ISO 50001 & ENERGY STAR

Monthly Partner Web Conference
September 21, 2011

Call-in number: 866 299 3188
Access code: 202 343 9965

Host: Walt Tunnessen

Learn more at energystar.gov
About The Web Conferences

- Monthly
- Topics are structured on a strategic approach to energy management
- Help you continually improve energy performance
- Opportunity to share ideas with others
- Slides are a starting point for discussion
Web Conference Logistics

- **Phones will be Muted**
  To ask a question use  # 6 to un-mute and  * 6 – to mute

- **Questions** – use the chat window or ask question during the Q & A period.

- **Presentation slides** will be sent by email to all participants following the web conference.
Today’s Web Conference

ISO 50001 & ENERGY STAR

Speakers:

- Walt Tunnessen, US EPA
- Steve Schultz, 3M
- Questions & Discussion
- Announcements
What is ISO 50001?

- International voluntary consensus standard.

- Established by the International Organization for Standardization

- Focused on energy management practices and procedures.

- Management Standard, similar to:
  - ISO 14001 – Environmental Management Systems
  - ISO 9000 – Quality Management Systems

- Establishes a broad set of criteria that “codifies” basic energy management elements.

- Intended to promote continuous improvement of energy performance.
What ISO 50001 is not

- Does not establish specific levels of performance.
- Does not certify that a specific level of energy performance has been achieved.
- Does not require demonstrating continuous improvement of energy performance from a baseline.
- Does not establish criteria for specific energy procurement or design requirements (e.g. like LEED).
Why a management standard?

- Recognition of the importance of organizational energy practices.
- Interest in elevating energy management within corporate culture.
- Harmonizes requirements internationally.
Growth of energy management systems approaches

- **2000**: British Standards Institute – Energy Management Standard
- **2000**: MSE series developed by Georgia Tech (GT) and “standardized” by ANSI. Updated in 2008
- **2003**: ENERGY STAR Guidelines for Energy Management
- **2006**: National Energy Management Standards in Denmark, Sweden, and Ireland
- **2009**: European Energy Management Standard
Development Process

- US DOE partnered with GT and ANSI to propose creation of standard to ISO.
- WG 242 formed in 2009 and jointly chaired by Brazil.
  - GT serves as the secretariat
- Technical Advisory Groups (TAGs) created by participating countries
- Drafts developed, reviewed and revised.
- Meetings held in US, Brazil, UK, China
- Standard released in June 2011
- WG 242 becomes “Technical Committee” (TC) 242
Participating Countries

**Secretariat:**
- Brazil (ABNT)
- USA (ANSI)

**Participating Countries**
- Argentina (IRAM)
- Australia (SA)
- Barbados (BNSI)
- Canada (SCC)
- Chile (INN)
- China (SAC)
- Colombia (ICONTEC)
- Denmark (DS)
- Ecuador (INEN)
- Egypt (EOS)
- Finland (SFS)
- France (AFNOR)
- Germany (DIN)
- India (BIS)
- Iran, Islamic Republic of (ISIRI)
- Ireland (NSAI)
- Israel (SII)
- Italy (UNI)
- Japan (JSC)
- Kenya (KEBS)
- Korea, Republic of (KATS)
- Malaysia (DSM)
- Mauritius (MSB)
- Mexico (DGN)
- Morocco (IMANOR)
- Netherlands (NEN)
- Nigeria (SON)
- Norway (SN)
- Pakistan (PSQCA)
- Peru (INDECOPI)
- Poland (PKN)
- Portugal (IPQ)
- Russian Federation (GOST R)
- Saint Lucia (SLBS)
- Singapore (SPRING SG)
- South Africa (SABS)
- Spain (AENOR)
- Sweden (SIS)
- Thailand (TISI)
- Tunisia (INNORPI)
- Turkey (TSE)
- United Kingdom (BSI)
- Zimbabwe (SAZ)

