Benefits

- Identify areas for cost and energy savings, and emissions and waste reduction
- Receive expert technical assistance in improvements to industrial systems
- Access software tools to assist in decision making
- Share costs of assessment and leverage resources

Visit www.oit.doe.gov/bestpractices to read case studies of actual plant assessments.

Plant-Wide Assessments Help Industry Identify Energy and Cost Savings Opportunities

Plant-wide energy assessments identify overall energy use in manufacturing processes—which can account for 10 percent or more of an industry's total operating costs—and highlight opportunities for best energy management practices for industry, including the adoption of new, efficient technologies. The U.S. Department of Energy's Office of Industrial Technologies (OIT) works with companies to characterize findings and document savings that can be replicated in other facilities and other industries for multiplied savings. On average, the findings from a single assessment can be replicated in at least seven other facilities with equivalent systems and energy use. For a relatively low initial investment, companies that participate in assessments can expect to realize a minimum of $1 million in savings annually from energy costs, waste reduction, and increased productivity—usually with a payback of less than 18 months.

Solicitations Encourage Companies to Participate

Interested companies are invited to submit proposals in response to a solicitation offered once a year. Specifically, proposals are sought where industry-defined teams will be considering the adoption of best available and emerging technology using state-of-the-art tools, information, process engineering techniques, and best practices for operating and planned plant support and process systems. Only industrial sites that fall within the OIT Industries of the Future (IOF) initiative are considered for an award. This includes the forest products, chemicals, petroleum, steel, aluminum, metal casting, glass, mining, and agriculture industries. Funding of up to $100,000 is available for each project selected, with a required industrial cost share of at least 50 percent. Companies are strongly encouraged to develop and work closely with teams which could be composed of their resource and equipment suppliers, engineering firms, and other third party entities. Solicitation information is posted to the OIT and BestPractices Web sites (www.oit.doe.gov/bestpractices), and is sometimes advertised in industry trade magazines.

Plant assessments address a variety of generic and industry-specific technology areas, and a variety of plant/process optimization methods. Proposal writers should also consider demand-side energy management best practices and technology implementation in: plant steam delivery and process heating systems, electric-motor systems (including motors, drives, pumps, fans, blowers), compressed air systems, and heat exchange optimization (e.g., pinch technology); as well as, supply-side options using cogeneration and combined heat and power system technologies.

The results, successes, and experiences from these assessments are published in case studies (which are also posted to the BestPractices Web site) and the *Energy Matters* newsletter. Confidentiality is protected and no proprietary company information is released. By publicizing assessment findings and results, OIT encourages other U.S. manufacturers to adopt and implement similar approaches to increasing energy efficiency and reducing environmental emissions. Participating plants will be made aware of, and provided access to, all OIT emerging technologies and best practices, and tools and information resources that could assist the plants in implementing the most cost-effective, state-of-the-art technology.

Additional Assessment Options

Small- to medium-sized manufacturers may be eligible to receive assessments by university-based Industrial Assessment Centers. Teams of engineering faculty and students from the centers—located at 26 universities around the country—conduct energy, waste reduction, and productivity-improvement audits and then provide recommendations to manufacturers. Recommendations from industrial assessments have averaged about $55,000 in potential annual savings for each manufacturer.

DOE experts in industrial energy management are available to provide targeted, in-plant technical assistance to identify specific systems areas for improvement. Companies interested in hosting a Showcase Demonstration event can request a walk-through assessment (1 to 3 days) to identify opportunities for increased savings and productivity in industrial systems such as motors, steam, compressed air, and process heating.

Recent Plant-Wide Assessments

BestPractices cost-shared funding for plant-wide assessments helps industry identify many opportunities for savings and productivity improvements. For example, water pinch analysis of Boise Cascade's pulp and paper mill in International Falls, Minnesota, identified opportunities to recycle hot effluent streams to reduce the need for process steam, fresh water, and energy to cool the effluent. The four projects and two process modifications selected will remove 45.6 million Btu per hour from the effluent, save $707,000 annually (with a payback of 3 years), and reduce steam use by 28,100 pounds per hour.

A plant-wide assessment at Alcoa's Lafayette aluminum extrusion plant in Indiana identified eight areas for more analysis. Energy saving opportunities include improved heat recovery, furnace operations, and metering, as well as development of process-energy use targets. Collectively these projects could save the plant more than $1.9 million annually; the $2.3 million capital investment has a payback period of only 1.2 years.

An assessment at AMCAST Industrial Corporation's Wapakoneta, Ohio, facility resulted in recommendations for 12 separate projects, including improvements to their process heating and compressed air systems. The projects have an aggregate, annual energy savings potential of $3.7 million, which results in a 3-month payback period. In addition, the implementation of these projects has the potential to reduce the plant's carbon dioxide emissions by over 11 million pounds per year.

BestPractices is part of the Office of Industrial Technologies' Industries of the Future strategy, which helps the country's most energy-intensive industries improve their competitiveness. BestPractices brings together the best-available and emerging technologies and practices to help companies begin improving energy efficiency, environmental performance, and productivity right now.

BestPractices focuses on plant systems, where significant efficiency improvements and savings can be achieved. Industry gains easy access to near-term and long-term solutions for improving the performance of motor, steam, compressed air, and process heating systems. In addition, the Industrial Assessment Centers provide comprehensive industrial energy evaluations to small and medium-size manufacturers.

For Additional Information, Please Contact:

Theo Johnson
Office of Industrial Technologies
Phone: (202) 586-6937
Fax: (202) 586-9234
Theodore.Johnson@ee.doe.gov
www.oit.doe.gov/bestpractices

OIT Clearinghouse
Phone: (800) 862-2086
Fax: (360) 586-8303
Clearinghouse@ee.doe.gov

Please send any comments, questions, or suggestions to webmaster.oit@ee.doe.gov

Visit our home page at www.oit.doe.gov

Office of Industrial Technologies
Energy Efficiency and Renewable Energy, EE-20
U.S. Department of Energy
Washington, DC 20585-0121

DOE/GO-102001-1356
August 2001