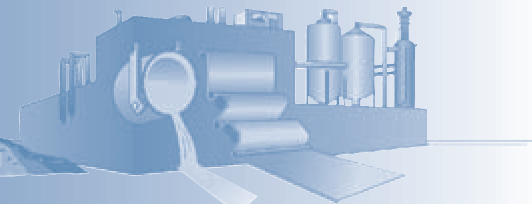
"TURNING INFORMATION INTO ENERGY SOLUTIONS FOR INDUSTRY"

Energy Matters

INDUSTRIAL TECHNOLOGIES PROGRAM



Fall 2004

ISSUE FOCUS:
Tips to Save Energy

IN THIS ISSUE

Industrial Assessment Centers alumni offer employers highly marketable skills (page 6)

20 Ways to Save Energy Now

Energy costs can have a significant effect on your plant's bottom line. Volatile natural gas prices in the recent past have made it even more important that energy be used efficiently and effectively.

Below, you'll find 20 steps you can take in the next year at little or no cost, and mostly using in-house expertise.

You'll also find Web links listed on the next page to help you research topics related to natural gas prices, consumption, and forecasts, all available from the DOE's Energy Information Administration.

20 Ways to Save Energy

All Combustion Systems

1. Operate furnaces and boilers at or close to design capacity.
2. Reduce excess air used for combustion.
3. Clean heat transfer surfaces.
4. Reduce radiation losses from openings.
5. Use proper furnace or boiler insulation to reduce wall heat losses.
6. Adequately insulate air or water-cooled surfaces exposed to the furnace environment and steam lines leaving the boiler.
7. Install air preheat or other heat recovery equipment.

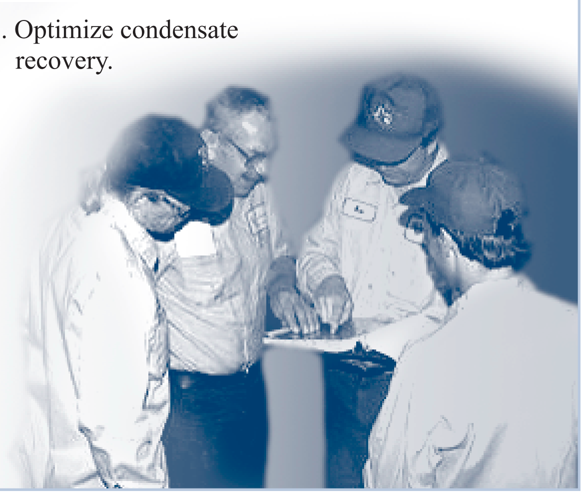
Steam Generation Systems

8. Improve water treatment to minimize boiler blowdown.
9. Optimize deaerator vent rate.
10. Repair steam leaks
11. Minimize vented steam.
12. Implement effective steam trap maintenance program.
13. Use high-pressure condensate to make low-pressure steam.
14. Utilize backpressure turbine instead of pressure-reducing or release valves.
15. Optimize condensate recovery.

Process Heating Systems

16. Minimize air leakage into the furnace by sealing openings.
17. Maintain proper, slightly positive furnace pressure
18. Reduce weight of, or eliminate, material handling fixtures.
19. Modify the furnace system or use a separate heating system to recover furnace exhaust gas heat.
20. Recover part of the furnace exhaust heat for use in lower-temperature processes.

To learn more, visit the Energy Savers Web site at
http://www.eere.energy.gov/consumerinfo/industry/.



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U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Energy Matters

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For address/subscription changes, please visit www.oit.doe.gov/bestpractices/energymatters/energy_matters.shtml

Where to Look for Natural Gas Information

The U.S. DOE's Energy Information Administration is a one-stop source for widely used energy information. EIA has four types of information products: Energy data, analyses, forecasts, and descriptive information telling you more about each of its products. Many products, such as the *Petroleum Supply Monthly*, deal with specific industries. Of particular interest may be products containing data on fuel types presented in an integrated manner. Some key publications that present this kind of integrated information are the *Monthly Energy Review*, the *Annual Energy Review*, the *Short-Term Energy Outlook*, and the *Annual Energy Outlook*.

