



ISO National Mirror Committees Training with Lesotho, Malawi, & Zambia: ISO/TC-242 – Energy Management



SOUTHERN AFRICAN DEVELOPMENT COMMUNITY
TOWARDS A COMMON FUTURE



Prepared for:

**Southern African Development
Community & Standards Alliance**

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Background on TC 242

Energy Management



ISO 50001: Energy Management System Standard

ISO 50001 establishes a voluntary framework for any type of organization using energy- **industry, buildings, and public sector.**



International
Organization for
Standardization

Potential impacts:

- Could influence up to 60% of the world's energy use across many economic sectors

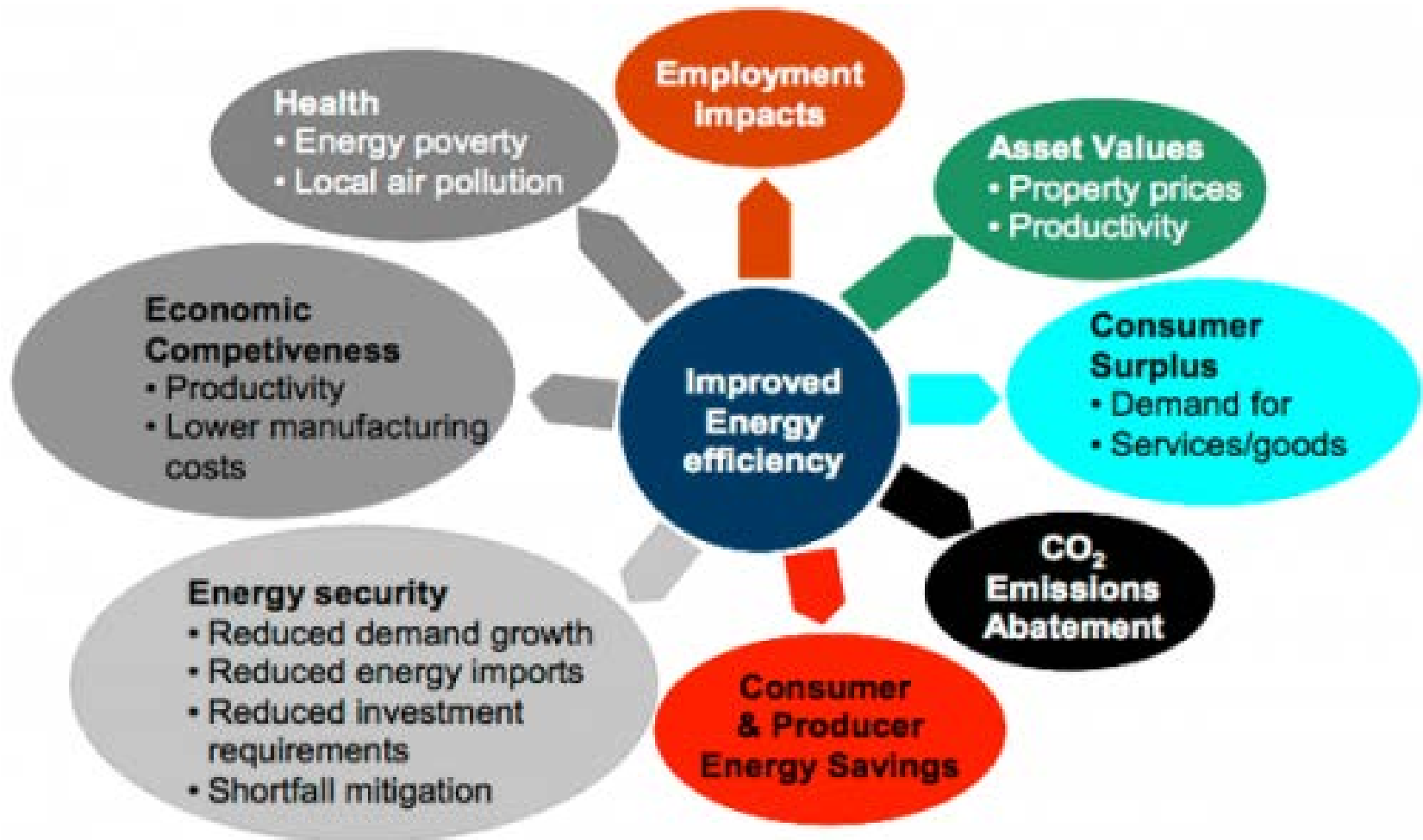
Uptake of ISO 50001 will be driven by companies seeking an internationally recognized response to:

- Energy cost reduction initiatives
- Demand created along the manufacturing supply chain
- Corporate sustainability programs
- Increasing market value of “green manufacturing” / reduced carbon footprint. Future national carbon or energy taxes;
- International climate agreements

