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Exportinitiative Energieeffizienz

Energy Efficiency in Industry - Status & Perspectives

October 20, 2009, Spain, Madrid

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eclareon GmbH Management Consultants
on behalf of the German Federal Ministry of Economics and Technology

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I. "Energy Efficiency Made in Germany" – You are invited to start Business!

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The Energy Efficiency Export Imitative

- **Umbrella Brand**

"Energieeffizienz - made in Germany"

- **Information on the Website**

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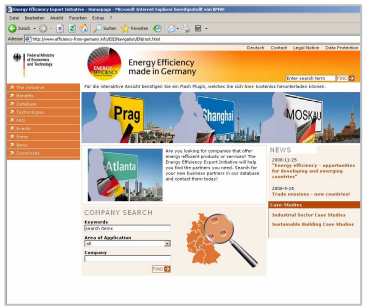

- **Network**

Decision Makers and "Advocates",
Private Companies

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II. On the importance of energy efficiency in Industry

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Economic and Political Setting for Action

Economic Motives:

- International competition
- Cutting production costs
- Saving Energy (costs)
- Technological innovation
- Investing in new products and industrial processes

Political Motives:

- EU-Directives (EU-policy)
- National legislation
- EU-Emission trading system
- Tax incentives
- Research & Development

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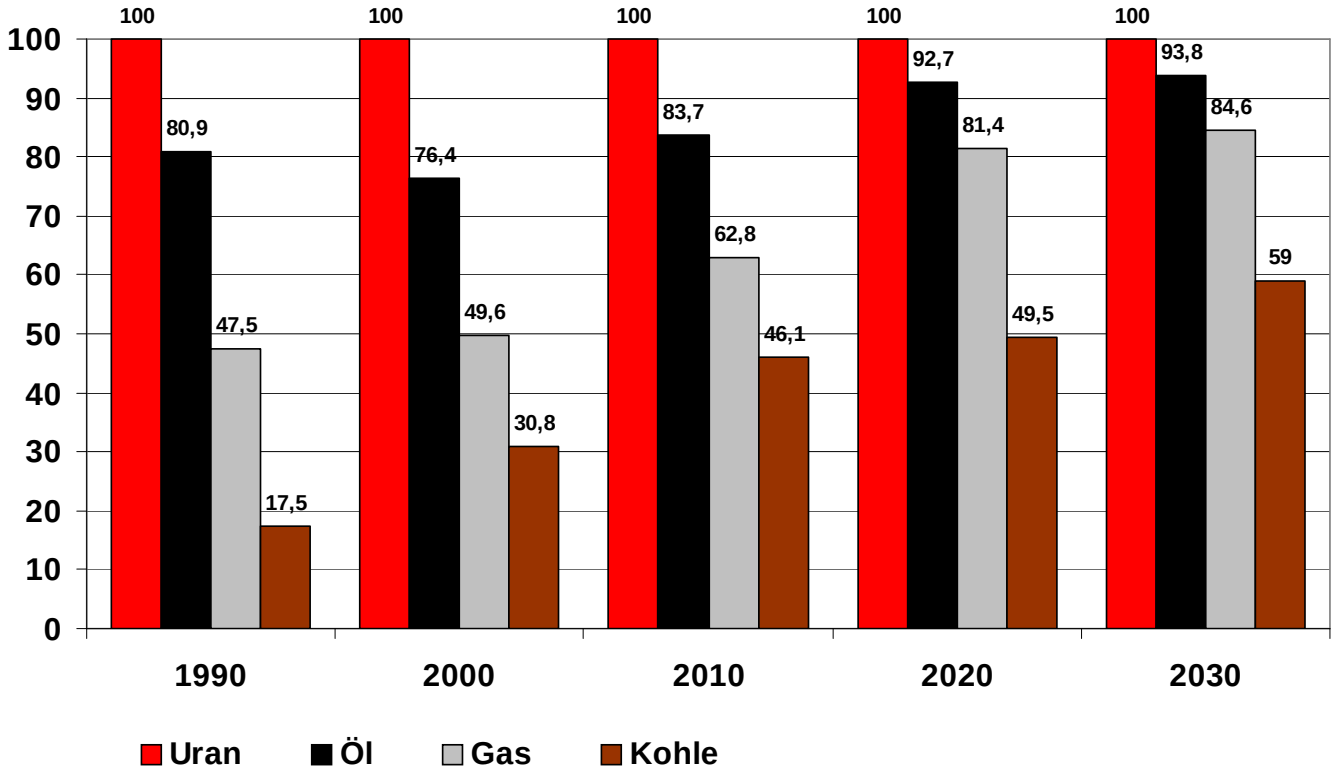
Reasons for Energy efficiency: Import dependence (EU)



