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Overview and Structure of an EnMS

Liam McLaughlin
Independent Energy Consultant

**Towards an International Energy Management
Standard – ISO50001**

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Poverty Reduction through Productive Activities • Trade Capacity Building • Energy and Environment



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Presentation Outline

- Overview of ISO/DIS 50001
- Potential structure of an EnMS compliant with ISO/DIS 50001
- Based on experience of implementing IS393:2005 (Ireland) and EN16001:2009 (Europe)
- A few do's and don't

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Overall goal of energy management

- Improve Energy Performance
- Be careful in defining performance
- Performance may be :
 - Cost
 - Absolute energy use
 - Various Ratios
 - CO₂ emissions



Barriers to improved Performance

- Technology is not a barrier
 - We have plenty
- People and organisations are often barriers
 - Lack of technical knowledge
 - Lack of systematic approach
 - Low priority
 - Top management may not realise the savings that can be easily made
 - Poor realisation of the link to profitability



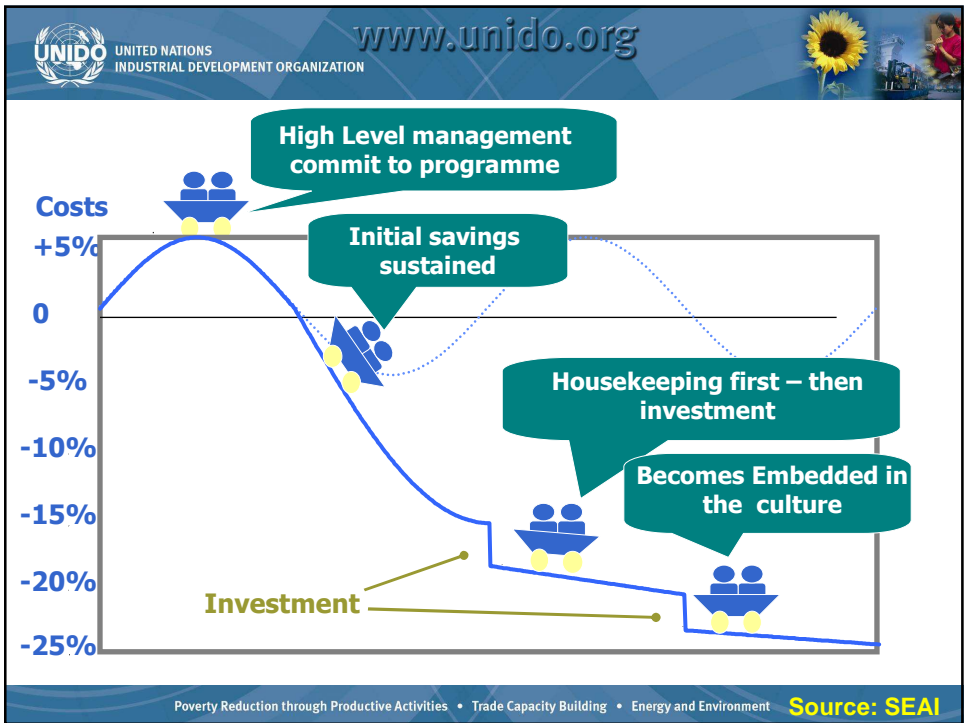
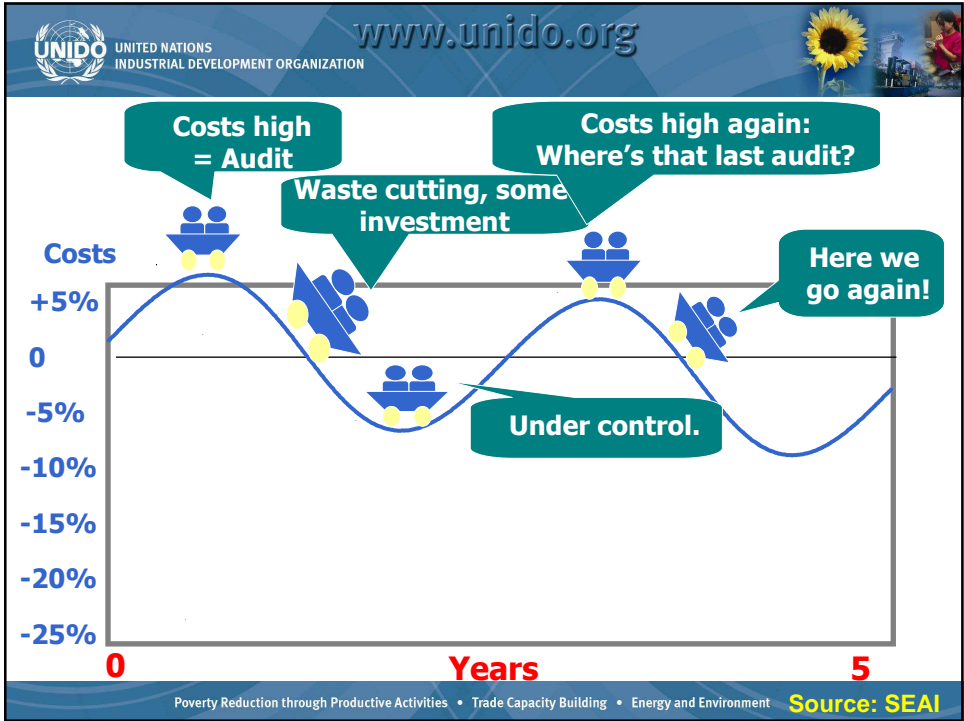
Beware!

