The New Structure for PSO Activities in Denmark
- Goals and Overall set-up

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Agenda

- Introduction
  - The importance of end-use energy efficiency
  - Historical and actual measures

- The new political framework
  - Political agreement and action plan
  - New measures
Final Energy Consumption
- all sectors except transport

Consumption 3 % lower in 2003 than in 1980
50 % growth in GDP
Effect of End-use Energy Efficiency in Denmark

All sectors except transport

PJ

Without improvements in efficiency
- Actual consumption
- Without improvements in efficiency by the end users.

Energy Efficiency Measures in Denmark

Taxation:
- Energy taxes in households and in the public sector
- CO₂ taxes on energy used in all sectors

Buildings:
- Building codes
- Energy labelling of buildings.

Appliances:
- Energy labelling of appliances (EU and GEEA).
- Minimum efficiency standards.

Industry:
- Agreements on energy efficiency in industries (CO₂ package)

General:
- The Electricity Saving Trust.
- The energy-saving activities carried out by the grid companies (electricity, natural gas, district heating)
- Energy Saving Act
- There have been different subsidies schemes
Energy prices in household - composition

- **1980**
  - Prices excl. taxes: 60%
  - Energy and CO2 taxes: 40%
  - VAT: 0%

- **1990**
  - Prices excl. taxes: 60%
  - Energy and CO2 taxes: 40%
  - VAT: 0%

- **2002**
  - Prices excl. taxes: 60%
  - Energy and CO2 taxes: 40%
  - VAT: 0%
Energy for heating of Danish households

- Efficiency has increased dramatically since 1975
- Final energy per m² is still declining – shift in heating systems
- Net heat demand per m² has been almost stable the last 20 years
Building Codes
Energy Intensity in Manufacturing

Decrease in intensity:  
Energy Intensity in Manufacturing

How can the change in 2003 be explained:

- Change in economic activities
  - Low growth from 1983-93
  - High growth since

- New policy measures
  - CO2 tax package
    - CO2 tax on energy
    - Voluntary agreement scheme
    - Subsidy scheme
  - DSM activities by electricity utilities
DSM by Grid Companies

- Electricity grid/distribution companies have worked with energy efficiency for more than 10 years.
- The activities are based on a running process of annual planning and reporting.
- The costs are included in the tariffs.
- Energy consulting/audits, campaigns, information, etc.
The new political framework for energy efficiency
The Process

- Development of a new plan was decided in a political agreement in March 2004
- A draft Action Plan was published in December 2004
- 10 June 2005 a broad political agreement on future energy conservation efforts
- The final action plan was published in September 2005
Political Framework

Increasing energy efficiency is supporting:

- Economic growth and competitiveness
- Security of supply
- Environmental protection and CO₂ reduction

Basic principles:

- Decentralised implementation
- PSO-financing
- Cost-efficiency
- Market-based approach
- Focus on realisation of profitable savings
Energy Saving Potential

- The potential is large
  - 30 – 50 % in most sectors and end-uses
- A large part of the potential is economic attractive
  - For the consumers
  - Socio-economic
- It will not be realised by itself
  - Market failures and imperfections
  - Barriers
- There is a need for policies and measures
  - Focus on cost-effective measures with a big saving potential
Economic Potential from the Action Plan

<table>
<thead>
<tr>
<th>Potential</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Socio-economic up to 2015</td>
<td>24 %</td>
</tr>
<tr>
<td>Private-economic - currently</td>
<td>16 %</td>
</tr>
<tr>
<td>Private-economic – up to 2015</td>
<td>42 %</td>
</tr>
</tbody>
</table>

- Still potential in all sectors and end-uses
- Half of the cost-effective potential is in space-heating
Objectives and Targets

- The overall goal is to reduce final energy consumption (excluding transport)
- Actual saving target at 1.7% per year
  - Concrete energy savings, which can be documented, corresponding to an average of 7.5 PJ annually during the 2006-2013 period
  - Transport not included
- This target secure a small decrease in final energy consumption.
Projected Development in Energy Consumption

Final energy (ex. transport)

- Statictic
- BaU forecast
- Annual saving 7.5 PJ
Network and Distribution Companies...

- Shall deliver a significant part of the increased savings
- Include electricity, natural gas, district heating and oil companies
- The companies will together get an annual saving target and a large degree of freedom to deliver in the cheapest way
- Focus on realisation of savings in the cheapest way
Where will the savings come from?

<table>
<thead>
<tr>
<th>Savings excl. transport</th>
<th>Actual</th>
<th>Draft</th>
<th>Agreement</th>
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</thead>
<tbody>
<tr>
<td>Annual savings, PJ</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Electricity Saving Trust</td>
<td>0,39</td>
<td>0,49</td>
<td></td>
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<tr>
<td>Electricity grid companies</td>
<td>0,78</td>
<td>0,97</td>
<td></td>
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<tr>
<td>Natural gas companies</td>
<td>0,08</td>
<td>0,10</td>
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<tr>
<td>District heating</td>
<td>0,16</td>
<td>0,20</td>
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<tr>
<td>Oil companies</td>
<td></td>
<td></td>
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<tr>
<td>New buildings</td>
<td>0,00</td>
<td>0,70</td>
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</tr>
<tr>
<td>Existing buildings</td>
<td>0,60</td>
<td>1,82</td>
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<tr>
<td>Public sector</td>
<td>0,00</td>
<td>0,25</td>
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<tr>
<td>Appliances</td>
<td>0,30</td>
<td>0,30</td>
<td></td>
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<tr>
<td>Industry</td>
<td>0,40</td>
<td>0,50</td>
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<td>I alt</td>
<td>2,71</td>
<td>5,33</td>
<td>7,5</td>
</tr>
</tbody>
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Note: 1 % = 4,35 PJ
Conclusion

- Strong political support on energy efficiency
- Focus on market based initiatives
- Main measures:
  - EU initiatives
  - Regulation
  - Obligation to grid and distribution companies
- Measurement of effect will be important