Energy Efficiency in Buildings - the Utilities View

U. König
RWE Energy AG
1. RWE/RWE Energy
2. German Energy Market
3. Buildings and Climate Protection
4. What does RWE do?
5. Need for action
RWE – One of the five leading Energy Companies in Europe

> **Nr 1** producer of electricity in Germany,
> **Nr 3** in UK, leading positionen in CEE
> European energy trading: Leading position
> **Nr 3 high** voltage transmission grid in Europe, market leader in Germany
> Crude Oil and Gas: increasing Upstream-Position
## Broad Services for diversified Customer Segments

<table>
<thead>
<tr>
<th>Residential and small Business Customers</th>
<th>Medium Business Customers</th>
<th>Large Business Customers</th>
<th>Municipal and Regional Utilities/Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply with Electricity, Gas, Water, Services</td>
<td>Support: Regional Service Center, by Internet, Call Center</td>
<td>Integrated Supply Solutions</td>
<td>Supply with Electricity, Gas and Water</td>
</tr>
<tr>
<td>Support: Regional Service Center, by Internet, Call Center</td>
<td>Modular Offer of Products and Services</td>
<td>Utility Services und Contracting-Solutions</td>
<td>Broad Services</td>
</tr>
<tr>
<td>Regional Fairs</td>
<td>Energy Controlling</td>
<td>Infrastructure Management</td>
<td>Service Concepts based on Partnership</td>
</tr>
<tr>
<td></td>
<td>Facility Management</td>
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- **Residential and small Business Customers**
  - Supply with Electricity, Gas, Water, Services
- **Medium Business Customers**
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  - Energy Controlling
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  - Utility Services und Contracting-Solutions
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- **Municipal and Regional Utilities/Municipalities**
  - Supply with Electricity, Gas and Water
  - Broad Services
  - Service Concepts based on Partnership
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Similar Areas of Conflict

- Political Demands
- Profitability
- (Energy-) Ressources
Increasing Demand and scarcity of resources drive up energy prices

€/t coal equivalent

350

Crude Oil

Natural Gas

Hard Coal

(power station coal)


* 1. Quartal

Increasing Demand and scarcity of resources drive up energy prices.
Germany Energy Mix:
Still balanced and save

*) Not to scale
Electricity Production: All Energy Sources have to be included!

Lignite Power Plant (BoA) produces 8.8 TWh = appr. 12% of the annual demand for electricity in NRW.

Biogas based on Corn combined with CHP-Plant: 3076 km² of arable land needed (appr. 9% of NRW).

Canola: Three to four times more land needed (appr. 10,800 km²), about one third of NRW.
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### Potentials to increase Efficiency: Significant Consumption of Raw Materials and CO2 Emissions

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<tr>
<th>Consumption of Energy</th>
<th>Consumption of Raw Materials</th>
<th>CO2-Emissions</th>
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</thead>
<tbody>
<tr>
<td>25 – 40 %</td>
<td>30%</td>
<td>30 – 40 %</td>
</tr>
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</table>

30%

Share caused by building sector within OECD-Countries

Source: Energieeffizienzstudie Jones Lang LaSalle
Utilisation: 80% of the expenses

Development and Construction have a significant impact on the Energy Consumption during the utilisation.
Misperception of Cost-Benefit-Ratio of „Green Buildings“

Expenses overrated

Benefits underrated

Increase Transparency of Expenses and Benefits

Source: World Business Council for Sustainable Development
Premises for Investments: Reliable Conditions

> Free Choice of Technical Solution
> Stability of legal /regulatory Framework
> Solve the Lessee/Investor-Dilemma
> Social Acceptance
> Transparency of Information and Expenses
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RWE engagiert sich, die Energieeffizienz zu steigern

Das Programm umfasst zwölf Projekte

*Research & Technology*

- Smart metering
- Virtual Power Plants

*Implementation & Consulting*

- Energy-saving Solutions for public Buildings
- Energy-saving Solutions for Hospitals
- Efficiency Programm for Street Lighting

*Energy-saving Solutions for SMBs*

*Education and Information*

- Informationscampaign Energy Efficiency
- Media-Campaign „Energiecheck“
- Information Campaign Heatpump
- Promotional Programm Heatpump
- ENRESO 2020

Award for the most innovative and energy efficient commercial property: „Prom des Jahres“

Support for Schools
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Energy- and Climatepolitics: Need for action?

