

## CASE STUDY: BOILER CONDENSING ECONOMIZER

SYSTEM TYPE: Boilers

### PROJECT FINANCIALS

- Total Turnkey Installed Cost: \$ 317,000
- Annual Energy Cost Savings: \$118,000
- Simple Energy Funded Capital Payback: 2.7 years
- Average Project IRR: 36%
- CO2 Equivalent Reduction : 848 tCO<sub>2</sub>e (Natl. Avg. Emission Rate)

## MANUFACTURING Facility Optimizes Boiler Operation and Controls, Reduces Energy Usage and O & M Costs.

### System Description

- Two 500 HP natural gas fired steam boilers.
- Summer operation requires one boiler, winter operation requires two boilers to be operating.
- Process uses steam for heating and for some direct injection.
- Building hot water heating is provided by steam to hot water heat exchangers.

### System Opportunities

- Optimization of the boiler sequencing and operation
- Installation of condensing economizer in boiler flue gas exhaust to recover heat
- Interface with Building Automation System for better system control

### Project Description

- Installed new digital controls on boilers to provide optimized control and sequencing and interface to BAS.
- Installed new fully condensing boiler economizer to recover flue gas heat along with associated pumping equipment.
- Installed new heat exchanger to heat cold DI water and generate hot DI water.
- Implemented new heat exchanger to preheat supply water to RO system.

### Project Benefits

- New more efficient boiler controls and heat recovery equipment.
- Optimized and more efficient operation of the boiler operation.
- Reduction in energy usage.
- Reduction in O&M costs and better overall operation of the boiler system.

## Plant Profile

- Manufacturing
- Production, packaging, warehouse, and offices
- Facility utilizes a central plant to provide steam and hot water for process heating and building heating

## Key Benefits

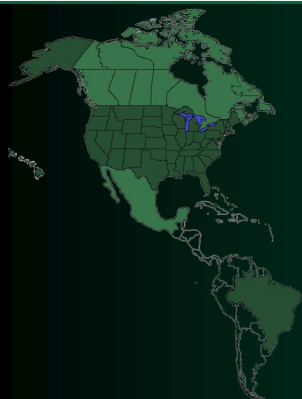
<b>Cost Savings</b>	\$118,000
<b>Energy Savings</b>	848 tCO <sub>2</sub> e (Natl. Avg. Emission Rate)
<b>Carbon Reductions</b>	848 tCO <sub>2</sub> e (Natl. Avg. Emission Rate)
<b>Fuel Type</b>	Natural Gas
<b>Payback</b>	2.7 Years
<b>Project IRR</b>	36%

## Financial Data

<b>Investment</b>	\$317,000
<b>System</b>	Boilers
<b>Life Expectancy</b>	N/A
<b>Incentives/Rebates</b>	N/A
<b>Payback Period</b>	2.7 Years



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Corporate Office: Kansas City, KS | Web: [www.sol-dyn.com](http://www.sol-dyn.com) | Email: [info@sol-dyn.com](mailto:info@sol-dyn.com)