

CASE STUDY: DIRECT-FIRED HEATING SYSTEM

SYSTEM TYPE: Boilers

PROJECT FINANCIALS

- Total Turnkey Installed Cost: \$ 964,000
- Annual Energy Cost Savings: \$613,000
- Simple Energy Funded Capital Payback: 1.45 years
- Average Project IRR: 45%
- CO2 Equivalent Reduction : 5,108 tCO₂e (Natl. Avg. Emission Rate)

GLASS MANUFACTURING Facility Achieves Energy Savings of \$ 613,000 Annually with a Boiler System Project — Simple Payback of 1.45 Years.

System Description

- Two older 34,000 lb/hr steam boilers with limited turndown capability
- Steam distribution system with potential future piping issues
- Condensate return around 60%
- Non functional boiler economizers
- No existing ability to control steam heaters other than turning on /off seasonally
- Insufficient heating in some areas which caused employee complaints

System Opportunities

- Existing boilers were older and were not operating efficiently
- Existing boilers were in need of repair
- Portions of steam distribution system would need piping replaced in future
- Overall the steam system was not operating efficiently
- The operation of the boilers required boiler operators 24 hours per day, 7 days per week

Project Description

- Installed 13 new direct fired natural gas make up air and heating units to provide facility heat
- Each heating unit was installed with controls to operate unit based on temperature requirements
- Installed new gas lines as needed to serve new units
- Shut down boilers

Project Benefits

- Energy Cost savings, chemical and water savings, and labor savings
- Installation of new efficient equipment and retirement of old equipment
- Elimination of future cost for replacement of steam piping
- Increased control of temperature which increase comfort levels of employees

Plant Profile

- Glass Manufacturing Facility - 565,000 Square Feet
- Production areas, administrative offices, warehouse area
- Facility utilizes older boilers to produce steam to provide heating for facility in and to serve some process load

Key Benefits

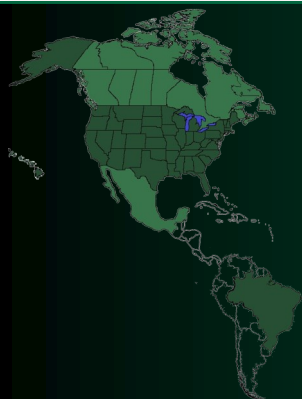
Cost Savings	\$613,000
Energy Savings	Chemical and Water Cost Savings of \$55,250
Carbon Reductions	5,108 tCO ₂ e (Natl. Avg. Emission Rate)
Fuel Type	Natural Gas
Payback	1.45 Years
Project IRR	45%
Estimated Labor Savings	\$250,000

Financial Data

Investment	\$964,000
System	Boilers
Life Expectancy	N/A
Incentives/Rebates	N/A
Payback Period	1.45 Years



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