



# Utilization of Renewable Energies in Germany

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& Renewable Energy International Forum and Fair

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# Outline

- Why Renewables ?
- Primary Energy Consumption
- RE in Electricity Generation
- Achievements: Wind Power / Photovoltaics
- Achievements: Environment
- Achievements: Industry / Turn Over
- Legislative Framework Conditions
- Outlook - Germany's Long-term RE targets

# Why Renewables ?

- are environmentally sound and climate friendly;
- create new jobs in major future oriented branches;
- have a high export potential on the global market;
- are a prerequisite for the development of a sustainable energy supply.



# Primary Energy Consumption

## Renewable

## Energies

3,1%

Other

0.3%

Mineral Oils

36.4%

Gas

22.5%

Nuclear Power

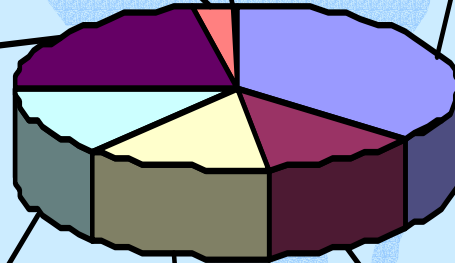
12.6%

Coal

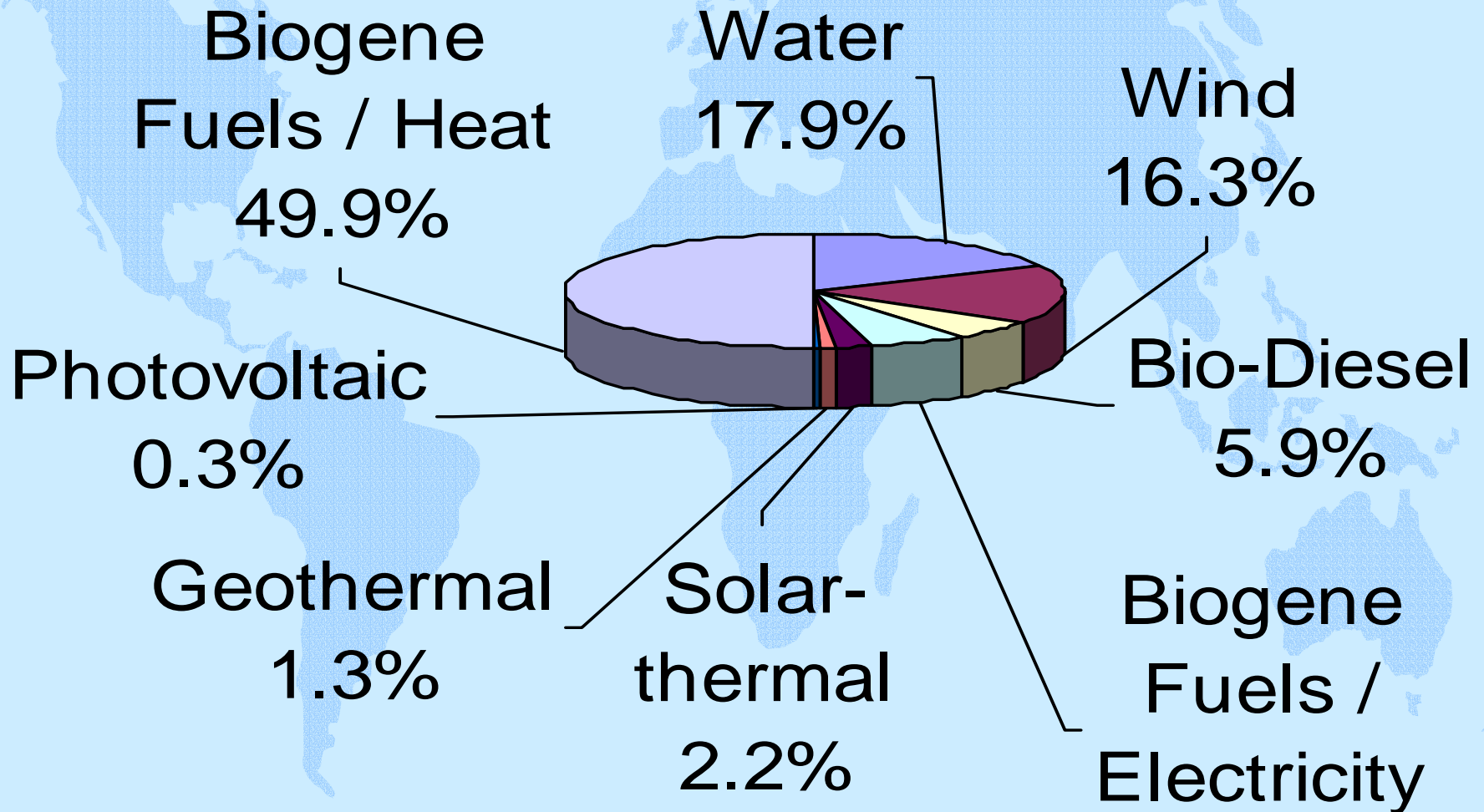
13.7%

Lignite

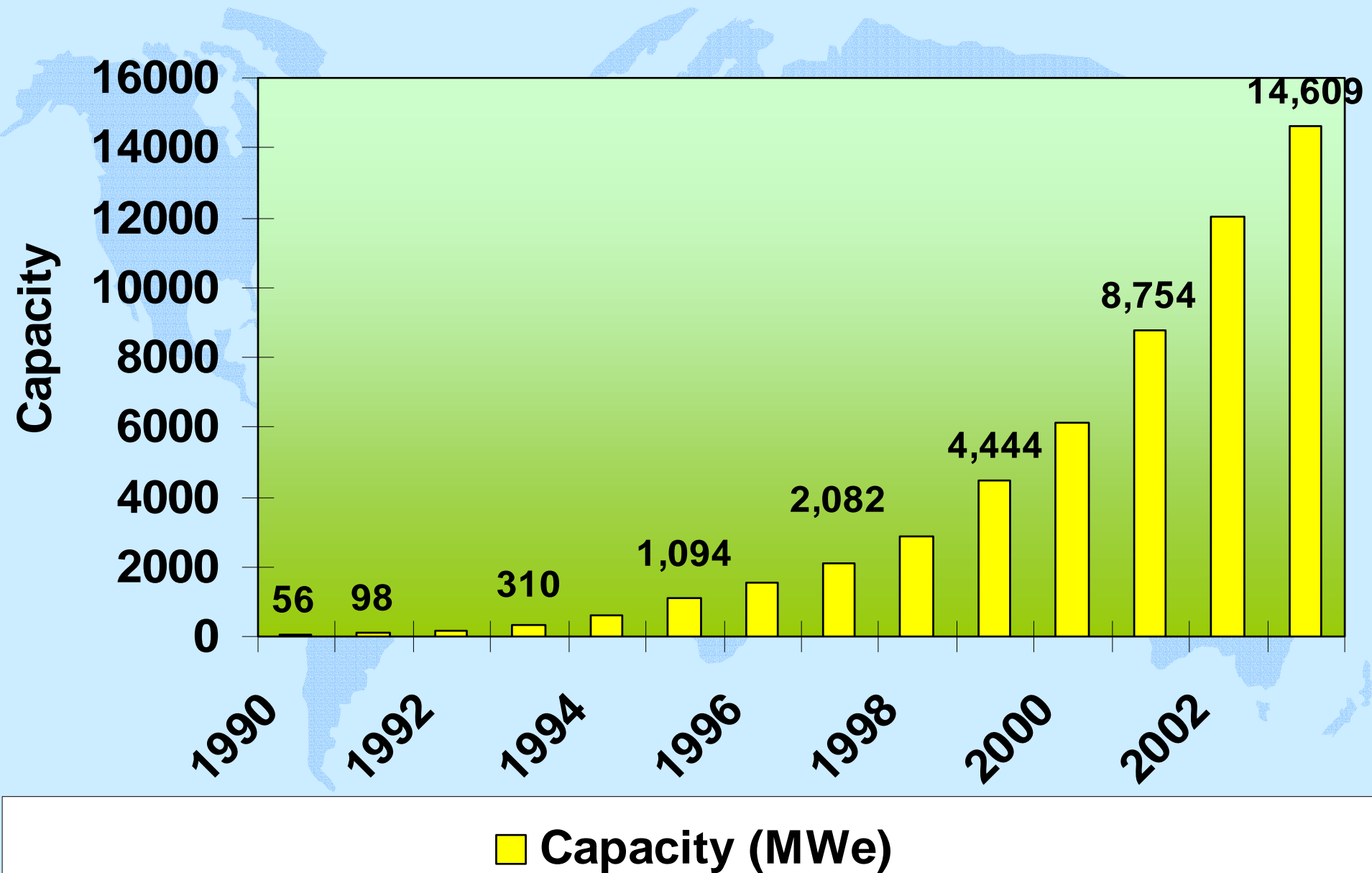
11.4%



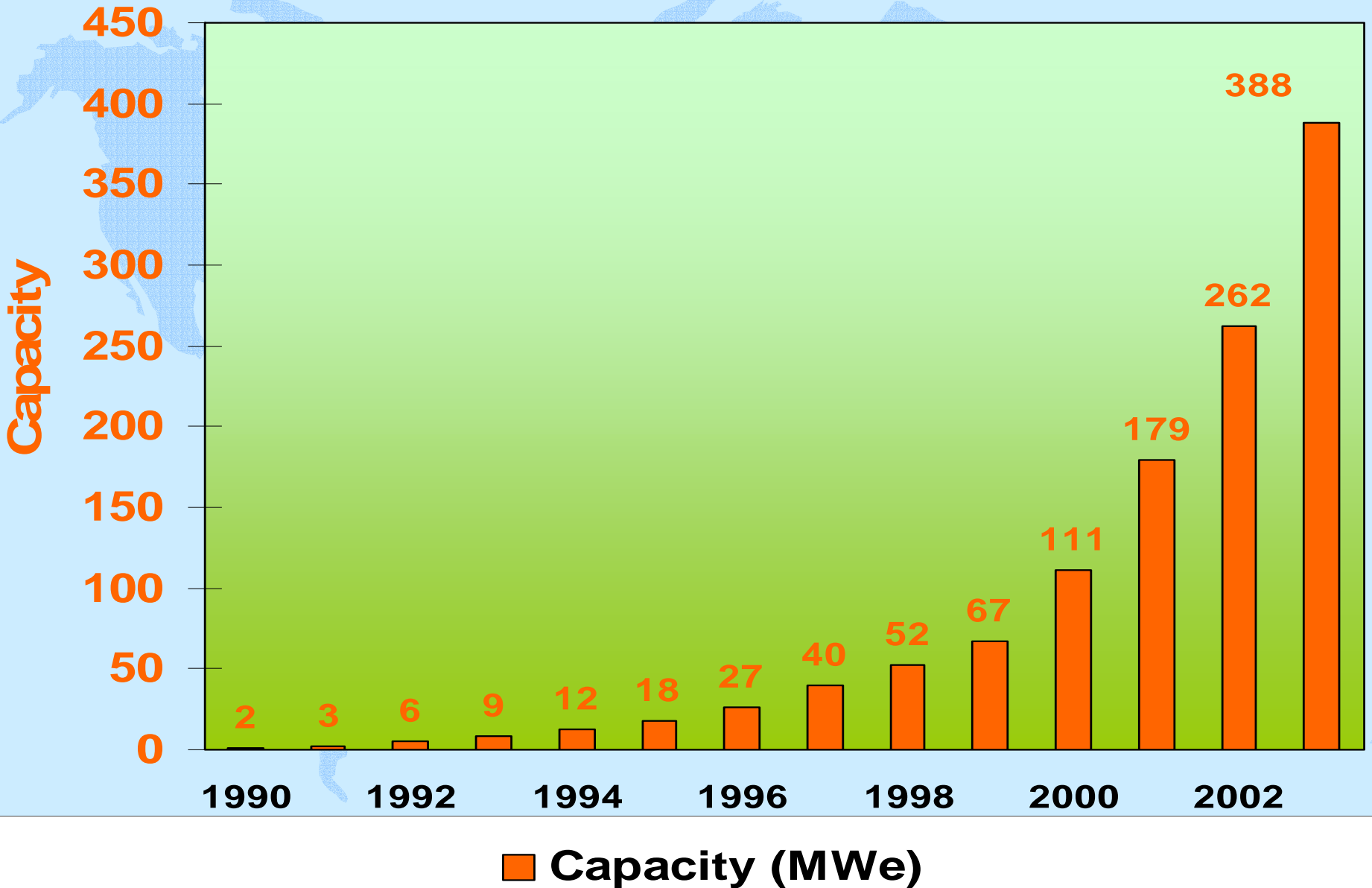
# Electricity Generation from RE in (TWh)



# Achievements: Wind Power



# Achievements: Photovoltaics



# Achievements: Environment

## Avoided Emissions by RE in 2003

- **CO<sub>2</sub> equiv. : 51.3 million t**
- **SO<sub>2</sub> equiv. : 52,700 t**
- **CO : 25,600 t**