ISO 50001

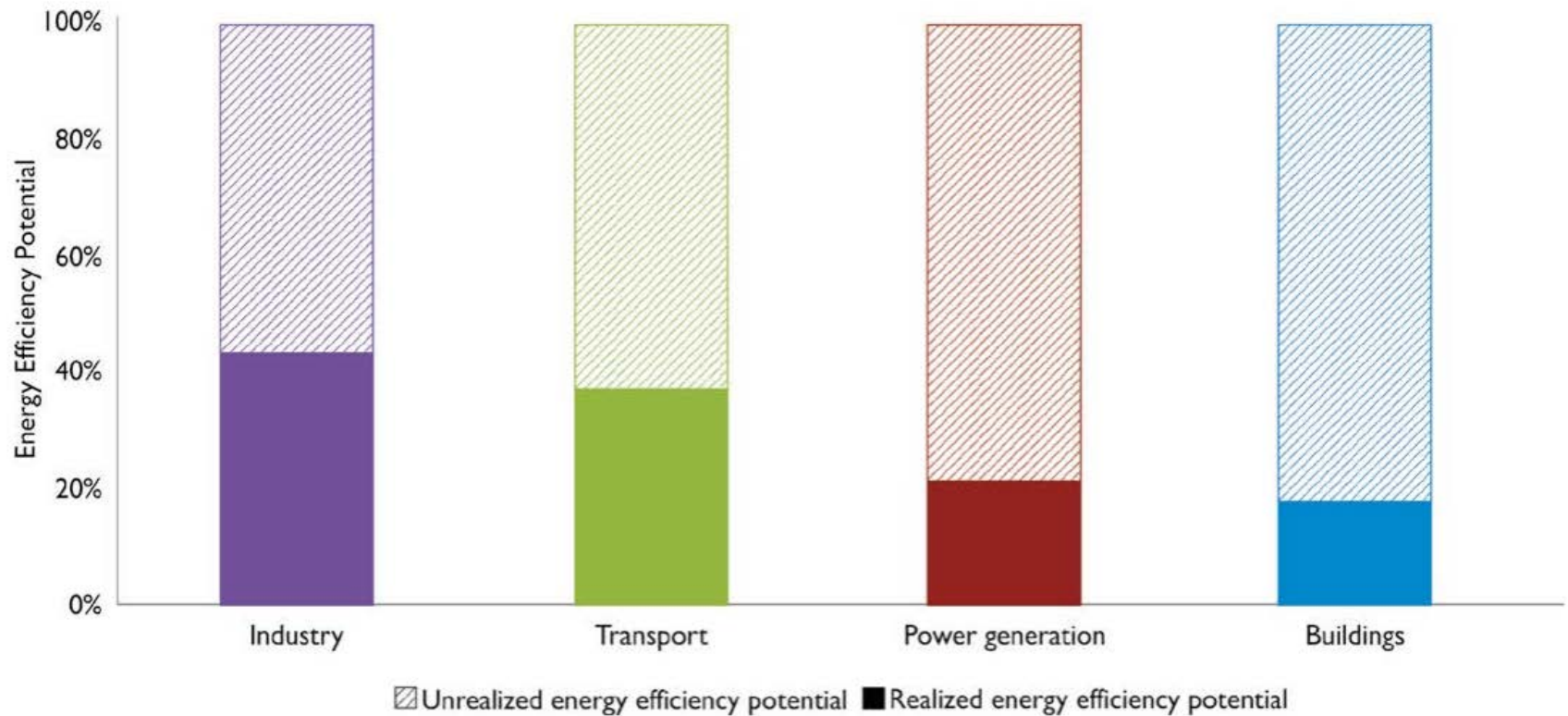
- Developed by ISO Project Committee 242; United States and Brazil lead effort with the United Kingdom and China
- **50** countries participating, **24** additional Observing members
- Publication **June 15 2011**

