



# ALTA PROCESS SOLUTIONS

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## INDUSTRIAL PROJECTS

**Project No.:** 16

**Industry:** Petrochemicals

**Project Subject:**

**Retrofitting of HEN for Ammonia Units using Combined Pinch & Exergy**

### Challenge:

This project consists of retrofitting of heaters and coolers of heat exchangers network in Ammonia unit of one of a petrochemical plant. By using the most advanced Combined Pinch and Exergy Analysis (CPEA), 1,530,000 (\$/yr.) energy saving was realized.

### Proposed Solution:

1. Reduced fuel consumption in furnaces of unit and therefore reduced total fuel consumption in the complex.
2. Reduced steam demand for heating so total fuel and water consumption of complex decreased.
3. Decreased load of coolers and therefore reduced cool water and electricity consumption.
4. Decreased energy intensity or in other words, the fuel consumption per unit of production decreased in the company and therefore energy efficiency in the company raised.
5. Lower energy intensity in production processes and therefore lower product cost, because less fuel per unit of production consumed.
6. Less emission of GHG.
7. Increased heat transfer between hot and cold flows in the network and thus decreased required boilers utility and load in network which led to upgraded reliability and safety of system.
8. Less use of fossil fuel resources.

### Results:

