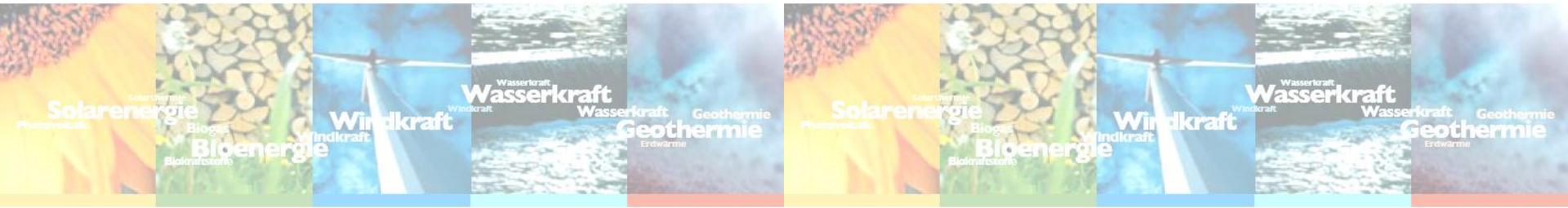
The Renewable Energy Industry Roadmap for Germany: 28% instead of 18% Renewables in 2020

Rainer Hinrichs-Rahlwes, Board Member

BEE - German Renewable Energy Federation

INFORSE/EREF-Seminar – Brussels, 27th of May 2010



The German Renewable Energy Federation - BEE

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Bundesverband
Erneuerbare Energie e.V.

- **Umbrella organisation** of the German RES-associations **since 1991**
- **Task and mission:** Political consulting → stable and reliable framework conditions for RES
- **22 Member associations:**
  hydro, wind, solar, biomass, and geothermal energy.
- **Representing**
  > 30,000 members, including > **5,000 enterprises**.
- **Member of EREF**:
  The European Renewable Energies Federation

Climate Action
Energy for a Changing World

EU-27 efforts in Renewables
RES share in 2020

EU-27

REPAP 2020

Renewable Energy Policy Action Paving the Way towards 2020

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More is necessary and feasible

National Renewable Energy Industry Roadmap

Germany

With support from:

Intelligent Energy Europe

Starting with some facts

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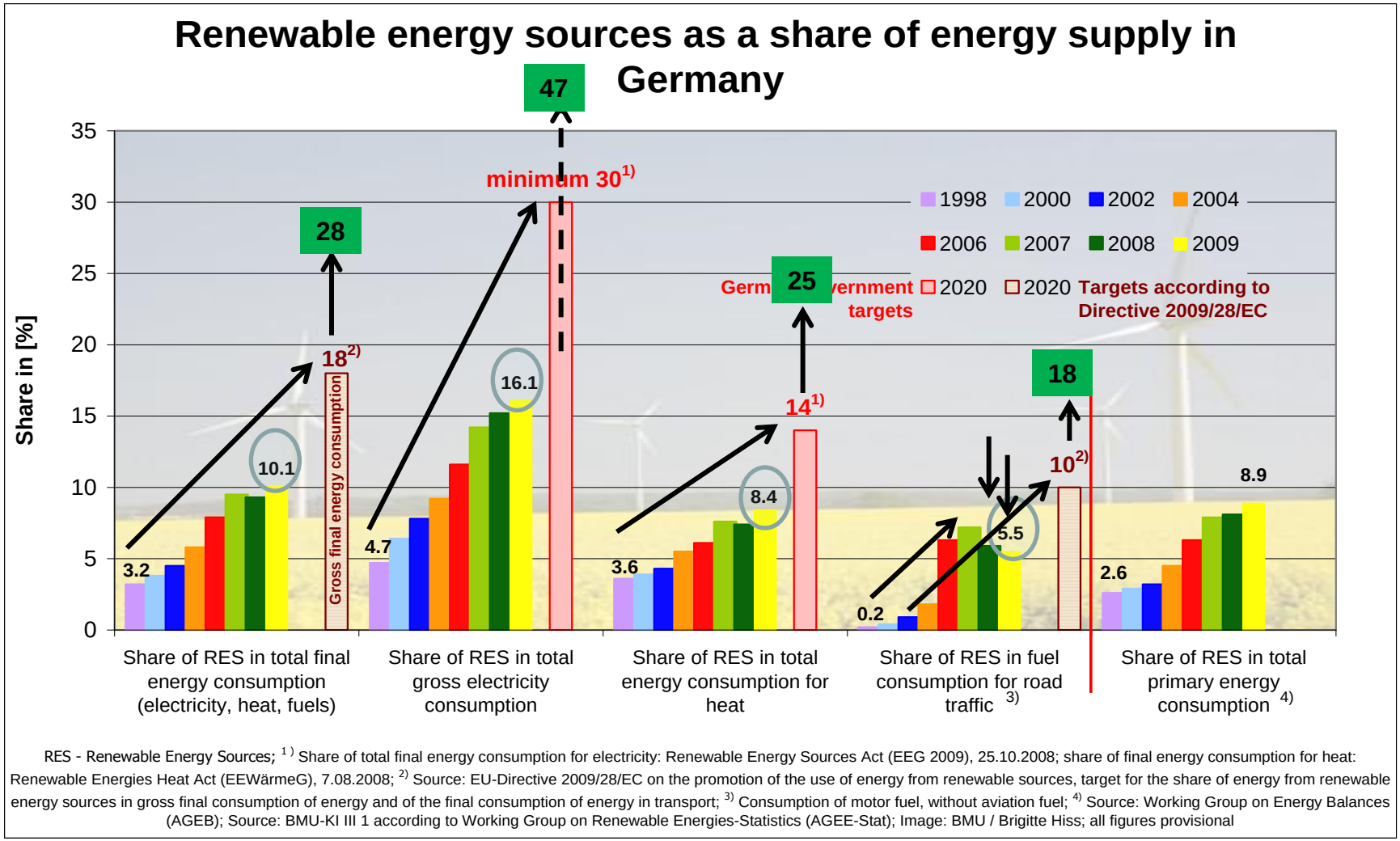
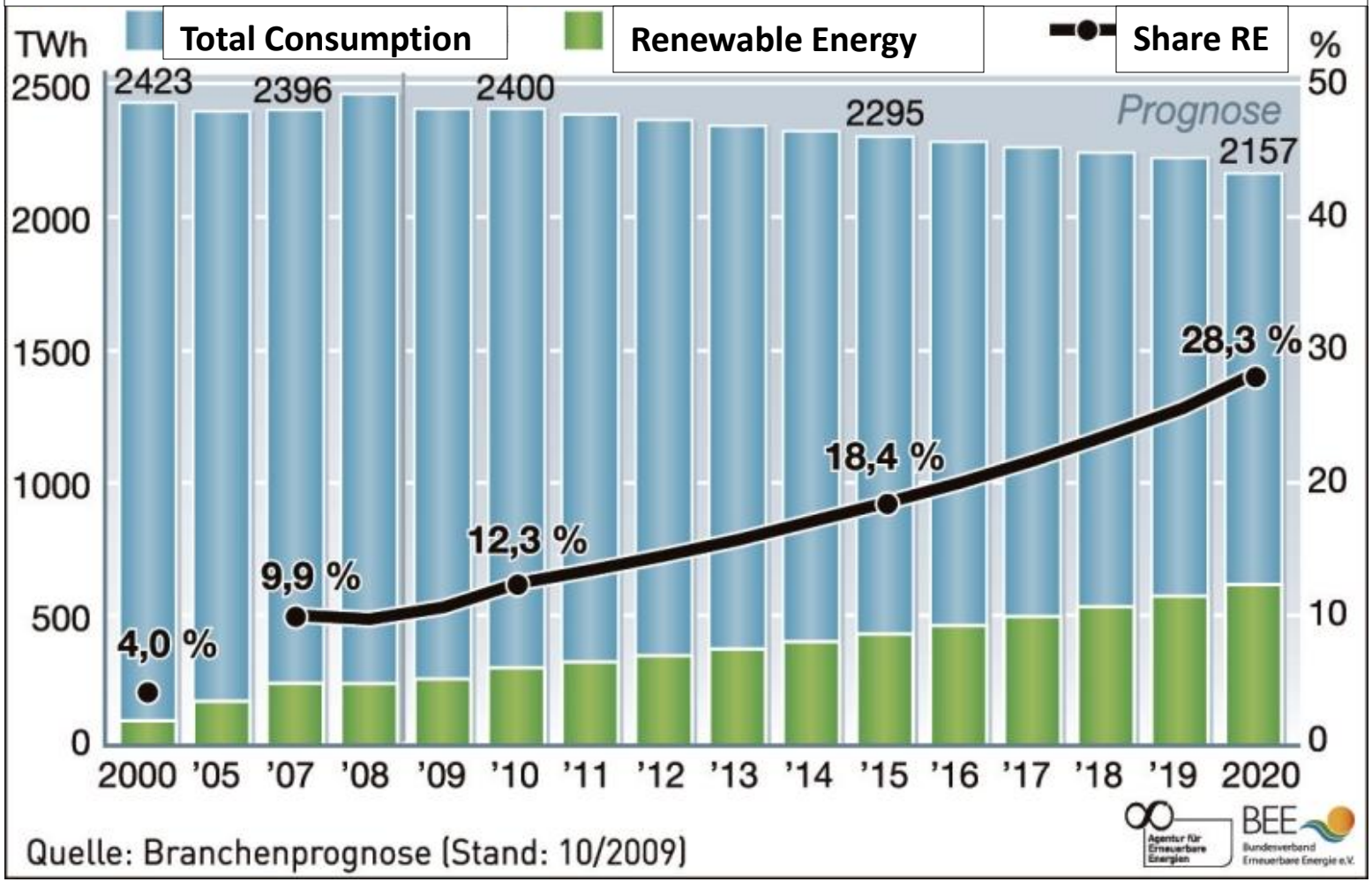