drivers for energy efficiency



Source: IEA, BofA Merrill Lynch Global Research

despite significant benefits....lots of untapped potential

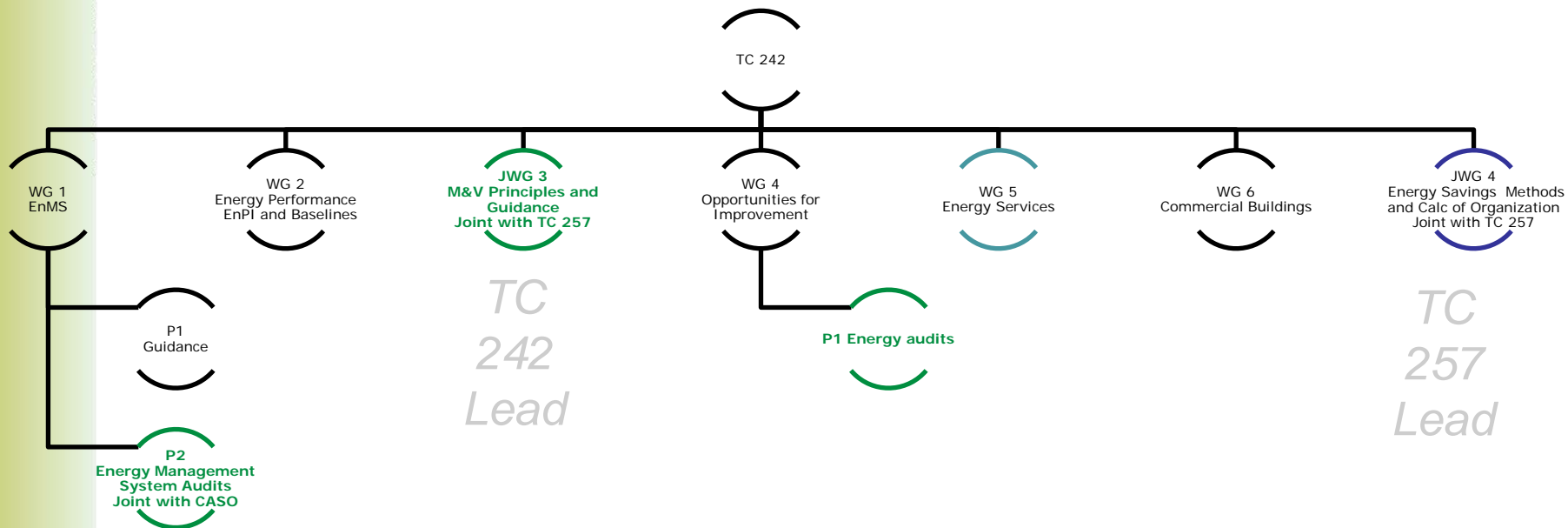


Problem: *Energy efficiency is not integrated into daily management priorities and practices.*

Source: World Energy Outlook, IEA
2012



Overview of ISO TC 242



- WG 1: EnMS
 - P1 Guidance
 - P2 EnMS Auditing CBs
 - P3 PWI HLS
- WG 2 Energy Performance
 - EnB and EnPI

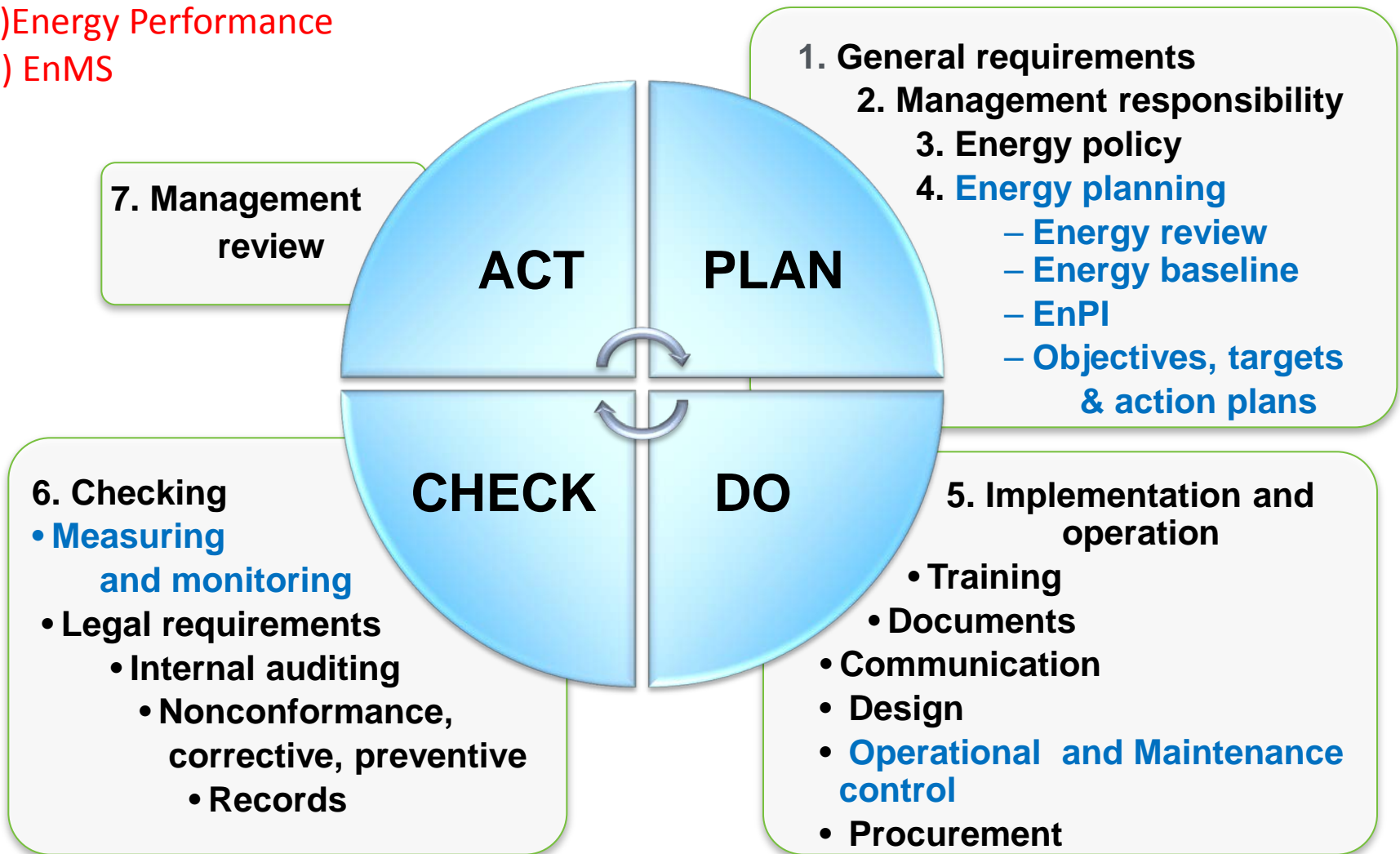
- JWG 3 M&V
- WG 4 Energy audits
- JWG 4 M&V organizations
- WG 5 Energy Services
- WG 6 Commercial Buildings

