LED & Nest Thermostat Install at Clyde Bergemann

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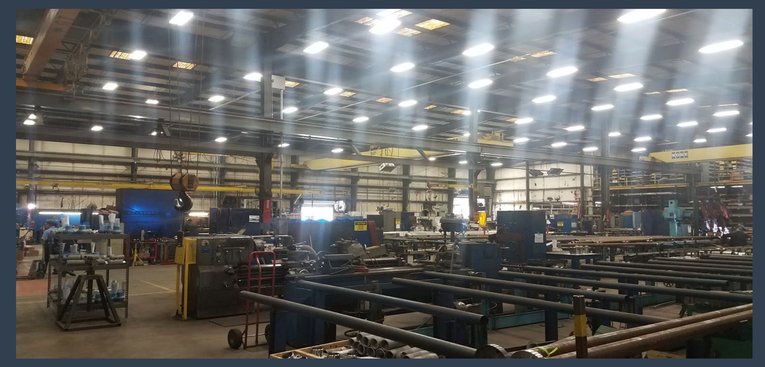
Introduction: Clyde Bergemann Power Group Americas Inc. is a manufacturing company that provides Boiler Efficiency products to Coal-Fired Boilers and Pulp and Paper Mills. Our group was able to identify 2 opportunities at the Atlanta Facility to reduce carbon emissions: LED Lighting and Energy Efficient Thermostats.



LED Lighting

Problem: The Shop, Warehouse, and Upstairs Offices currently use inefficient Fluorescent Lighting (622 Lights total).

Solution: Replace 32 W Fluorescent Bulbs with 10 W LED lights.

Total CO2 Reduction Per Year:
34,991 lbs

Same as 1.5 Ford Fusions Removed from the Road!

Financial Impact:

- Initial Investment: $6,421
- Payback Period: 1.38 years
- ROI: 72%

Assumptions:

- Install Cost = $3,000
- Price/LED Bulb = $5.50 each
- Expected Life of bulb = 50,000 hours
- .98 lbs CO2e/kWh

Nest Thermostats

Problem: 9 outdated, inefficient thermostats and HVAC systems across the facility.

Solution: Replace old HVAC units with 9 Nest system thermostats.

Total CO2 Reduction Per Year:
16,436 lbs

Same as 0.7 Ford Fusions Removed from the Road!

Financial Impact:

- Initial Investment: $1,868
- Payback Period: 1.03 years
- ROI: 97%

Assumptions:

- Install Cost = $500
- Nest Thermostat Cost = $152 each
- Expected Savings of 11% on Cooling & 15% on Heating
- Current Thermostat Operations: 68–72 F, turned off completely at night and on the weekends

Co-Benefits

- Marketing opportunity to show competency in enhancing efficiency
- LED lights increase visibility and improve work conditions for shop & office employees
- NEST thermostats optimize temperature conditions to match the average employees preferences.

Primary Stakeholder Analysis

Facility Maintenance Manager	Chief Financial Officer
Approval of operational details of the plan.	Final approval for capital expenditure of the project.

Current Status/Future Plan

Our team has convinced the Facilities Maintenance Manager of the potential cost and carbon savings opportunities. We are now getting bids from multiple vendors and hope to complete the install during Summer 2019

References: Average Nest Annual Savings: https://nest.com/thermostats/real-savings/, Carbon Emissions: 2018, Dr. Berry at Georgia Power – GPC 2018 C02e Rate is .98 lb/kWh, Fluorescent Lights: https://www.amazon.com/Barrina-Integrated-Fixture-Utility-Electric/dp/B01HBT3BVM/ref=sr_1_1?s=hi&ie=UTF8&qid=1549133381&sr=1-1&keywords=led+light+fixture, Cost of Electricity: https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a,, Estimated Electricity Usage of an Electric Furnace: http://energyusecalculator.com/electricity_furnace.htm, Estimated Electricity Usage of Central Air Conditioner: http://energyusecalculator.com/electricity_centralac.htm