Major European Refinery Uses Process Simulation Technology to Improve Energy Efficiency & Yields

10 MW
energy savings

<$12M USD/year
savings from improved yields

CHALLENGE

Improve energy efficiency of a 345K bpd refinery

SOLUTION

Leverage the integration between Aspen HYSYS®, Aspen Exchanger Design & Rating™ and Aspen Energy Analyzer™ to perform a site-wide energy analysis and identify opportunities for improved energy efficiency

VALUE CREATED

- $12M USD annual savings from improved yields
- 10 MW in energy savings
- Accurate simulation of the refining process
- Rigorous modeling of heat exchanger operations
- Optimal layout of heat exchanger networks

Refiner Adopts AspenTech Solutions to Identify Energy Efficiency Opportunities

A leading European refinery has two plants that are organized and operated as one. The facilities have a combined refining capacity of more than 18M cubic meters of crude oil/year (345K barrels/day). The facility is one of the most modern and efficient in all of Europe, with emissions that are far below current environmental requirements.

The refiner launched an initiative to improve energy efficiency at one of the plants. Leveraging process simulation technology available from AspenTech, the company conducted a refinery-wide energy analysis to identify opportunities for improving their energy efficiency.

Using the software, refinery operators were able to:

- Accurately simulate the refining process with Aspen HYSYS

- Rigorously model heat exchanger operations within the broader process flowsheet through the seamless integration of Aspen HYSYS, Aspen Exchanger Design & Rating and Aspen Energy Analyzer

- Determine the optimal layout of heat exchanger networks through pinch analysis enabled by Aspen Energy Analyzer

A rigorous model of the integrated crude distillation unit (CDU) was developed, encompassing rigorous models for the heat exchangers of the crude preheat train as well as the distillation columns. Rigorous heat exchanger models proved to be critical for getting an accurate prediction of heat recovery, especially in overhead condenser and preheat train exchangers. The analysis helped determine a more optimal crude preheat train heat exchanger arrangement.

After implementing the proposed changes, the refinery realized savings of close to $12M USD/year in improved yields, along with an additional 10 megawatts in energy savings. The new heat exchanger configuration also resulted in increasing the inlet crude temperature to the desalter, thereby improving its performance.

About Aspen Technology

Aspen Technology, Inc. (NASDAQ: AZPN) is a global software leader helping industries at the forefront of the world's dual challenge meet the increasing demand for resources from a rapidly growing population in a profitable and sustainable manner. AspenTech solutions address complex environments where it is critical to optimize the asset design, operation and maintenance lifecycle. Through our unique combination of deep domain expertise and innovation, customers in capital-intensive industries can run their assets safer, greener, longer and faster to improve their operational excellence.

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