

March/April 2005

STEAMING AHEAD

Energy Efficiency News for Steam Plant Managers

Published by the Alliance to Save Energy and the U.S. Department of Energy (DOE)

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Energy Efficiency: Just what do you mean?

When you work every day in a certain profession, it's easy to overuse jargon. Outsiders might not have the same understanding of certain terms. For instance, if you were to poll five different plant managers from industry, here's what their interpretations of the term "energy efficiency" may be:

- "We just put in a back-up generator, so sure, we're energy-efficient."
- "We switched from coal to natural gas to meet our emissions compliance thresholds, so yes, we're energy-efficient."
- "We have the capability of dual fuel firing on all our boilers. You bet we're energy efficient."
- "Our procurement division gives us energy efficiency by actively seeking the lowest fuel commodity prices available."
- "We are energy efficient because we use renewable waste materials for boiler fuel."

It may amuse (or shock) you to know that some companies claim to be energy-efficient because they participate in municipal recycling programs or because they market biodegradable product alternatives. All of these activities are good things, but none of them comprise energy efficiency. It's a struggle to get manufacturers to understand that energy efficiency is an opportunity to reduce costs, build revenues, and control risk. For some reason, no one ever asks what is meant by "energy efficiency." Everyone has a preconceived notion of the term's meaning. Energy efficiency is a business opportunity for those who embrace it. Much more is said about energy efficiency and its role in business in a paper entitled *Strategic Industrial Energy Efficiency*, by Christopher Russell, Director of Industry at the Alliance to Save Energy. The article is available online at <http://www.ase.org/content/article/detail/1012>.



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Steaming Ahead: <http://www.steamingahead.org>

DOE BestPractices Steam: <http://www.oit.doe.gov/bestpractices/steam/>

Alliance to Save Energy: <http://www.ase.org/>



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saves money, protects the environment, and
improves quality of life.

BestPractices Program News

DOE Financial Assistance for New Combustion Technology

DOE is accepting applications for cost-shared research and development of steam generation technologies, representing a next step in the "SuperBoiler" steam generation initiative, itself an off-shoot of the Industrial Combustion Vision (1998) and Combustion Technology Roadmap (1999). The Combustion Vision and Roadmap aim to enhance economic competitiveness and reduce both energy consumption and environmental impacts through technological innovations. The deadline for proposals is April 15, 2005. An estimated \$4,800,000 is available to finance this new R&D initiative.

Phase I, for which \$2,400,000 is planned for up to four projects, involves research into methods of achieving ultra-high efficiency in high temperature and pressure industrial water-tube and/or fire-tube package boilers. It is expected to begin on the first of October, 2005, and take 24 months or less to complete. After this phase, there will be a down-selection. Project(s) continuing into phase II will build on the results of phase I to develop an industrial prototype high temperature and pressure fire- or water-tube package boiler and demonstrate the performance of the boiler in the field. Phase II is expected to take 2 years or less to carry out and has \$2,400,000 available for up to two projects. For more information, visit: <http://e-center.doe.gov/iips/faopor.nsf/8df825feb86675de852564650046faea/e4c3a81a75df716c85256fa20073cd00?OpenDocument>

DOE ITP Offers Funding For Plant-Wide Assessments

DOE's Industrial Technologies Program (ITP) is offering a total of \$1 million in funding (dispersed thorough awards with \$100,000 maximums) to help industries finance plant-wide assessments (PWAs). DOE PWAs examine the energy intensive processes within an industrial facility, determine which systems offer the greatest energy savings potential, and then identify specific actions to achieve those savings. Proposals are due by May 3, 2005. Read more about PWAs at

http://www.oit.doe.gov/bestpractices/plant_wide_assessments.shtml. Read the solicitation information at http://www.eere.energy.gov/industry/financial/solicitations_active.html.

Glass Industry of the Future Funding

DOE is currently seeking applications for cost-shared research and development of technologies that will reduce energy consumption, reduce environmental impacts and enhance the economic competitiveness of the domestic glass industry. Applications are due by April 1, 2005. Read more at <http://e-center.doe.gov/iips/faopor.nsf/a62beb2f6e6159ac852566c60075270a/3e78a84391599daf85256f9e0001f77b?OpenDocument>

Resources for Financing Industrial Energy Efficiency Improvements

The U.S. Department of Energy (DOE) office of Energy Efficiency and Renewable Energy (EERE) provides a variety of tools and resources to help industries finance energy efficiency improvements at <http://www.eere.energy.gov/industry/financial/>.

