



Development of an Energy Management Standard: ISO 50001

Bill Meffert,
Aimee McKane
May 2009

ANSI Accredited U.S. TAG to ISO/PC 242



AGENDA

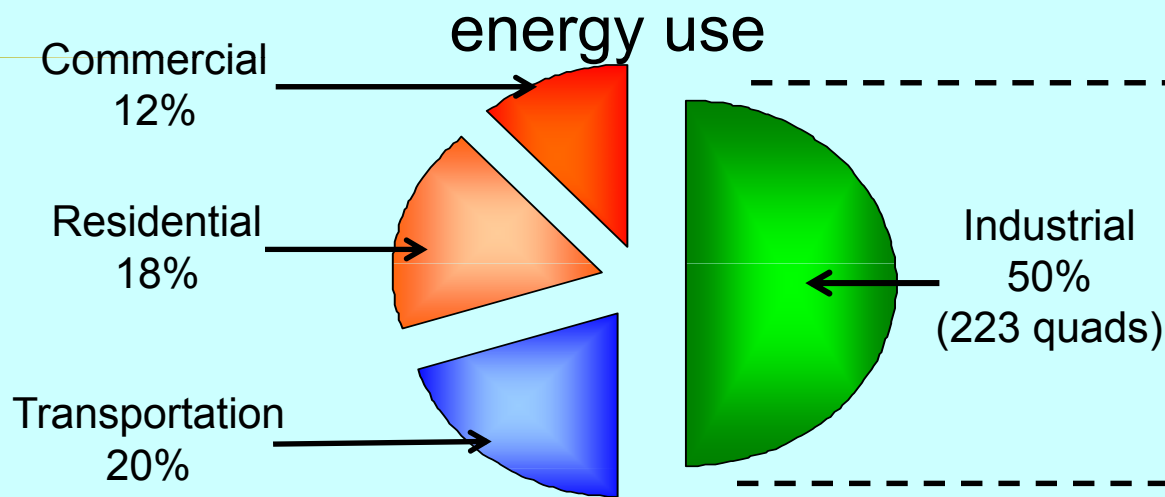
- Other national standards and energy efficiency programs
- Push for an ISO standard
- Where are we now?
- Critical issues for ISO 50001



