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OIT's BestPractices resources—near-term antidote for rising energy bills



To exploit the synergies of its motor, steam and compressed air "Challenge" programs, OIT has combined and expanded these efforts into its new

BestPractices program. This provides plant operators access to an even more comprehensive energy-saving, productivity-enhancing resource.

"Through Motor Challenge and the other Challenge programs, we found that many successful plants are concerned primarily with day-to-day operations and don't always stop to examine their energy usage for longer term cost-savings," explained Denise Swink, DOE's Deputy Assistant Secretary for Industrial Technologies. "We've created BestPractices to help make it easier and more cost-effective for them to systematically assess their energy usage plant-wide, and make changes that can have a near-term, major impact."

Indeed, because the energy-savings opportunities inherent in the new plant-wide energy systems approach espoused by BestPractices are so compelling, **we've devoted most of this issue of *The OIT Times* to this promising new program.**

"At each plant, our people helped identify motor system optimization opportunities that could reduce energy consumption by 10-20%, sometimes as much as 50%," said Swink. Potential energy savings in other systems areas are equally impressive, with energy saving opportunities related to steam systems in the 30-40% range, and optimization of compressed air systems delivering energy cost savings of 20-50%.

In addition to combining the expertise of the three former Challenge programs, BestPractices (BP) also aligns itself more closely with the R&D efforts of OIT's nine industry-specific partnerships. This ensures that plant assessors have up-to-the-minute knowledge of the energy-saving emerging technologies being developed with OIT support, and helps give OIT's partners advance notice when an opportunity to apply one of these newly emerging technologies is identified. Partnering plants can also participate in technology demonstration and validation efforts, gaining advantage as early adopters (see page 11).

Manufacturers interested in benefitting from a plant-wide energy assessment are invited to submit a 50/50 cost-sharing proposal (see page 3). Smaller manufacturers (plants with less than \$100 million in sales and less than 500 employees) may also benefit from a no-cost in-plant energy assessment performed by one of OIT's Industrial Assessment Centers—which are also working more closely with BestPractices (see page 7). Typical plant savings identified through these university-led assessments average \$55,000/year.

In addition to assessments, plants can benefit from a wide variety of no-cost BestPractice tools that can help them secure energy savings on their own (see page 10). These include innovative software packages such as the MotorMaster Plus motor management package, and 3EPlus for optimization of boiler efficiency. Other valuable BestPractices resources include access to a database of 42,000 plant efficiency recommendations, detailed case studies and much more.

"BestPractices provides truly integrated delivery of all the energy-saving products,

(continued on page 6)



Steel

Pittsburgh event showcases several BestPractice successes



In May, “A Celebration of New Steel—The Pittsburgh Regional Technology Showcase” demonstrated several energy efficiency and productivity advancements now benefiting the **Steel** industry. The showcase featured plant tours and technical sessions to better inform participants about technologies and practices now available for improving energy efficiency. A major contributor to the success of the Pittsburgh Showcase was the demonstration of three **BestPractice** case studies. Each case study shows how improved energy management practices can contribute directly to improved efficiency and cost savings in the steel industry.

One of the BestPractice case studies demonstrated was Weirton Steel Co.’s completely overhauled compressed air system at its tin mill. An assessment by Ingersoll Rand Co. revealed that excessive oil and moisture were contained in the compressed air being delivered by the system and indicated that aging compressors were not operating efficiently due to excessive leaks. The mill exchanged the old compressors with five 350-horsepower rotary screw compressors that supply approximately 8500 scfm at an optimum pressure level of 90 psig. The compressors were also sequenced to respond more appropriately to fluctuating system demand. The mill estimates that it will save \$60,000/year in energy costs as well as \$76,000/year on repair and maintenance costs—thus paying back Weirton’s investment in just 1.8 years.

In another BestPractice case study, Weirton Steel upgraded its energy utility control system. The firm con-

ducted an extensive study that led to replacing its antiquated utility control equipment with a central computer-controlled energy management system. The new control system has improved the efficiency of both the plant’s steam and electrical generating facilities, and has enabled the firm to save over \$17 million annually in fuel and maintenance costs—an 11 month payback.

In addition, the new control system provides new statistical and reporting capabilities that enable the plant to identify many additional energy savings opportunities.



Weirton Steel’s WV plant.

Coke oven gas (COG), a by-product of coke manufacture, has traditionally been used as a fuel in steel mill coke ovens, boilers and reheat furnaces. In a third BestPractices case study for the steel industry, U.S. Steel became the first domestic steel company to successfully use COG as a *blast furnace* fuel at one of its mills—replacing natural gas and thereby saving energy and reducing costs. The firm thoroughly cleans the gas, boosts its pressure and uses a modified blast furnace tuyere (nozzle). Natural gas continues to be used but as a supplementary fuel. The \$6 million investment to implement the COG blast furnace gas project resulted in \$6.1 million in annual savings for a simple payback of just under one year.

Aluminum

Plant-wide assessment saving \$1 million



A **BestPractices** plant-wide energy assessment at Alcoa’s Lafayette, IN plant is proving to have outstanding benefits for the firm.