**Observing Countries**
- Belgium (NBN)
- Bulgaria (BDS)
- Costa Rica (INTECO)
- Czech Republic (UNMZ)
- Hong Kong, China (ITCHKSAR)
- Iceland (IST)
- Indonesia (BSN)
- Romania (ASRO)
- Serbia (ISS)
- Slovakia (SUTN)
- Sri Lanka (SLSI)
- Switzerland (SNV)
- Tajikistan (TJKSTN)
- Trinidad and Tobago (TTBS)

Countries currently participating in TC 242
ISO 50001 emphasizes:

- Top management support
- Staffing & management responsibilities
- Formal energy policy
- Planning processes
- Defined Energy Baselines & Targets
- Defined “Energy Performance Indicators”
- Consideration of energy impacts in procurement & design criteria.

- Documentation
- Internal controls & reviews
- Internal reporting
- Training & awareness of standard's requirements
<table>
<thead>
<tr>
<th>Concept</th>
<th>ISO 50001</th>
<th>ES Guidelines</th>
<th>Relevant ES Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Improvement</td>
<td>Introduction 1. Scope</td>
<td>Step 1 – Commit to Continuous Improvement</td>
<td>- ES Partnership</td>
</tr>
<tr>
<td>Senior Management</td>
<td>4.2 Management Responsibility</td>
<td>Step 1 – Commit to Continuous Improvement</td>
<td>- Partnership Letter, - Elevating Energy Management, - Energy Strategy for Road Ahead</td>
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<tr>
<td>Support</td>
<td>4.2.1. Top Management</td>
<td></td>
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<tr>
<td>Energy Director</td>
<td>4.2.2 Management Representative</td>
<td>Step 1.1 – Energy Director</td>
<td>- Matrixes, - Guidelines text, - Sample job description, - Teaming Up to Save Energy</td>
</tr>
<tr>
<td>Energy Team</td>
<td>3.10 energy management team</td>
<td>Step 1.2 – Energy Team</td>
<td>- Teaming Up to Save Energy, - Matrix criteria</td>
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<td></td>
<td>(definition)</td>
<td></td>
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<tr>
<td></td>
<td>4.2.2 (b) Management representative</td>
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<tr>
<td>Planning</td>
<td>4.4 Energy Planning</td>
<td>Step 2 – Assess Performance</td>
<td>Guidelines text</td>
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<tr>
<td></td>
<td>4.4.1 General A.4</td>
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<tr>
<td>Assessments</td>
<td>4.4 Energy Planning</td>
<td>Step 2.1 – 2.5</td>
<td>Energy Guides, Building Upgrade Manual, Benchmarking tools (EPIs, PM)</td>
</tr>
<tr>
<td>Site energy profile</td>
<td>4.4.3 Energy Review</td>
<td>Step 2.1 Collect Data, Step 2.4 Analyze data, Step 2.5 Technical Assessments</td>
<td>Energy Guides, Building Upgrade Manual, Benchmarking tools (EPIs, PM), Matrixes Challenge for Industry Guidance</td>
</tr>
<tr>
<td>Energy Baseline</td>
<td>4.4.4 Energy baseline</td>
<td>Step 2.2 Establish Baseline</td>
<td>Portfolio Manager, ETT, EPIs, ES Challenge for Industry</td>
</tr>
<tr>
<td>Energy Use Metrics</td>
<td>4.4.5 Energy Performance</td>
<td>Step 2.3 Benchmark</td>
<td>Portfolio Manager, EPIs, ES Scales, Challenge for Industry</td>
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<td></td>
<td>Indicators</td>
<td></td>
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<tr>
<td>Benchmarking</td>
<td>4.4.5 Energy Performance Indicators</td>
<td></td>
<td>Portfolio Manager, EPIs, ES Scales, Challenge for Industry</td>
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<tr>
<td></td>
<td>A.4.1</td>
<td>Step 2.3 Benchmark</td>
<td></td>
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<tr>
<td>Goal setting</td>
<td>4.4.6 Objective, targets and</td>
<td>Step 3 – Set Goals</td>
<td>Guidelines text, partner examples</td>
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<tr>
<td></td>
<td>action plans</td>
<td></td>
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</tbody>
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## Similarities