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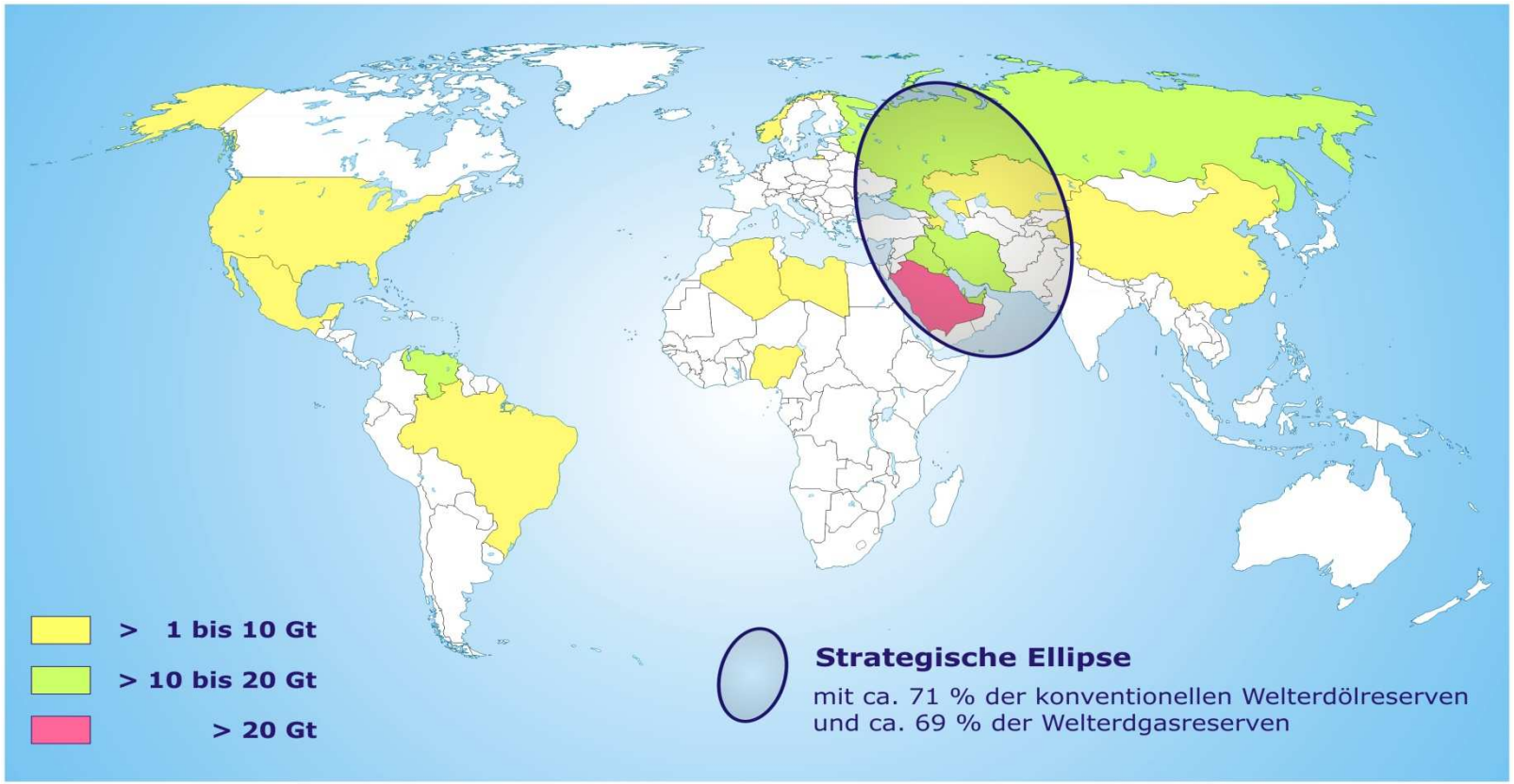
Reasons for Energy Efficiency: Resource Security