Energy savings opportunities uncovered promise to save Alcoa over \$1 million. The firm plans to extend many of the lessons learned at its Lafayette mill to its other aluminum plants. OIT’s Industrial Assessment Center at Colorado State Univ. conducted an energy audit at Alcoa’s Spanish Fork, UT plant as a possible prelude to an energy efficiency BestPractices showcase at the plant in the future.



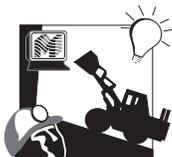
Alcoa’s Mt. Holly, SC plant.

The Alcoa plant in Mount Holly, SC discovered new ways to operate four pot line dust collection systems at lower flows and head without affecting the performance. Alcoa teamed up with Jacobs-Sirrine Engineers to demonstrate the systems performance as a BestPractice case study. The team conducted a field test and measured fan speed, air temperature, air flow, static pressure, and fan

motor power consumption. The project resulted in a reduction of 382 kW that translates into annual energy savings of about 3,350,00kWh, nearly 12% less than the original system.

Mining

Partnering with industry groups to deliver energy efficiency solutions



OIT's **BestPractices** Team has been working side-by-side with its **Mining** Team and various trade/technical associations. The Team has made presentations to the National Mining Assoc. on available tools and resources

from the program. Software demonstrations of MotorMaster+ and Pumping System Assessment Tool have also been made at various mining industry conferences and shows. At a technical session on mine ventilation at the Society of Mining Engineering annual meeting, Best Practices staff presented a paper titled "Energy Efficiency of Motor Drive Systems in the Mining Industry." The staff also participates in the Underground Ventilation (UVC) technical committee of SME. The UVC holds its meetings at SME annual meetings and also at the Mine Ventilation Symposium. The staff along with other industry personnel authored a paper on "Increasing the Energy Efficiency of Mine Ventilation Systems" and

presented it at the 8th US Mine Ventilation Symposium last year.



Coal slurry pumping system.

In a BestPractices case study, Peabody Holding Co. has successfully improved the performance of a coal slurry pumping system at its Randolph coal preparation plant. The project identified three energy-saving opportunities involving the motor, belt drive, and pump components of the pumping system. Peabody also discovered that the cyclone pump system was larger than needed to meet system requirements. To solve this problem, the team simply modified the system by using a smaller pump which would output a more accurate match to the system flow requirements. The modifications saved 87,184 KWh of electricity valued at more than \$5,000 annually, and overall energy use of the pumping system decreased by about 15%.

Second round of plant-wide energy assessments announced

OIT recently announced the winners of its second round of "plant-wide energy efficiency assessments." The winners are listed in the table below. The assessments will evaluate a variety of energy efficiency opportunities in steam systems, electric-motor systems, compressed air systems, heat exchange networks, combined heat and power systems and so on. The assessments will evaluate energy efficiency opportunities using process engineer-

ing and best practice analysis techniques. OIT and the participants will share the cost of the assessments (estimated at \$150,000 per plant) on a "50-50" basis.

Plants were selected based on proposals received in response to a solicitation that OIT ran earlier this year. Each proposer was evaluated on demonstrated technical proficiency and core competency in the implementation of a comprehensive plant-wide systems approach to increase energy efficiency and reduce environmental emissions.

OIT hopes that the results from these assessments will encourage other energy-intensive U.S. companies to replicate this approach to improving energy efficiency. Hence, OIT will publish and widely distribute the completed assessments in order to help inform industry about the benefits of using a plant-wide approach to energy efficiency and how to do this.

Company	State	Industry
Utica Corp.	New York	Forging
Metlab Corp.	Pennsylvania	Metals/ Heat Treating
AKZO Nobel	Illinois	Chemicals
Appleton Papers	Ohio	Forest Products
Anchor Glass	Georgia, Florida	Glass
Paramount Petroleum	California	Petroleum
Weyerhaeuser	Washington	Forest Products



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Metalcasting ***Ohio foundry showcases energy efficiency***

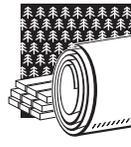


The Amcast **Metalcasting** plant in Wapakoneta, OH was one of the charter plants to undertake a BestPractices plant-wide energy efficiency assessment last year. The assessment is evaluating energy efficiency opportunities using process

engineering and best practice analysis techniques. OIT hopes that the results from the assessment will encourage other metalcasters to replicate this approach to improving energy efficiency. OIT plans to publish and widely distribute the completed assessment in order to help inform the industry about the benefits of using a plant-wide approach to energy efficiency and how to do this.

Several other energy management BestPractices were on display at an OIT-sponsored technology showcase at Lester Precision Die Casting Co.'s Twinsburg, OH, facility a few months ago. The showcase gave participants the opportunity to partake in plant tours as well as poster presentations. It also demonstrated that the OIT's integrated delivery strategy is helping industry improve efficiency and productivity through all facets of manufacturing and plant operations. For example, Lester highlighted energy-saving technologies and processes implemented as a result of an OIT-sponsored energy audit, one of OIT's many BestPractice resources.

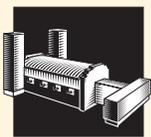
Forest Products ***Showing "how" in motor efficiency***



Four winners of **BestPractices'** plant-wide energy efficiency assessments were selected from the **Forest Products** industry last year. Selected plants included (1) Caraustar Industries; (2) Inland Paperboard and Packaging, Inc.; (3) Georgia-Pacific Corp. Palatka, FL mill; and, (4) Boise Cascade International Falls, MN mill. Caraustar Industries proposed a study on the "Comprehensive Energy Efficiency Assessment" at 2 of its recycled paperboard plants. Inland Paperboard and Packaging, Inc., proposed for a study on "Energy Reduction through Water Minimization." Georgia-Pacific Corp. proposed a study on "Energy Optimization Analysis." The Boise Cascade International Falls mill proposed a study on water conservation.

A **BestPractices** plant-wide assessment was recently completed at the Inland Paper Co. plant in Rome, GA. The assessment should help Inland save energy while reducing steam and fresh water usage. Implementation of the assessment results will decrease the rate of steam use by 20% (365,000 lb/hr) and water use by 25% (5000 gallons/minute). Better efficiency in fiber use will result in a 12 ton/day increase in plant productivity. Energy costs could be cut by up to \$10 million/year which would benefit directly Inland's bottom line—the firm's profits totaled \$3.3 million last year.

Glass ***Assistance team to follow efficiency audits***



OIT's **Glass Team** together with faculty and students from Rutgers Univ. and Hofstra completed an **IAC** energy audit at the Leone Industries plant in Bridgeton, NJ. The audit uncovered several potential areas where efficiency improvements could be made including: reducing water level in compressed air systems; eliminating "bleeding" of high pressure air to lower pressure air systems; use of a feedback loop on furnace blowers; proper sizing of cooling towers; efficient sequencing of vacuum pumps; and waste heat use in the forehearth. Representatives of OIT will visit the site in the near future to provide additional technical assistance and suggestions about emerging glass technologies.

OIT sponsored a similar efficiency assessment for Owens Corning fiberglass plant in Amarillo, TX. The assessment may help pave the way for a technology showcase at the plant (see Eric Lightner's editorial on page 11). Among the numerous opportunities for efficiency gains identified in the assessment were: recycling hulls and other waste glass, reducing binder waste, reactivating abandoned recuperators, replacing steam heaters with infrared heaters, and lowering steam pressure. Estimated annual cost savings from the recommendations could reach almost \$3 million with a payback of about 8 months. Representatives of OIT's **BestPractices** team and other programs are planning to provide further technical assistance at this plant as well.

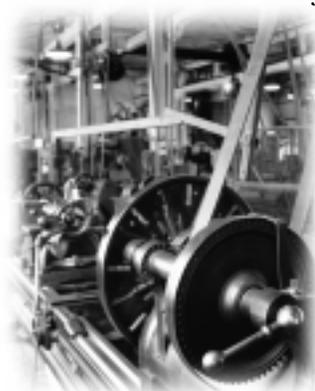
Petroleum

Increased demand for efficiency services expected



Because the **Petroleum** industry is one of the largest users of processed heat and steam, the application of energy management **BestPractices** in the industry could open the door to significant energy and cost savings. Furthermore, as the industry cuts back on its in-house technical support staff, it is increasingly turning to other available resources (such as OIT **BestPractices**) to provide this type of valuable service.

Chevron—the largest U.S. refiner operating six gasoline-producing refineries—has demonstrated the application of energy management **BestPractices** in a major system efficiency improvement project at its Richmond, CA, refinery. With annual electricity costs at the refinery of over \$25 million, Chevron was intrigued when approached with a proposal from Planergy Services, Inc., a nationwide energy services company and a **BestPractices** Allied Partner. Planergy offered to provide variable speed drives and pump upgrades with additional incentives coming from Chevron's local electric utility. Planergy showed that oversized pumps were operating 40% below peak efficiency, resulting in low hydraulic efficiency and excessive vibration. Upgrading the pumps would also contribute to improved equipment reliability and process control. Chevron implemented many of the changes proposed by Planergy, and, as a direct result, the refinery's energy use was reduced by 1 million kWh/month yielding \$700,000/year in cost savings.



Agriculture

Building in energy efficiency from "the ground up"



Cargill Dow recently held a groundbreaking ceremony for its new polylactic acid manufacturing plant in Blair, NE, the biggest single business investment in the state's history. This facility will be the first global-scale factory of its kind for turning plant-derived materials into industrial chemicals and products. NE Governor Mike Johanns, and Jim Stoppert, head of the joint venture, participated. In her remarks, OIT's Denise Swink encouraged Cargill Dow to incorporate world-class energy efficiency technologies and practices in its plant, quite literally from the foundation up.

OIT's **Agriculture** and **Chemical** Teams have brought on board a retired executive to help improve awareness about the many products, services and integrated partnership opportunities available from OIT to help improve energy efficiency in both industries.

Pendleton Flour Mill in Pendleton, OR (one of the winners of the team's first R&D solicitation in FY '99) recently underwent a thorough **Industrial Assessment Center** efficiency audit. This will support the firm's plan to improve energy efficiency and reduce costs.

Chemicals

Energy use: How low can we go?



OIT's **Chemical** team is partnering with AICHE and various chemical companies to establish and document current state-of-the-art energy use in the industry as well as reasonable expectations for energy reductions over the next 20 years for each of the 50 major chemical products. The objective is to determine the practical minimum energy use under three cases: (1) current practice, (2) current best practice considering all available technologies, and (3) and potential future best energy use considering all potential Vision 2020 technologies and practices. The team is developing meaningful and robust decision rules for calculating minimum energy requirements. It will also validate its findings against company knowledge bases and then document the results.

A Rohm and Haas plant in Houston, TX that uses OIT's new Pump Systems Assessment Tool (PSAT) recently completed and

implemented a pump system survey. Jeff Hackworth, plant energy manager, worked closely with OIT's **Chemical** and **BestPractices** Teams on the survey. The PSAT helps users assess the efficiency of pumping system operations. The tool also estimates current system performance. As part of the project, R&H will evaluate potential options to improve pump system efficiency.

An AkzoNobel plant in IL will partner with OIT's **BestPractices** Team in a plant-wide energy efficiency assessment. The assessment will evaluate a variety of energy efficiency opportunities in steam systems, electric-motor systems, compressed air systems, heat exchange networks, combined heat and power systems and so on. The assessment will evaluate energy efficiency opportunities using process engineering and best practice analysis techniques. OIT will share half the cost of the assessment with AkzoNobel. The assessments are designed to improve efficiency, waste reduction, productivity, and global competitiveness.

OIT “materials” programs being realigned to fit IOF model

The Office of Industrial Technologies is integrating two veteran programs Continuous Fiber Ceramic Composites (CFCC) and Advanced Industrial Materials (AIM) into its new **Industrial Materials of the Future (IMF)** program. The new program will operate in the customer-driven manner typical of OIT’s other activities. IMF will conduct a nationwide effort to research, design, develop, engineer and test new and improved materials, as well as discover more profitable uses of existing materials for Industries of the Future.

The new IMF program will fund industry-specific activities, crosscutting activities, and core activities. IMF will also support studies by independent organizations, workshops, review meetings, program planning, analysis and evaluations. As for funding, the IMF initial target is 50% for industry-specific and crosscutting technologies, 35% for core activities, and 15% for directed activities. Projects currently funded by CFCC and AIM programs will experience a transitional period through the year 2004.

In fiscal year 2000, a comprehensive assessment of all existing materials-related projects in OIT will determine time and funding required to conclude them. This will be followed by additional studies by an independent organization to identify and prioritize materials needs from the technology roadmaps in order to determine future directions and priorities for the IMF program.

Two OIT technologies receive “R&D 100” awards for 2000

Two OIT-sponsored technologies recently received the prestigious R&D Magazine R&D 100 Awards. These include:

- ¥ A process to recover and clean flexible polyurethane foam from automobile shredder residue; which, in turn, separates polyurethane foam and cleans it to produce marketable products. This process was developed by Argonne National Laboratory and sponsored by OIT’s **Chemical Team**.
- ¥ Real-Time Biomass Analysis supported by OIT’s **Forest Products Team** and developed by the National Renewable Energy Laboratory. The Real-Time Biomass Analysis improves quality control and optimization in the forest products and paper industries.

continued from page 1

services and technologies that OIT has to offer, and provides substantial opportunity for nearly any manufacturing facility to increase productivity and energy efficiency while reducing waste and cutting rising energy costs,” said Swink.

Also benefitting from **BestPractices** are national industrial associations, private companies, state government agencies, and public organizations (non-profit) who are signed up as Allied Partners. This partnership program establishes a shared, voluntary commitment to promote industrial energy efficiency practices and technologies through publications, software products, training and other outreach efforts (see page 12). A database of more than 200 current Allied Partners is available through the BestPractices website, and more are signing on all the time as BestPractices expands.

“This is an extremely focused and proactive effort designed to achieve results in short order at low cost,” said BP Team Leader Eric Lightner. “We invite manufacturing plants, suppliers and related industry associations to contact us to form win-win partnerships that will help make their performance—and that of American industry in general—more competitive than ever before.”

Links to RFP information and a wide variety of BestPractice tools and information are available at www.oit.doe.gov/bestpractices, or through BestPractices Team Leader Eric Lightner at (202) 586-8130.



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More BestPractices Resources ***Industrial Assessment Centers:*** ***Big help for small companies***

OIT's Industrial Assessment Center (IAC) program provide no cost energy, waste and productivity assessments for small to mid-sized manufacturing plants. To support the BestPractices plant-wide approach, university-based IAC teams conduct one-day site visits to assess manufacturers' current energy-management practices and recommend actions to help maximize energy efficiency, reduce waste and improve productivity within the plant. Within 60 days of the plant assessment, the team sends a report detailing its analysis, findings, and recommendations. On average, recommended actions from an assessment result in annual cost savings of approximately \$55,000. IAC assessment teams also are able to introduce firms being assessed to OIT's full range of available technology and assistance products and services. To determine your plant's eligibility and to learn more about the IAC program, visit www.oit.doe.gov/iac.

