Robert Schachtschneider, dena

Energy Services – Experiences made in Germany

Agenda

- dena in a nutshell.
- role of energy efficiency in the light of the *Energiewende*.
- German contracting market
- lessons learnt.
- role of dena.
dena in a nutshell.
dena's core competencies.

Drawing on its three core competencies, dena focuses on developing energy efficiency and renewable energy markets:

- **System competence** - getting the whole picture.
- **Market knowledge** - an eye for detail.
- **Networking** - a keen view.

- **Established**: Autumn 2000
- **Number of staff**: 185
- **Current projects**: approx. 80
- **Headquarters**: Berlin
- **Internet**: www.dena.de
- **Turnover in 2014**: approx. €20.9 million
role of energy efficiency in the light of the Energiewende.
two pillars of the *Energiewende*.

**Supporting fields of action**

**Energy Efficiency**
- Key legislation:
  - Energy Saving Ordinance
  - Heating Cost Ordinance
- Energy research and development
- European energy and climate policy
- • Reduce energy consumption
  • Cost-efficient

**Renewable Energy**
- Key legislation:
  - Renewable Energy Sources Act
  - Renewable Energy Heat Act
- • Steady growth
  • Environmentally friendly

Source: BMWi
NAPE - National Action Plan on Energy Efficiency

- Stepping up energy efficiency in buildings
- Energy efficiency as a return and business model
- Individual responsibility for energy efficiency

Source: BMWi
Energy efficiency in buildings

Sector relevance
Final energy consumption (2013): 3,484 PJ

37.6%

Bottom-up energy savings
NEEAP (2008-2013)
171.6 PJ/a
(power coefficient 2.5)

Sector measures
- Information campaign
- Energy consulting
- KfW programmes for energy-efficient construction and renovation
- Heating check and labeling
- Energy saving legislation (EnEV)
- Energy performance certificates
- Key points of the energy efficiency strategy for buildings

NAPE immediate measures
- Incentive programme for energy efficient renovation
- Enhancement of the KfW programmes for energy-efficient construction and renovation

Saving potential
NAPE: 32-76.5 PJ

energy savings contracting – one instrument of many.
German contracting market
the German contracting market.

- Turnover €3 to 4 billion per year, market growth approx. 11%.

- Approx. 90% energy supply contracting (i.e. energy-efficient supply of energy to properties [heat, electricity, cooling, compressed air]), followed by energy savings contracting.

- Approx. 500 contractors with around 100,000 contracting agreements:
  - Energy companies and utility companies
  - Independent energy service providers
  - System manufacturers and system engineers

- Contracting customers:
  - Housing industry
  - Public sector
  - Companies in trade and industry

lessons learnt.
barriers for contracting (I).

Information barriers, e.g.:
- Insufficient information about its own economic energy efficiency potentials
- Lack of information and awareness about ESCOs
- Insufficient information about the offers of products and services
- Lack of transparent and competitive prices or product-price catalogs for standardized services
- Lack of success stories / best practice examples, no proven track records: neutrality / credibility of ESCOs?

Organisational barriers, e.g.:
- High transaction and business initiation costs
- Public housekeeping in the public sector
- Long contract period and complicated contracts,
- No qualified architects or engineers as consultant in preparing the tenders
barriers for contracting (II).

- Motivational barriers, e.g.:
  - Lack of responsibility for energy costs
  - Few incentives, e.g. supply and demand of energy services
  - Low awareness level on energy efficiency

- Financial barriers, e.g.:
  - Missing, complicated or lengthy financial instruments
  - Pure focus on profitability rather than life-cycle
  - Availability of capital resources
  - Competitive investment possibilities
  - Financiers are used to take over commercial risks, but not technical risks

- Regulational barriers Hemmnisse, e.g.:
  - Negative effects of current regulations, such as obligatory consent of tenants in the contracting for the construction of rental housing
role of dena.
role of dena.

- **Goal**: Establishment of energy contracting as an important factor for the success of the energy turnaround in Germany.