EIA forecasts cover all energy types, and include forecasts of supply, consumption, prices, and other important factors. The EIA publishes short-term forecasts that consider conditions 6 to 8 quarters in the future, and a midterm forecast that goes out 20 years. Some of the EIA forecasting models are available on its Web site. Here are some useful links that you can begin using right away:

- **Energy Information Administration Home Page** http://www.eia.doe.gov
- **List of Products Available on the Web** http://www.eia.doe.gov/bookshelf.html
- **Alphabetical Guide to Data and EIA Products** http://www.eia.doe.gov/fueloverview.html
- **EIA Information Center** infoctr@eia.doe.gov
- **Information Center Services** http://www.eia.doe.gov/neic/neicservices.htm
- **Webmaster** wmaster@eia.doe.gov

You can also receive e-mail notification about updated data and newly released reports. For this service visit http://www.eia.doe.gov/listserv-signup.html. Or, you can call the EIA for help at 202-586-8800.

Compressed Air System Retrofit and Improvement Yields Energy Savings at a Foundry

In 2002, engineers at Techni-Cast's foundry in Southgate, California, implemented a retrofit project on the foundry's compressed air system based on a review of the system by DOE Allied Partner, Accurate Air Engineering. The project involved retrofitting the compressed air system with more appropriately sized compressors, upgrading the compressor controls, and replacing the existing condensate drains with more efficient, zero-loss models. The foundry's engineers also investigated and specified the proper pressure levels for all end-use applications, repaired leaks, and cleaned the dryer's coalescing filter.

Altogether, these measures improved the system's efficiency so much that the foundry was able to reduce its online compressor capacity by 50% without any decline in production. The annual energy and maintenance savings from the project are 242,000 kilowatt-hours (kWh) and $24,200. By implementing the project, the plant qualified for a $10,000 incentive payment from the California Public Utilities Commission. This incentive reduced the project's total cost from $38,000 to $28,000, yielding a 14-month simple payback.

Optimizing industrial compressed air systems can be best accomplished using a systems approach. Equipment replacement and reconfiguration of components can help, but both types of measures need to be integrated into a system-level strategy to maximize energy efficiency. In the case of Techni-Cast, a system-level evaluation and strategy allowed the foundry to determine the most optimal compressed air system size and configuration that would efficiently satisfy the plant's production requirements. By configuring the system to have the lowest compressor capacity that meets production requirements, the Southgate foundry increased its compressed air system's efficiency and realized significant energy savings. This approach to optimizing a compressed air system's efficiency can easily be replicated in all types of industrial manufacturing sites.

Techni-Cast's new 50-hp compressor

Plant-Wide Energy Assessment Saves Electricity and Expenses at Glass Manufacturer

Anchor Glass Warner Robins, Georgia, and Jacksonville, Florida plants revealed opportunities that could result in significant annual energy savings. The assessment team estimated the total potential savings at approximately 220,000 million British thermal units (MMBtu) per year for fossil fuels, and approximately 4 million kilowatt-hours (kWh) per year for electricity, if all projects were implemented. The associated capital required to achieve the fossil fuel savings was estimated at approximately $800,000, while that required to achieve projected electricity savings was estimated at $250,000. Average simple payback periods calculated for the primary recommendations ranged from 1 to 2 years.

Anchor Glass Container Corporation is the third largest manufacturer of glass containers in the United States. Anchor produces a diverse line of flint (clear), amber, green, and other colored glass containers of various types, designs, and sizes. The company manufactures and sells its products to many of the leading producers of beer, liquor, food, tea, and other beverages. Because glass production takes so much energy, all of the company's manufacturing facilities personnel must be aware of energy efficiency and energy cost reduction measures for Anchor to remain competitive in its markets.