States Corner ***West Virginia foundry sand*** ***now recyclable***

Thanks to the dedicated efforts of Lou Minehardt (Chair of the IOF-West Virginia Metal Casting Group) and OIT's State IOF and Metalcasting Teams, West Virginia's foundries are now able to reuse spent foundry sand.



West Virginia metalcasters previously faced significant hurdles in finding acceptable, beneficial reuses of spent foundry sand. Used foundry sand had been classified as an industrial waste that required landfilling thereby precluding its use as recyclable material. This imposed expensive waste management costs on the industry and eliminated opportunities for a beneficial resalable foundry byproduct.

However, as part of the WV state effort, Minehardt successfully demonstrated to the state's legislators and government officials that spent foundry sand could safely and successfully be recycled. Subsequently, West Virginia's Division of Environmental Protection published *Spent Foundry Beneficial Use Guidelines* which became effective on June 1, 2000.

This resolved a significant waste management issue for the metalcasting industry and opened new doors for recycling.

Chemical industry's energy use profiled in new OIT report

OIT recently published a new report titled, *Energy and Environmental Profile of the U.S. Chemical Industry*. Joining a list of four similar reports for the aluminum, steel, metalcasting and petroleum refining industries, the document provides benchmark energy use and pollution emissions data based on several DOE, EPA and other official reports.

It is an excellent reference for chemical engineers and others working in, selling to, buying from or otherwise engaged with the chemical industry. Six chemical production processes that offer the greatest opportunity for energy-use reductions are identified in the report. These include: ethylene, propylene, benzene-toluene-

xylene (BTX), agricultural chemicals, chlor-alkali industry, effluent treatment and process heaters among others. The report supplies the most current estimates of energy use by fuel type for major industry processes. In addition, the report characterizes air emissions, effluents and other residuals generated by each process, provides estimates of quantities, and describes existing treatment and control technologies.

The *Energy and Environmental Profile of the U.S. Chemical Industry* is available by calling OIT's Clearinghouse at 1-800-862-2086. More information is also available at http://www.oit.doe.gov/news/6_20_00.shtml.



**February 19-22, 2001
Washington D.C. Hilton & Towers**

Sign up now!! OIT's 4th Industrial Energy Efficiency Expo coming in February!!

The 4th Biennial Industrial Energy Efficiency Symposium and Expo will take place February 19-22, 2001 at the Washington Hilton & Towers in downtown Washington, DC. OIT is cosponsoring Expo 4 in partnership with several of the Nation's leading manufacturing and materials companies.

A substantially improved and expanded program promises to make Expo 4 the best so far! Nationally-recognized experts will share their perspectives on the competitive challenges facing US manufacturers today in five speaker tracks including:

- Manufacturing megatrends including lean manufacturing, supply chain management, impacts of Internet trading on IOFs, and contract manufacturing
- New applications of traditional materials, long term technology changes potentially impacting basic industries, and global climate change issues
- Domestic and global market outlook for basic materials industries and perspectives of securities analysts and investors
- Human resource issues including workforce development and meeting the needs of engineers of the future
- Possibly, the largest collection of Federal agency R&D/technology partnership providers of interest to industry ever assembled under one roof in Washington, DC

Eamonn Fingleton, renowned author and former editor of *Forbes* and *The Financial Times*, will be a keynote speaker. Mr. Fingleton's most current book, **In Praise of Hard Industries: Why Manufacturing, Not the Information Economy, Is the Key to Future Prosperity** takes a look at the economic resurgence of US manufacturing.

Expo's exhibit hall will feature up to 200 booths! Break-through technologies, cutting-edge processes and R&D partnerships in the manufacturing industry will be showcased. Scores of companies from the Industries of the Future will be joined in the Exhibit Hall by DOE's National Laboratories, numerous federal R&D agencies, universities, industry associations and others.

Broad participation by numerous Federal agencies that partner with industry on R&D projects is planned. Their

Exhibit Hall booths will offer an exceptionally wide range of R&D partnership and co-funding opportunities. Out-of-town industrial technology executives will be afforded a one-stop-shop for uncovering potential Government R&D partnership opportunities.

Expo's organizers are also partnering with the Junior Engineering Technical Society (JETS), a non-profit organization that works to involve high school students in engineering, science and mathematics programs. A rigorous annual exam, this year focusing on the Industries of the Future, will be administered in late Fall. Winning teams from across the US will be invited to participate in an awards ceremony at Expo.

Finally, Expo's timing coincides with **National Engineering Week** and Washington DC will serve as a focal point for many industry trade organizations that will be sponsoring events some of which will be coordinated with Expo.

For more information on Expo 4, call toll free (877) OIT-SYMP or visit www.oitexpo4.com.



