Robert Schachtschneider, dena

Energy Services – Experiences made in Germany

12.11.2015, Kiev, VII International Investment Business Forum on Energy Efficiency and Renewable Energy

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.

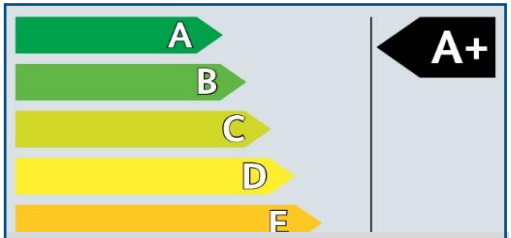
Drawing on its three core competencies, dena focuses on developing energy efficiency and renewable energy markets:

- 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*.



Energy Efficiency

Key legislation:

Energy Saving Ordinance
Heating Cost Ordinance

- Reduce energy consumption
- Cost-efficient

Supporting fields of action

Market and system integration

Energy research and development

European energy and climate policy

Renewable Energy

Key legislation:

Renewable Energy Sources Act
Renewable Energy Heat Act

- Steady growth
- Environmentally friendly

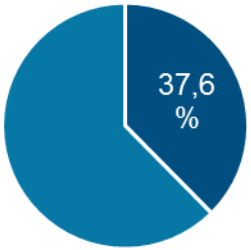
Source: BMWi

NAPE - National Action Plan on Energy Efficiency

Source: BMWi

Energy efficiency in buildings

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



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

Saving potential NAPE: 32-76.5 PJ

NAPE immediate measures

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

Source: Ecofys 2015 based on AGEB, 2014, BMWi 2014

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

Source: esp. Prognos, Ifeu, Hochschule Ruhr West, 2013

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 on 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

dena
Deutsche Energie-Agentur

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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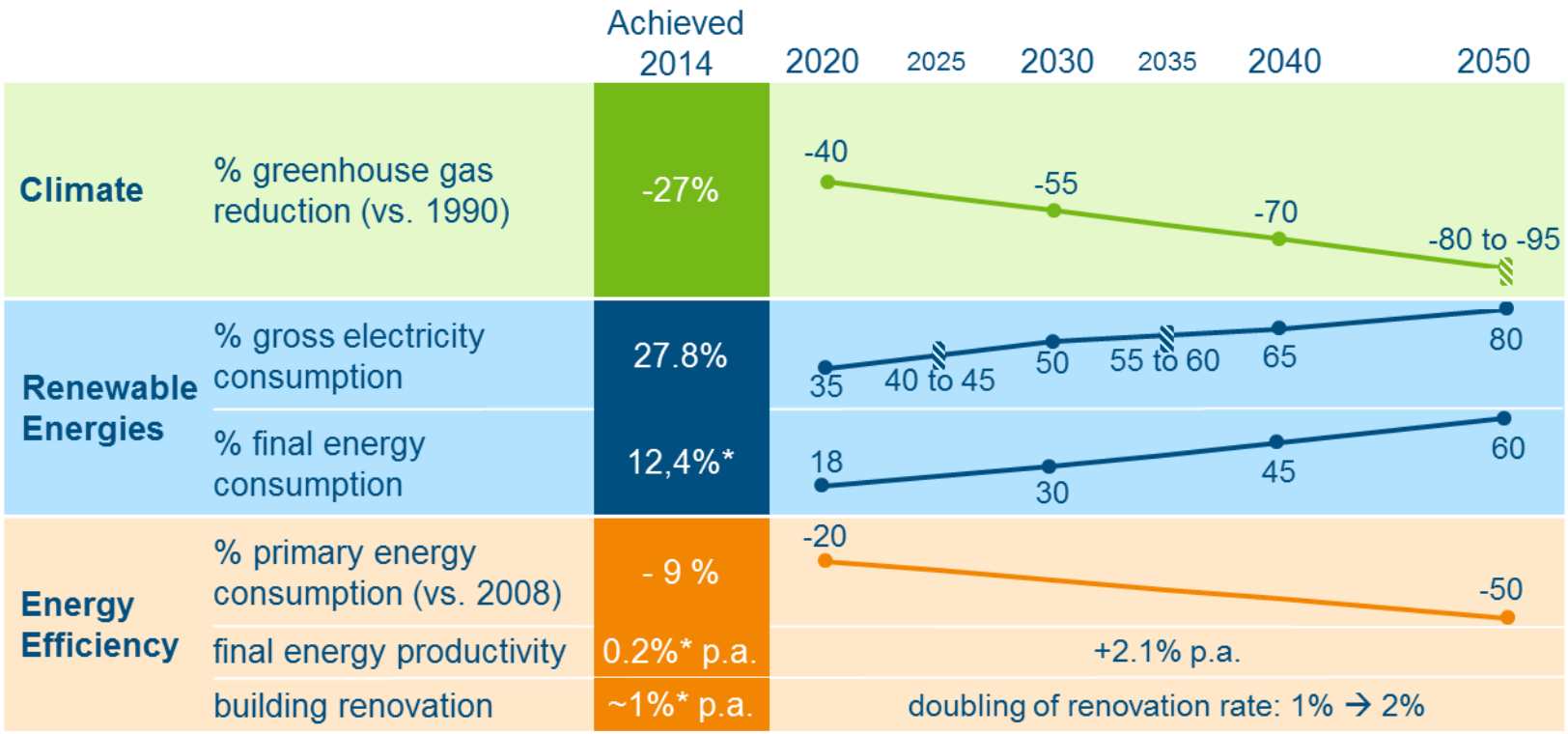
ANNEX