- Too much complexity
- Too much bureaucracy
- If it doesn't help to save energy, don't do it!
- Focus on results and not on documentation
 - You will also need to document where it adds value



You need:

- Desire to improve energy performance
- Systematic approach to energy management
 - Not random actions based on today's whim
 - Energy Management System (EnMS)
 - Know where to focus and act
- The recommendation is that you use the structure of ISO50001 as the basis for that system
 - Certification / Self certification
- Be open to new ideas and ways of doing things
 - EnPIs, deviations, non-conformities, internal audits !!!



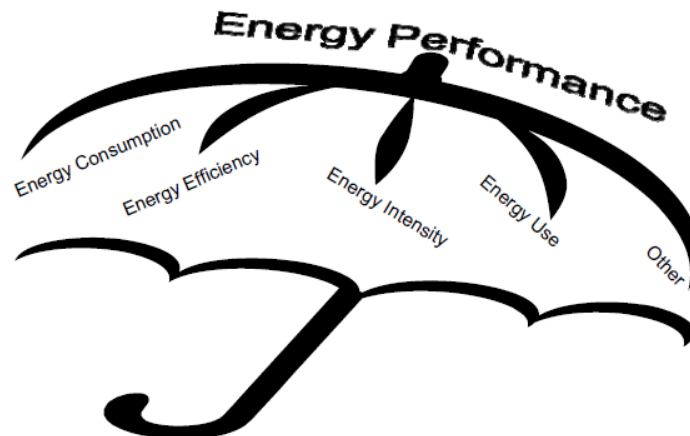


What is energy performance?

- Energy Efficiency (EE) (= output per unit of energy)
 - T/kWh, kW/kW, #/kWh
- Energy Intensity (EI) (= energy use per unit of output)
 - kWh/T, kWh/#, kWh/\$
- Specific energy consumption (SEC) (= energy use per unit of output, output is never money, e.g. kWh/m³, kWh/T)
- Be very careful!
 - Repairing leaks will often increase specific energy consumption.
 - Which is better: 100kWh/kg or 250kWh/kg?
 - Does lower EI (GJ/\$) really mean better EE?