Hotel Reservations

The special room rate at the Washington Hilton and Towers Hotel for the OIT Exposition is \$164, single or double occupancy plus applicable tax. A limited number of rooms are available at the government rate. You may reserve your room by calling the hotel directly at (202) 483-3000 or 1-800-445-8667. Just a reminder! Mention you are attending the OIT Exposition in order to obtain the special rate.

The hotel will require a credit card number or a deposit when you make your reservation. The credit card will not be charged at that time, but if you do not cancel your reservation 72 hours prior to arrival, you will be charged for one night's stay. The cut-off date for hotel reservations is Jan. 19th, 2001. Subject to availability.



Registration Form

Complete online registration available at www.oit.expo4.com.

Detach and send to: Meeting Management Services, OIT Expo Office
1201 New Jersey Ave. NW
Washington D.C., 20001

You may fax your registration to (202) 624-1766 if paying by credit card.

First Name	Middle Name	Last Name	First Name for Badge
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Title	Organization
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| <input type="checkbox"/> Industry | <input type="checkbox"/> Federal Agency | <input type="checkbox"/> DOE National Laboratory | <input type="checkbox"/> Other |
| <input type="checkbox"/> State/Local Government | <input type="checkbox"/> University/Institute | <input type="checkbox"/> Association | |

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Daytime Phone	Fax	E-mail
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Track you plan to attend:

- Track A: Manufacturing Megatrends
 Track B: Technology Trends, Environmental Issues
 Track C: Federal Technology Initiatives
 Track D: Global Markets & Investment Potential
 Track E: Human Resources

Your primary area(s) of interest (check as many as apply):

- | | | | | |
|--|--|--|--|--|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Aluminum | <input type="checkbox"/> Chemicals | <input type="checkbox"/> Forest Products | <input type="checkbox"/> Glass |
| <input type="checkbox"/> Metalcasting | <input type="checkbox"/> Mining | <input type="checkbox"/> Petroleum | <input type="checkbox"/> Steel | <input type="checkbox"/> Combustion |
| <input type="checkbox"/> NICE ³ | <input type="checkbox"/> Motor Systems | <input type="checkbox"/> Sensors and Controls | <input type="checkbox"/> Advanced Industrial Materials | <input type="checkbox"/> BestPractices |
| <input type="checkbox"/> Industrial Assessment Centers | <input type="checkbox"/> Steam Systems | <input type="checkbox"/> Combined Heat & Power | <input type="checkbox"/> Inventions & Innovation | |

Registration for:

- Early Registration \$425 (prior to Jan 1, 2001)
 Registration \$495 (on or after Jan 1, 2001)

Payment Method:

- Check enclosed. Make payable to "OIT EXPO" - *Check will be deposited by Meeting Management Services, Inc. d/b/a OIT Expo Federal ID# 54-1811642*
 Credit card: Visa Mastercard American Express - *Charge on your statement will appear as "Meeting Management Services"*

Name as it appears on card: _____

Card Number	Expiration	Authorizing Signature
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Refunds will be processed minus a \$25 collection fee, if received in writing by Jan. 1, 2001. After that date, no refund will be made

Special Needs:

- Please check here if you require special assistance. Attach written description of needs.

For further information, please call 202-624-1790.

BestPractices training

BestPractices offers several training programs to help industry better manage energy systems and optimize efficiency. Offered in conjunction with Allied Partners, training is available throughout the year and around the country. Sessions are led by trained instructors and industry experts in pumps, motors and drives, compressed air, or steam systems management. Training and workshop topics include:

Adjustable Speed Drive Application workshop addresses the fundamentals of ASDs and offers a demonstration of the ASDMaster software. It is geared to industrial end-users, utility/account managers, and motor manufacturers.

Capturing the Value of Steam Efficiency is an awareness program offering ideas on public and private resources that can guide companies to better steam systems management. The seminar is ideal for energy managers as well as industrial energy service and equipment providers.

Fundamentals and Advanced Management of Compressed Air Systems seminars target the needs of plant engineers and maintenance supervisors who are responsible for ensuring optimal compressed air system performance. Participants in the **Fundamentals of Compressed Air Systems** seminar learn how to calculate the energy cost of compressed air and improve system efficiency and reliability. The **Advanced Management of Compressed Air Systems** seminar builds on the systems-based approach introduced in the Fundamentals course.

Pump Systems/PSAT workshop introduces the fundamentals of optimizing pump systems using the BestPractices Pump System Assessment Tool (PSAT). The workshop makes sense for municipal fresh water pumping facility operators and managers, wastewater treatment operators and managers, local government water/wastewater decision makers, industrial (e.g. chemical and refinery) pumping facility operators and managers, utility customer support staff, and consulting engineers.

Other BestPractices training options can be found on the Web site at www.oit.doe.gov/bestpractices/take_class. The site also provides links to training available through Allied Partners, industry associations, and universities.

BestPractices publications and tools

BestPractices offers a wide range of publications and tools to help industrial plants save money, enhance productivity and system reliability, and improve environmental performance.

Case Studies document the results of plant assessments and demonstration projects. They highlight what some manufacturers have done to improve energy systems and the benefits achieved.

