Insights from the Industry’s Energy Efficiency Barometer

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EEP - The Institute for Energy Efficiency in Production

A HUB FOR INDUSTRIAL ENERGY EFFICIENCY
Driving Energy Productivity, securing energy supply & energy security

**Objectives**
- Clean Air/ Emissions
- Climate Change
- Energy Productivity
- Energy security
- Structural Change

**Topics**
- Energy Management
- Data Gap
- Skills
- Finance
- Policy
- Systems & Scale
- Innovation
- Risks
- Shocks
- Culture, Geography
Increasing energy efficiency

Avoiding unnecessary consumption

Use of beneficial energy sources

Reducing specific net energy demand

Energy recovery

Increasing the efficiency of energy converters

Sauer & Losert, 2013

EEP Institute for Energy Efficiency in Production
Current efforts will just induce savings of 51 PJ each electrical and thermal energy.

Overall possible saving potential which can be economically tapped has a value of 160 PJ (electric) and 111 PJ (thermal).
Energy saving potentials could lead to high monetary savings

- An investment of 5 billion € would return 20 billion € by 2020, adding another 3 billion € by 2030 would yield total savings of 67 billion €
- Other studies suggest that investments of 24 billion € could induce a return of 100 billion € by 2050
The Energy Efficiency Barometer of the Industry
Understanding the demand side of energy efficiency

Unleashing action towards increasing energy efficiency in industry requires: comparable, objective information to reduce unknowns and to reduce risks

- To inform companies where they are and what they can do
- To inform legislators if their instruments are effective and what type of instruments are required
- To enable financial institutions to assess risk & potential better and to show up what financial instruments are lacking
- To assess effect of implementation programs & pilot schemes
Energy Efficiency Index of the Industry
Survey Fall 2015

General Information
What are your answers relating to?
- My answers relate to one site.
- My answers relate to multiple sites.

Which country do you mainly refer to in your answers?
- select one

Importance of Energy Efficiency
You currently assess the importance of energy efficiency for your company in general as...
- ...relatively low.
- ...equally important to the other factors.
Importance of Energy Efficiency for the Operations of German Companies

Energy efficiency is

- 72.6% for microenterprises
- 63.9% for small enterprises
- 63.0% for medium enterprises
- 56.7% for big enterprises

The orange bars represent the main driver for investments, while the pink bars represent a side effect of other investments.

The main drivers for energy efficiency in your company are: (multiple choice possible: n=367, answers=611)

- buildings
- infrastructure
- production processes
- organisation
- overlapping
- other
- none


Allocation of enterprise size: 17% micro enterprises, 23% small enterprises, 29% medium enterprises, 31% large enterprises
What average percentage increase in energy efficiency do you plan over the next 12 months [%]? (n=160)

- > 10%: 20%, 16%, 16%, 6%
- 5% - 10%: 38%, 7%, 35%, 19%
- > 0% - < 5%: 30%, 24%, 26%, 56%
- 0%: 48%, 31%, 9%, 19%


Allocation of enterprise size: 16% micro enterprises, 18% small enterprises, 27% medium enterprises, 39% large enterprises
Which approach improving energy efficiency in your company do you apply? (n=322)


Allocation of enterprise size: 21% micro enterprises, 24% small enterprises, 27% medium enterprises, 28% large enterprises
Did your achieve your efficiency targets in the past?

- Yes, completely
- For the most part
- Partly
- No

We do not have any or enough skilled staff for planning and execution

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>big enterprises</td>
<td>12.2%</td>
<td>26.8%</td>
<td>26.8%</td>
<td>34.1%</td>
<td></td>
<td></td>
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<tr>
<td>medium enterprises</td>
<td>8.6%</td>
<td>37.1%</td>
<td>34.3%</td>
<td>20.0%</td>
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<td></td>
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</tr>
<tr>
<td>small enterprises</td>
<td>16.1%</td>
<td>20.7%</td>
<td>29.9%</td>
<td>33.3%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>microenterprises</td>
<td>15.5%</td>
<td>24.6%</td>
<td>16.2%</td>
<td>43.7%</td>
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</tbody>
</table>


Allocation
Concerns regarding production downtimes and product quality

- **big enterprises**
  - 2.5% fully applies
  - 17.5% applies
  - 32.5% does rather not apply
  - 47.5% does not apply

- **medium enterprises**
  - 2.7% fully applies
  - 21.6% applies
  - 27.0% does rather not apply
  - 48.6% does not apply

- **small enterprises**
  - 0.0% fully applies
  - 10.6% applies
  - 20.0% does rather not apply
  - 69.4% does not apply

- **microenterprises**
  - 5.6% fully applies
  - 7.6% applies
  - 21.5% does rather not apply
  - 65.3% does not apply