ISO 50001: Plan-Do-Check-Act

Continual Improvement of

a) Energy Performance

b) EnMS





Membership Challenges and Success

Energy Management





Challenges for Mirror Committee

Membership Challenges

- Participation in other ISO committees
- Participation in other Professional Associations
- Travel Cost
- Membership Costs
- Time Commitment
- Learning the process

Marketing Challenges

- ❖ ISO Standards are consensus documents not just “magically created”
- ❖ Participation of a variety of Stakeholders ensures relevance
- ❖ We are Not ANSI

Membership Challenges

- Recognition for other committees
- Ask to provide updates to Professional Societies (We provide the presentation for you)
- Justification letters to member companies
- Presentations, handouts, and web resources

Marketing Challenges

- ❖ Planned outreach to each stakeholder group every year
- ❖ Choice of benefits
- ❖ Have ANSI at the meetings

Support for ISO 50001

US CEEM

- Acts as champion of U.S. industry in pursuing national energy efficiency goals.
- Seeks to improve the energy intensity of U.S. manufacturing through a series of initiatives.
- Stakeholder engagement meetings.

lyondellbasell

3M

PPG

Ford

EASTMAN

OWENS
CORNING

ALCOA

Save
ENERGY
Now®

ANSI
ANSI Accredited Certification Program

HUNTSMAN

hp

Weyerhaeuser

SSAB

DOW

M.

