PFE Programme
- Demand side management for efficient production

EMSA Swedish Workshop on Motors
Stockholm, 2012-05-09

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EU Energy Efficiency Plan 2011 - some activities on industry

- Propose to make regular energy audits mandatory
- Develop incentives for companies to introduce an energy management system (ex ISO 50001)
- Encourage voluntary agreements on implementing energy efficiency processes and systems
- Effective recovery of heat losses from electricity and industrial production processes
What is the cost to press a button?

140 000 Euro/year

-Who approves?
Nobody!!!!

What to do?
  • Awareness
  • Visualize
  • Management procedure
Profitable investments in energy efficiency will be made without support unless:

- Other investments are more profitable
- Focus on core business is given priority
- No awareness of profitable measures
- RISK - Production – and/or quality problems

We need policy measures and incentives.
The Drivers and Barriers Palette

Energy efficiency in the industry

Drivers:
- Laws, Directives
- Customer Demand
- Cost Savings
- Image
- Fiery Spirit
- Group Demand
- Management Commitment

Barriers:
- High Cost/Risk, uncertainties
- Investment Procedures
- Organisational Barriers
- Technology Unavailable
- Lack of Resources
- No Objective/Strategy
- Lack of Knowledge

An LTA can address many drivers and barriers
VAs/LTA in Europe

- So far VAs have been used in 12 countries of MS. In 3 countries VAs have been in use more than 10 years, in 4 countries 1-10 years and 3 countries less than 1 year.

- Energy intensive sector most common

12 MS with VAs
8 MS with VAs underway
7 MS without VAs
Why do MS run VAs?

• 40 % of MS adopting VAs for better implementation of legislation
• VAs are connected to legislation in 3 countries
• In two countries VAs are voluntary based
• In two countries VAs are connected to environmental issues: CO₂ or environmental
• Other reasons
Why enterprises join VAs

- Improve energy efficiency and save costs
- To get subsidy for energy audits or for energy efficiency measurement investments
- Lower CO2-tax or duty on electricity
- To avoid stringent legislation or more stringent policy measures or conflicts or to fulfill the condition of an environmental permit
- Others: free consultancy, to get more positive image or to improve communication with the ministry
Efficiency measures through:

- Continuous improvement
- Process development
- Measures in existing equipment
- Higher capacity in existing lines
- Investment in new lines
- Product development
- An LTA should support all those
Energy Management – More Than Tools

The method is put in place to change behavior

Group of people

Culture
- Norms
- Values

Behavior

Influence from surroundings

Feedback on positive outcome of new behavior can change the culture
A positive spiral is created
The LTA is the environment to ISO 50001

Policy intervention
- Incentive (or mandatory)
- Taxes, Legislation, Environmental code
- Performance requirements, reporting

EnMS
- Energy audit & analysis
- Energy management system
- Procurement and new projects
- Reporting

Enterprise management activities
- Commitment
- Integrate in management
- Long term targets/strategy
- Require report/follow-up

Technology & Methodology Push
- ESCOs, EPC
- Suppliers
- Consultants

Institutional Support
- Tools, Build up skills programme
- Agreement structure, Report system
- Dissemination of good practices
- Networking
How to make profitable energy efficiency actions to happen - LTA

- Priority shift: FOCUS on Energy
- Structure: Energy Management System
- Knowledge of potential measures
- Risk reduction: Networking, good examples
- Active suppliers - Increase in demand for energy efficient equipment
Programme for Energy Efficiency in Energy Intensive Industry (PFE)

• Voluntary agreement since 2004
• Aims to increase energy efficiency in industry
• Tax reduction 0,5 € / MWh
• Commitment: “Programme for Improving Energy Efficiency Act” (2004:1196)
A five year program for participating companies

Program start

- Energy audit and analysis
- Implement and certify an Energy Mgmt System
- Find measures
- Implement routines for procurement & planning

2 years

Report to the Swedish Energy Agency

- Continuously improve the Energy Mgmt System
- Realize measures
- Apply routines
- Effects of routines

5 years

Final report to the Swedish Energy Agency

We measure and follow-up

“Programme for Improving Energy Efficiency Act“
(2004:1196)
Energy audit and analysis

The energy audit must:

– be carried out from a systems perspective
– cover both short and long-term
– result in measures to improve energy efficiency