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<tr>
<td><strong>Action plans – responsibility for implementation</strong></td>
<td>4.4.6 Energy Objectives, energy targets, and energy management action plans</td>
<td>Step 4.2 – Determine Roles and Resources</td>
<td>Guidelines text</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td>4.5 Implementation and Operation</td>
<td>Step 5 Implement Action Plan</td>
<td>Guidelines text, Communication tools, Networking, Training, PM, EPIs, ETT</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>4.5.2 Competence, training, and awareness</td>
<td>Step 5.3 – Build capacity</td>
<td>Trainings, Networking,</td>
</tr>
<tr>
<td><strong>Employee Awareness</strong></td>
<td>4.5.2 Competence, training, and awareness</td>
<td>Step 5.1 Communication Plan</td>
<td>Challenge tool kit, Various ES communication resources</td>
</tr>
<tr>
<td><strong>Communicating performance</strong></td>
<td>4.5.3 Communication</td>
<td>Step 5.2 – Raise awareness</td>
<td>Reporting functions in PM, ES Labels &amp; Scores, SEPs, ETT charts</td>
</tr>
<tr>
<td><strong>Energy efficient design</strong></td>
<td>4.5.6 Design</td>
<td>Not specifically addressed</td>
<td>Target Finder, Energy Guides</td>
</tr>
<tr>
<td><strong>EE Procurement of equipment etc.</strong></td>
<td>4.5.7 Procurement of energy services, products, and energy</td>
<td>Mixed in various places</td>
<td>Procurement policy examples, Links to ES office products, SPP directory</td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
<td>4.6 Checking</td>
<td>Step 6 – Evaluate Progress</td>
<td>Benchmarking tools</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>4.6.1 Monitoring, measurement and analysis</td>
<td>Step 6.1 – Measure Results</td>
<td>Energy Tracking Plan template, PE Guides for Certification, Challenge for Industry</td>
</tr>
<tr>
<td><strong>Internal Audits of management practices</strong></td>
<td>4.6.3 Internal Audits of EnMS</td>
<td>Step 6 – Review Action plan</td>
<td>Matrixes</td>
</tr>
<tr>
<td><strong>Management Review</strong></td>
<td>4.7. General Requirements</td>
<td>Step 6 – Evaluate Progress (broadly)</td>
<td></td>
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</table>
## Differences

<table>
<thead>
<tr>
<th></th>
<th>ENERGY STAR</th>
<th>ISO 50001</th>
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</thead>
<tbody>
<tr>
<td>Certifies energy performance</td>
<td>Yes (Label)</td>
<td>No</td>
</tr>
<tr>
<td>Certifies management practices</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Offers energy management tools</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Requires documentation of management processes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Provides guidance on energy management</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Requires staffing at site seeking certification</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Requires top management to be engaged with energy management</td>
<td>Strongly encouraged</td>
<td>Yes</td>
</tr>
<tr>
<td>Cost for certification</td>
<td>Free to low cost</td>
<td>$$$ (15,000 &amp; up)*</td>
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</tbody>
</table>

* = Based on early estimates. Cost will depend on size of site. Does not include staff cost.
Other considerations…

• ISO 50001 requires defining a scope for the site that will be certified.
  – Can be a building, or a company, or a process.

• ISO 50001 gives organizations the latitude to defines certain elements, such as:
  – Which EPIs
  – Goals, objectives, time frames etc.
  – What are significant energy uses
  – Method for measuring improvement
  – Criteria for determining if EMS is effective

• You will need to be able to justify and document your decisions if you seek certification.
ISO Certification requires having an accredited “certification body” certify conformity to the Standard.