NATIONAL ASSOCIATION OF
Manufacturers

Energy
ENERGY STAR



ALLIANCE TO
SAVE ENERGY
Creating an Energy-Efficient Work

NIST

National Institute of
Standards and Technology



Texas Industries of the Future

TOYOTA



Benefits of International Participation

Energy Management

Adoption of ISO 50001

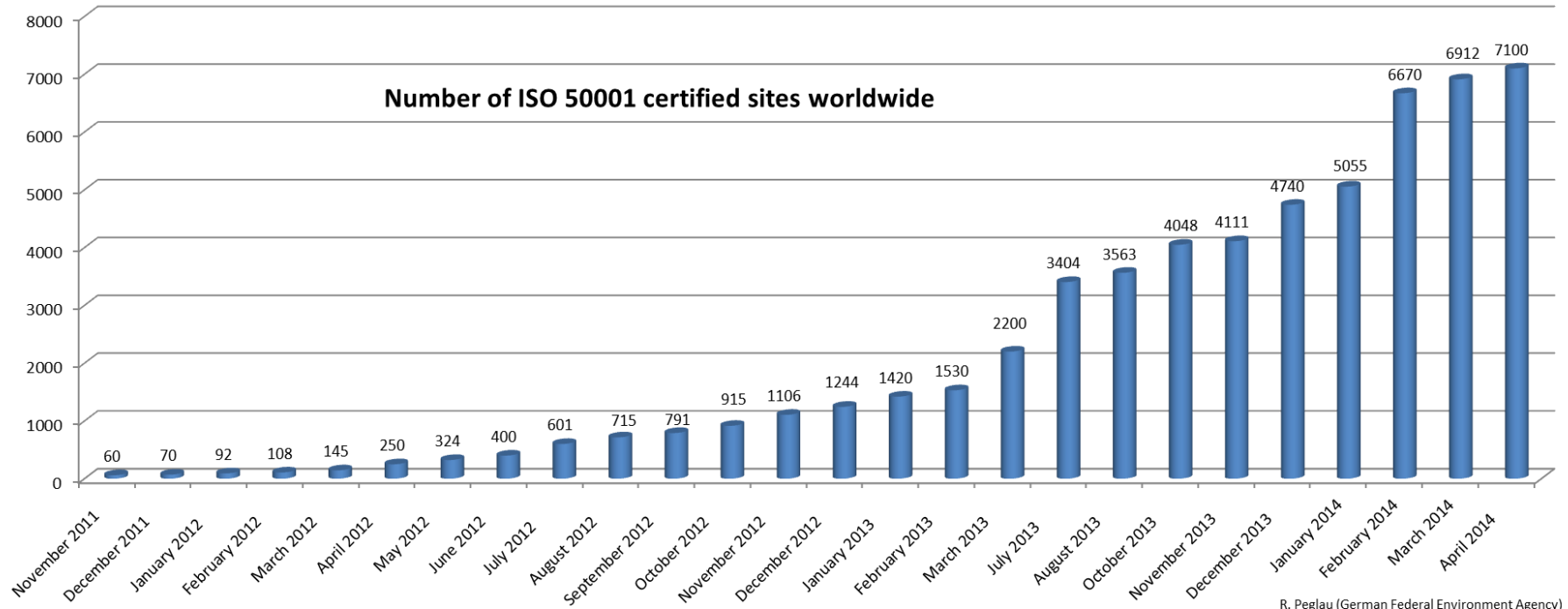
Country	2011	2012	2013
Germany	42	1133	2477
United Kingdom	11	136	330
Italy	30	74	258
Spain	95	127	196
India	25	74	172

Source: ISO Survey 2013



ISO 50001 Certifications Worldwide

Nov. 2011 through April 2014



7,100 certified sites worldwide as of April 2014.

Number of global ISO 50001 certified sites has increased by 214% over the past year (March 2013 to March 2014).



Benefits to Members

- Professional Contacts
- Improved understanding of global perspective
- Improved understanding within their own organization
- Improved understanding of the ISO process and standard requirements
- Seeing what I worked on used by other organizations
- Seeing the results related to energy performance



Package for our Mirror Committee

- What do your members **NEED**?
 - Copies of working documents
 - Ability to provide marketing opportunities
 - Ability to provide information to their clients early or to develop materials early
 - Networking
 - Presentation on their organization, tours of particular sites
 - Services in kind



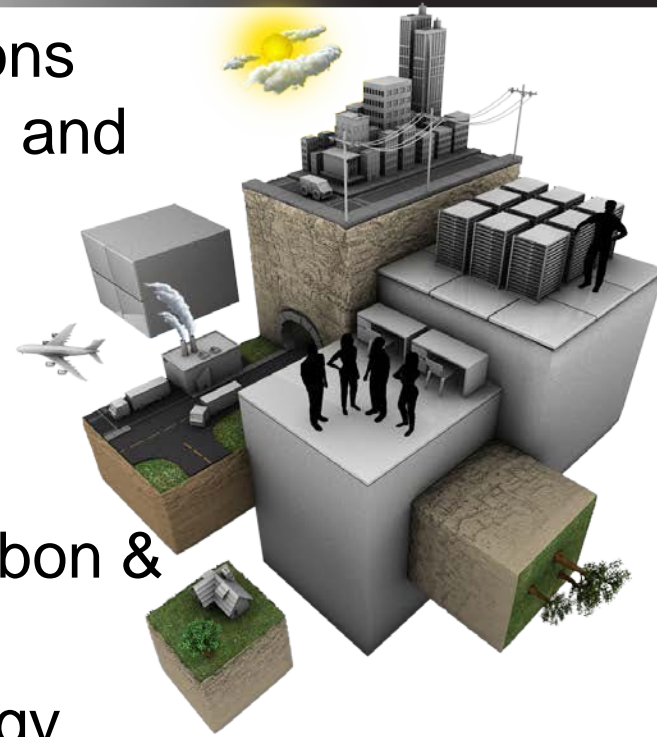
Benefits of ISO 50001 to Organizations

Energy Management



ISO 50001 Benefits

- Works from large to small organizations across diverse commercial, industrial and public sectors
- Improved cost savings
- Helps to achieve energy efficiency & compliance
- Reduced environmental impact – carbon & GHG
- Coordinating energy programs (Energy Efficiency, Energy Production, Renewable Energy and Alternative Energy)
- Facilitates external financial incentives (Electric utility, third party financing, tax benefits and others)