> Das Thema und die Diskussion um den „Klimawandel“ nicht instrumentalisieren, sondern versachlichen

> Increase Transparency of Information and Expenses

> Mind the climate protection AND the efficiency of capital

> Profitability of Energy Efficiency is the premis – Use Subsidies only to stimulate the Market

> Everybody can benefit from Energy Efficiency:

Let’s develop the solutions together!
Backup
RWE Energy: one of the leading utility companies in continental Europe

Market Share Electricity

<table>
<thead>
<tr>
<th>Country</th>
<th>%</th>
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<tbody>
<tr>
<td>Poland</td>
<td>36</td>
</tr>
<tr>
<td>Germany**</td>
<td>81</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>44</td>
</tr>
<tr>
<td>Slovakia*</td>
<td>18</td>
</tr>
<tr>
<td>Austria*</td>
<td>16</td>
</tr>
<tr>
<td>Slovakia</td>
<td></td>
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<tr>
<td>Austria</td>
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<tr>
<td>Hungary</td>
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<tr>
<td>The Netherlands</td>
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<tr>
<td>Dortmund</td>
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<tr>
<td>Hoofddorp</td>
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<td>Prague</td>
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<td>Warsaw</td>
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<td>Vienna</td>
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<td>Budapest</td>
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<td>Klagenfurt</td>
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Market Share Natural Gas*

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</tr>
<tr>
<td>Austria</td>
<td>18</td>
</tr>
<tr>
<td>Slovakia*</td>
<td>5</td>
</tr>
<tr>
<td>Austria*</td>
<td>7</td>
</tr>
<tr>
<td>Poland</td>
<td></td>
</tr>
<tr>
<td>Germany**</td>
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Market position RWE

<table>
<thead>
<tr>
<th>Energy</th>
<th>Germany</th>
<th>Europe</th>
</tr>
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<tbody>
<tr>
<td>Electricity</td>
<td>Nr 2</td>
<td>TOP 5</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>Nr 3</td>
<td>Nr 6</td>
</tr>
<tr>
<td>Water: Inhabitants</td>
<td>Nr 1</td>
<td>Nr 8</td>
</tr>
</tbody>
</table>

* 2007 Data, incl. minority investments ≥ 20%, Retail only
** 2006 Data
Aufwändige Genehmigungsverfahren und mangelnde öffentliche Akzeptanz gefährden die Versorgungssicherheit

> Zur **Einbindung regenerativer Erzeugung** notwendiger Netzausbau verzögert (z. B. Windkraft on-shore, off-shore)
> Bau neuer **fossiler Kraftwerke** schwierig (z.B. Steinkohlekraftwerk Ensdorf)
> **Heimische Energieträger** rückläufig (z.B. Steinkohleabbaustop im Saarland)
> Widerstand auch gegen **neue Biomassekraftwerke** (z.B. Dillingen, Mahlberg, Cham)
Energieeffizienz kann im Gebäudesektor wirtschaftlich attraktiv realisiert werden.
RWE-Modules for Climate Protection

Energy Efficiency:
Build new Power Plant with higher efficiency / R&D

Renewable Energy Sources:
Increase the share of renewable energy sources for electricity production significantly

JI/CDM:
150 Mio. € to avoid Emissions in developing countries and emerging markets

Climate friendly Power Plants
Build coal fired Power Plants with CCS-technology
Energieeffizienz schon bei der Planung berücksichtigen: RWE-Tower Dortmund

Einige Eckdaten
- Baujahr 2004
- 20.000 qm Bürofläche
- 5.100 qm Glasfläche
- Betonkernaktivierung statt Klimaanlage
- Wärmedämmung durch Doppelfassade
- BUS-Steuerung der Beleuchtung/ Einsatz von LED und Energiesparlampen

Maßnahmen (z. B.):
- Reduzierung von Leistungsspitzen
- Optimierte Steuerung der Kältemaschinen und Lüftungsanlagen
- Energieeffizienzkampagne für Mitarbeiter

Einsparpotenzial mind. 60.000 Euro p. a.