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Mechanisms for sustainable energy efficiency – the need for energy management standards

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Presentation Outline

- Context
- Why industrial energy efficiency is not happening
- How Energy Management Standards (EnMS) help
- Climate Change perspective
- National EnMS and ISO 50001 – Energy Management Standard

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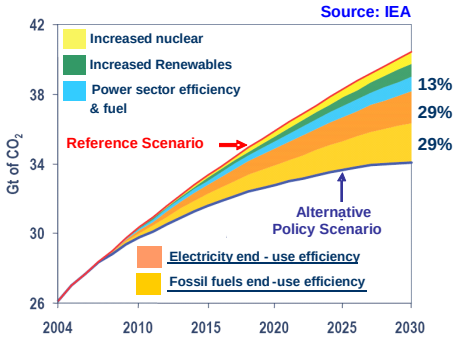
Industrial Energy Efficiency Context

- Industrial energy use globally accounts for
  - 40% of electricity use
  - 77% of coal and derivatives use
  - 37% of natural gas use

  and 1/3 of global CO_2 emissions[1]
- Industry has the potential to reduce its energy intensity and emissions by up to 26–32%, providing a 8-12% reduction in total energy use and CO_2 emissions[2]



Potential CO_2 emission reductions from different policy options

[1,2] **Source: IEA, 2006 and 2007**

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Developing & Emerging Countries – Context

- Industrial energy use can be up to 50% of the total use and can produce supply problems → energy security
- Non-OECD countries will continue to lead global growth of energy demand (87% until 2030 according to the IEA) with industry being the biggest user
- Industrial sector growth requires many new facilities, rapidly built & expanded; including substantial growth in energy intensive sectors
- Building in energy efficiency the first time is much more cost-effective than retrofitting it later
- Governments are increasingly aware, and concerned about, both energy security, industry competitiveness and climate change

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Industrial Energy Efficiency Benefits

- Energy efficiency has demonstrated, time and again, that
  - ✓ It saves industrial firms money
  - ✓ It increase reliability of operations
  - ✓ It has a positive effect on productivity and competitiveness
  - ✓ It can offer attractive financial and economic returns
  - ✓ ….

then

Why it is not happening?

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Barriers to Industrial Energy Efficiency

- Management focus is on production and not on energy efficiency
- Lack of information and understanding of financial and qualitative benefits
- Lack of adequate technical skills to assess performance, developing and implementing EE measures and projects
- First costs more important than recurring costs → disconnection between capital and operating budgets
- When EE knowledge exists it very often resides with individuals rather than with the company/ organization → sustainability risk
- Poor monitoring system and data
- ……

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Energy Management Standards – Why?

Most energy efficiency in industry is achieved through changes in ***how energy is managed*** in an industrial facility, rather than through installation of new technologies.

Energy Management Standards (EnMS) provide market-based tool and best-practice methods to **integrate EE in industry corporate culture and daily management**. EnMS provides:

- A framework for understanding significant energy uses
- Action plans for continually improve energy performance
- Documentation to sustain energy performance improvements over time and change of personnel

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What EnMS do achieve?

- Management focus
- Systematic activity
- Obligation to train and raise awareness
- Obligation to provide resources
- Continuity through changes of personnel

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What EnMS do achieve?

- Most industrial enterprises that have implemented EnMS achieved average **annual energy intensity reductions of 2.0-3.0%** against the 1.0% reduction of business as usual (Ireland, Netherlands, Denmark, USA)
- EnMS accelerate adoption of EE best-practices and technology transfer, enhancing productivity and competitiveness
- **Improve enterprises' bottom line**

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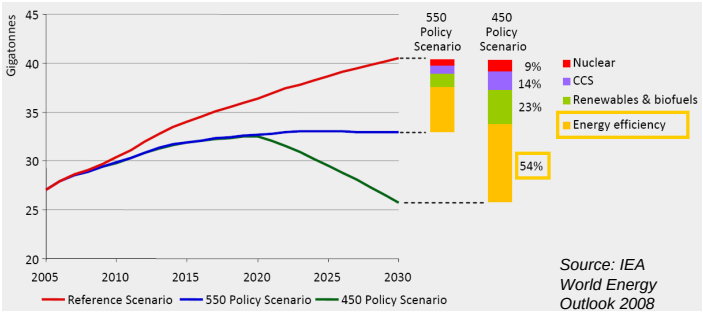
From a Climate Change Mitigation Perspective

- Reduction in energy-related CO_2 emissions in climate-policy scenarios



- **2.5% annual reduction of global energy intensity** is the target that the United Nations, the World Bank and the international community are called on to commit to ensure a sustainable future

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From a Climate Change Mitigation Perspective

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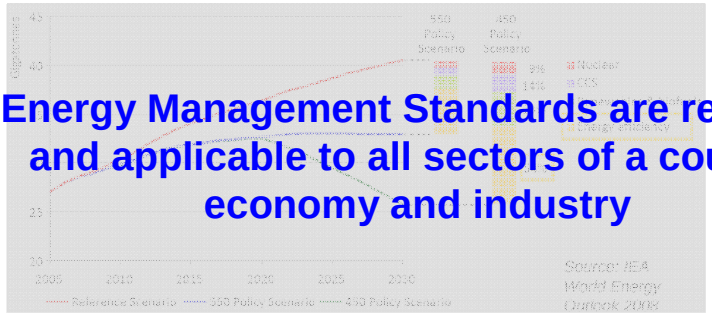

Energy Management Standards are relevant and applicable to all sectors of a country economy and industry

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  http://www.unido.org/fileadmin/user_media/News/2010/AGECC_Report.pdf

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National EnMS and ISO 50001

- Existing national standards
  - ✓ US, Denmark, Sweden, Ireland, Thailand, South Korea, South Africa, Spain
- Existing national specifications
  - ✓ The Netherlands, United Kingdom, Germany
- Regional standard
  - ✓ EN16001 – European Energy Management Standard
- **ISO 50001 – Energy Management Standard**
  - ✓ Project Committee 242 established in Feb 2008. 42 members
  - ✓ UNIDO supported the process since its inception
    http://www.unido.org/index.php?id=o86084
  - ✓ ISO 50001 Draft International Standard out for voting
  - ✓ **Release of ISO 50001 planned for 1st Quarter 2011**

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Thank you for your attention

For more information

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