- **Focal points**:
  - Provides guidelines and model contracts to establish **standards** for the preparation and implementation of contracting agreements
  - Supports stakeholders with its nationwide **network of experts**
  - Develops **new solutions** for contracting – e.g. heat insulation measures
  - **Initiates and supports** pilot projects that serve as examples
  - **Provides information and advice** to interested parties and the public
contracting network: regional competence.

- energy agency & regional authority / regional company
- energy Agency
- Regional authority or regional companytrieb
Efficiency – our focus. Thank you for your attention.

www.dena.de
Your Contact.

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targets for 2050.

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<th>2020</th>
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<td>% greenhouse gas reduction (vs. 1990)</td>
<td>-27%</td>
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<td>% gross electricity consumption</td>
<td>27.8%</td>
<td>35</td>
<td>40 to 45</td>
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<td>55 to 60</td>
<td>65</td>
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<td>% final energy consumption</td>
<td>12.4%*</td>
<td>18</td>
<td>30</td>
<td>45</td>
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<td>% primary energy consumption (vs. 2008)</td>
<td>-9 %</td>
<td>-20</td>
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<td>final energy productivity</td>
<td>0.2%* p.a.</td>
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<td>building renovation</td>
<td>~1%* p.a.</td>
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*2013

energy savings contracting at the Foreign Office in Berlin.

- First German Federal Ministry subject to contracting
- Old building, new building and annex in Berlin-Mitte
- 163,000 m² gross floor area
- Special feature: Building was already constructed, or refurbished, in an energy-efficient way in 1999
energy savings contracting at the Foreign Office in Berlin: key figures.

- Energy costs: € 1.95 million per year
- Guaranteed savings: € 604,000 per year in costs (31%)
  1,780 t CO₂/ year
- Investment: € 3 million, thereof € 1 million construction subsidy
- Budget relief: € 317,000 per year
- Main performance phase: start: Sept. 2011, term: 10 years
contracting for federal buildings: successful projects.

Since 2004: Energy cost savings:
- Direct budget relief: €1.3 million per year
- Investments: €40 million
- CO₂ saved: 37,000 tons per year

As per 01/2013: 35 properties, implemented projects / detailed analysis of projects
contracting in the different segments:
public – **private** – industry
conditions for performance contracting in the building sector.

- Solid contract partners
  - building owner: e.g. public authority
  - ESCO: e.g. international company

- Continuance of use of buildings

- Energy Costs of buildings / real estates higher than 100,000 € / year

- Ability to define a representative energy consumption baseline

- Need of modernization of the technical equipment or improving maintenance

- Intent of using new energy technologies
  - Renewable energies (biomass, biogas, solar power)
  - Combines heat and power plants
contracting in the different segments:
public – private – industry.
third segment: industry and business.

- Total: 3.7 million businesses
- 15% with short to medium-term savings potential: Contracting could make a significant contribution.
- Frequently technologically suitable for CHP
- Suitable for energy supply contracting, but also interesting for savings guarantees.

*Prognos, Ifeu, Hochschule Ruhr West, 2013: Marktanalyse [...] für ausgewählte Energiedienstleistungen [...]*
conditions for contracting in industry and business.

- Highly complex legal and tax-related framework impeding economic efficiency
  - result: very complex business models
    (Who is the operator, who uses the produced heat and electricity?)
  - contracting often more difficult than inhouse operation.

- Improve regulatory framework

- Information of demand-side

- Develop further models: strengthen energy supply contracting with energy efficiency measures in peripheral systems.
example energy saving contracting at FIBRO GmbH.

- Equipment of all lamps with high-performance reflectors
- Replacement of HQL-lamps and installation of T5 Long Life fluorescent lamps
- Reducing the number of existing T8 luminaires
- CO₂-reduction: 462 t CO₂/a
- Energy consumption: - 802.340 kWh/a
- Energy costs: - 126.800 €/a
- Investment: 631.000 €
- Return on investment: 20 %