The team conducted assessments of the Anchor Glass facilities in Warner Robins and Jacksonville. The Warner Robins facility has two furnaces and eight bottle-forming machines that produce over 4 million bottles per day, approximately 360 days a year. The 860,000 square foot plant is comprised of 336,000 square feet for bottle production and packing, 500,000 square feet for the finished goods warehouse, 12,400 square feet for plant utilities and support areas, and 19,000 square feet for office and miscellaneous space. Typical electric and gas loads are approximately 12.5 megawatts and 4 million cubic feet per day, respectively. The Jacksonville plant has been reduced in size in recent years and consequently consumes approximately half as much energy as the Warner Robins plant. Both facilities produce similar products. The principal materials used in Anchor's manufacturing facilities are sand, soda ash, limestone, cullet, and various corrugated packaging materials.

Assessment Overview

Anchor's furnaces, which are primarily gas-fired with electric booster heat, melt more than 800 tons of glass per day. The furnaces are equipped with heat recovery regenerators that recover a portion of the waste energy from the 2,800° F furnaces using a cycling airflow system. Fluctuations in the temperature differential between the heat recovery masses and the air streams during each 20-minute cycle limit the effectiveness of the heat recovery process. In addition to the furnaces, equipment that uses notable quantities of electricity include air compressors and vacuum pumps (7,900 horsepower (hp) total, typically 6,050 hp operating), cooling and furnace air blowers (3,200 hp total), and lighting. The cooling water system, conveying and packing machinery, raw materials handling equipment, and a limited amount of space conditioning equipment also consume energy.

The assessment review team consisted of representatives from Anchor Glass Container Corporation's Warner Robins and Jacksonville plants and from Sterling Energy Services, LLC. The Industrial Technologies Program cosponsored the assessment and supports plant-wide energy efficiency assessments that will lead to improvement in industrial efficiency, waste reduction, productivity, and global competitiveness.

Assessment Implementation

The Anchor assessment team used a systems approach to conduct a comprehensive plant-wide energy efficiency review. The team identified, evaluated, and prioritized opportunities for energy savings. Maintenance and operating procedures were also reviewed for their impact on energy efficiency. Although the Warner Robins plants was given priority for the assessment, a more limited review of the Jacksonville plant was conducted to assure effective benchmarking of Anchor's plants. Three areas were considered in the energy assessment: input to plant processes, plant process efficiency, and process outputs including waste and heat products.

The team completed a detailed audit of plant facilities, with emphasis on processes and systems determined to have the greatest energy savings potential. These processes and systems include:

- Cogeneration—Installation of gas turbines with waste heat recovery systems
- Waste heat recovery—Recovery and reuse of waste heat from furnaces
- Motor analysis—Motor efficiency improvements
- Compressed air systems—Operations and maintenance, leakage, improper use, and distribution and storage of compressed air systems
- Lighting systems—Cost-effective lighting improvements

(continued on page 4) ►

Anchor Glass Potential Energy Savings Summary

Action	Energy Savings Estimate	Simple Payback on Capital Required (years)
Increased heat recovery	220,388 MMBtu/yr	1
Compressed air	2,056,250 kWh/yr	1.2
VSD cooling water pumps	524,600 kWh/yr	1.8
VSD furnace air blowers	808,400 kWh/yr	1.7
VSD machine cool blowers	560,720 kWh/yr	1.8

Plant-Wide Energy Assessment Saves Electricity and Expenses at Glass Manufacturer (continued from page 3)

- Variable Speed Drive (VSD) analysis—Installation of VSDs on selected process equipment, particularly blowers.

The accompanying table summarizes selected examples of energy savings that the team identified in the plant-wide assessment for both the Warner Robins and Jacksonville plants.

Thermal Cycle Efficiency Improvement Options

Tremendous amounts of heat energy are required in the glass manufacturing process to melt and refine the raw glass material. At Anchor, this heat is introduced to the glass furnace in two ways: direct natural gas or other fuel firing over the glass melting tank, and electric booster heat arcing between electrodes immersed in the glass melt. Direct firing uses lower-cost fuels, but the over-melt firing process is much less efficient, at 50% to 60%, in delivering heat to the melt. While the electric arc is practically 100% efficient in delivering heat to the glass melt, the cost of the electricity is high relative to other fuels.