- ANAB – is expected to finalize accreditation requirements in October 2011.

- Lead Auditors – will be certified by RAB-QSA.
  - Qualification exam is under development
  - Qualification may /or may not be required.
So are they certified?

Schneider Electric’s head office is the first building in the world to earn the new ISO 50001 certification

Wednesday, 22 June 2011

London, United Kingdom - In a world first, Schneider Electric’s head office (known as the Hive) has been certified as complying with the new ISO 50001 standard for energy management systems.

Schneider Electric is pursuing its commitment to continuously improving the energy efficiency of its buildings, reducing their environmental footprint and enhancing user comfort.

"Our latest certification recognizes our commitment to energy efficiency and our expertise in this field," says Frédéric Abbé, President of Schneider Electric France. "More than ever, we are aiming for the highest standards in energy management for both our customers' buildings and our own. The Hive provides valuable feedback that we can leverage to develop efficient, operational energy performance solutions that create value for our customers."

The new ISO 50001 standard defines the requirements for the development, implementation, maintenance and improvement of energy management systems. It is designed to help organizations to continuously improve the energy performance of commercial and industrial buildings, optimize their use and reduce their operating costs. It was officially released on the 15 June 2011.

To meet the new standard's requirements, Schneider Electric began adapting its energy management system in late 2010, based on the various drafts. Its compliance with ISO 50001 has been recognized by AFNOR Certification.

"Last year," continues Mr. Abbé, "the Hive was the first building in France to be certified to HQE Exploitation 14001 and NF EN 16001 standards, officially recognizing the assertive efforts we have made since we moved to this temporary home in 2008. Today, we are proud to extend this international recognition to the building that is our main office for the next two years."

Note: Accreditation requirements for certifiers will not be finalized internationally until late October 2011 at the earliest...
ISO 50001 Pilot Sites

DOE is providing some funding for pilot sites to go through ISO certification:

• For industrial sites, done on a state / regional basis:
  – http://www1.eere.energy.gov/industry/energymanagementdemonstrations/contacts.html

• For commercial buildings, done through the GSEP program:
What next: New Frontiers

Proposed New Committees and Work Areas under the ISO 50001 Series

- **TC 242**
  - ANSI & ABNT (Co-Secretaries)
  - **WG 1 - EnMS**
    - ANSI (Convener)
    - BSI (Secretary)
  - Implementation Guidance
    - Ireland (PL) Secretariat Proposal
  - EnMS Auditing KATS (PL)

- **WG 2 - Energy Performance Metrics**
  - ABNT (Convener)
  - Energy Performance Indicators
    - ABNT (PL)
  - Baselines
    - SCC (PL)

- **JWG 3** (with TC 257)
  - Measurement & Verification
    - SABS (Convener)
    - ANSI (Secretary)

- **WG 4**
  - Opportunities for Improvement
    - BSI (Convener)
  - Energy Auditing
    - BSI (PL)

- Other TC Liaisons
  - Other TC Liaisons
3M’s Experience with Management Systems for Energy

Energy Efficiency a Competitive Advantage

Steven Schultz
Corporate Energy Manager, 3M
One Strong Brand, Complemented by Many Strategic Brands

- 3M named one of the Best 100 Global Brands by strategic brand consultancy, Interbrand in 2010
- Proud of the household names we have created with our market leading strategic brands
- Our strategic brands play an integral role in strengthening the 3M brand and allowing us to deliver tangible results that enable customer success

At 3M, we continuously build on each other’s ideas…

3M + Command + Scotch + Scotch-Brite + Nexcare +
ScotchBlue + ScotchPrint + Filtrete + Post-it + Scotchgard + …

…to innovate unexpected solutions and make progress possible
Acknowledged by Opinion Formers

