



SUCCESS STORIES

SUNCOKE ENERGY

REPLACEMENT ECONOMIZER MODULES

LOCATION MIDDLETOWN, OHIO, U.S.A.
CAPACITY 91.1 KPPH FEEDWATER FLOW
252.9 KPPH FLUE GAS FLOW

PROJECT OVERVIEW

Babcock Power Services supplied replacement economizers for heat recovery boilers linked to coke ovens. Five waste heat boilers included four economizer modules each.

Project Scope included design, material supply, fabrication, and delivery of all materials seven months after receipt of order (ARO).

Design, Procure, Fabricate and Deliver:

- + 20 Economizer Modules at 42,000 lbs. each, and consisting of twenty-four Tube Circuits
- + 250 Tons of Structural Steel
- + 225 Tons of Ducts and Flues
- + Economizer Piping and Valves
- + 60 Retractable Sootblowers

CUSTOMER'S CHALLENGE

For the customer's new 100-oven facility under construction in Middletown, Ohio, Babcock Power was tasked with developing a high-performance economizer that would minimize fouling.

UNIT DESCRIPTION

SunCoke Energy Middletown Operations consists of 100 ovens feeding five waste heat boilers. Each has four economizer modules.

Water Flow	91.1 kpph
Inlet Water Temperature	290°F
Outlet Water Temperature	563°F
Flue Gas Flow	252.9 kpph
Flue Gas Inlet Temperature	835°F
Flue Gas Outlet Temperature	439°F

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BABCOCK POWER SOLUTION

- + To optimize heat recovery and minimize fouling, provided bare tube economizers of vertical counter-flow design, including multiple cross-coverage by retractable sootblowers.
- + Used computational fluid dynamics (CFD) flow modeling to optimize distribution of gas flow through the heat transfer components.
- + To minimize construction costs, provided a modular design and collaborated with the contractor to develop a fabrication and delivery sequence that supported boiler and structural steel assembly plans.



PROJECT RESULT SUMMARY

Fabrication and Delivery

- + Material delivery to customer's site began less than three months ARO.
- + Twenty modules delivered within 21 weeks.
- + All requirements for project delivered seven months ARO.
- + No significant quality issues during fabrication, or fit-up issues during installation.
- + Superior thermal performance.
- + Fouling reduced to date.w