To recover some of the heat lost through the inefficiency of the direct firing process, the glass furnaces use checker brick regenerators to capture and return some of the waste heat. The regenerators are characterized by their fluctuating effectiveness over the charge/discharge cycle. The regenerators are more effective at the beginning of the cycle because of greater air/regenerator temperature differences, but performance decreases significantly toward the end of the cycle. The effectiveness of the regenerators aside, a significant amount of heat is lost up the stack, providing an opportunity to further improve the process efficiency.

Possible approaches to improving the efficiency of the glass melting process include:

- Generate steam from the stack gas waste heat to drive a turbine.
- Recover stack gas waste heat into the incoming air through air-to-air or intermediary heat exchangers.
- Optimize charge/discharge cycle times to improve the generator effectiveness.

The team considered recovery of the waste heat from the furnace stacks, either to produce steam driving a turbine-generator and/or to preheat incoming furnace combustion air. Analysis showed the best way to recover this energy is by incorporating an air-to-air heat exchanger that would transfer part of the heat between the air streams exiting and entering the regenerators. The team also identified an opportunity to improve the regenerators at the Warner Robins plant by modifying or repairing them if necessary, and possibly incorporating shorter cycle times to optimize their heat recovery.

Compressed Air System Efficiency and Improvements

The Anchor plants use significant amounts of compressed air at two different pressures in their container production processes. High-pressure air (~100 pounds per square inch—psi) is used for operating typical air-powered controls and tools, while low-pressure air (~50 psi) is used in the bottle-blowing process machinery. The Warner Robins plant has a flow rate of approximately 16,000 cubic feet per minute (cfm) of high-pressure air; the Jacksonville plant has a flow rate of about 11,000 cfm.

The energy assessment revealed that the high-pressure system operates at between 97 and 103 psi in the compressor room at the Warner Robins plant. A refrigerated dryer rated at 11,000 cfm provides air-drying. The air supply in the plant supply header ranges from 82 to 85 psi. A limited inspection estimated that air leaks account for more than 20% of total air consumption; thus, renewed efforts were recommended to reduce or eliminate leaks to minimize air use.

The high volume of airflow causes a high-pressure drop through the air dryer. This accounts for most of the pressure drop from the compressor discharge headers to the plant supply header. In addition, the dryer is incapable of properly drying the total flow; the purchase of a replacement dryer is under consideration.

A significant opportunity exists to improve the efficiency of the high-pressure system. Among the recommended improvements are:

- Remove system bottlenecks and add a higher-pressure storage system to reconfigure the compressor room to a lower supply pressure.
- Provide advanced system controls to optimize compressor operations and energy efficiency.
- Reduce leaks in the system to lower the flow requirements.

Adding the recommended higher-pressure air receiver storage capacity will allow sufficient air storage so that a trim compressor can totally shut down for 10 to 20 minutes when unloaded, rather than cycling between loaded and unloaded cycles.

Motor Management and Efficiency

Review of the application and operation of electric motors resulted in the following recommendations:

- Economic guidelines should be in place so that initial cost does not drive repair versus replace decision-making.
- Larger motors that are sometimes underloaded for their application and are less efficient should be replaced with premium efficiency motors when a payback of 2.5 years or less is possible.

Inlet line to air compressor

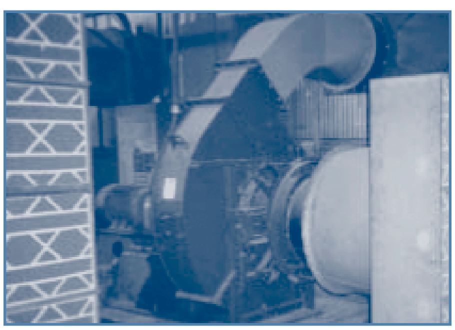
- Develop an overall motor inventory and replacement plan.
- Energy-efficient motors should be used for all new or replaced motors where expected annual operating time will be greater than 4,000 hours.