Technical Publications offer tips on buying, assessing, and maintaining industrial systems and components. Technical fact sheets, tips sheets, and handbooks give “how-to” details for increasing system efficiency. Sourcebooks are reference materials on industrial efficiency activities, resources, applications standards, and guidelines. Market assessments take a look at opportunities for energy-efficient industrial systems and components.

Software and databases help industrial end users discover savings potential through efficient systems management.

- **ASDMaster** assists users in the proper application of adjustable speed drives (ASDs).
- **3E Plus** calculates the optimal thickness of industrial insulation.
- **MotorMaster+** energy-efficient motor selection software helps companies manage electric motor-driven systems by comparing repair vs. replace options, savings analysis, and storage and retrieval of testing and maintenance data.
- **Pumping System Assessment Tool (PSAT)** software tool helps industrial users assess the efficiency of pumping system operations.
- **The Industrial Assessment Center (IAC) Database** contains efficiency recommendations made to small and mid-size manufacturers by 30 university-based IACs. It provides access to the cumulative results and knowhow gleaned from over 9000 plant efficiency audits.
- **Training Materials** include notebooks, CDs, and viewgraphs designed to spread the word about the benefits of industrial energy efficiency and how to achieve it.

Find more information on BestPractices tools and publications and download most of them from www.oit.doe.gov/bestpractices/explore_library.

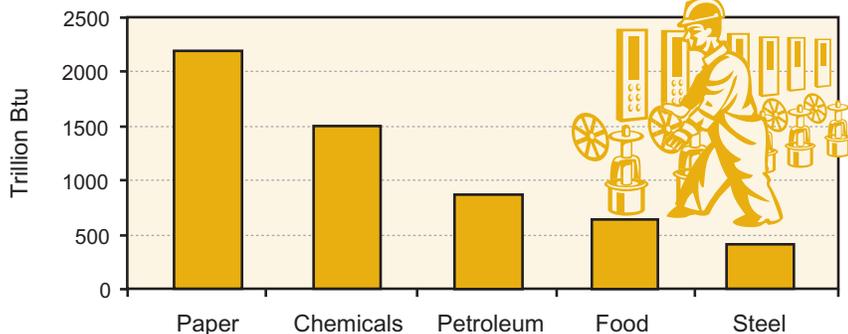
BestPractices Steering Committee: Ensuring responsiveness to customer needs

BestPractices uses an industry-based Steering Committee to ensure that the program is responsive to industry and effectively aligned with OIT’s Industries of the Future (IOFs). The 13-member Committee consists of decision-makers in R&D, marketing, or corporate management and includes members from companies representing each of the nine IOFs and the motor/drive, steam, pump, and compressed air industry associations.

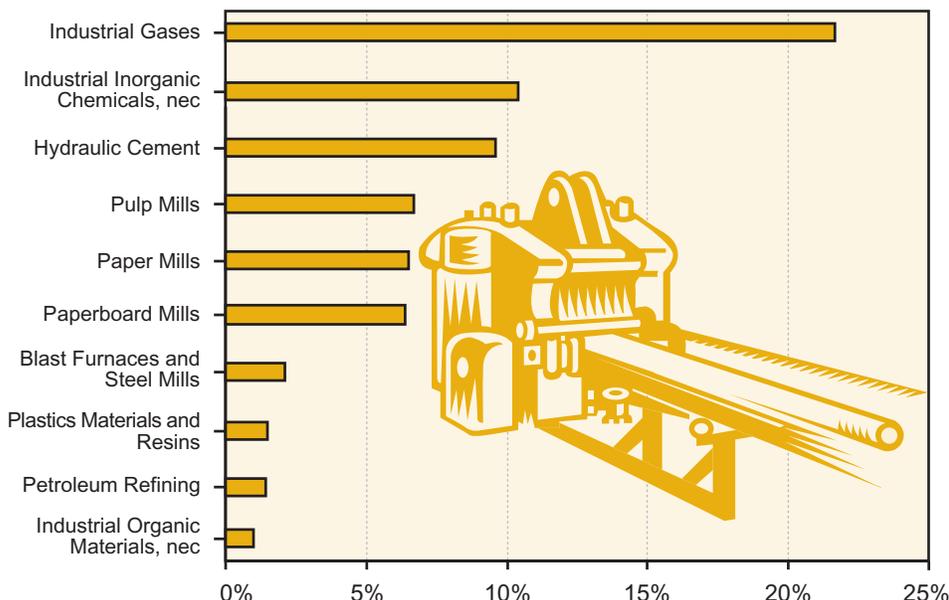
The Steering Committee advises the BestPractices team on IOF customer needs and potential strategic initiatives. The Committee also champions BestPractices products and services to industry and provides pivotal links to Industry of the Future plants to facilitate technology and information transfer. The Steering Committee was initiated with a kickoff meeting in May, 2000, and is developing a technology implementation initiative and a 5-year program plan.