Manufacturers will want to use the *Toolbook for Financing Energy Efficiency and Pollution Prevention Technologies*, <http://www.eere.energy.gov/industry/financial/pdfs/toolbook.pdf>, which provides information on public and private funding sources, types of financing for manufacturers to consider, and strategies for obtaining financing help.

Industrial News

EPA Launches Clean Energy Partnerships with 12 States and D.C.

On February 16 and 18, 2005, the U.S. Environmental Protection Agency (EPA) launched new clean energy partnerships with twelve states across the country, plus the District of Columbia. Under these auspices, the EPA offers assistance to states and their utility commissioners in developing and implementing measures for cost-effective energy efficiency practices and air quality protection.

View the EPA fact sheet: http://www.epa.gov/cleanenergy/pdf/eere_factsheet.pdf



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Read the February 16 press release: <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/d1a603bc8fe4de9285256faa00745c34!OpenDocument>

Read the February 18 press release: <http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/ba2e22c585eed0f485256fab0075e172!OpenDocument>

Comment on Proposed Regulations that May Impact Your Facility

On February 28, 2005, the Federal Register announced the U.S. EPA's proposed amendments for emission control performance standards at virtually all steam plants. The proposed changes would affect electric utility steam generating units, as well as large and small industrial-commercial-institutional steam generating units. Specifically under review are standards relating to Particulate Matter (PM), Sulfur Dioxide (SO₂), and Nitrogen Oxides (NO_x) emissions. Among other changes, the proposed amendments would restrict both large and small industrial-commercial-institutional steam generating units to a PM emission limit of 13 ng/J (0.03 lb/MMBtu heat input), for units that burn coal, oil, wood, or a mixture of these fuels with other fuels.

The EPA invites comments on these proposed changes to be submitted on or before April 29, 2005. For more information on the amendments and where to send your comments, please visit: <http://www.regulations.gov/fredpdfs/05-02996.pdf> (PDF), or <http://www.regulations.gov/freddocs/05-02996.htm> (HTML).

Keep in mind that BestPractices Steam resources outline ways to generate steam you need with less fuel, thus helping you stay within emission compliance thresholds:

- Look for low- or no-cost solutions in the *Steam Sourcebook*
<http://www.oit.doe.gov/bestpractices/steam/pdfs/steamsourcebook.pdf>
- See also the *Guide to Industrial Assessments for Pollution Prevention and Energy Efficiency*
<http://www.epa.gov/ordntrnt/ORD/NRMRL/Pubs/2001/energy/complete.pdf>
- Advanced technologies and a steam operator's overview of compliance regulations can be found in the *Guide to Low-Emission Boiler and Combustion Equipment Selection*
http://www.oit.doe.gov/bestpractices/steam/pdfs/guide_low_emission.pdf

Gas-fired Desiccant Dehumidification

Enbridge Gas Distribution explains the energy efficiency and cost-savings behind gas-fired desiccant dehumidification, a new technology for dehumidifying air prior to cooling. Read more at http://www.egd.enbridge.com/B/B05-01-01_desiccant.asp.

Cutting-edge Combustion Technologies

Combustion systems consume nearly three-quarters of all energy used in manufacturing. DOE ITP provides information on the latest industrial combustion technologies for energy- and cost-savings in your industrial plant. Read more at http://www.eere.energy.gov/industry/combustion/completed_rd.html.

Industrial Energy Best Practices Conference*

Close to 200 people participated in the Industrial Energy BestPractices Conference that took place at the Oregon Convention Center on January 17, 2005. The event, co-located with the Northwest Food Processors Association, drew participants from Northwest food processing, as well as from pulp and paper, microelectronics, and other industries. A large number of utilities, consulting firms, and other industry service providers from the region also participated in the event. The conference highlighted presentations on BestPractices success stories and plant solutions - direct from industry - and received enthusiastic reviews from attendees. Review the days presentations by visiting <http://www.energy.wsu.edu/about/new.cfm#BestPractices>.

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Financial News

Tips for Reducing Your Natural Gas Bill

The Alliance to Save Energy website houses tips and suggestions from DOE for reaping energy savings on your industrial natural gas bill. Read the tips at http://www.ase.org/uploaded_files/industrial/natural_gas.pdf.