The payback period is too long

<table>
<thead>
<tr>
<th>Category</th>
<th>Fully Applies</th>
<th>Applies</th>
<th>Does Rather Not Apply</th>
<th>Does Not Apply</th>
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<tbody>
<tr>
<td>Big Enterprises</td>
<td>12.8%</td>
<td>46.2%</td>
<td>28.2%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Medium Enterprises</td>
<td>16.7%</td>
<td>25.0%</td>
<td>33.3%</td>
<td>25.0%</td>
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<tr>
<td>Small Enterprises</td>
<td>13.1%</td>
<td>19.0%</td>
<td>23.8%</td>
<td>44.0%</td>
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<tr>
<td>Microenterprises</td>
<td>11.7%</td>
<td>23.4%</td>
<td>23.4%</td>
<td>41.6%</td>
</tr>
</tbody>
</table>

Industry – life cycle calculation as an alternative

- Companies that use the total cost of ownership (TCO) as evaluation criterion implement significantly more efficiency measures
Lacking subsidy programmes

- **Big enterprises**
  - Fully applies: 10.5%
  - Applies: 42.1%
  - Does rather not apply: 21.1%
  - Does not apply: 26.3%

- **Medium enterprises**
  - Fully applies: 6.1%
  - Applies: 18.2%
  - Does rather not apply: 45.5%
  - Does not apply: 30.3%

- **Small enterprises**
  - Fully applies: 7.8%
  - Applies: 19.5%
  - Does rather not apply: 26.0%
  - Does not apply: 46.8%

- **Microenterprises**
  - Fully applies: 11.3%
  - Applies: 18.8%
  - Does rather not apply: 18.8%
  - Does not apply: 51.1%

Allocation


Application process for subsidies is too complicated and time consuming

- Big enterprises
  - Fully applies: 10.3%
  - Applies: 35.9%
  - Does rather not apply: 25.6%
  - Does not apply: 28.2%

- Medium enterprises
  - Fully applies: 6.1%
  - Applies: 24.2%
  - Does rather not apply: 33.3%
  - Does not apply: 36.4%

- Small enterprises
  - Fully applies: 22.9%
  - Applies: 26.5%
  - Does rather not apply: 10.8%
  - Does not apply: 39.8%

- Microenterprises
  - Fully applies: 22.9%
  - Applies: 21.4%
  - Does rather not apply: 13.6%
  - Does not apply: 42.1%
Which type of incentive could motivate you most likely to invest in energy efficiency measures? (max. 2) (multiple choice possible: n=319, n'=454)


Allocation of enterprise size: 19% micro enterprises, 23% small enterprises, 29% medium enterprises, 29% large enterprises
Describing the ways forwards to drive industrial energy efficiency:

- Describing actual energy efficiency potentials and lifting them through policy, entrepreneurial and financial interventions more and more accurately
- Comparing performance of sectors across geographies rather than accumulated country data.
- Reducing unknowns, risks & uncertainty in relation to energy efficiency interventions enabling sector-specific cross-country analyses
- Equipping companies and legislators with insights on how and where to act
- Making financial institutions & service providers aware of feasible projects and required funding mechanisms and services
Thank you very much for your attention!

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Backup
A HUB FOR INDUSTRIAL ENERGY EFFICIENCY
Positioning of the Institute
Energy Efficiency in Production

MISSION
Development, Optimization and Evaluation of Technologies for the Implementation of Energy Efficiency Measures in Production, in Elementary Research and in the Industrial Application

SERVICE TO SOCIETY
Educating the society and politics on the basis of numbers, facts and figures
Promote the implementation of technologies to increase energy efficiency
Development of technologies for implementation of energy efficiency measures in industry

EEP was established and is supported by
EEP – The Hub for Energy Efficiency in Industry

**Efficiency Technologies**
- CHP-integrated technologies
- Storage technologies
- DSM-able technologies

**Industrial Smart Grids**
- Energy efficient and energy flexible systems
- Integration of controls, generation, distribution, storage and use

**Urban Production**
- Energetic interconnection of production and districts
- Energy concepts & strategies for industry estates

**Energy-Policy, -Strategy and -Finance**
- Energy efficiency index/barometer of Industry
- Financing EE / Business models for EE
- National & International Engagement
Policy- and strategy advice (local, regional, international):

- Optimization of supply- and regulation: evaluation and suggestion of precisely fitting policy-, financing- and risk hedging measures to enhance energy efficiency in the industry
- Optimization of demand: impact analysis of energy efficiency enhancement programmes in the industrial context in order to develop feasible business- and financing models
- Providing and objective as well as comparable transnational and cross sectoral decision base for governments, NGO’s, companies, etc.
- Accompanying of stakeholder processes of energy efficiency
- Assessing impact of pilot and implementation schemes