INDUSTRY TRENDS

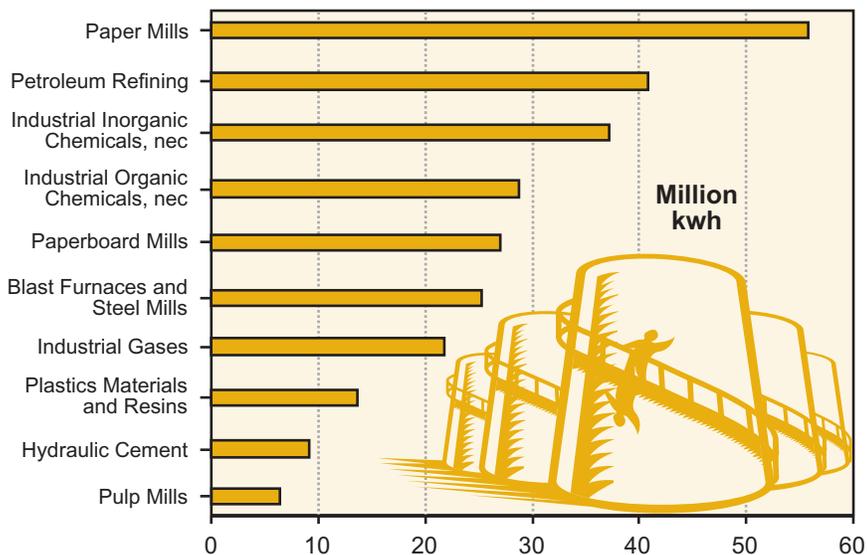
Steam Use in Selected Industries



Motor Energy Costs as % of Total Operating Costs



Top 10 Motor Energy Users in Manufacturing



GUEST EDITORIAL

“Showcases” — cutting-edge technologies and practices on display

by Eric Lightner
OIT BestPractices Team Leader

OIT's newly established BestPractices program provides integrated delivery of our many products and services including emerging energy-saving technologies, best energy-management practices, technical assistance, and decision-support tools. To help support our integrated delivery mission, we use in-plant technology showcases to demonstrate commercial use of OIT-supported products and services.

Showcases are sponsored by an OIT partner who hosts the event with support from OIT and trade/industry associations. Showcases demonstrate live use of five or more leading-edge technologies and/or best practices in actual plant conditions.

OIT supports plants hosting showcases in numerous ways including sharing the costs of organizing the event. We also provide no-cost or cost-shared plant-wide energy-use assessments. Technical assistance is provided at no cost to the plant for its motor, steam, compressed air, and process heating systems. Also free to the plant is the service of a third-party, independent entity to validate performance of showcased technologies.

OIT uses showcases to publicize and promote energy-saving technologies and practices. In turn, by showcasing leading edge technologies that conserve energy, protect the environment, and boost productivity, host plants enhance their image as leaders in their industry and local community. Please join us in hosting a showcase at your plant by calling me at 202-586-8130. Or, for more information about BestPractices or showcases, visit www.oit.doe.gov/bestpractices.

THE OIT TIMES

"Turning Industry Visions into Reality"

Office of Industrial Technologies, EE-20
Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, DC 20585
www.oit.doe.gov

ISSN 1526-2804

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More BestPractices Resources

Allied Partners vital to the BestPractices initiative

OIT is further recognizing the key role Allied Partners play in **BestPractices** by instituting the Allied Partner Agreement. Allied Partners include national industrial associations, private companies, state government agencies, and public organizations that provide energy efficiency information, products, services and support to industry.

An Allied Partner Agreement is a voluntary commitment to deliver OIT's extensive portfolio of energy efficiency products and services — everything from technical details on RD&D projects and emerging technologies to information about industrial best practices in motors, pumps, steam systems, compressed air, and process heating. Allied Partners participate by investing in roadmap-identified priority technologies, distributing materials, hosting events or workshops, training customers on use of software, and so on.

For more information about Allied Partners and access to the database of the over 225 Partners, visit the Allied Partners Web page at www.oit.doe.gov/bestpractices/meet_partners.

"Energy Matters" captures systems approach

OIT's *Energy Matters* newsletter reflects **BestPractices** through coverage of practical, hands-on methods and innovative solutions to help industry enhance productivity and energy efficiency. The newsletter gives emphasis to plant-wide benefits industry can gain from improvements to energy consuming systems—such as motors, steam, compressed air, and process heat. *Energy Matters* introduces industrial end users to well-proven, cost-savings opportunities and OIT-supported emerging technologies.



In each issue, readers find technical case studies; guest articles on energy system topics; technical tips; and briefs on tools, training, and other BestPractices resources. Special pullout supplements provide expanded coverage on specific energy systems. Look for Process Heating and Motor Systems supplements in upcoming issues of the newsletter.

In addition, Energy Matters Extra, the newsletter's online complement, features *extra* coverage and links related to each issue's editorial theme. The Web site links to news you can use about OIT solicitation announcements and offers updates on BestPractices tools, resources, and events. Go to www.oit.doe.gov/bestpractices/explore_library/emextra. You can subscribe to *Energy Matters* online at www.oit.doe.gov/bestpractices/explore_library.