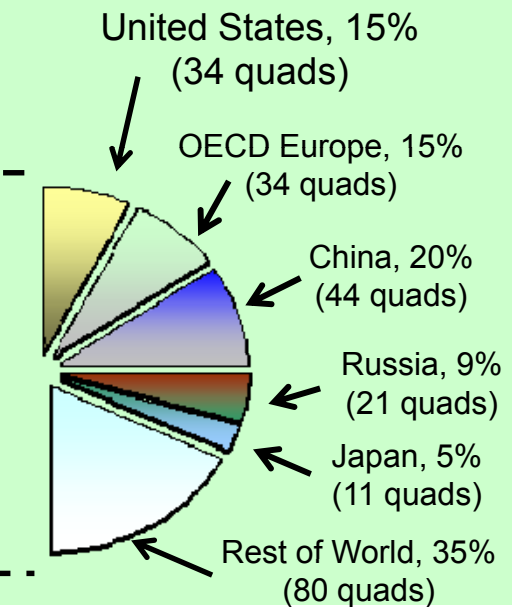
World Industrial Energy Use

2004 World Energy Use: 447 quads

Industry accounts for 50% of world energy use



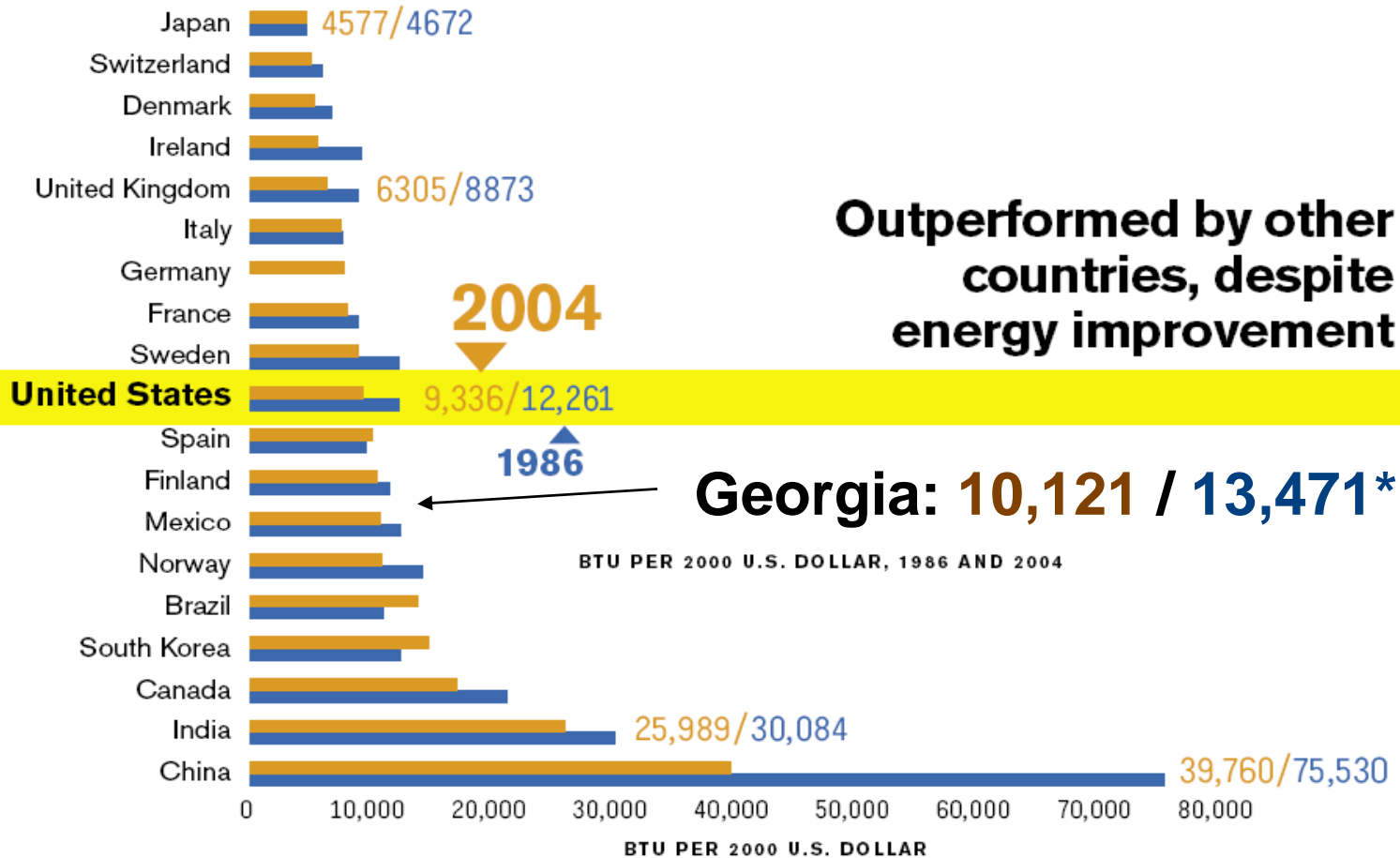
Industry: 223 quads



15% of industrial energy is consumed in the United States



Energy productivity in U.S. is outperformed by many countries



Source: Council on Competitiveness. 2007. *Competitiveness Index: Where America Stands*. Figure 4.32, p. 103. *EIA. 2007. Table 7, eia.doe.gov/emeu/states/sep_use/total/use.tot.ga.html (1990-not 1986 for GA)



Energy Management Standards

2000

- Denmark and the US are the first countries to develop energy management standards in 2000. The content is fairly similar.

By Mar 2007

- Sweden (2003) and Ireland have energy management standards (2005);
- the Netherlands has an energy management specification (2004);
- China has a draft standard;
- EU has started work on a regional standard through European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC)

Mar 2008

- Korea and Thailand have energy management standards
- China standard still in draft; Spain has a draft



Supportive Policies for National EnMS

In countries with national standards:

- Energy management standards are voluntary
- Programs target large industrial plants
- Technical assistance is available
- Case studies are used to publicize benefits
- Provide recognition for outstanding performers



Supportive Policies for National EnMS

In addition, most countries:

- Offer financial incentives for compliance, usually as part of a target-setting agreement¹
- Provide training on standards compliance
- Provide opportunities for companies to network and learn from each other
- Several countries also offer system optimization training

¹ typically energy or carbon dioxide tax relief



DOE's Industrial Technologies Program Industrial Sector National Initiative

Goal:

Drive a 25% reduction in industrial energy intensity over the next 10 years

Save
ENERGY
Now



Toward an International EnMS Standard

March 2007

- UNIDO hosted the first meeting to put forward the idea of an international energy management standard, sends request to ISO on behalf of participants

April 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)

Sept 2007

- ANSI (U.S.) / ABNT (Brazil) leadership proposal submitted to the ISO

Feb 2008

- Proposal approved by ISO Technical Management Board – ISO 50001 launched

April 2008

- Preparatory meeting in Beijing hosted by UNIDO and Standardization Administration of China



Scope statement of ISO/WD 50001

- This standard specifies requirements for an energy management system, which enables an organization to take a systematic approach to the continual improvement of energy efficiency and energy performance. It does not itself state specific performance criteria with respect to energy.
- This standard applies to all organizations.



ISO/PC 242 MEMBER COUNTRIES

PARTICIPATING COUNTRIES (35)

- Argentina (IRAM)
- Australia (SA)
- Barbados (BNSI)
- Brazil (ABNT)
- Canada (SCC)
- Chile (INN)
- China (SAC)
- Columbia (ICONTEC)
- Denmark (DS)
- Ecuador (INEN)
- Finland (SFS)
- France (AFNOR)
- Germany (DIN)
- Ireland (NSAI)
- Japan (JISC)
- Kazakhstan (KAZMEMST)
- Korea, Republic of (KATS)
- Malaysia (DSM)
- Mauritius (MSB)
- Netherlands (NEN)
- Nigeria (SON)
- Pakistan (PSQCA)
- Poland (PKN)
- Portugal (IPQ)
- Saint Lucia (SLBS)
- Singapore (SPRING SG)
- South Africa (SABS)
- Spain (AENOR)
- Sweden (SIS)
- Thailand (TISI)
- Tunisia (INNORPI)
- Turkey (TSE)
- United Kingdom (BSI)
- USA (ANSI)
- Zimbabwe (SAZ)

ANSI Accredited U.S. TAG to ISO/PC 242



ISO/PC 242 MEMBER COUNTRIES

OBSERVER COUNTRIES (5)

- Belgium (NBN)
- Czech Republic (CNI)
- Israel (SII)
- Italy (UNI)
- Switzerland (SNV)

Category A LIAISON ORGANIZATIONS

- UNIDO
- WEC



ISO Project Committee 242

September 8-10, 2008, 1st PC 242 Meeting in Arlington, VA

- 90 participants from 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
- Key decision to base standard on the common elements found in all of ISO's management system standards (e.g. 9001, 14001) to ensure maximum compatibility
- Two-year accelerated schedule to have ISO 50001 ready for publication by the end of 2010



Key Discussions and Achievements

- Inclusion of design
- Limit of calibration detail
- Measuring and monitoring that addresses projects and the system
- EU interest in using ISO 14001 was addressed
- Inclusion of (Energy)key performance indicators





ISO Project Committee 242

March 9-12, 2009 2nd PC 242 Meeting in Rio de Janeiro, Brazil

- Attended by 73 delegates representing 19 countries and liaison UNIDO.
- Key issues discussed included:
 - Energy Performance and Management System components
 - Results driven approach
 - Flexibility and need to prioritize
- Updated schedule for ISO 50001