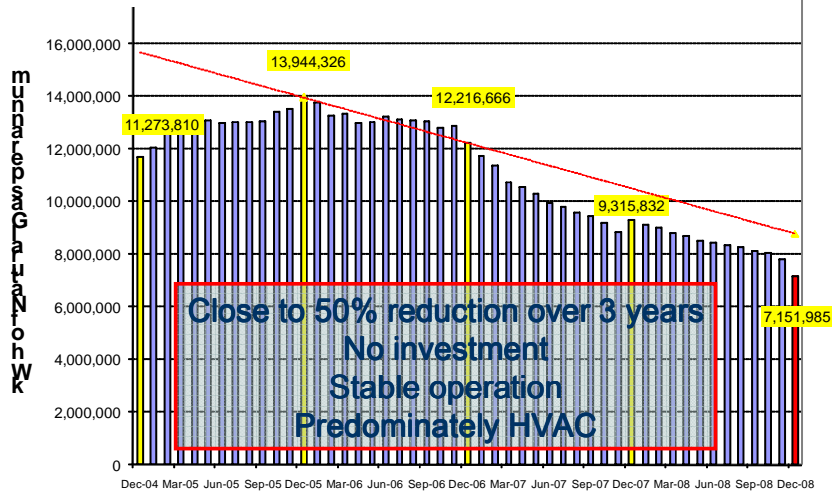
Conceptual representation



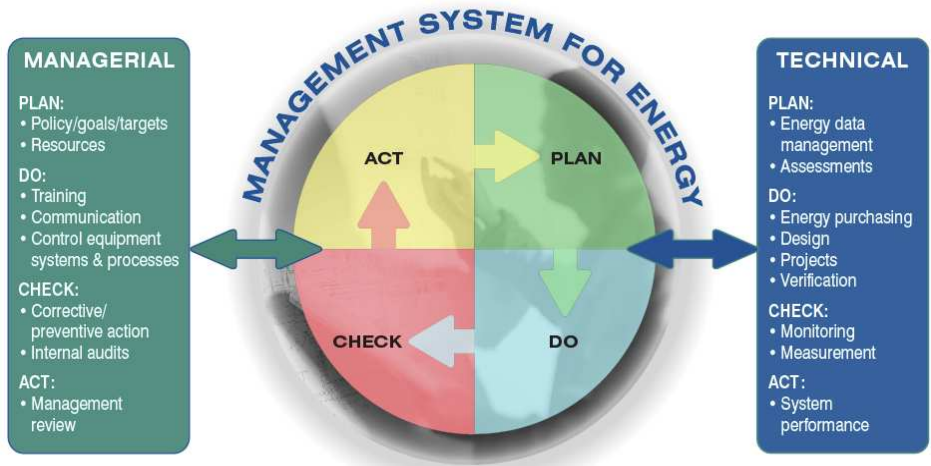


Is this performance improvement?

Target taken at 25% reduction from 2004 baseline



ANSI MSE 2000:2008



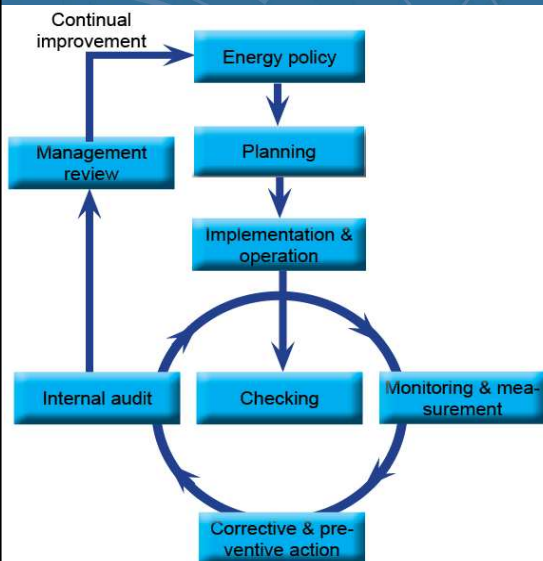


Integration

- Do not separate energy management from other management activities
- Should you separate 50001 from 14001 or 9001?
- Do not separate technical from managerial
- Make the EnMS documentation part of daily operations
 - It doesn't exist for the purpose of being audited
 - If it doesn't help to improve energy performance it shouldn't exist in the EnMS!



ISO50001 - DIS



- Plan
- Do
- Check
- Act

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Policy

- Management commitment
- Not just a signature!
- Define scope of EnMS
- Appropriate to scale
- Commitment to continual improvement
- Make Resources available
- Framework for target setting and review

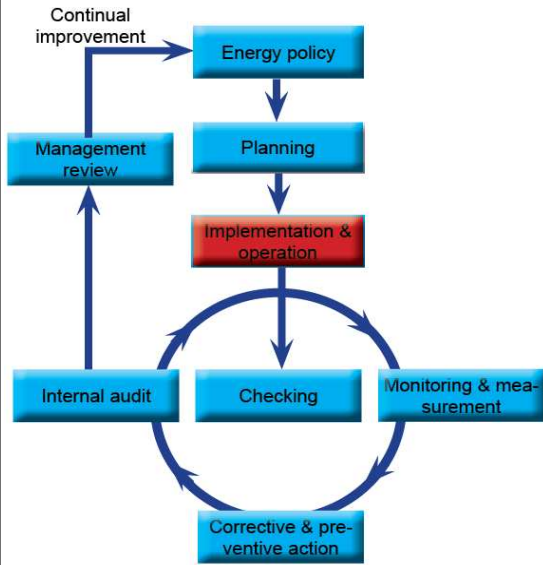
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Planning - PLAN