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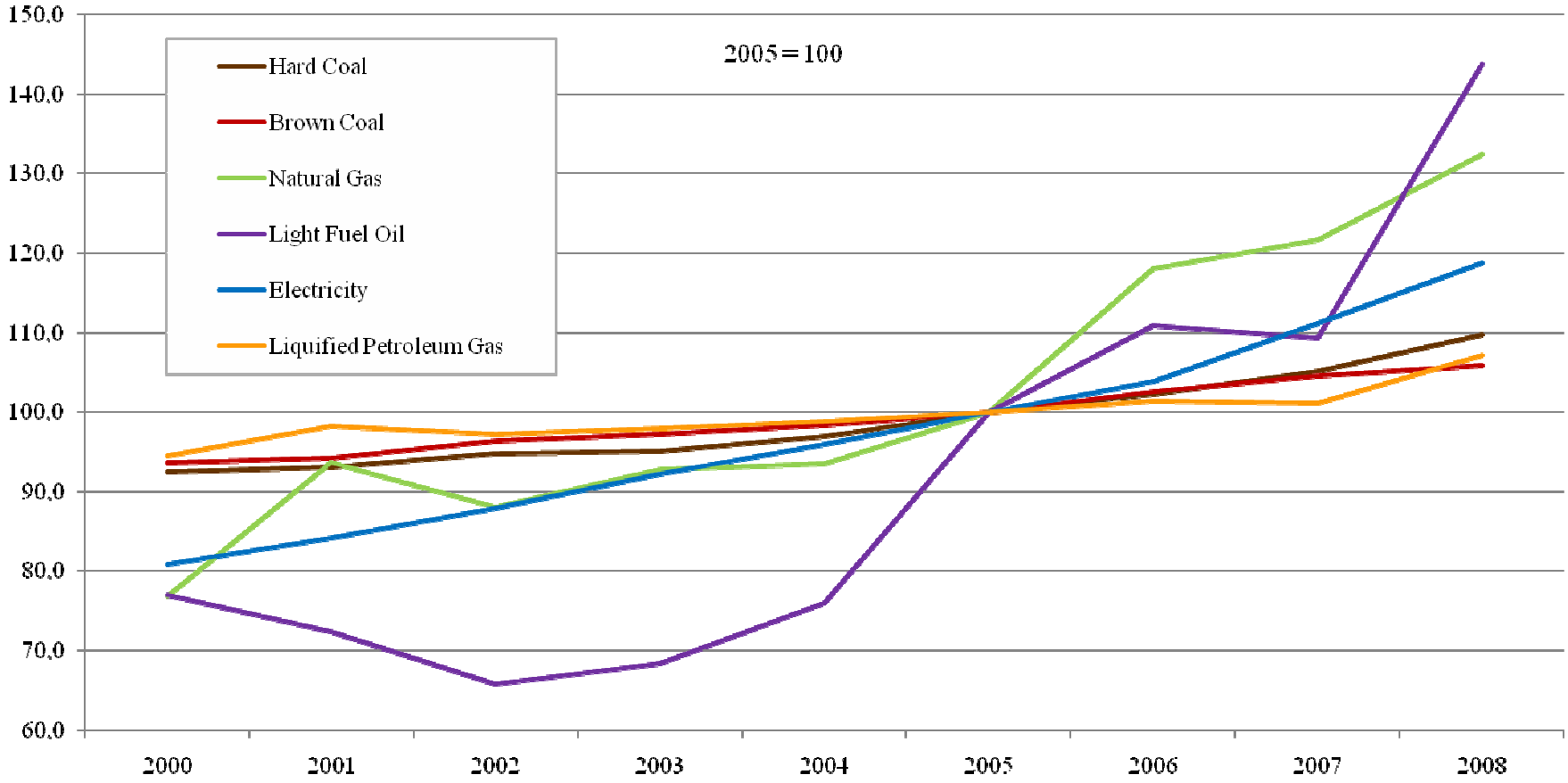
Development of the Consumer Price Indices in Germany



Source: German Federal Statistical Office, 2009

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Sustainable Energy Strategy (1)

Strategic Goals:

- **Energy Security**:
  reducing energy imports, lowering geopolitical risks
- **Economic Growth**:
  securing international markets, promoting technological advances
- **Climate Protection**:
  meeting Kyoto and EU-reductions targets 2020 (minus 20% resp. 30 %)

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Sustainable Energy Strategy (2)

Strategic Instruments for Energy Efficiency:

- 1. efficient conversion of energy resources (producer side)
- 2. cost-effective use of energy services (demand side)
- 3. promoting renewable energy resources (policy side)

Energy efficiency and renewable energies
are like two sides of a coin

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EU-Targets for Integrated Energy and Climate Policy

EU-Summit of 08.03.2007
Targets for 2020

→ reducing GHG-emissions by 20% compared with 1990
→ reducing primary energy use by 20% compared with 1990
→ raising the share of renewable energies up to 20% of prime energy
→ raising energy efficiency by 20% compared with 1990

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German Energy and Climate Package 2007

Targets

- 40% reduction of greenhouse gas emissions by 2020 compared to 1990
- 25-30% share of renewables in energy generation by 2020
- 6-14% share of renewables in the heat sector
- 25% share of cogeneration (CHP) in electricity generation by 2020
- Doubling of energy productvivity by 2020

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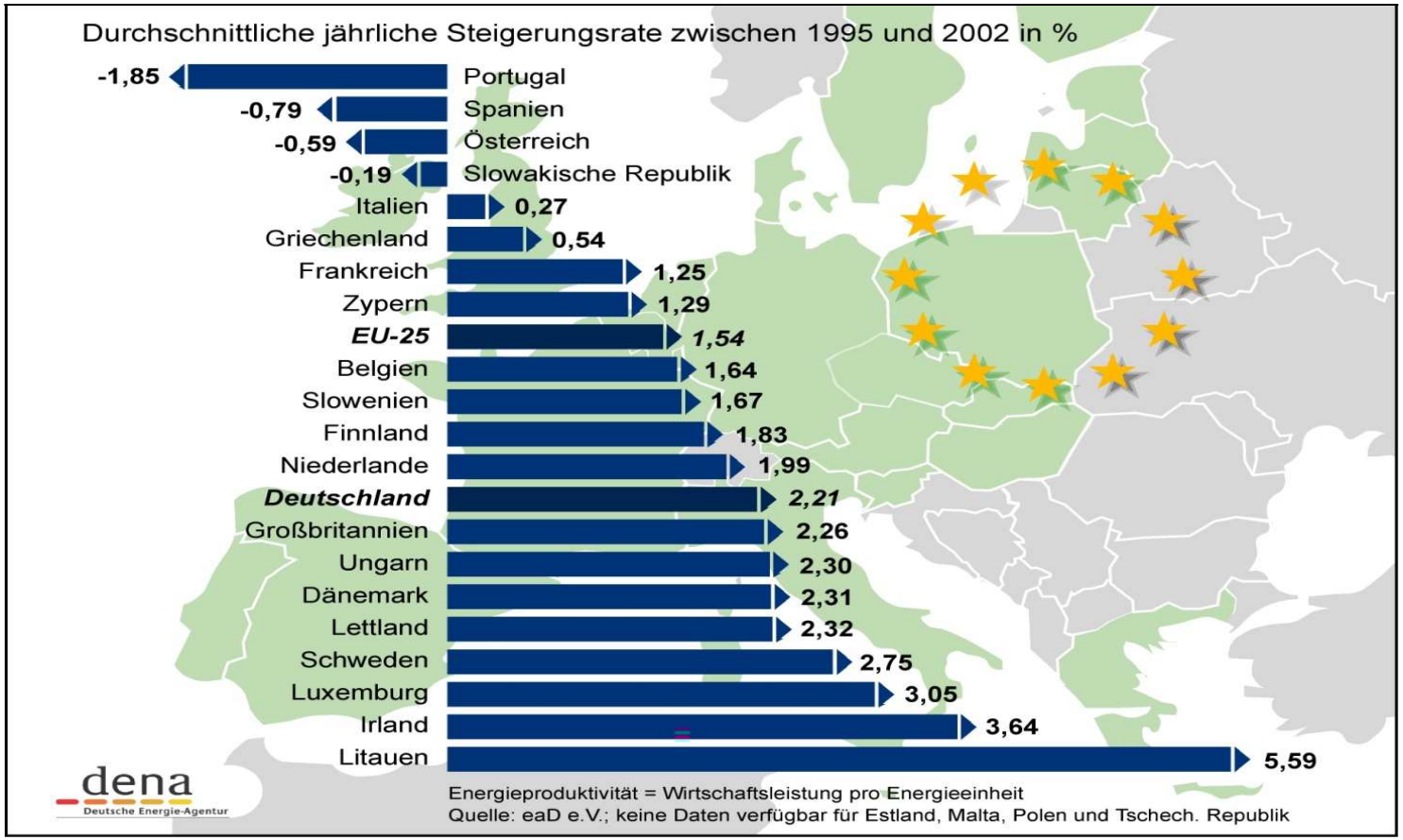
Development of Energy Productivity in EU-Countries