Case Studies

Enbridge Industrial Steam Saver Program

Since 1997, Enbridge Gas Distribution's *Steam Saver Program*, has successfully identified fuel savings opportunities at 73 throughout Ontario, which if fully implemented would save an estimated three billion cubic feet of natural gas per year. Initially providing only a steam plant performance test and audit for medium and large size boiler plants, the program has been expanded to include other steam-saving opportunities; including:

- The Steam Plant Performance Test and Audit;
- New Boiler Installations;
- The Steam Trap Survey;
- The Boiler Combustion Tune-Up Program; and
- Metering and Energy Management in Boiler Plants.

In the past five years, The Steam Saver Program has demonstrated that on average, fuel savings of 15% of total annual fuel consumption can be achieved. Enbridge Gas Distribution customers are saving \$10.3 million annually on these projects. Read more about the most recent results of the program at <http://www.steamingahead.org/library/enbridge04.pdf>. The Enbridge website contains more about the *Steam Saver Program* at http://www.egd.enbridge.com/B/B18-02-03_steam-saver.asp.

NO_x Reduction System Retrofit

Coen's Performance & Environmental Services team successfully reduced NO_x emissions by 85% to 0.06 lb/MBtu, by furnishing low NO_x retrofit technology at a 55-MW utility boiler plant in Texas. Read more at http://www.coen.com/i_html/pdf/NOxReductionSystem.pdf.

Submission Opportunities

Does your industrial plant have interesting news briefs, efficiency stories, or case studies to share? If so, please contact steamingahead@ase.org for potential publication in the next edition of the Steaming Ahead newsletter!

Call for Papers: Steam Digest Volume V

The Alliance to Save Energy is immediately accepting papers for "Steam Digest: Volume Five." Steam Digest is an annual collection of articles from the previous year that address technical and managerial aspects of steam system optimization and efficiency. The U.S. Department of Energy Industrial Technologies Program (DOE-ITP) publishes Steam Digest. The Alliance to Save Energy compiles Steam Digest on behalf of DOE-ITP. Volume Four is available online at <http://www.oit.doe.gov/bestpractices/steam/digest2003.shtml>. To be eligible for inclusion in Steam Digest papers must:

- Focus on efficiency and optimization of some aspect of steam systems (generation, distribution, recovery, etc.) OR focus on the effective management of steam and energy systems.
- Be non-commercial and non-proprietary.
- Have been previously published in a magazine, journal, periodical, website, etc. during the calendar year 2004.

If you have questions or would like to submit a paper or papers, please contact Adam Hudson of the Alliance to Save Energy at 202-530-4356 or ahudson@ase.org

Events

U.S. Department of Energy Optimizing Steam System Performance Workshops

Optimizing Steam System Performance workshops are one-day awareness workshops exposing participants to DOE BestPractices Steam software tools and resources, steam system optimization opportunities, and available industrial assistance programs. Upcoming workshops:

March 22, 2005: Atlantic City, New Jersey

For questions and registration, contact Adam Hudson: 202-530-4356, ahudson@ase.org

April 26, 2005: Tulsa, Oklahoma

For questions and registration, contact Adam Hudson: 202-530-4356, ahudson@ase.org

U.S. Department of Energy Steam End-User Training

The DOE BestPractices Steam End-User Training Course is a one-day training session covering the operation of typical steam systems and methods of system-efficiency improvements. The course encompasses steam-generation efficiency, resource-utilization effectiveness, and steam distribution system losses. The course familiarizes participants with DOE BestPractices Steam Software Tools for steam system assessment and optimization. For a course description, visit http://www.steamingahead.org/temp/eutaining_desc.pdf. Upcoming courses:

March 10, 2005: Portland, Oregon

For questions and registration, contact Robert Guide: 360-577-1124, rgguide@adelphia.net

April 12, 2005: Stockton, California

For questions and registration, contact Cheryl Boswell-Barnes: 209-932-2529, cjb9@pge.com

U.S. Department of Energy Specialist Qualification Training

The BestPractices Steam Specialist Qualification Training Program is a two-and-a-half day course teaching the effective use of DOE BestPractices Steam software tools. Participants who pass the final exam are recognized by DOE as Qualified Specialists in the use of the BestPractices Steam Software Tools. Upcoming courses:

April 25-27, 2005: Milwaukee, Wisconsin

For questions and registration, contact Tony Wright: 865-574-6878, wrightal@ornl.gov

April 26-28, 2005: Amherst, Massachusetts

For questions and registration, contact: TBD