New Guidance Documents to the Energy Assessment Standards for Industrial Systems

In early 2010, the American Society of Mechanical Engineers (ASME) published four new Standards that establish requirements for conducting energy assessments at industrial facilities. Improving the efficiency of industrial systems increases profitability and reliability, and makes better use of assets. Many industrial facilities have the potential to increase the efficiency of their systems, but have difficulty doing so because there is no market definition for energy efficiency assessment services. Lack of a definition creates problems for service providers in establishing market value for their services and for consumers in determining the relative quality of energy assessment services. Use of these Standards and accompanying Guidance Documents should increase both the quantity and quality of energy assessments performed.

The assessment Standards and Guidance Documents are built on a foundation of work by the U.S. Department of Energy’s Industrial Technologies Program over the last 10 years, which included energy savings assessments of industrial energy systems, software, tools, training, and publications on how to identify and take advantage of industrial energy efficiency opportunities. As of March 2010, 2,305 energy assessments had been completed, and 1,705 plants had reported a total of $232 million per year in implemented energy cost savings, with an average energy bill reduction of 8 percent. The new Standards were developed by project teams that included many individuals involved with conducting these assessments.

The four standards are:

- ASME EA-1-2009 Energy Assessment for Process Heating Systems
- ASME EA-2-2009 Energy Assessment for Pumping Systems
- ASME EA-3-2009 Energy Assessment for Steam Systems
- ASME EA-4-2010 Energy Assessment for Compressed Air Systems

The Standards establish procedures for assessments of a facility’s entire systems, from energy inputs to the work performed. The energy assessment Standards are intended to assist plant personnel in identifying cost-effective projects that often have short payback periods. They address the topics and requirements for organizing and conducting assessments, analyzing the data collected, and reporting and documentation. An assessment may also include recommendations for improving resource utilization, reducing per unit production cost, and improving environmental performance.

As part of this effort, accompanying Guidance Documents, which provide technical background and application details for utilizing the Standards, were also developed by the project teams.

The Guidance Documents are:


The Guidance Documents were developed to be used in conjunction with the Standard in order to give basic guidance on how to fulfill the requirements of the Standard.
The system assessment Standards benefit from the extensive experience by contributing experts, as well as field testing during 2008-2009. The systems assessment community offered extensive comments, and revisions were subsequently made to the draft Standards and Guidance Documents to better reflect current practices, procedures, and improvements.

The new Standards are a contribution to the framework for assisting U.S. industry in meeting the energy intensity improvement criteria of Superior Energy Performance, a forthcoming ANSI-accredited manufacturing plant certification program of the U.S. Council for Energy-Efficient Manufacturing, a partnership of U.S. industry, government, and other organizations. These Standards and Guidance Documents were developed and approved in accordance with the American National Standards Institute (ANSI) accredited procedures, which establishes consensus.

Although the new Standards are available for use by any interested party, to assist industrial end users in identifying professionals trained in their proper application, the U.S. Department of Energy is supporting the development of an accompanying Certified Practitioner program. The Certified System Practitioners will conduct system assessments in accordance with ASME system assessment requirements and assist plants in establishing procedures to continuously improve system energy efficiency.

The Standards and Guidance Documents may be purchased at go.asme.org/EAcatalog