ISO 50001 Benefits

- Builds energy management into business practices
- Optimize energy-consuming assets
- Improves operations and capital cost decisions
- Facilitates energy management best practices
- Improves the ability to benchmark, measure and report energy intensity improvements
- Improves transparency and communication on the management of energy resources
- Helps in evaluating and prioritizing new energy-efficient technologies
- Framework for promoting energy efficiency throughout the supply chain



Results

CCP Plant – Houston Texas

- 36 Employees
- Manufactures and distributes coatings resins, structural resins, gel coats

Significant Energy Use Equipment:

- Hot Oil Boilers, Steam Boilers, Thermal Oxidizer, Cooling Towers,
- Air Compressor
- N2 Generator

Results

- 14.9%** energy savings/24 months
- Savings of \$250,000** per Year
- \$0 capital investment** required



HARBEC Inc.

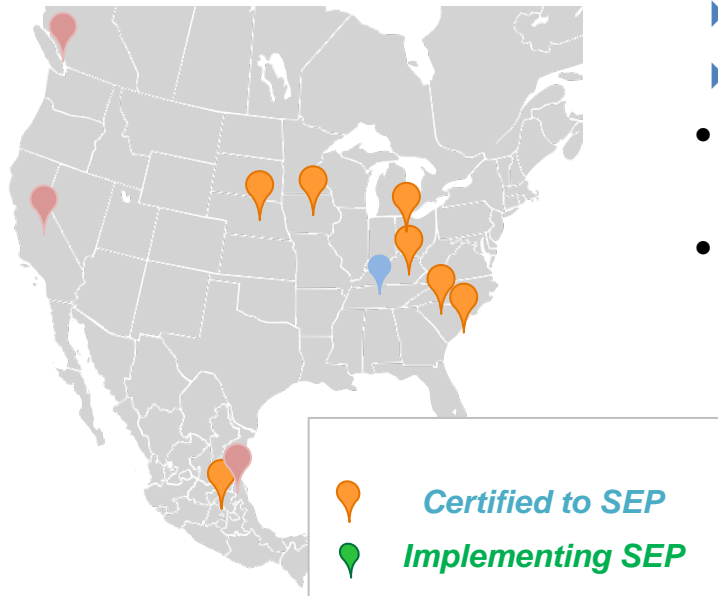


"We are wary of statements of intent, but third-party verification under SEP provides evidence of proven energy savings. Without verification, stated savings are just a nice statement."

- Bob Bechtold, President

- ▶ ***SEP Platinum Certified:*** Ontario, NY, facility
- ▶ *Improved energy performance by 16.5%*
- ▶ *EnMS implementation resulted in \$52,000 in annual savings through operational improvements **with no capital investment***
- ▶ *SEP is the organizing framework in driving the company's goal to be a **carbon-neutral company***
- ▶ *Adopted a CHP system and two wind turbines*
 - *ISO 50001/SEP strengthens management of this equipment, increasing the benefits gained*

Schneider Electric: Smyrna, Tennessee & Beyond



Map data points are intended for illustrative purposes only.

“At first, we didn’t appreciate the value of third party verification, but our facility has evolved to value third party verification as critical. Any facility can claim energy savings, but a third party verification proves the savings to be real.”

- Schneider Electric, Smyrna, TN

- ▶ **SEP Platinum Certified:** Smyrna, TN facility
- ▶ Improved energy performance by 15.3% over 3 years
- Facility did not add any staff to support SEP implementation.
- Smyrna’s success is driving Schneider Electric to certification *and implementation SEP across 11 additional facilities in 2014:*
 - United States: 8
 - Canada: 1
 - Mexico: 2



Nissan: >\$900K Savings, 4 Month Payback



- ▶ **SEP Silver Certified:** Smyrna, TN vehicle assembly plant
- ▶ 7.2% improvement in energy performance over 3 years
- ▶ \$938,000 total annual energy savings
 - ▶ 4 month payback
- ▶ Used the DOE EnPI Tool to measure and track improvements

“SEP adds rigor, analysis, and gives good guidance. It’s one thing to have a target and objective, but SEP gives tools that empower you to be more disciplined and prove the impact certain activities have.”

-Nissan North America Energy Team

View this and other SEP case studies at:
http://superiorenergyperformance.energy.gov/successes_and_testimonials.html



Working with Government Policy

Energy Management

Government are promoting energy management strategies to help realize potential

- **Solution:** *EnMS will help tap unrealized energy efficiency potential by helping industry identify and implement new opportunities for energy and cost-saving objectives on an ongoing basis.*
 - *The publication of ISO50001 International Energy Management System Standard in June 2011 has raised the profile of EnMS as a key energy efficiency strategy.*
 - *Many countries have a long history promoting energy management (e.g. Japan and Ireland)*

Key to success of government energy management programs!