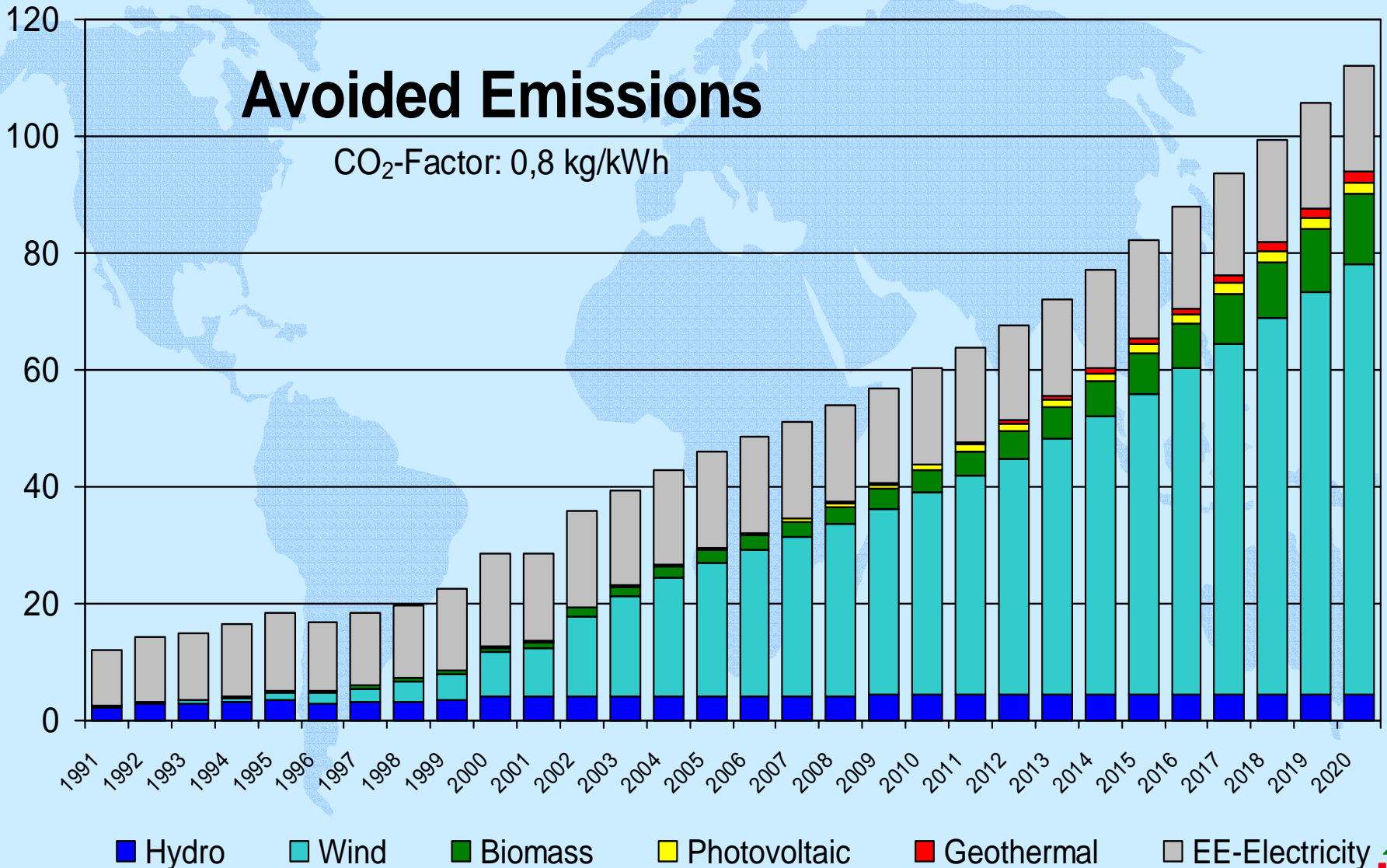




# CO<sub>2</sub>-Reduction 1990 - 2020

## Avoided Emissions

CO<sub>2</sub>-Factor: 0,8 kg/kWh

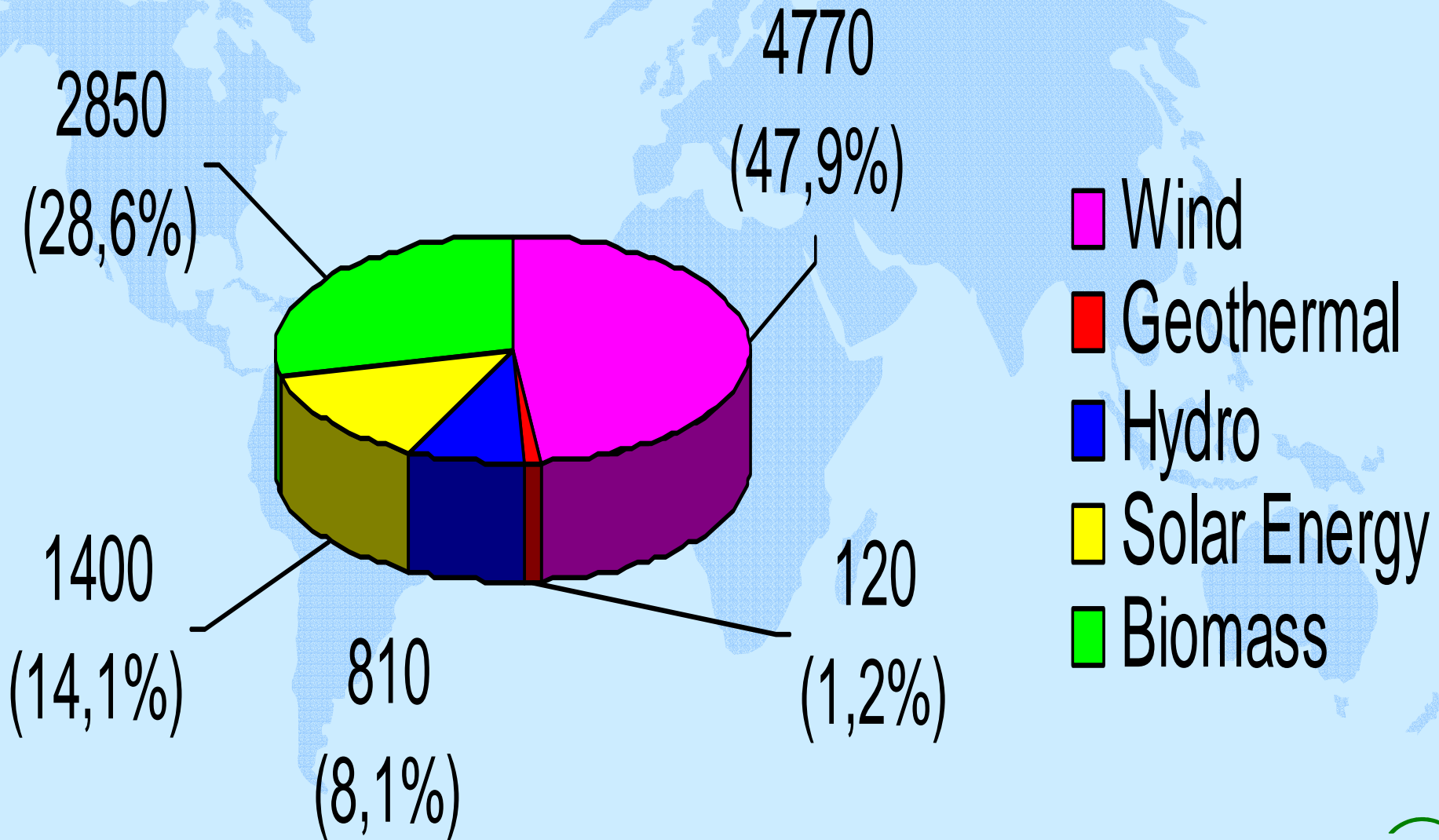


# Achievements: Industry

- **World largest wind power market**
- **Viable industry, growing export**
- **135,000 jobs in renewable energy industry (2003)**
- **Total turn over €10 billion (2003)**



# Turnover RE Industry in 2003 (Mio. €)



# Legislative Framework

- Renewable Energy Sources Act (RESA), which came into effect April 1, 2000
- 100.000 Roof Solar Electricity Programme (1999-2003)
- Market Incentive Programme (1999-2004)
- Biomass Ordinance (2001)
- Off-Shore Wind Energy Installations Regulations (2002)

# Outlook - Germany's Long-term RE Targets

- By 2010, to double the share of renewable energies in the electricity supply to 12.5 % and to 4.2 % in primary energy use.
- By 2020, to increase it's share in electricity generation to at least 20 % and at least 10 % of the total primary energy consumption.
- By 2050, at least 50% of the total energy supply shall be contributed from renewable energy sources.



**Thank you for your attention !**

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