Pump and Blower VSD Application

The Warner Robins and Jacksonville plants use pumps and blowers for various process functions, but three general applications were considered in the assessment: cooling water pumping, process cooling blowers, and furnace air blowers. These pumps and blowers currently run at constant speed, with either no flow control or with valves for pumps and variable inlet vanes for blowers.

Recommendations include:

- Consider using VSDs on the cooling tower water pumps to control pump speed and to modulate tower water flow and pressure.
- Consider using VSDs on the glass furnace air and stack draft blowers to control blower speed as a means of modulating airflow.
- Consider using VSDs on the glass forming and hot glass handling machinery air cooling blowers to control blower speed as a means of modulating air flow.



High-pressure blower for mold cooling air

Plant Lighting

Recommendations for improvements in efficiency of plant lighting systems include:

- Provide for expanded use of natural light
- Where convenient, consider converting the plant's outdoor lighting from utility-supplied lighting to wall packs or plant-supplied lighting
- Install motion sensors in equipment rooms, warehouse facilities, and other plant areas that are not frequently occupied
- Have lighting performance contractors conduct no-cost reviews of plant lighting to identify possible improvement opportunities.

Plant Energy Purchase Optimization

With the extreme volatility of natural gas and electricity prices, the assessment team evaluated the potential for fuel substitution, including load management on the electric boost in conjunction with real-time electricity prices and operational considerations. Break-even guidelines were recommended for consideration of energy purchase optimization and fuel substitution to permit better management in volatile markets.

To learn more about the plant-wide assessment program, visit the plant-wide assessment Web page at http://www.oit.doe.gov/bestpractices/assessments.shtml or contact the EERE Information Center at 1-877-EERE-INF (1-877-337-3463).

Questions Answered by the DOE's EERE Information Center

DOE's EERE Information Center has helped thousands of industries identify cost-effective ways to improve energy efficiency, such as the solutions provided below. Through the Information Center, industries and industrial service providers can access Industrial Technologies Program resources to help make their industries more energy-efficient, productive, and competitive.

The Information Center can help you find resources such as publications and software tools, as well as information about working with ITP and cost-sharing opportunities. If you are working on large industrial energy efficiency projects, the Information Center's engineering staff can provide you with technical assistance on motor, steam, compressed air, pumping systems, and more. Contact the EERE Information Center at 877-EERE-INF (877-337-3463) or at eereic@ee.doe.gov, or go to http://www.eere.energy.gov/industry/ for more information.

Q: We use 100 pounds per square inch gauge (psig) steam with serpentine coils to heat several open tanks (some contain phosphoric acid, some nitric acid, and some caustic). At present the hot condensate is dumped to the sewer because of the potential for acid to contaminate the boilers from leaks into failed coils during shutdowns.

What technology could you suggest that would allow us to reliably return condensate to the boilers? Total condensate return would be about 3,000 pounds per hour.

A: Several companies make equipment trains that are specifically designed to maximize the return of potentially contaminated condensate. A "contaminated condensate detection system" or "clean condensate" module monitors the conductivity and pH of condensate being returned to the boiler and diverts contaminated condensate to the drain. The system involves the use of a controller, which compares readings against preset values. Condensate is returned to the boiler when it is within specifications. When controller setpoint values are exceeded, a three-way valve on the condensate return line is actuated to dump condensate to the sewer or to a neutralization tank.

Contaminated condensate return systems have been installed in food processing and chemical plants. Note that condensate can be monitored for hydrocarbons, pH, conductivity, oil, and/or turbidity. A certain amount of pre-engineering is required to adapt clean condensate equipment modules to a given site. Automatic dump systems must be designed and installed properly to effectively detect and reject contaminated condensate. Potential design issues include sampling line length, sample cooling requirements, and adjustments to sampling instruments to accommodate pressurized condensate return lines. The installation of condensate filters or polishers might also be considered.