Incentives

- Taxes
- Subsidies
- Recognition programs

Technical Assistance

- Technical expertise made available to facilitate implementation low to no costs

Training

- In-house staff – broad reach across organization
- Consultant and Auditors

Information and Knowledge Sharing

- Tool, guides and case studies
- Peer networks to motivate and promote best practices

energy management within broader policy frameworks

- Governments are promoting energy management systems as compliance pathways for energy policies with broader energy efficiency goals:
- Energy Savings Targets
- Energy Taxes
- Energy Efficiency Obligation Schemes
- Voluntary Agreements

energy savings targets

- Energy Savings Targets offer a structured policy approach, providing clear milestones towards achievement of long-term climate and energy goals. A number of countries are positioning energy management systems as key strategy for ensuring targets are met.

China

China's Top 10,000 Enterprises Program negotiates energy savings targets with large-energy users in order to meet economy-wide targets within the country's 12th Five-Year Plan (FYP), has an. Industries obligated under the Top 10,000 Program must collectively meet 37% of the FYP's absolute energy-savings goal of 670 Mtce.

The program also requires local authorities to establish programs to support industry implementation of China's national EnMS standard, GB/T 233331, which was revised in 2012 to align closely with ISO 50001.

energy tax policies

- Many governments have created energy tax schemes to motivate increased energy efficiency. Some governments offer tax exemptions to companies who have been certified to an EnMS standard, or ISO50001.

Germany

Germany offers industry exemptions with proof of certified EnMS for its renewable energy and electricity taxes of up to 99% and 90%, respectively.

As of February 2014, German accounts for 52% of global certifications to ISO50001.

energy efficiency obligation schemes

- These policies impose energy efficiency obligations on some category of energy market operators, and are sometimes coupled with various trading options (white certificate programs).
- Traditionally, these policies include eligible projects that are easier to monitor and verify such as equipment replacement.
- Governments are finding innovative ways to include expand programs to include eligible measures like adoption of energy management systems.

France

Strong incentives for implementing ISO50001 by providing parties with bonuses of 50% to 100% for the white certificates they obtain for energy saving measures in the perimeter of a certified ISO 50001 EnMS. The bonus increases as the EnMS is further developed.

voluntary agreements

- Voluntary Agreements (also known as target-setting or negotiated agreements), have been in use since 1990's and programs exist in many countries including the United States, Canada, Australia, New Zealand, Japan, Republic of Korea, Taiwan Province of China and many in Europe.
- Key features of Voluntary Agreements:
 - Signed, legally-binding agreements with realistic long-term (typically 5-10 years) target
 - Require facility- or company-level implementation plans
 - Annual monitoring and reporting
 - Strong enforcement mechanism – tax or incentive
 - Effective supporting programs

Voluntary Agreements and Energy Management

• In practice, Voluntary Agreements with an energy management strategy mostly promote energy management system standards adoption. ISO50001 is a requirement of agreements in Denmark, Ireland and Sweden.

Sweden

- *Program for energy efficiency in energy intensive industries (or PFE) was established in 2005*
- *Offers attractive tax incentives to energy-intensive industries that join the five-year program.*
 - *The core of the program is certification to ISO 50001.*
- *As of January 2014, companies volunteering to participate in the PFE represent over 90% of energy use in the Swedish energy-intensive sector.*

mandatory energy management policies

Some governments are also designing policies that mandate adoption of energy management systems or practices. These policies can coexist and compliment policies such as energy savings targets.

	Energy Management Requirement	Excerpt of supportive Measures
Singapore Energy Conservation Act which comes into effect in 2013	Requires large industrial energy users to : <ul style="list-style-type: none">• appoint energy managers;• report on energy use ,• submit energy efficiency improvement plans.	Several initiatives in the areas of capability building in energy management, incentive schemes and awareness raising are currently ongoing.
Kazakhstan Policy went into effect January 2014	Requires that large energy users become certified to ISO50001	50% subsidy on the certification of the energy management system

voluntary energy management programs

- Without regulatory levers or fiscal incentives, voluntary programs depend on market-based strategies to promote adoption of EnMS.

United States

The Superior Energy Performance (SEP) program is a market-based certification program. SEP has ISO50001 as a foundation with added energy performance improvement requirements. Robust conformity assessment is emphasized in this program.

SEP uses market recognition, technical assistance and training as supportive measures to promote adoption.

Though utilities at sub-national level are exploring promotion of SEP to meet energy efficiency obligations.

designing energy management programs

• A number of domestic factors help shape government program approaches:

- *Existing efficiency policy and programs*
- *Social and political culture*
 - *Level of capacity*
 - *Data availability*
- *Accreditation and certification infrastructure*
- *Business culture*
- *Available government resources*
- *And others.*

No one-size-fits all solution. Government need to consider these factors and others to build nationally appropriate programs.

