Overview Of The German Energy Efficiency Market

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„Energieeffizienzmarkt und -dienstleistungen in Deutschland und Frankreich“, Berlin, 06. March 2018

http://www.bafa.de/
Outline

• Context and concept
• Quick figures
• Scoops on selected consumer groups
CONTEXT AND CONCEPT
Background

- Energy efficiency market investigated by private actors
  - IER regularly composes industry energy efficiency index
  - German energy agency (dena) irregularly publishes smaller studies on various market aspects
  - Business association DENEFF
    - annually considers products, materials and services associated with energy efficiency
    - estimates market volume for 2016 at **143 billion €** based on small-n survey

- Energy Services Act Of 2010 stipulates FEEC’s observation of the market for energy services, energy audits and other energy efficiency measures
  - total turnover with energy efficiency services 2016 ca. **9 billion €** (conservative estimate)
Service Products And Market Segments

- Energy management:
  - assistance to implementation of an EnMS
  - operation- and leasing schemes
  - (remote) controlling
  - (re-)certification

- Energy supply contracting
- Energy performance contracting
- Energy advice sur place (residential / non-residential buildings; manufacturing / equipment)
- Energy audits (art. 8)
- Market facilitation

- Energy audits certificates for buildings

- Information:
  - metering / digital services
  - Energy advice in info center

- Advice / audits
Method

- Comparability to ADEME assessment limited
- FEEC does not include i.e.
  - Engineering studies (1.7 billion € in France 2015)
  - Installation and maintenance of district heating (2.1 billion € in France 2015)
  - Coaching and standard metering services

- Desktop study, expert interviews, large-n telephone and online surveys
  - demand side: 3008 private households, 2757 companies; CATI
  - supply side: 210 suppliers via telephone and 1590 suppliers via web

- Public sector demand included from 2018 onwards
QUICK FIGURES
## Prices of selected products (in Euro)

<table>
<thead>
<tr>
<th>Energy Management Systems</th>
<th>Asset Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assistance to implementation of EnMS / EMAS</strong> ca. 10.000</td>
<td><strong>Energy efficiency advice</strong></td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
</tr>
<tr>
<td>License ca. 8.000</td>
<td><strong>Energy audit (art. 8)</strong> ca. 6.000</td>
</tr>
<tr>
<td>Operation / maintenance ca. 6.000</td>
<td><strong>Energy advice: manufacturing / equipment</strong> ca. 5.800</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td><strong>Energy advice: non-RB sur place</strong> ca. 3.500</td>
</tr>
<tr>
<td>Certification ISO 50001 ca. 7.500</td>
<td><strong>Energy advice: RB, complete, sur place</strong> ca. 1.300</td>
</tr>
<tr>
<td>Annual check ISO 50001 ca. 3.500</td>
<td><strong>Energy advice: RB, remote, ca.</strong> 120</td>
</tr>
<tr>
<td>Re-Certification ISO 50001 (every 4 years) ca. 6.000</td>
<td><strong>Certificates</strong></td>
</tr>
<tr>
<td>Validation EMAS ca. 7.000</td>
<td><strong>Energy performance certificate RB</strong> ca. 500</td>
</tr>
<tr>
<td>Re-Validation EMAS (every 3 years) ca. 4.000</td>
<td><strong>Energy performance certificate non-RB</strong> ca. 1.600</td>
</tr>
</tbody>
</table>
Market Volume By Product

- Energy advice: 140 M€
- Energy management systems: 120 M€
- Smart home and metering VAS: 127 M€
- In-house monitoring and controlling: 80 M€
- Remote controlling of energy supply: 140 M€
- Energy performance certificates: 210 M€

- ESC excl. energy supply: 3680 M€
- ESC energy supply: 3700 M€
- EPC: 320 M€

- Energy audits (art. 8)
- Residential buildings
- Non-residential buildings
- Manufacturing / equipment
- Assistance to implementation of EnMS / EMAS
- Energy management software
- Certification ISO 50001 / EMAS validation
- Re-certification ISO 50001 (every 4 years) / re-validation EMAS (every 3 years)
- Annual ISO 50001 checks
SCOOPS ON SELECTED CUSTOMER GROUPS
### Companies Survey In Detail