Diversion valves must be periodically exercised and condensate monitors calibrated to ensure that they are functioning properly. Maximizing the return of hot condensate reduces fuel costs and improves boiler efficiency. Assuming year-round operation, a boiler efficiency of 80%, a condensate temperature of 180ºF (enthalpy of 148 British thermal units per pound—Btu/lb), and a makeup water temperature of 55ºF (23 Btu/lb), the return of 3,000 lbs/hour of condensate provides annual energy savings of:

3,000 lbs/hr x (148-23 Btu/lb) x 8,760 hrs/yr / (1,000,000 Btu/MMBtu x 0.8) = 4,106 MMBtu/yr

The energy savings is valued at $24,636 annually given a natural gas cost of $6.00/MMBtu.

Q: Is there a technology for recovering energy from compressed gases? We operate six centrifugal compressors to provide 125-psig air for our processes.

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Ask the EERE Info Center

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The reactors consume oxygen and produce a waste gas stream at a pressure of 45 psig. The composition of the waste gas is mainly nitrogen. The waste gas currently goes through a letdown valve, then is routed through a thermal oxidizer to eliminate hydrocarbons, and then released to atmosphere.

A: Several companies can provide turboexpanders that are designed to recover power from pressure letdown stations. In a turboexpander, the compressed gas undergoes isentropic expansion in a single-stage radial turbine. The extracted shaft power is available to drive an electrical generator. Turboexpanders are often used in the hydrocarbon gas processing and petrochemical industries. Turboexpanders are readily available in the 500 kW to 10 MW size range and can be designed to work with hydrocarbons, carbon monoxide, nitrogen, hydrogen or other gases.

Turboexpander manufacturers can provide curves for various gas mixtures that provide the recoverable power (in kW) as a function of expander pressure ratio and gas flow rate . Turboexpander manufacturers can also estimate the electrical generating capacity or shaft horsepower available and provide a preliminary equipment cost estimate when provided with your inlet gas temperature, flow, composition, and required discharge pressure.

Turboexpanders can be installed at pressure letdown sites, pipeline-to-pipeline pressure reduction stations, on steam boiler and other industrial natural gas supply systems, and in parallel with existing control valves or regulators.

Q: A new process in our plant requires a flow of 100,000 lbs/hour of 15-psig steam. About 45,000 lbs/hour of 15-psig steam is available at various locations throughout the facility. Unfortunately, a pressure drop will occur when the low pressure steam is routed to the point of use. The pressure must be boosted back to 15-psig (or higher) for the steam to be useful for the process. How can we do that?

A: Low pressure steam can be boosted to a higher pressure and temperature with single or multi-stage thermocompressors, mechanical vapor recompressors, or with industrial heat pumps. Thermocompressors are recommended when high pressure motive steam is available and compression ratios are low.

A thermocompressor boosts steam pressure by using a Venturi nozzle in a steam jet ejector. High pressure motive steam expands in a converging-diverging nozzle to convert pressure energy to kinetic energy. Low pressure vent or suction steam is entrained into this velocity jet where mixing occurs. A diffuser portion of the thermocompressor reconverts the kinetic energy of the mixture back into pressure. The intermediate discharge pressure is somewhere between the motive steam pressure and the low pressure suction steam pressure. The actual discharge pressure is determined by the ratio of the pounds per hour of motive steam supplied to the pounds per hour of low pressure suction steam entrained.

For higher pressure boosts, mechanical vapor recompressors are recommended. A vapor recompressor is similar to an air compressor—except the fluid being compressed is steam, not air. Generally, an electric motor

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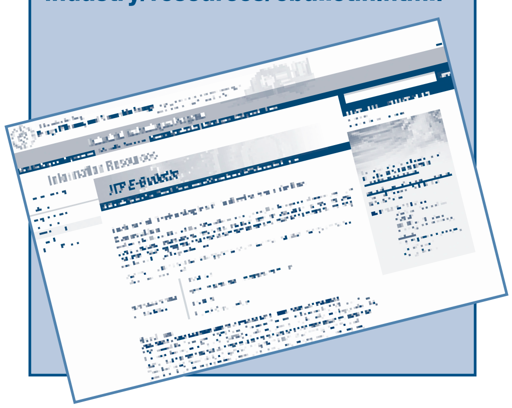
Industrial Technologies E-Bulletin: Your Online Connection

The Industrial Technologies Program E- Bulletin is your online connection to news and resources from ITP. Each monthly edition keeps you up-to-date on key developments and news of interest to industrial partners. Don't miss announcements about new tools and resources, training, events, and project opportunities.

