Checking Performance and Management Review

Liam McLaughlin
Independent Energy Consultant

Towards an International Energy Management Standard – ISO50001

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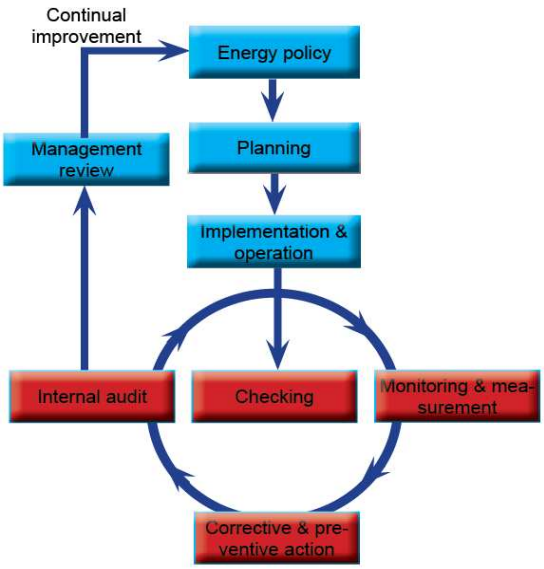

Checking

1. Monitoring, measurement and analysis
2. Evaluation of legal compliance
3. Internal audit of the EnMS
4. Nonconformities, correction, corrective and preventive action
5. Control of records

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We have a policy and plans

We know where our energy is going and why

We are actively managing our energy performance on an ongoing basis

Now, we must check and monitor that we have our energy performance under control.

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Monitoring, measurement and analysis

- Ensure that key characteristics that determine energy performance are checked at planned intervals
  - Outputs of the energy review
  - Significant energy uses
  - Relationship between SEU and relevant variables
  - EnPIs
  - Effectiveness of action plans
- Measurement plans
  - Calibration

Evaluation of legal and other compliance

- Evaluate at planned intervals
- Check that all requirements are being met
- Record requirements and results

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Internal audit of the EnMS

- Audit plan and schedule
  - Consider importance of process or area
  - Audit all requirements of the EnMS
- Check that activities conform to planned arrangements
- Check conformance to ISO/DIS 50001 if relevant (i.e. if seeking certification)
  - Audit all clauses
- Auditors to be objective and impartial
- Report to top management

Nonconformities, correction, corrective and preventive actions

- Procedure required
- Anything that impairs energy performance
- Correction
  - Fix the problem
- Corrective action
  - Eliminate the cause and prevent recurrence
- Preventive action
  - Prevent the cause of a potential problem and thus prevent occurrence
- Record actions and their closure

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Control of records

- We need records of results of each part
- Identification
- Retrieval
- Retention
- Demonstrate conformity and control

Checking energy performance

- The methods outlined in the next few slides are not explicitly required by the standard but are highly recommended. (Source: Vilnis Vesma)
- Great care is required in defining performance
- Care in selecting EnPIs
  - Coefficient of Performance (COP)?
  - Boiler efficiency?
  - kWh per unit of output?

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Energy performance

- You cannot manage what you do not measure…..
- Not the whole story
- It is not enough to know how much you used
- Critical question: **Was it more than necessary?**

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What drives your energy use?

- Weather
- Daylight availability
- Production throughputs
- Mileages
- Occupancy
- …*etc*

- *"adjustment factors or driving factors"*

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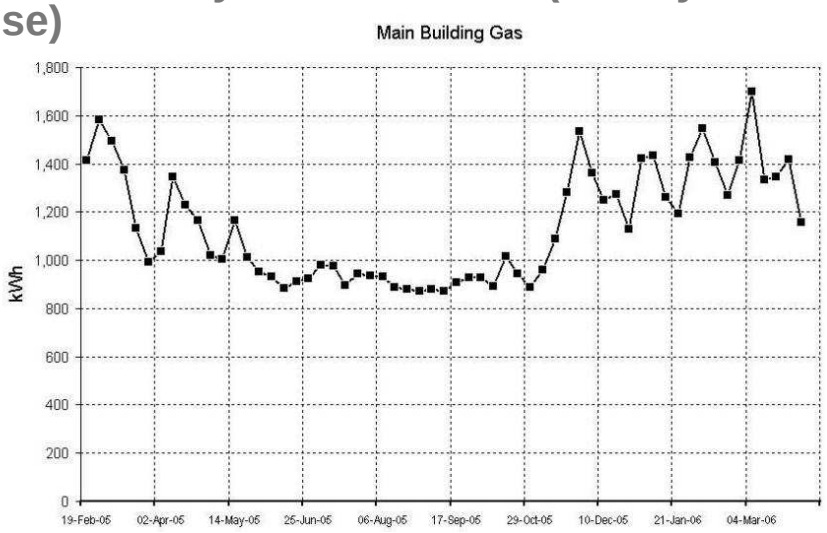
How would you check this? (weekly fuel use)



