

ALTA PROCESS SOLUTIONS

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INDUSTRIAL PROJECTS

Industry: Steam Power Plant

Project No.: 17 Project Subject:

Retrofitting of HEN Using Combined Pinch & Exergy Analysis

Challenge:

This project consists of retrofitting of heat exchangers network (HENs) in a steam plant. By using the most advanced Combined Pinch and Exergy Analysis, 150,000 (\$/yr.) energy saving was realized.

Proposed Solution:

- 1. Reduction in Boilers Load: 11.529 MW
- 2. Reduction in Fuel consumption: 1,039.52 Nm3/h
- 3. Reduction in Condenser Load: 18.791MW
- 4. Increase in Cycle efficiency: 0.85 %
- 5. Condenser Conservation Profits: 38,266 \$/yr.
- 6. Fuel Consumption Conservation Profits according to the first scenario: 151,750 \$/yr.
- 7. Fuel Consumption Conservation Profits according to the second scenario: 30,356 \$/yr.
- 8. Total Energy Conservation Profits according to the first scenario: 190,016 /yr.
- 9. Total Energy Conservation Profits according to the second scenario: 68,621 \$/yr.
- 10. Additional Area: 511.6 m2
- 11. Area Efficiency: 79.72 %
- 12. Investment: 145,886 \$
- 13. Payback Period according to the first scenario: 8 months
- 14. Payback Period according to the second scenario: 25 months

Results:



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