The Industrial Technologies Program E-Bulletin helps you tap into opportunities to improve industrial energy efficiency today and tomorrow! To view the most recent E-Bulletin and sign up to receive future issues, visit **http://www.eere.energy.gov/industry/resources/ebulletin.html.**



Energy Matters EXTRA

There's More to Learn at Energy Matters Extra.

Learn more about the topics covered in this issue of *Energy Matter* by checking out Energy Matters Extra. It's our on-line complement to the print publication. Visit the Energy Matters Extra web site at http://www.oit.doe.gov/bestpractices/energymatters/emextra/.

Alumni Profiles Show How Employers Benefit from IAC Student Experience

The Industrial Assessment Centers (IAC) provides small- and medium-sized manufacturers with no-cost assessments of their plant's energy, waste, and productivity efficiency, followed by recommendations for specific cost savings.

The assessments are conducted by engineering faculty and students of IACs hosted by 26 universities across the United States. The Industrial Technologies Program sponsors the Centers as part of its efforts to transfer energy-efficient and environmentally sound practices and technologies to U.S. industry.

The Centers benefit many parties, but perhaps the greatest long-term benefit is the effect on engineering students who use the skills learned from their IAC experience in their careers. IAC alumni get choice jobs and employers gain highly experienced and competent employees.

Profiles on three IAC alumni are now available at the Center Student Forum Website, www.iacforum.org. More alumni profiles will be written in the coming months. In these first profiles, you'll meet Judy Dorsey, Julie Sieving and Eric Ruffel, from Colorado State University.

Eric credits the Center with helping him receive four competing job offers on graduation and land the exact job he wanted. Working on more than 40 industrial site assessments during his three years with the Center gave him practical experience few other first-year employees could match.

Judy has parlayed her IAC training into 12 years experience in pollution prevention and sustainable design, as well as 7 years of project management expertise. Judy owns and operates her own engineering consulting

(continued on page 7)

Alumni Profiles

(continued from page 6)

business. And Julie, who works with Judy, participated in 30 assessments, giving her the kind of hands-on experience employers want.

Since its inception in 1976, more than 2,000 students have participated in the IAC program. Currently, about 250 students are trained each year. The training each student receives augments his or her traditional engineering education. Prior to their first industrial assessment, students are trained in assessment methodologies, instrument use, safety, and common industrial energy uses, such as air compressor systems, motors, boilers and steam systems, pumping systems, and lighting. Potential energy-conserving and cost-saving recommendations are highlighted and methods to estimate the potential conservation and cost savings are presented.

IAC alumni Julie Sieving collects data during an energy assessment performed by the Brendle Group.

Ask the EERE Info Center

(continued from page 6)

provides the energy necessary to raise the pressure, temperature, and enthalpy of the suction steam.

Mechanical vapor recompressors are engineered pieces of equipment. They are not available "off-the-shelf". Recompressors are generally built up from existing components that are "fit" onto existing designs. Companies that make large rotating equipment such as steam turbines, backpressure turbines, and turboexpanders can design and supply mechanical vapor recompressors. For additional information, download the Steam Tip Sheet "Use Vapor Recompression to Recover Low-Pressure Waste Steam" at http://www.oit.doe.gov/bestpractices/pdfs/vapor_recompression.pdf (200k Adobe® Acrobat® .pdf).

Steam System Assessment Tool Version 2.0.0 Now Available

The Industrial Technologies Program announces the newest version of the popular Steam System Assessment Tool (SSAT). Now SSAT Version 2.0.0 is a more powerful tool that allows steam analysts to develop approximate models of real steam systems. Using these models, the SSAT can be applied to quantify the magnitude—in terms of energy, cost, and emissions savings—of key potential steam improvement opportunities. SSAT contains the main features of typical steam systems. If you are an engineer who operates and improves steam systems, SSAT Version 2.0.0 can help you better manage these systems.