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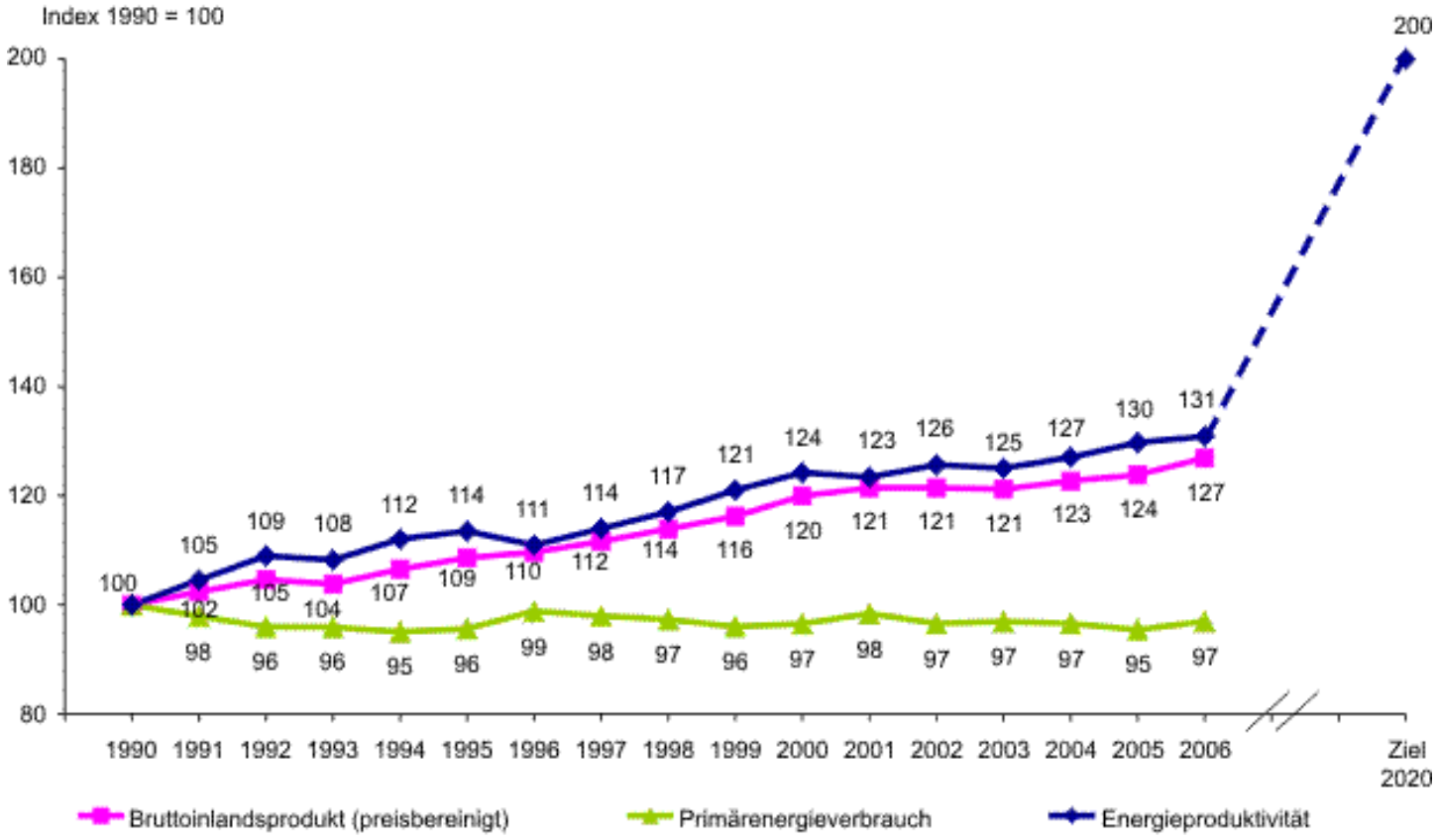
Energy Productivity and Economic Growth