targets for 2050.



* 2013

Source: Federal Government 2010, BMU/BMWi 2014, AGEE-Stat 2014, AGEB 2015

energy savings contracting at the Foreign Office in Berlin.

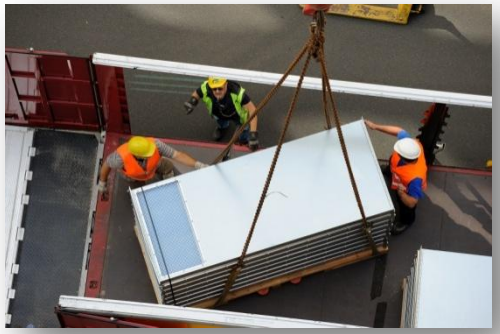
- First German Federal Ministry subject to contracting
- Old building, new building and annex in Berlin-Mitte
- 163,000 m² gross floor area
- Special feature: Building was already constructed, or refurbished, in an energy-efficient way in 1999

Photo: Berlin Partner/FTB-Werbefotografie

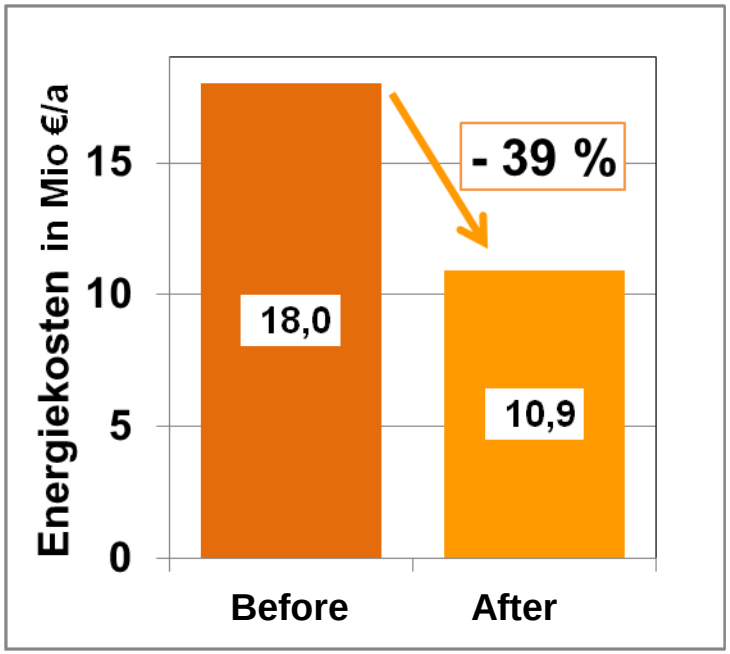
energy savings contracting at the Foreign Office in Berlin: key figures.

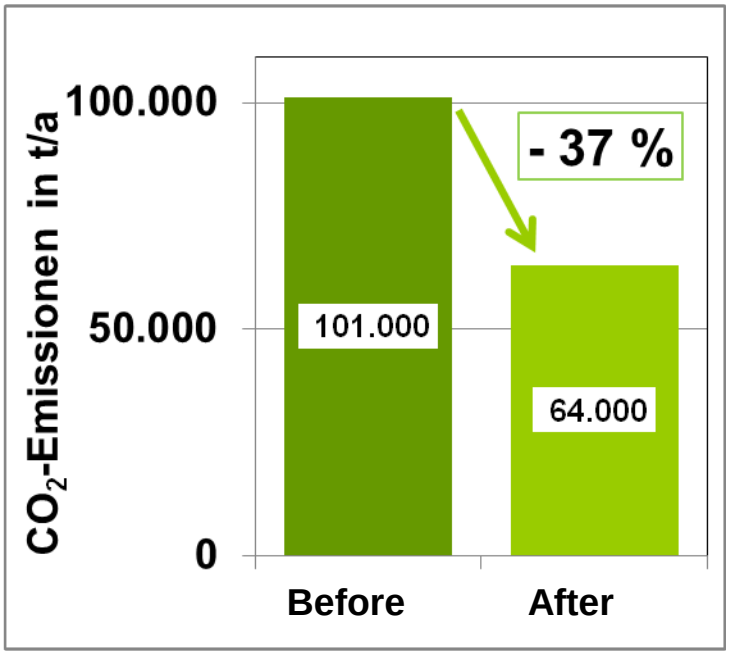
Energy costs	€ 1.95 million per year
Guaranteed savings	€ 604,000 per year in costs (31%) 1,780 t CO_2/ year
Investment	€ 3 million, thereof € 1 million construction subsidy
Budget relief	€ 317,000 per year
Main performance phase	start: Sept. 2011, term: 10 years