SSAT Version 2.0.0 includes several major software improvements and corrections to known problems in the original Version 1.0.0. New features and capabilities include:

- A steam demand savings project that allows you to model the impact of steam process use savings on overall steam savings
- New capabilities to model a user-defined fuel
- A new worksheet to calculate boiler stack losses for the SSAT fuels
- A boiler flash steam recovery project to model directly into the deaerator (1-header model only)
- Improvements to steam traps modeling so that trap losses are not included in the specified steam demand.

Download SSAT Version 2.0.0 free of charge from ITP's BestPractices Web site. If you have SSAT Version 1.0.0 installed, we recommend you perform a complete update to the new version.

To install SSAT Version 2.0.0, simply download the file "SSATv2_Setup.exe" to your computer, double click on the file, and follow the on-screen instructions. Installing SSAT Version 2.0.0 will not erase any software templates you have previously created. Or, you can continue to use Version 1.0.0, but load the new software template files and save them in your existing SSAT "Templates" folder. The SSAT Version 2.0.0 Users Guide is also available for download.

Learn more about this tool and other ITP BestPractices resources, training, and system improvement opportunities on the Web site at http://www.oit.doe.gov/bestpractices. You can also contact the Energy Efficiency and Renewable Energy Information Center at eereic@ee.doe.gov or 877-337-3463 (877-EERE-INF) for assistance and to find out how ITP and BestPractices can help your company improve energy efficiency and the bottom line today!

ENERGY MATTERS GOES ELECTRONIC!

The content is the same, it publishes just as often and it's still yours for the asking. The all-electronic version of ***Energy Matters*** makes it even easier for you to stay current on the latest energy efficiency topics from the Industrial Technologies Program. By converting your subscription to our all-electronic version, we'll send you an e-mail when the newsletter is published and provide a clickable link to the newest issue! Plus, you'll enjoy full access to the ***Energy Matters*** article library, putting its archive of energy efficiency information is just a mouse-click away! Sign up today at http://www.oit.doe.gov/bestpractices/energymatters/energy_matters.shtml

Coming Events

Pumping System Assessment, Salt Lake City, UT
- Jan 06, 2005 — For more information, contact Patti Case at plcase@etcgrp.com or 801-278-1927

Motor Systems Management, Little Rock, AR
- Jan 20, 2005 — For more information, contact Maureen Rose at roserose@bcglobal.net or 501-455-4057

Steam System Specialist Qualification, Downey, CA
- Jan 25-27, 2005 — For more information, contact Tony Wright at wrightal@ornl.gov or 865-574-6878

Fundamentals of Compressed Air Systems (Level 1), Dallas, TX
- Jan 25, 2005 — For more information, contact Kathey Ferland at kferland@mail.utexas.edu or 512-232-4823

Steam System Assessment, Portland, OR
- Mar 10, 2005 — For more information, contact Robert Guide at rgguide@adelphia.net or 360-577-1124

BestPractices

The Industrial Technologies Program's BestPractices initiative and its *Energy Matters* newsletter introduce industrial end users to emerging technologies and well-proven, cost-saving opportunities in motor, steam, compressed air, and other plant-wide systems.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

EERE Information Center

Do you have questions about using energy-efficient process and utility systems in your industrial facility? Call the Energy Efficiency and Renewable Energy (EERE) Information Center for answers, Monday through Friday 9:00 a.m. to 7:00 p.m. (EST).

HOTLINE: 877-EERE-INF or 877-337-3463

DOE Regional Office Representatives

- David Godfrey, Atlanta, GA, 404-562-0568
- Stephen Costa, Boston, MA, 617-565-1811
- Brian Olsen, Chicago, IL, 312-886-8479
- Jamey Evans, Denver, CO, 303-275-4813
- Chris Cockrill, Seattle, WA, 816-873-3299
- Bill Orthwein, Philadelphia, PA, 215-656-6957

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

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