Energy Integration

Process integration is a systems-based approach which examines an entire process to develop ways of integrating materials and energy that minimize cost and waste production. Pinch technology was developed in the 1970s and 80s for heat exchange networks and has been advanced significantly and expanded for applications in any resource recovery, such as emissions control, waste reduction and wastewater minimization.

Pinch Analysis Assessment

Energy pinch technology identifies a goal for energy utilization (i.e., the opportunity gap between present performance and best performance). It is then used as a tool to pinpoint the key heat-exchange opportunities, which will allow the engineer to design towards the best performance target.

SRC assists with:

- Baselining Operations
- Mass and Energy Balance
- Targeting and Design
- Project Economics and Detailing

Design for Energy Integration

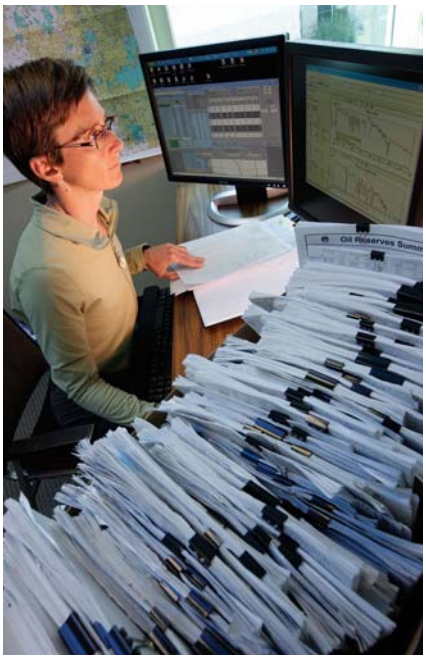
Existing processes have inherent opportunities for improving energy efficiency, but after a facility is designed, the cost for improving energy efficiency is sometimes prohibitive. Designing a new process for energy integration is the most economical approach to minimizing operational costs.

- Energy integration may be incorporated into the design for new technologies.
- New processes developed using energy efficient technology modules might not always be efficient when integrated.
- Thermal biomass processes involve energy intensive operations that demand energy efficiency for economic viability.

Project Highlights

SRC's Process Development Business Unit has conducted the following studies in energy integration:

- Grain-Based Ethanol Manufacturing
- Combined Heat and Power Production
- Biomass-to-Ethanol Technologies



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