Initiatives – International Energy Agency

2

Information and Networks

IEA activities

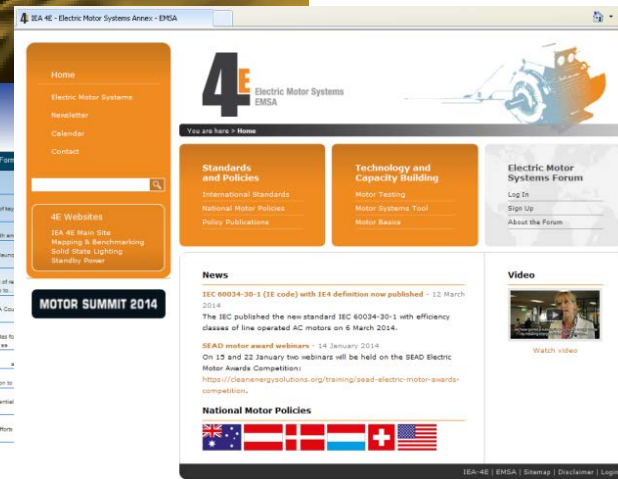
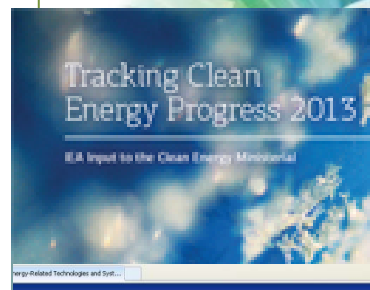
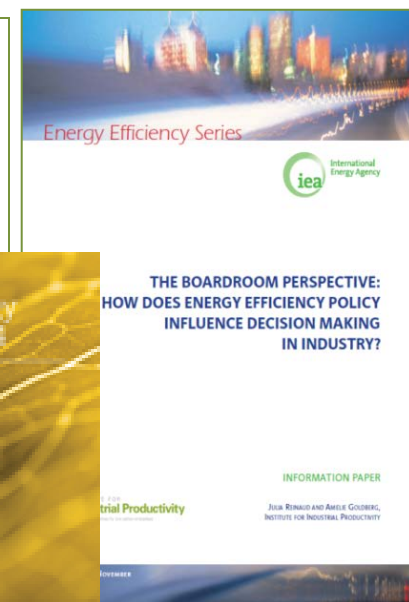
✓ Engagement with international standardisation organisations

✓ Policy Pathway on promoting energy efficiency in SMEs (2014/2015)

Energy Management Action Network (EMAK)

- Online resources
- Workshops
- Webinars

Source: V. ROZITE



Initiatives – Global Superior Energy Performance 3

ISO 50001 Auditor Certification Scheme

*GSEP is supporting the development of internationally-relevant **certification schemes for ISO 50001 Auditor and Lead Auditor**. The goal is to improve consistency of ISO 50001 certification outcomes by establishing a standardized and high level of knowledge and skills for ISO 50001 auditors globally.*

Contributing Countries

- *Canada, Chile, Korea, Mexico, South Africa, and the US*

Benefits to Participating Countries

- *Builds on and is consistent with the requirements of ISO/DIS 50003 –Energy management systems -- Requirements for bodies providing audit and certification of energy management systems*
- *Opportunity to influence development of professional qualifications critical to the success of ISO 50001*
- *Leverage existing efforts among GSEP participants in professional qualifications and training*
- *Access a package of materials to support national implementation of an ISO 50001 Auditor program that meets rigorous international requirements*

Upcoming Key Activities and Timeline

- **March 25-27th, 2014 – Workshop in Washington DC:** Government representatives from Canada, Chile, Korea, Mexico, South Africa, and the US contributed to the developed a draft Job Task Analysis.
- **May 2014: JTA Survey:** GSEP welcomes any country to comment on the JTA by disseminating a survey to key national-level experts and stakeholders.
- **July 2014:** Finalization of the JTA and drafting of a set of general principles concerning implementation of the Certification Scheme – July 2014
- **September 2014:** The resulting ISO 50001 Auditor and Lead Auditor Certification Package consisting of the Job Task Analysis, Certification Scheme, and Implementation Principles will be made available to any interested country under a licensing agreement.



Resources

- <http://www.cleanenergyministerial.org/Our-Work/Initiatives/Buildings-and-Industry/Energy-Management/Publications>
- http://www.iso.org/iso/home/news_index/iso-in-action.htm
- <http://www.iso.org/iso/home/standards.htm>
- http://www.iso.org/iso/home/news_index/iso-in-action/energy.htm



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Thank You



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