Net costs



contracting for federal buildings: successful projects.





Since 2004:

- **Energy cost savings:** **€ 7.1** **million per year**
- **Direct budget relief:** **€ 1.3** **million per year**
- **Investments:** **€ 40** **million**
- **CO_2 saved:** **37,000** **tons per year**

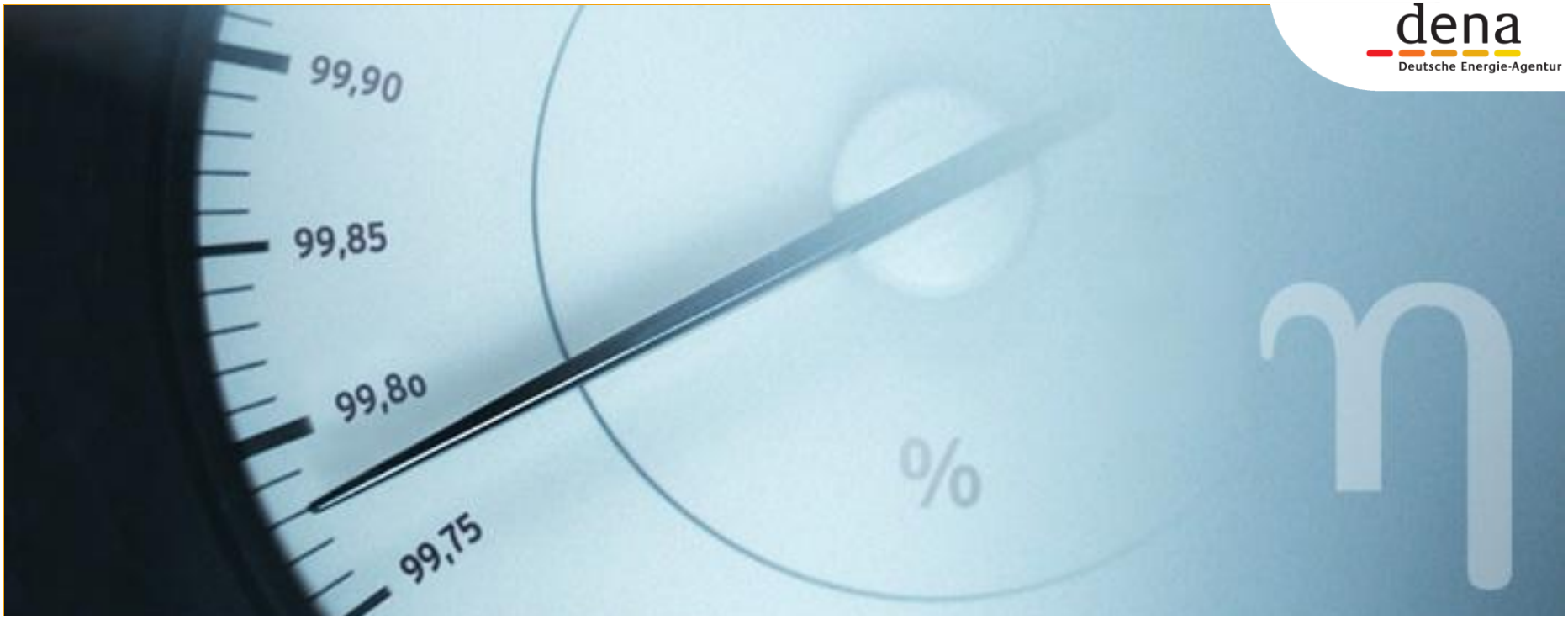
As per 01/2013: 35 properties, implemented projects / detailed analysis of projects

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
- CO_2-reduction: 462 t CO_2/a
- Energy consumption: - 802.340 kWh/a
- Energy costs: - 126.800 €/a
- Investment: 631.000 €
- Return on investment: 20 %