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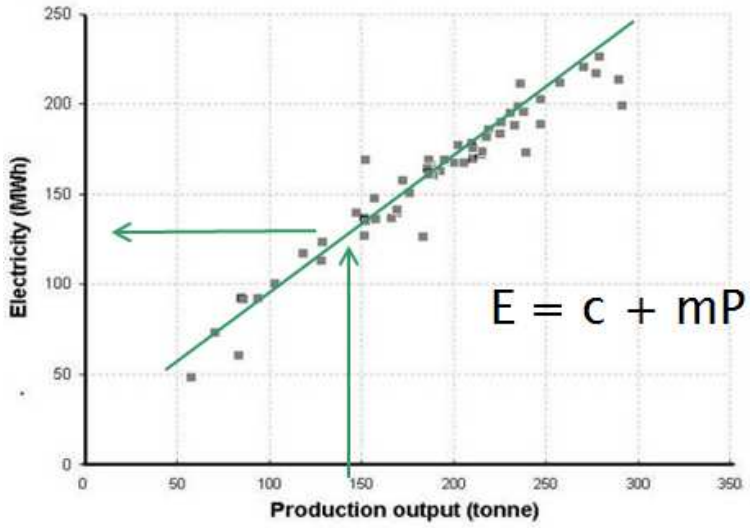
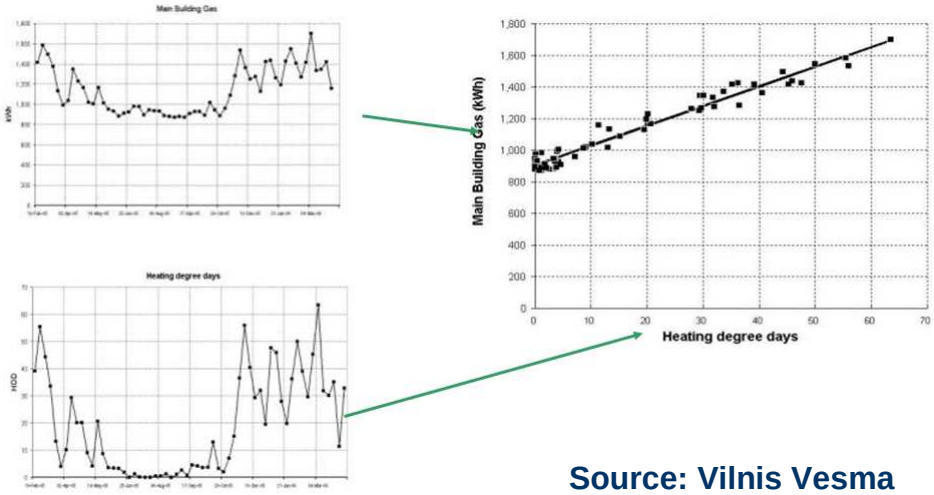
Simple case: production process