Key Discussions and Achievements

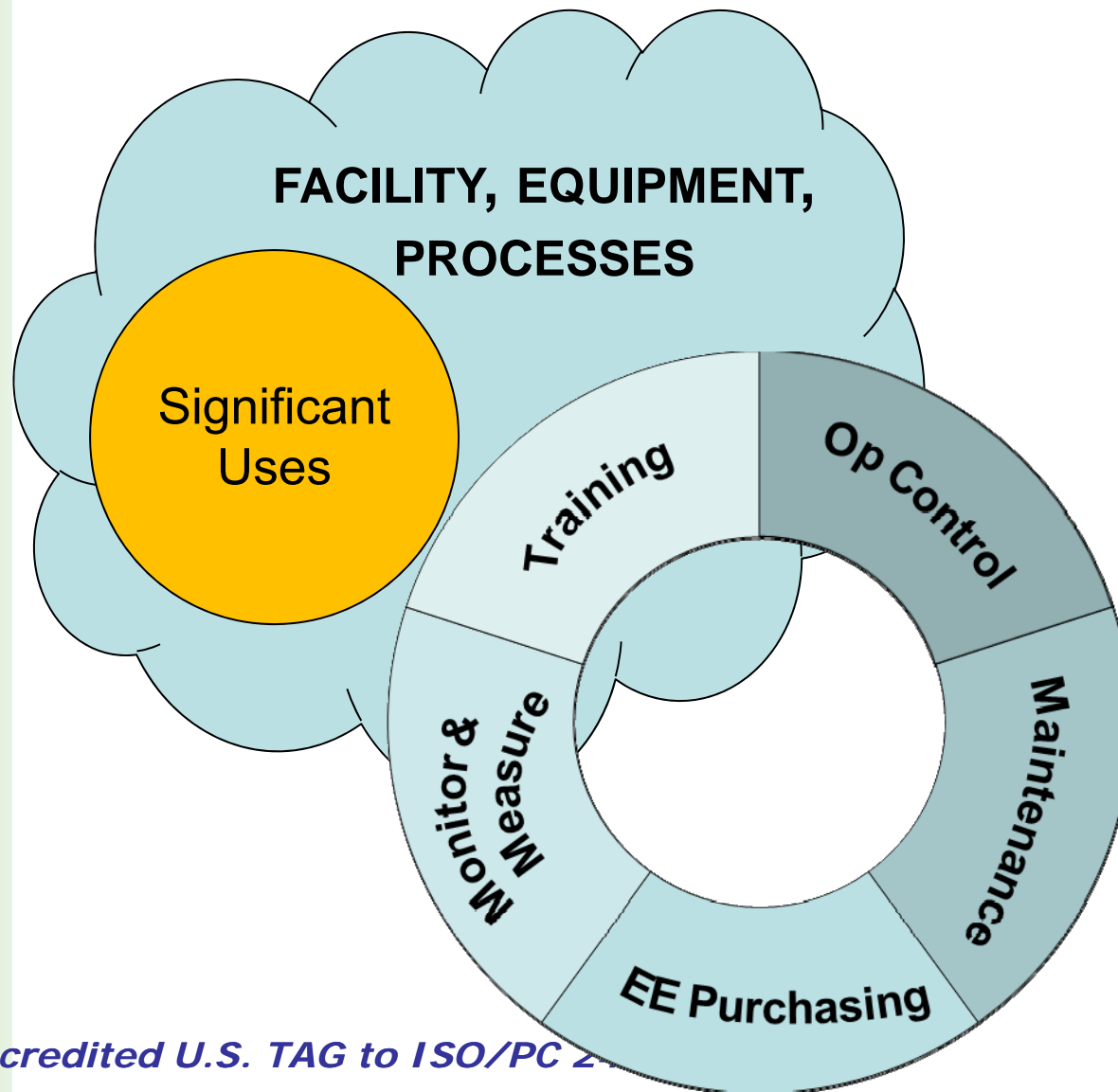
A U.S. TAG Perspective

- Aspect language and approach was actively discussed
- Data driven nature using a profile approach
- Inclusion of energy performance improvement metrics
- Definition of energy performance
- Continued use of team concept
- Inclusion of purchasing
- Discussion of renewables





Aspects vs. Data Driven





Important Definitions

Energy performance

measurable results related to energy

Energy performance indicator - **EPI**

quantitative index of energy performance as defined by the organization

Note: quantifying the amount of energy used per normalized unit of appropriate variable

Example: kwh/msq per unit of time for a building

GJ/ton of produced material for production



2009 Schedule

Timeframe	Anticipated Schedule
January 12, 2009	Comments due on second working draft (WD 2)
March 9-12, 2009	Second Project Committee 242 meeting (decision to move to Committee Draft stage)
June 15, 2009	Committee Draft (CD) to Participating Countries for review
July 2009	Committee Draft (CD) decision and comments
August 2009	U.S. Technical Advisory Group Meeting
September 18, 2009	Result of Committee Draft ballot sent to Participating Countries
October 2009	U.S. Technical Advisory Group Meeting
November 2009	Third Project Committee 242 meeting (decision to move to Draft International Standard (DIS) stage)



Contact Information

Bill Meffert

Technical Expert, U.S. TAG
Georgia Tech Enterprise Innovation Institute
404-894-3844
email: bill.meffert@innovate.gatech.edu

Aimee McKane

Vice- Chair U.S. TAG
Lawrence Berkeley National Laboratory
P.O. Box 790
Latham, NY 12110
518-782-7002
email: atmckane@lbl.gov