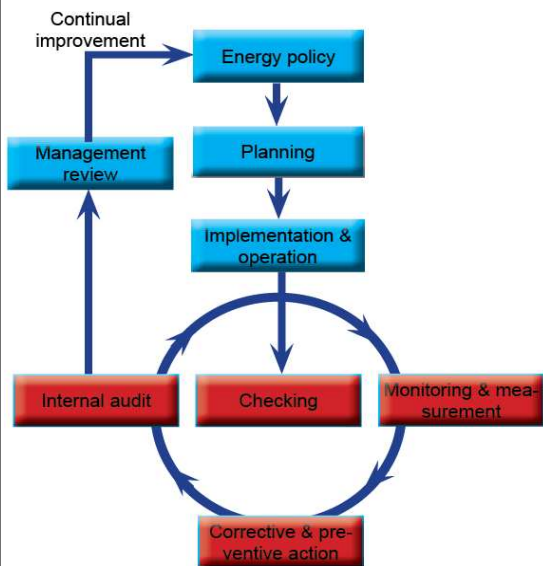
- How much energy am I using?
- Where am I using it?
- Who is influencing use?
- Which are significant?
- What is driving it?
- Legal requirements?
- Develop baseline(s)
- Develop indicators
- Objectives
- Targets
- Action Plan

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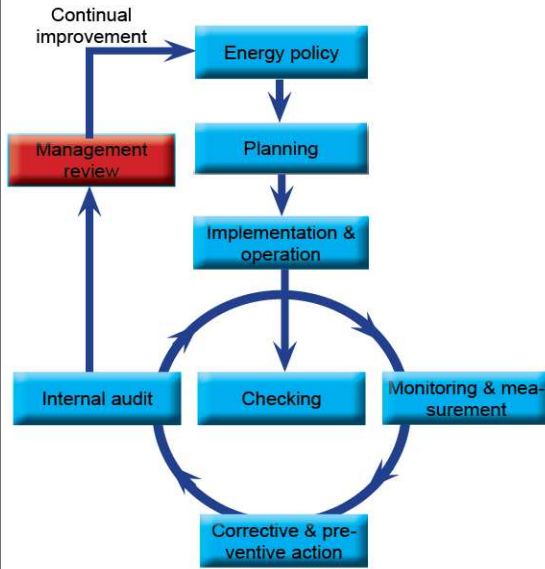
Implementation & Operation - DO

- Competence, training and awareness
- Documentation
- Operational control (operation and maint)
- Communication
- Design
- Purchasing energy, services and goods



Checking CHECK

- Monitoring – technical and system
- Check:
 - Indicators
 - Action plans
 - Legal and other compliance
 - Non-conformities
- Control of records
- Continuous internal audits



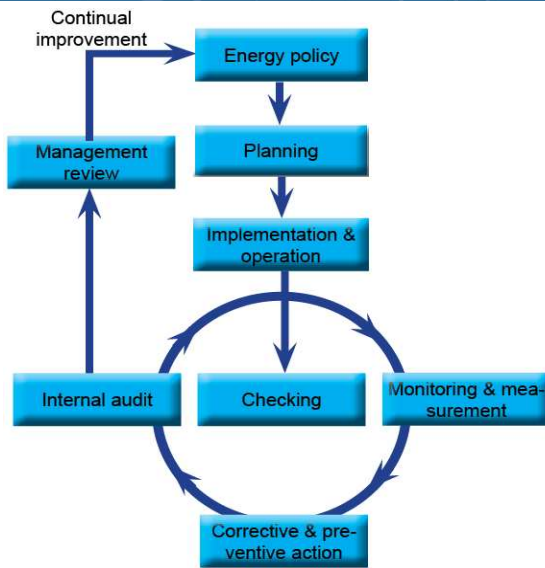
Management Review - ACT

➤ Inputs

- Performance
- Objectives and targets
- Audit results
- Plans for improvement

➤ Outputs

- Decisions
- Changes to policy, objectives, targets, etc.
- Resource allocation



Then
start
all
over
again!



What's new or different with an EnMS?

- Continual Improvement
- Systematic approach
- Identify and focus on significant users
- Identify and focus on significant people
 - Training
- Focus on data and numerical methods
- Energy Performance Indicators (EnPIs)
- Integrated approach
 - People
 - Departments
 - Budgets
- It is all about saving energy!



Note

- Once significant energy users are identified they become a major focus for all other activity:
 - EnPIs
 - People and training
 - Targets and action plans
 - Monitoring
 - Operating parameters
 - Instrumentation and measurement
 - Internal audit



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Who is ISO50001 for?

- Large multinational organisations
- Developing economies
- Small and medium enterprises (SMEs)
- Organisations with no management system experience e.g. 9001 or 14001
- Utility departments in large organisations
- National energy policy development
- All of the above?

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Thank you for your attention

For more information:

Liam McLaughlin

++353 (0)87 967 5942

mclaughlin.liam@gmail.com

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