Most Visible
3M Ranks 3rd

Most Reputable Companies
3M Ranks 4th

European Best
Muti-national Workplaces
3M Ranks 5th

Fortune
Most Admired Companies
3M Ranks 15th

Barron's
Top Public Companies
3M Ranks 7th

Booz & Co.
Most Innovative Companies
3M Ranks 3rd

EPA
7 time ENERGY STAR® Sustained
Excellence Award Winner

HayGroup
Among Best Companies
for Leadership

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3M Global Operations

3M Energy Management Program

Energy Efficiency as a 3M Competitive Advantage

- Research and Development
- New Products and Processes
- Engineering
- New Facilities and Equipment
- Support Implementation of Energy Projects
- Existing Operations
- Plant Energy Teams
- Sourcing
- Procurement of Energy
- Environmental Operations
- Cooperate and Leverage Energy Related Environmental Aspects
- Suppliers
- Reduce Imbedded Energy Costs, Environmental Impacts, and Future Risks
- Customers
- Add Value to Customer Relationships
Environmental, Health and Safety Policy

Corporate Energy Policy

Applies To
This policy applies to all 3M operations.

Introduction
The objectives of this policy are to improve energy consumption efficiency, reduce cost, optimize capital investment for energy efficiency, reduce environmental and greenhouse gas emissions, and conserve natural resources.

Policy Statement
3M will promote the efficient use of energy to produce and deliver products and services to its customers.

Additional Elements
Policy Guidelines:
The following steps should be pursued to support the policy:

• Improve energy efficiency by establishing and implementing effective energy management programs worldwide that support manufacturing capabilities while providing a safe and comfortable work environment.

• Emphasize energy efficiency as a factor in product development and in process and facility design.

• Secure adequate and reliable energy supplies at the most advantageous rates and implement contingency plans to protect operations from energy supply interruptions.

• Encourage continuous energy conservation by employees in their work and personal activities.

• Drive further development of internal and external energy efficient and innovative technologies.

• Cooperate with governmental agencies and utility companies on energy programs.

• Support national governmental energy efficiency policies.

For Further Information
Contact 3M Energy Management, St. Paul, Minnesota, 651-737-4206.

Approved By
Environmental, Health and Safety Committee
Management System for Energy

- Projects are only a part of an effective energy management program
- ENERGY STAR Guidelines for Energy Management
- 2000 and 2008 versions of ANSI Standard
- 3M incorporated into requirements for plant energy teams
- Plant energy teams are measured on compliance. Score is a factor in determining level of plant energy award.
Two 3M manufacturing Plants Participating

- **3M Cordova, IL (Midwest Pilot)**
  - Manufactures specialty adhesives and chemicals
  - 560 acres, 550,000 square feet
  - 4th largest energy using facility at 3M

- **3M Brockville, Ontario, Canada (Global Superior Energy Performance Pilot)**
  - Manufactures pressure sensitive tapes
  - 200,000 square feet
  - Smaller energy footprint, but strong interest in efficiency
Why Pilot ISO 50001?

- Learn more about ISO 50001, the process of becoming certified, and the resources necessary
- Employ a more rigorous approach to systematically save energy
- Benefit from external resources provided to assist
- Further imbed energy management into plant operations
- Determine if the effort is worthwhile
Our Experience So Far:

- Participation in a pilot with cohorts helped keep us on track and on schedule.
- Previous experience with ISO 9001 and 14001 was an immediate benefit.
- Additional resources were needed.
- Plant operations are becoming more engaged.
- Consultants have been very helpful.
Seventh Consecutive Year!
Thank You
3M Innovation
Innovation
Questions & Discussion

• Use # 6 to un-mute phone

• * 6 to mute phone.
Upcoming Web Conferences

October 5 – How to apply for the 2012 ENERGY STAR Partner of Year Award

October 20 – Energy & GHG Management

November 17 - Energy Management Financing Strategies

Register for Partner Meetings online at: energystar.webex.com/meetings
• Thank you