Maximizing Energy Efficiency in the Chemicals and Petroleum Industries

Prior to a plant reconfiguration or retrofit, pinch studies can analyze opportunities for improving energy efficiency at minimal cost.

Energy efficiency is crucial to increasing profitability and environmental compliance in the chemicals and petroleum industries. Greater efficiency leads to cuts in energy-related operating costs and also results in lower air emissions. At a time when meeting environmental regulations often means added expense, finding ways to increase energy efficiency is key.

Pinch technology provides a roadmap to energy efficiency. By matching heat sources with points of heat consumption in a plant, pinch identifies heat recovery opportunities and makes use of waste heat energy. Based on fundamental thermodynamic principles, pinch technology determines the minimum thermal energy usage for a plant, the difference between that minimum and current consumption, and ways to realize savings.

Following recent applications of pinch technology, six facilities cut their energy costs by a total of $4 million per year. Pinch pointed out how the plants could reduce energy costs through waste heat recovery. It also led the way to the use of an electrotechnology to mechanically recompress steam, which increased the electric load to the facilities.

Uses Pinch Technology to Help Industrial Customers Save Energy and Cut Costs

By participating in the EPRI project, *Maximizing Energy Efficiency in the Chemicals and Petroleum Industries*, you can help your customers save energy and money. The project brings pinch technology to your customer's door, while leveraging EPRI resources.

PROJECT SUMMARY This project opportunity gives your customer individualized access to the benefits of pinch technology as EPRI performs energy optimization studies using pinch technology at your customer's plant. EPRI pinch experts with industry experience conduct the studies. First, they analyze the plant's operations, formulating specific recommendations for plant reconfiguration and retrofit, while considering the physical layout of the plant and the timing of its various operations. They set short- and long-term energy goals, defining realistic projects that take into account production, safety, and payback criteria.

The technicians then develop a strategy for recycling heat while minimizing capital outlay. If possible, they schedule reconfigurations to coincide with any major process changes or expansions already being considered by plant management. Customer plant personnel participate in the studies to ensure that the recommended changes are realistic.

DELIVERABLES

- Customized pinch study at the customer site of your choice
- Final report including recommendations for capital projects to reduce energy costs and improve process efficiency

RETURN ON INVESTMENT Increased efficiency in industrial processes enhances your customer's competitiveness and profitability, and helps you to retain load. In some cases, pinch studies lead to increased use of electrotechnologies and electricity sales. They can save your customer enough energy to eliminate the economic benefits of a contemplated cogeneration project, thus preventing loss of load. They have also led to the replacement of steam drives with electric drives.

By understanding the energy use patterns and options of a plant, you and your customer can work together to make mutually beneficial investment and operating decisions. Pinch studies allow you to collaborate on mapping energy usage, providing you with information that is useful in implementing marketing programs. The studies may reveal opportunities for load shifting and other load profile adjustments.

DEMONSTRATED VALUE Only EPRI has the diverse resources necessary to position your company to win customer loyalty in today's increasingly competitive energy services market. EPRI's broad knowledge of energy customers, changing markets, and international developments can help you anticipate and shape the changes that are transforming the energy industry along with the needs of your customers.

For nearly 30 years, EPRI has been at the leading edge of market insights and technology development, delivering a wide range of products, support, and services. In 1997, the company managed $428 million in collaborative technology development and demonstration projects. EPRI has created an unparalleled network of technical experts, research allies, manufacturers, industry representatives, and marketing specialists from around the world. As an objective source, EPRI can seek the best technology, vendor, and fit for your particular needs.

PRICE OF PARTICIPATION An investment of between $25,000 and $250,000 is required to participate in this project opportunity, depending on plant complexity, analysis objectives, and availability of data.

PROJECT STATUS AND SCHEDULE This project is open to participation and will begin as soon as funding is secured. Pinch studies take from one to six months to complete.

CONTACT INFORMATION

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