By internal or external expertise
Energy Management System

- Standard (EN 16001), ISO 50001
- Systematic improvement of energy performance in the organization
- Certification by accredited certification bodies
- Cost for certification: ~ 10 000 €
Energiledningssystem
SS 62 77 50
CERTIFIKAT

V&S Absolut Spirits

Ingen energiledningssystem som uppfyller kraven enligt SS 627756-2005 och
SFS 2004:1196 §§ 9 och 10 (PPE) vad gäller
Ingen energi management system that fulfills the requirements of SS 627756-2005 and
SFS 2004:1196 §§ 9 and 10 (PPE) with respect to:

Uteckning och tillverkning av finsprit för Absolut Vodka och Level Vodka.
Development and manufacturing of Premium and Super Premium spirits to Absolut
Vodka and Level Vodka.

Certifikatet är gälligt till och med 21 juni 2009. Ytterligare information finns på www.sp.se
This certificate is valid until and including 21st June, 2009. Further information can be seen at www.sp.se

Boks den 21 juni 2006 21st June, 2006
SP Sveriges Provnings- och Forskningsinstitut
SP Swedish National Testing and Research Institute
Certifiering - Certification

Lennart Mårtensson

Swedish Energy Agency
Accreditation by executive agency, Swedac

Gives accreditation to Certification bodies for certification of management systems and persons

As a national accreditation body, Swedac must also fulfil certain requirements. These are set out in ISO/IEC 17011
Routines for procurement, more extensive ref to EMS

- Equipment > 30 MWh electricity/year
- The company must buy either:
  a) equipment of highest energy class or
  b) equipment based on calculation of Life Cycle Cost (LCC)
- Replacement and new investments
- Followed up and reported
- The implementation of the routines is checked by the certification bodies
Results for 103 enterprises

- Electricity efficiency measures: 1,45 TWh (5%)
- 1247 measures + routines
- Investments: ~75 M€
- Voluntary reports of other measures:
  - increased use of renewables,
  - efficient use of heat,
  - increased production of electricity
- 2 enterprises excluded from the programme
Electricity efficiency measures (% of total 1,45 TWh)

- Production process: 48%
- Compressors and compressed air systems: 17%
- Lighting: 10%
- Fan systems: 7%
- Cooling systems: 6%
- Electrical motors: 4%
- Pump systems: 2%
- Premises and ventilation: 1%
- Vacuum systems: 1%
- Other: 1%

Swedish Energy Agency
PFE Success factors

- Methodology generates and disseminates knowledge
- Focus/Motivation/Strategy
- Status to energy responsible
- Network for dissemination
- (Profits up,) risks down
- Suppliers engaged
- Flexibility

“Easiest way is to consider energy aspects in new projects.”
Lessons learned from implementing energy mgmt systems in the PFE companies

- EnMS: create structure for energy work in the enterprises
- Extensive energy audit and system perspective valuable
- Management commitment crucial to success
- Several PFE companies have educated all employees in energy issues.
- Already known efficiency measures were realized
- Results supports other regulations:
  - EU-ETS
  - Swedish green certificate system
  - Energy statistics (quarterly obligation for Sw industries)
  - Environmental code
Lessons learned .. (cont.)

- LCC-based methods in purchasing and planning
- Energy mgmt systems are also valuable for companies that already have environmental management systems:
  - New personnel and expertise involved to a greater extent: electrical engineers, energy specialists (incl. consultants), process engineers, buyers of production equipment…
  - Certification bodies: “ALL certified companies have found new possibilities for efficiency that they have not found when the energy aspect was only a part of the environmental management system”
  - Measurement, calibration, monitoring, concerning energy use more elaborated after implementing energy mgmt systems
- Very few enterprises outside PFE have certified EnMS
Seminars for dissemination of good practices

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Strategy to work with industrial enterprises

Getting started
Structured methodology
Find measures
Fiery spirits/front-line enterprises

Regional networks
- Energy audit support
- Networks
- Info, web

Networks
Steel & Mines
Heavy Industries
Saw mills

Network sectors

Energy audit support

Energy counsellor
Regional Energy offices
Sustainable Municipality
County Administrative Board

Energy intensity

PFE
Energy Audit support (check)

Support to enterprises to perform energy audits and analysis

50%, max 3000 Euro

500MWh / 100 cows
Thank you for your attention!

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