aerospace, and prototypes. The 10 employees keep this 35,000 square-foot facility running smoothly. LSU-ITAC 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 daylight for lighting, and the partial installment of LED lighting.

### Evaluation Approach

The LSU-ITAC team consisted of four students, two assistant directors, and the director. 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. The team had a final meeting with the plant manager about

### Facility Highlights

- This site is a part of LSU-ITAC's rural outreach initiative to better help industries in remote areas of the state.
- Annual production for this facility is 50,000 parts/yr.
- They are a full-service precision CNC machine shop providing precision machining, contract, and subcontract manufacturing services since 1969.
- The facility reached out to our team because of their interest in developing a solar infrastructure.

the findings and returned to campus to conduct further research and calculations. The LSU team finalized and submitted the report on December 13th, 2021.

## Use Tanks with a Conical Bottom to Reduce Waste

The LSU-ITAC team discovered that Gulf South Machine, Inc. could save \$1,451 annually by replacing their 275-gallon chemical tote tanks with a conical tank. The facility recycles coolant from spent oil with chemical tote tanks. Our team observed that there was a potential for cost savings on coolant by optimizing the collection tank. By using a conical collection tank instead, the liquid separation would be more distinct between layers and allow for a greater recovery of coolant. Although this recommendation does not provide

energy savings, the payback period is only 0.76 years, making for an easy cost-saving implementation.

## Other Recommendations

Our team found nine other recommendations, and when combined with the savings from the conical tank, they would save the company 65% of the estimated pre-pandemic total annual utility cost! AR-1 was to reduce air compressor discharge pressure. AR-2 was to eliminate air compressor leaks. AR-3 was to utilize higher efficiency lamps and ballasts. AR-4 was to close holes in the building. AR-5 was to install

vinyl strips. AR-6 was to use energy-efficient belts. AR-8 was to replace the HVAC. AR-9 was to optimize a power factor at the facility. Finally, AR-10 was to use solar heat.

## ITAC Recommendations that were Implemented at the Facility

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Eliminate Compressed Air Leaks	66,789 kWh	\$6,612	\$675	0.10 yrs.
Use Higher Efficiency Lamps or Ballasts	1,660 kWh & 9 kW	\$199	\$53	0.26 yrs.
Close Holes in the Building	1,218 kWh	\$121	\$49	0.40 yrs.
<b>Total</b>	<b>651,574 kWh</b>	<b>\$66,456</b>	<b>\$683,094</b>	<b>10.28 yrs.</b>

