



INDUSTRIAL PROJECTS

Project No.: 17

Industry: Steam Power Plant

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:

