The Aims of Energy Management System Standard ISO 50001

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Realising the Potential – Making Energy Management Systems Deliver

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Energy Use Must be Managed- But what are we to do?

Users alone cannot control prices, politics, or the global economy, but……

- they can manage how energy is used
- One of the needs: A management process to proactively assess, manage, and measure energy usage
- An approach- an Energy Management System modeled after the Plan-Do-Check- Act framework

Why an Energy Management System?

- Most energy efficiency achieved through changes in how energy is managed rather than through installation of new technologies;
- An energy management system provides a method for integrating energy issues into existing management systems for continual improvement
- The PDCA model of management systems has proven successful for quality, health and safety, and environment

Business Benefits

Implementation of an energy management system assists an organization to:

- Develop a baseline of energy use
- Actively managing energy use and costs
- Reduce emissions without negative effect on operations
- Continue to improve energy use/output over time
- Document savings for internal and external use (e.g. emission credits)

..and industry has to be where we start…..

- Represents more than one-third of both global primary energy and energy related carbon-dioxide emissions[1]
- For developing countries, this is often in excess of 50% of the total and can produce supply problems
- Developing economies lead growth in both industrial energy use and carbon-related emissions
- It is much more cost-effective to build in energy efficiency the first time than retrofit it later
- In industry, a missed opportunity for energy efficiency may not reoccur- for decades or at all until the original installation fails or becomes obsolete

Focus on Industrial Energy Efficiency is Growing

- China initiated plan to reduce energy use 20% per unit of GDP over 2005 levels by 2010- focus on Top 1000 industrial enterprises.
- Energy efficiency is now a major focus of G-8 meetings and is recognized by the International Energy Agency as a primary source of short-term GHG emission reductions.
- UN Industrial Development Organization is promoting systems energy efficiency and energy management standards for both developed and developing nations.
- Through the Asia Pacific Partnership, the U.S., Australia, Korea, Japan, China, and India are promoting greater industrial energy efficiency.

But why an ISO standard?????

- Can be made compatible with other ISO management system standards (i.e.,9000/1400)
- Also applicable to commercial, institutional, and transportation sectors

So ISO Gets Involved

- International Organization for Standardization (ISO) is initiating a broad portfolio of initiatives to promote energy efficiency, including ISO 50001, on the basis of their potential contribution to energy savings and reduction of greenhouse gas (GHG) (the ISO CSC /Strategic Task Force on Energy Efficiency & Renewable Energy Sources)
- Energy management standards could:
  - -be applied to help all types of organizations to take a systematic approach to the continual improvement of energy performance
    -encourage more efficient and more sustainable use of energy, irrespective of the type of energy and facilitate reporting and validation
    -address energy supply, procurement practices for energy using equipment and systems, energy use, and any use-related disposal issues

Supportive Policies for National Energy Management Standards

- **In countries with existing standards**:
  - Energy management standards are voluntary
  - Programs target large industrial plants
  - Technical assistance is available
  - Case studies are used to publicize benefits
  - Recognition provided for outstanding performers
- **In addition, most countries**:
  - Offer financial incentives for compliance, usually as part of a target-setting agreement
  - Provide training on standards compliance
  - Provide opportunities for companies to network and learn from each other
  - Several countries also offer system optimization training

The Journey Begins….

- UNIDO hosted the first meeting to put forward the idea of an energy management standard, and sends request to ISO on behalf of participants (March 2007)
- Request accepted by ISO Secretariat
- UNIDO initiated a program to foster coordination between developing and developed countries for the development of an international standard (regional meetings, industry surveys)
- ANSI (U.S.) / ABNT (Brazil) leadership proposal submitted to the ISO
- Proposal approved by ISO Technical Management Board
- Preparatory meeting in Beijing hosted by UNIDO (April 2008)

Current Status

- Several countries already have national energy management standards (Ireland, Denmark, Sweden, US, Thailand, Korea, China)
- The EU has developed a regional energy management standard (EN 16001)
- Energy management standards are under development in Spain, and Brazil
- ISO has initiated work on an international energy management standard (2008-2011)
- PC 242 was created
  - four country leadership model US, China, Brazil, UK
  - Single document scope for now

PC 242

- One Working Group
- Timeline is issue final standard in early 2011
- Over 100 participants have participated from over 25 countries from all regions of the world, as well as UNIDO, which has liaison status
- Participating countries have existing activities on energy management and strong interest in developing a harmonized international standard

Scope of ISO 50001

This International Standard specifies requirements for an organization to establish, implement, maintain and improve an energy management system, which enables that organization to take a systematic approach, in order to achieve continual improvement of energy performance, energy efficiency and energy conservation. This International Standard specifies requirements applicable to energy supply and energy uses and consumption, including measurement, documentation and reporting, design and procurement practices for energy using equipment, systems, processes, and personnel. This international Standard applies to all factors affecting energy use, which can be monitored and influenced by the organization. This international standard does not prescribe specific performance criteria with respect to energy.

This International Standard for energy management systems has been designed to be used independently, but it can be aligned or integrated with other management systems. It is applicable to all organizations.

ISO 50001

Standardization in the field of energy management, including:

- energy supply,
- procurement practices for energy using equipment and systems,
- energy use, and
- any use-related disposal issues.

The standard will also address measurement of current energy usage, and implementation of a measurement system to document, report, and validate continuous improvement in the area of energy management.

Components of an Energy Management Standard (EnMS)

- A plan
- A cross-divisional management team
- Policies and procedures
- Projects
- Identification of key performance indicators, and
- Periodic reporting

Challenges Ahead

- Inertia – it is something new/different
- Management needs to support this approach
- Baseline needs to be established, processes and controls developed
- For some customers this is a new way of managing and evaluating their business
- Infrastructure is not in place to support customers and confirm conformance

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