<table>
<thead>
<tr>
<th>Share</th>
<th>... of enterprises</th>
<th>... of turnover</th>
<th>... of gross investment in fixed assets</th>
<th>... of enterprises in survey</th>
<th>... of SML enterprises in Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Small Enterprises</td>
<td>81%</td>
<td>7%</td>
<td>11%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Small Companies</td>
<td>19%</td>
<td>16%</td>
<td>93%</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>Medium Companies</td>
<td>19%</td>
<td>15%</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>Large Companies</td>
<td>1%</td>
<td>67%</td>
<td>58%</td>
<td>10%</td>
<td>4%</td>
</tr>
</tbody>
</table>

**... of enterprises that used energy efficiency services over the last 5 years**

- Energy efficiency network: 5% (SMEs), 10% (Large Enterprises)
- Recertification EnMS: 5% (SMEs), 10% (Large Enterprises)
- Certification EnMS: 45% (SMEs), 31% (Large Enterprises)
- Energy supply contracting: 12% (SMEs), 18% (Large Enterprises)
- Energy performance contracting: 42% (SMEs), 60% (Large Enterprises)
- Energy advice: 60% (SMEs), 56% (Large Enterprises)
- Energy audit: 7% (SMEs), 56% (Large Enterprises)
Usage of selected energy efficiency service in accommodation and food services (AFS)

<table>
<thead>
<tr>
<th>Service</th>
<th>Share in AFS</th>
<th>Share in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>96%</td>
<td>89%</td>
</tr>
<tr>
<td>Heat</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Lighting</td>
<td>3%</td>
<td>7%</td>
</tr>
<tr>
<td>Power for tenants</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Energy performance contracting</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Pressurized air</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Cooling</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Manufacturing / equipment</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Support implementing measures</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Non-residential buildings</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Energy audit (art. 8)</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>In info center</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

AFS n=136, total n= 2757, EDL-2017
Implementation of energy efficiency measures and key metrics

<table>
<thead>
<tr>
<th></th>
<th>Large enterprises (n=276)</th>
<th>Total SMEs (n=2,481)</th>
<th>SMEs</th>
<th>SMEs</th>
<th>SMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Trade in food products (n=81)</td>
<td>Construction (n=407)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>89 %</td>
<td>74 %</td>
<td>85%</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>Information / Motivation of employees</td>
<td>78%</td>
<td>54 %</td>
<td>67%</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Optimization of production processes</td>
<td>43%</td>
<td>25 %</td>
<td>28%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>Building renovation</td>
<td>42 %</td>
<td>21 %</td>
<td>23%</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Efficiency energy production (power, heat)</td>
<td>31%</td>
<td>18 %</td>
<td>25%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Cooling</td>
<td>44 %</td>
<td>18 %</td>
<td>56%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Compressors, pumps, engines</td>
<td>43 %</td>
<td>16 %</td>
<td>15%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Ventilation, air conditioning</td>
<td>38 %</td>
<td>15 %</td>
<td>19%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>No measures</td>
<td>2 %</td>
<td>11 %</td>
<td>7%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>No energy efficiency service</td>
<td><strong>10%</strong></td>
<td>45%</td>
<td>33%</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Average relevance of energy efficiency</td>
<td><strong>6,89</strong></td>
<td>5,62</td>
<td>5,99</td>
<td>5,15</td>
<td></td>
</tr>
</tbody>
</table>
### Households’ primary focus in implementing energy efficiency