Quelle: Statistisches Bundesamt, Arbeitsgemeinschaft Energiebilanzen

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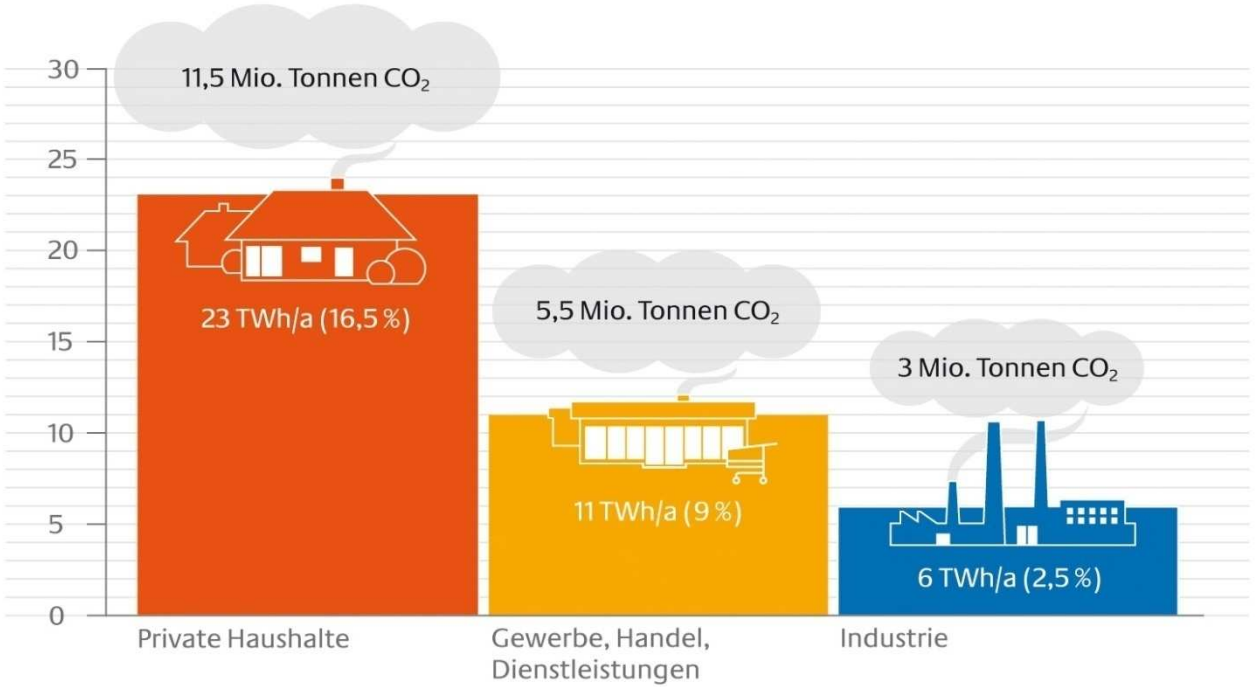
CO_2-Reduction potential in economic sectors

So viel Strom und CO_2 kann Deutschland sparen.

Wirtschaftliche Stromeinsparung bis 2020 in Terawattstunden pro Jahr und daraus resultierende Kohlendioxid-Reduktion nach Sektoren (ohne Verkehr, Basisjahr 2003)



Quelle: *Initiative EnergieEffizienz*, dena

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III. Common Technologies used in Industry

- Compressed air
- Electric engines
- Pump systems
- Electric lighting
- Ventilation and cooling
- Heating and warm water
- Industrial stoves
- Cogeneration of power and heat
- Information technology (IT)

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Importance of universal technologies in industry

- They offer great opportunities to save energy (costs) by efficient use of advanced technologies
- They can be applied in all industrial sectors as well as in small and intermediate enterprises
- They promise a fast rentability of capital investments (often within a period of 2-4 years)
- They offer a vast market and often a high rentability because of large-scale application in different sectors
- Therefore research and development will center on these universally applicable technologies

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Saving Costs in Industrial Production

German target for 2020: cutting **20–40%** of energy consumption in industry

- Electrical engines use two thirds of electricity consumption in industry
- Saving Potential of 15% by using electronic steering of engines and pumps
- This amounts to savings in electricity use in the magnitude of 4000 MW, which is the electricity production of 3-4 big power plants
- German industry reduced total energy consumption while continuing zo expand ist production through efficient energy management

Germany has so far achieved a growth of energy productivity of 31%

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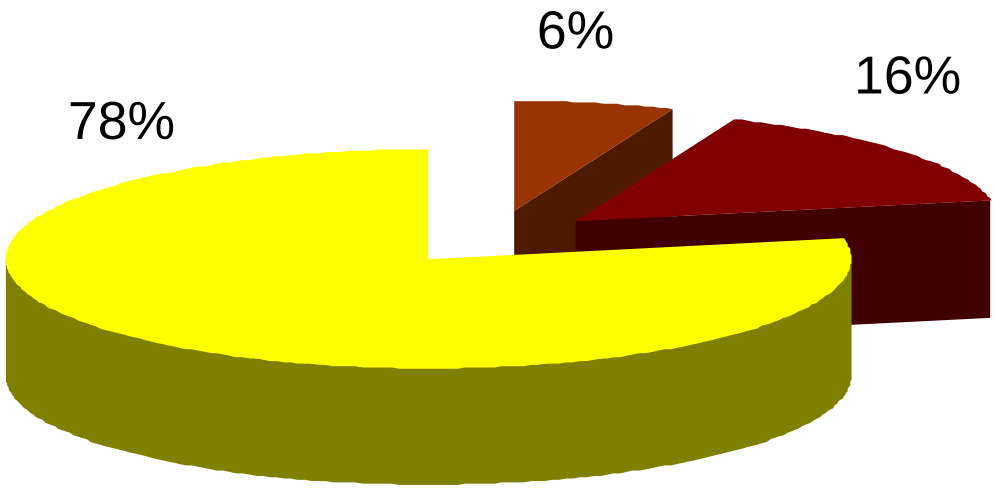
Life Cycle Costs of Electrical Engines
(example: compressed air)

More than two thirds are energy costs. This applies to all engine systems.



Energy Costs 22.000 Euro / Year

- **Wartungskosten**
- **Anschaffungskosten**
- **Energiekosten**

assumptions:

Installed Power 110 kW; life cycle 15 years

use 4000 hours per year

Energy costs 5 Cent/kWh

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Common Challenges

- Reducing dependence from oil and gas (imports) by using energy efficiency and carbon-neutral technologies
- Cutting GHG-emissions by using a power switch to non-fossile fuels and investing in energy efficiency
- Investing in research and development of energy efficiency and renewable energies (with great economic potentials)
- Convincing citizens to engage in energy saving by using energy efficient appliances and by modifying their wasteful consumer behavior
- Designing a path for sustainable national development which will find public acceptance

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Lessons Learned

- Energy prices have a dual function:
  they serve as useful drivers for technological innovations;
  but they are also economic costs for enterprices and private households
- Playing the technology card for government and business is easier than changing people‘s behavior patterns
- Government and industry should not underestimate civic opposition to certain energy forms (nuclear or coal) and untested technologies (CCS)
- Energy and climate policy is a vital global issue but national government is not likely to act in opposition to powerful economic interests

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IV. The Companies

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Participating German Companies I

Company	Representative
Frenger System BV Heiz- und Kühltechnik GmbH	Achim Langstroff
EDUR PUMPENFABRIK GmbH & Co. KG	Joachim Thiele
MSF-Vathauer Antriebstechnik GmbH & Co. KG	Marc Vathauer
Albany Door Systems GmbH	Carl Ebelshäuser

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Participating German Companies II

Company	Representative
Grammer Solar GmbH	Siegried Schröpf
EnEff Plus Ingenieurbüro für Energieeffizienz	Norbert Jungjohann or Matthias Walde

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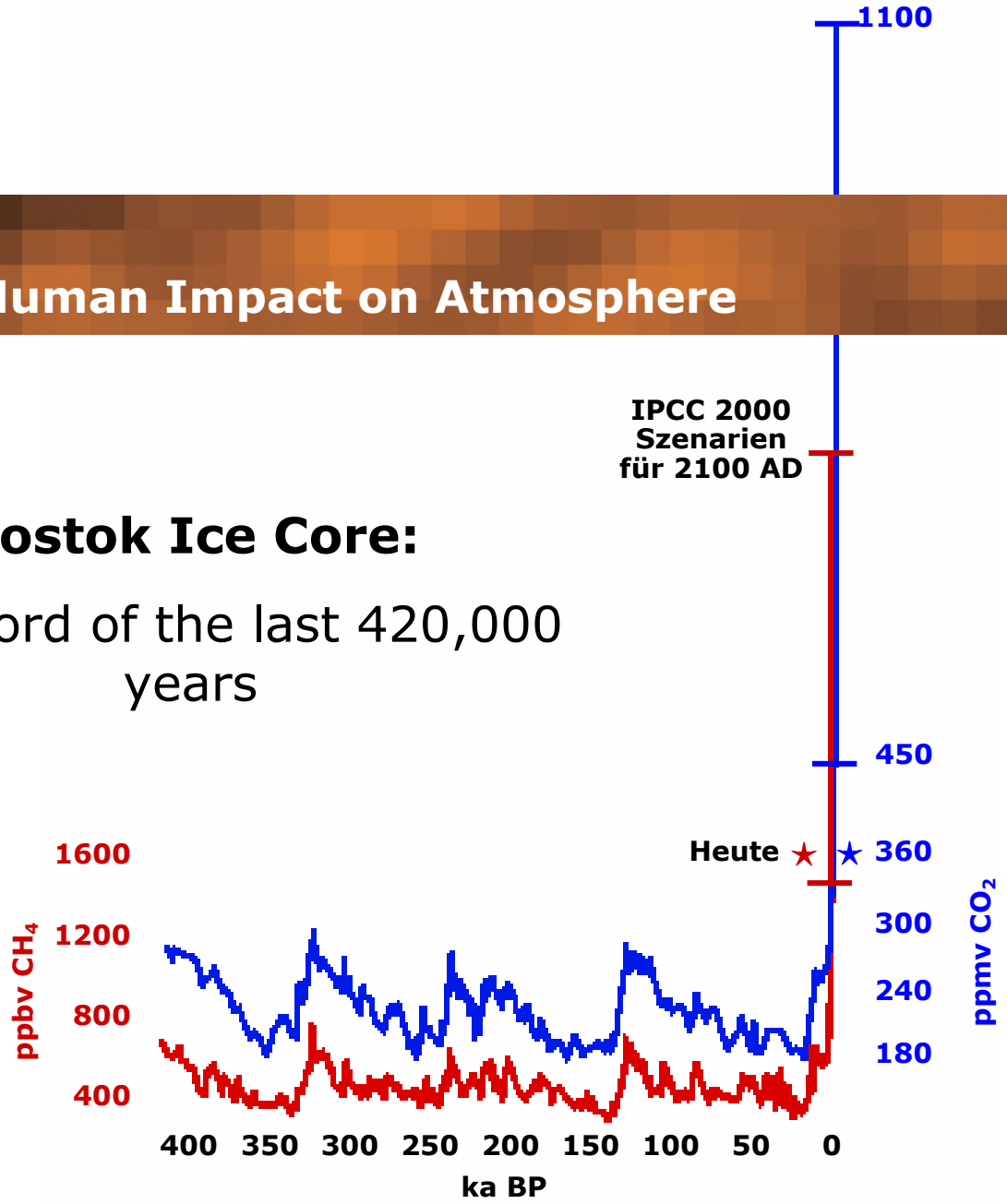
Human Impact on Atmosphere

Vostok Ice Core:

the record of the last 420,000 years



Quelle: WDCP/IPCC

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Quotes:

„A reliable and affordable energy supply is the foundation for economic stability and development". (G-8-Summit at Gleneagles in 2005)

„The scarcest resource is not oil, gas or uranium; rather it is the time we need to adapt our behaviour to the exigencies and limits of our environment." Russell Train, ecological expert

Thank you for your attention …

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