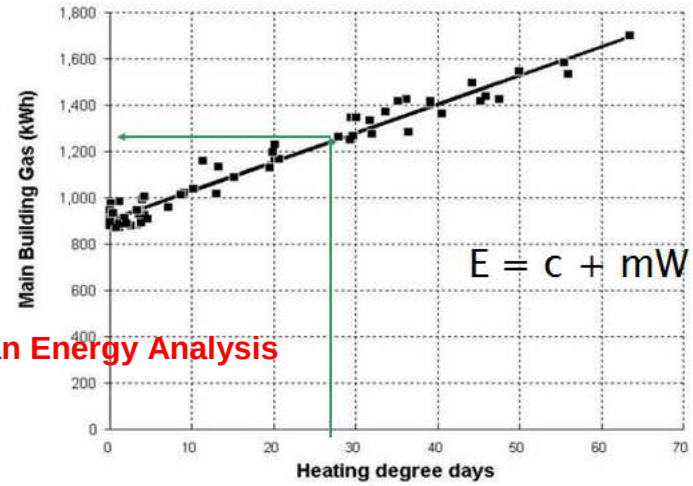


More difficult: space heating



Source: Vilnis Vesma

Space heating



Lean Energy Analysis

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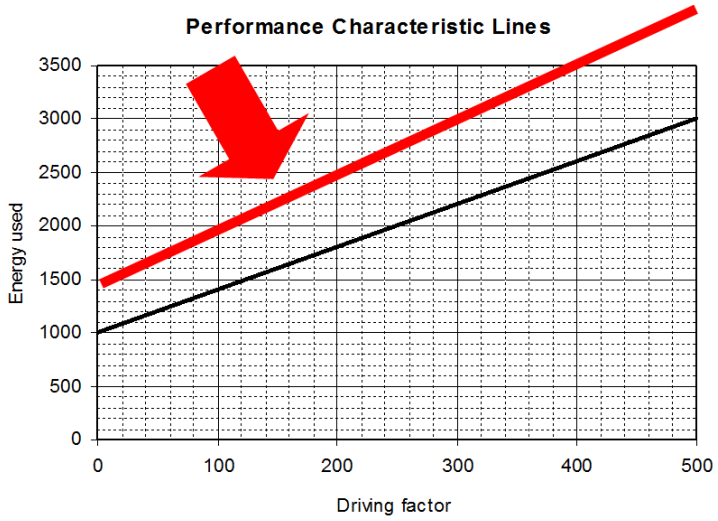
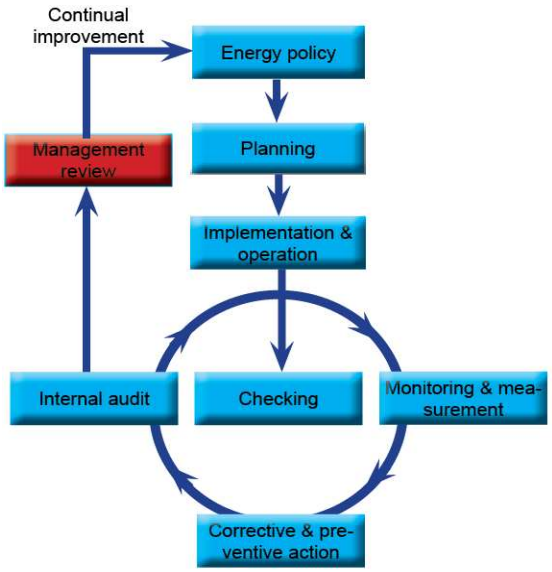
The main message

- Establish relationships between energy use and appropriate driving factors
  - Boiler fuel v steam output
  - Refrigeration electricity v load and ambient temperature
- Sometimes called “performance characteristics”
- Calculate expected use and compare with actual
- Examine unexplained deviations

Baseline and target





Management Review - ACT

- Inputs
  - Performance
  - Objectives and targets
  - Audit results
  - Plans for improvement
- Outputs
  - Decisions
  - Changes to policy, objectives, targets, etc.
  - Resource allocation

Management Review

- Probably an annual meeting with senior management
- Energy Manager does the preparation of a presentation
- Procedure = meeting minutes
- Records = meeting minutes
- Action = meeting minutes

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Lessons learned

- It's easy to implement an EnMS
- It's easy to get it certified
- It's another step to making it part of your culture and making real, sustainable and continuous performance improvements
- It can be done!
  - Needs commitment

Do

- Have real management support
- Keep it simple
- Involve the key players
- Integrate where feasible
  - But not just because it looks good
- Use existing systems where sensible
- Keep the system transparent and open to as many people as possible

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Do not

- Depend on one individual
  - Though it really helps to have an enthusiast or two
- Consider this to be a project
  - Successful certification is not the end
- Make it too complicated
  - Add complexity next year if you need it (you probably won't)

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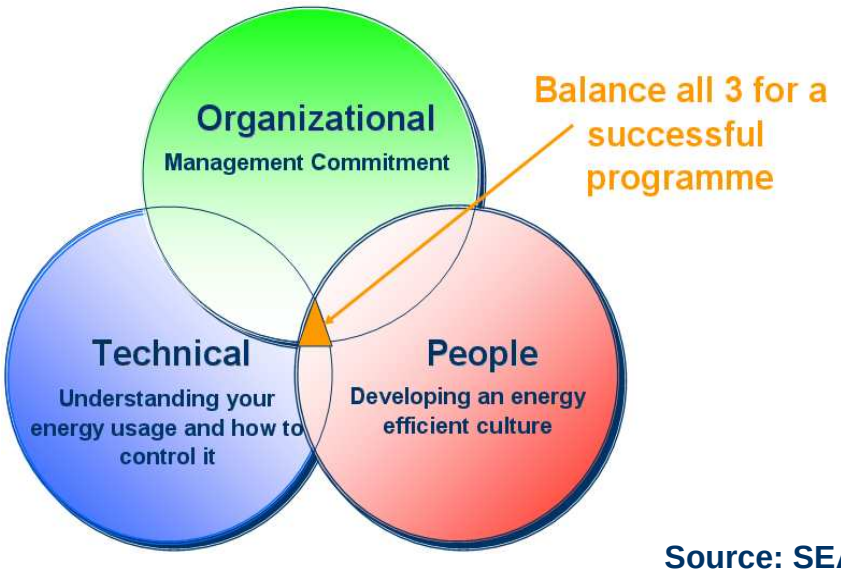

Source: SEAI

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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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