<table>
<thead>
<tr>
<th>Budget Range</th>
<th>Maintenance / Repairs</th>
<th>Lower Energy Cost</th>
<th>Environment</th>
<th>Comfort</th>
<th>More Space</th>
<th>Enhance Property Value</th>
<th>Age-based</th>
<th>Safety and Security</th>
<th>Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 1000 Euro</td>
<td>29%</td>
<td>36%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
<td>12%</td>
<td>12%</td>
<td>91</td>
</tr>
<tr>
<td>1000 to less than 1500 Euro</td>
<td>37%</td>
<td>21%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>15%</td>
<td>9%</td>
<td>132</td>
</tr>
<tr>
<td>1500 to less than 2000 Euro</td>
<td>48%</td>
<td>11%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>15%</td>
<td>19%</td>
<td>138</td>
</tr>
<tr>
<td>2000 to less than 2500 Euro</td>
<td>38%</td>
<td>20%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>10%</td>
<td>11%</td>
<td>14%</td>
<td>169</td>
</tr>
<tr>
<td>2500 to less than 3000 Euro</td>
<td>40%</td>
<td>24%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
<td>8%</td>
<td>6%</td>
<td>18%</td>
<td>119</td>
</tr>
<tr>
<td>3000 to less than 3500 Euro</td>
<td>54%</td>
<td>22%</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
<td>1%</td>
<td>8%</td>
<td>9%</td>
<td>107</td>
</tr>
<tr>
<td>3500 to less than 4000 Euro</td>
<td>53%</td>
<td>24%</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
<td>9%</td>
<td>6%</td>
<td>1%</td>
<td>82</td>
</tr>
<tr>
<td>4000 to less than 5000 Euro</td>
<td>56%</td>
<td>12%</td>
<td>1%</td>
<td>4%</td>
<td>0%</td>
<td>9%</td>
<td>5%</td>
<td>12%</td>
<td>111</td>
</tr>
<tr>
<td>From 5000 Euro</td>
<td>56%</td>
<td>22%</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
<td>5%</td>
<td>2%</td>
<td>4%</td>
<td>191</td>
</tr>
<tr>
<td>Average</td>
<td>45%</td>
<td>19%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>6%</td>
<td>9%</td>
<td>11%</td>
<td>1198</td>
</tr>
</tbody>
</table>
THANK YOU
## Relevance of energy efficiency

| WZ08-C | Manufacturing                 | 6,37 | 669 | 24% | 7% | 238,657 |
| WZ08-D | Electricity, gas, steam and air conditioning supply | 8,43 | 21  | 1%  | 2% | 69,917  |
| WZ08-E | Water supply, sewerage, waste management and remediation activities | 6,12 | 33  | 1%  | 0% | 11,769  |
| WZ08-F | Construction                  | 5,19 | 416 | 15% | 11%| 389,451 |
| WZ08-G | Wholesale and retail trade, repair of motor vehicles and motorcycles | 5,80 | 528 | 19% | 19%| 631,131 |
| WZ08-H | Transportation and storage   | 5,56 | 166 | 6%  | 3% | 114,650 |
| WZ08-I | Accomodation and food service activities | 6,43 | 114 | 4%  | 7% | 248,453 |
| WZ08-J | Information and Communication | 5,01 | 102 | 4%  | 4% | 131,445 |
| WZ08-K | Financial and insurance activities | 5,35 | 81  | 3%  | 2% | 69,493  |
| WZ08-L | Real estate activities        | 6,36 | 47  | 2%  | 5% | 166,818 |
| WZ08-M | Professional, scientific and technical activities | 5,25 | 303 | 11% | 15%| 520,280 |
| WZ08-N | Administrative and support service activities | 4,96 | 129 | 5%  | 6% | 216,907 |
| WZ08-Q | Human health and social work activities | 5,88 | 77  | 3%  | 7% | 242,932 |
| WZ08-R | Arts, Entertainment and Recreation | 6,24 | 22  | 1%  | 3% | 111,153 |
| WZ08-S | Other service activities      | 5,55 | 49  | 2%  | 7% | 234,254 |
| **Total** |                                 | 5,75 | 2757| 100%| 100%| 3,397,310 |

*Average relevance of energy efficiency, Total number of enterprises in survey, Share of enterprises in survey, Share of those enterprises in Germany, Number of those enterprises in Germany.*