RES - Renewable Energy Sources; [1] Share of total final energy consumption for electricity: Renewable Energy Sources Act (EEG 2009), 25.10.2008; share of final energy consumption for heat: Renewable Energies Heat Act (EEWärmeG), 7.08.2008; [2] Source: EU-Directive 2009/28/EC on the promotion of the use of energy from renewable sources, target for the share of energy from renewable energy sources in gross final consumption of energy and of the final consumption of energy in transport; [3] Consumption of motor fuel, without aviation fuel; [4] Source: Working Group on Energy Balances (AGEB); Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); Image: BMU / Brigitte Hiss; all figures provisional

Share of Renewable Energies in Total Final Energy Consumption



Electricity

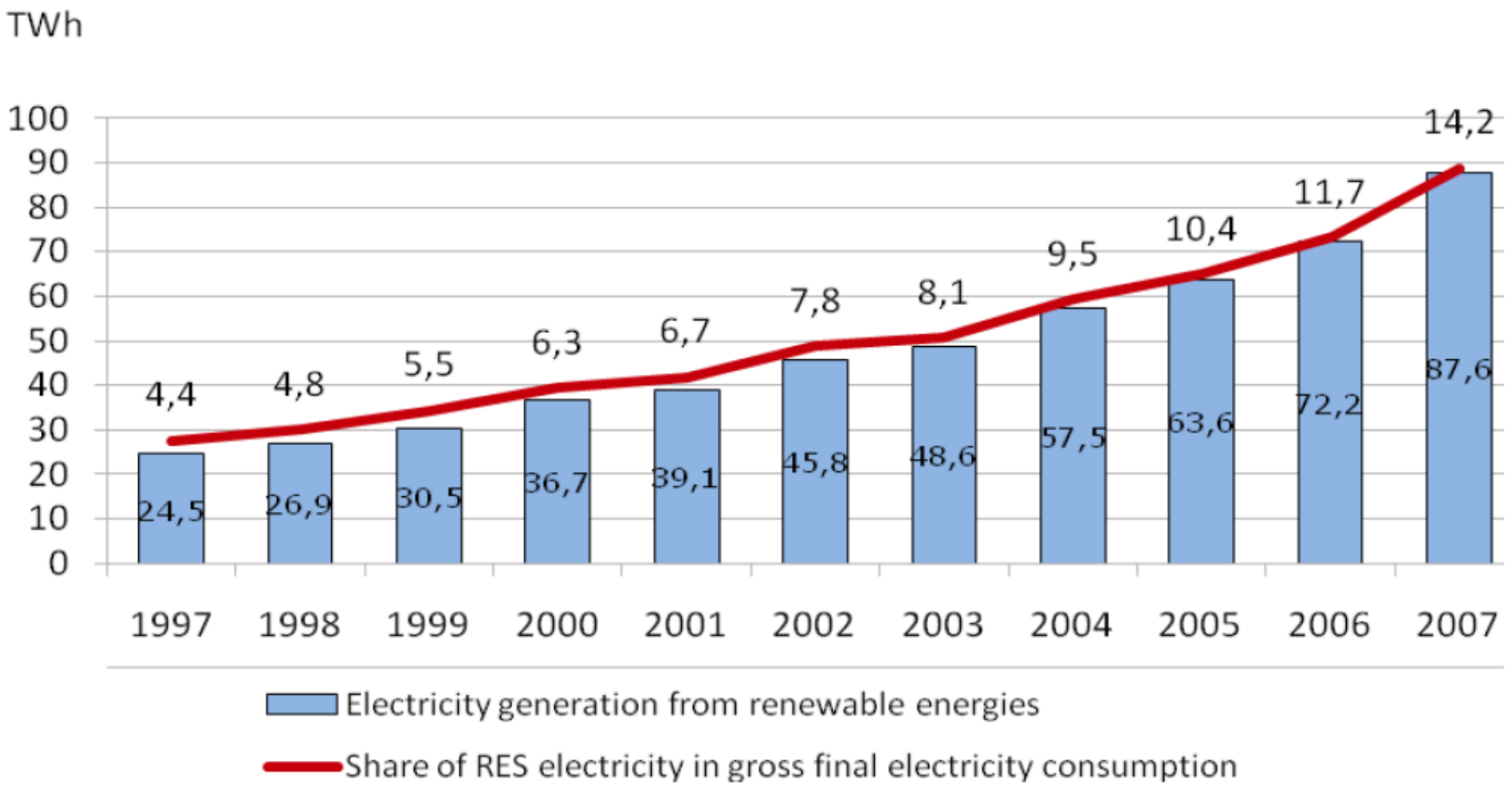
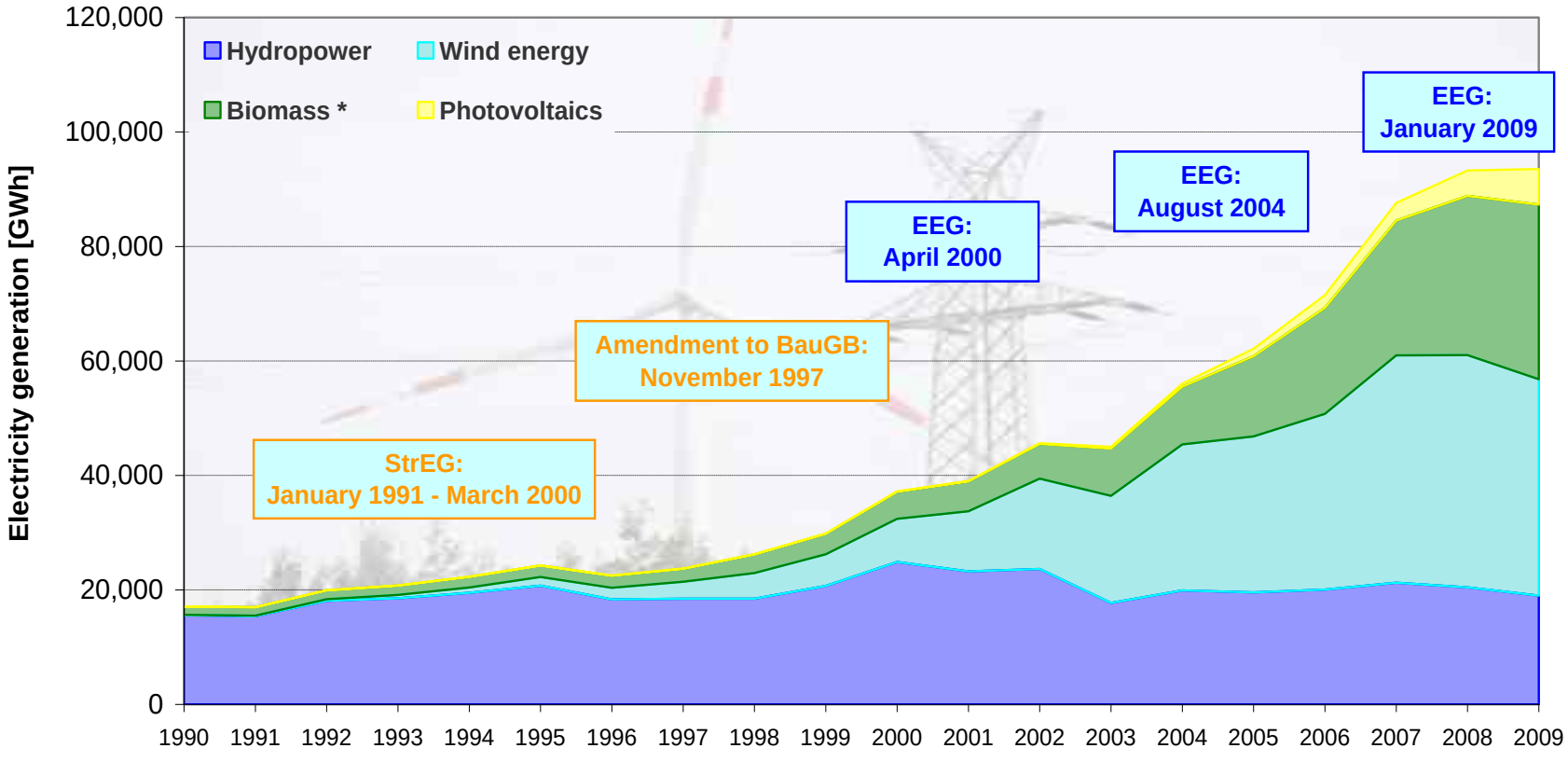


Figure 2: Electricity generation from RES

Development of electricity generation from renewable energy sources in Germany 1990 - 2009



* Biomass: Solid, liquid, gaseous biomass, biogenic share of waste, landfill and sewage gas;
Electricity from geothermal energy is not presented due to the negligible quantities of electricity produced; StrEG: Act on the Sale of Electricity to the Grid; BauGB: Construction Code; EEG: Renewable Energy Sources Act; Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); Image: BMU / Christoph Edelhoff; all figures provisional

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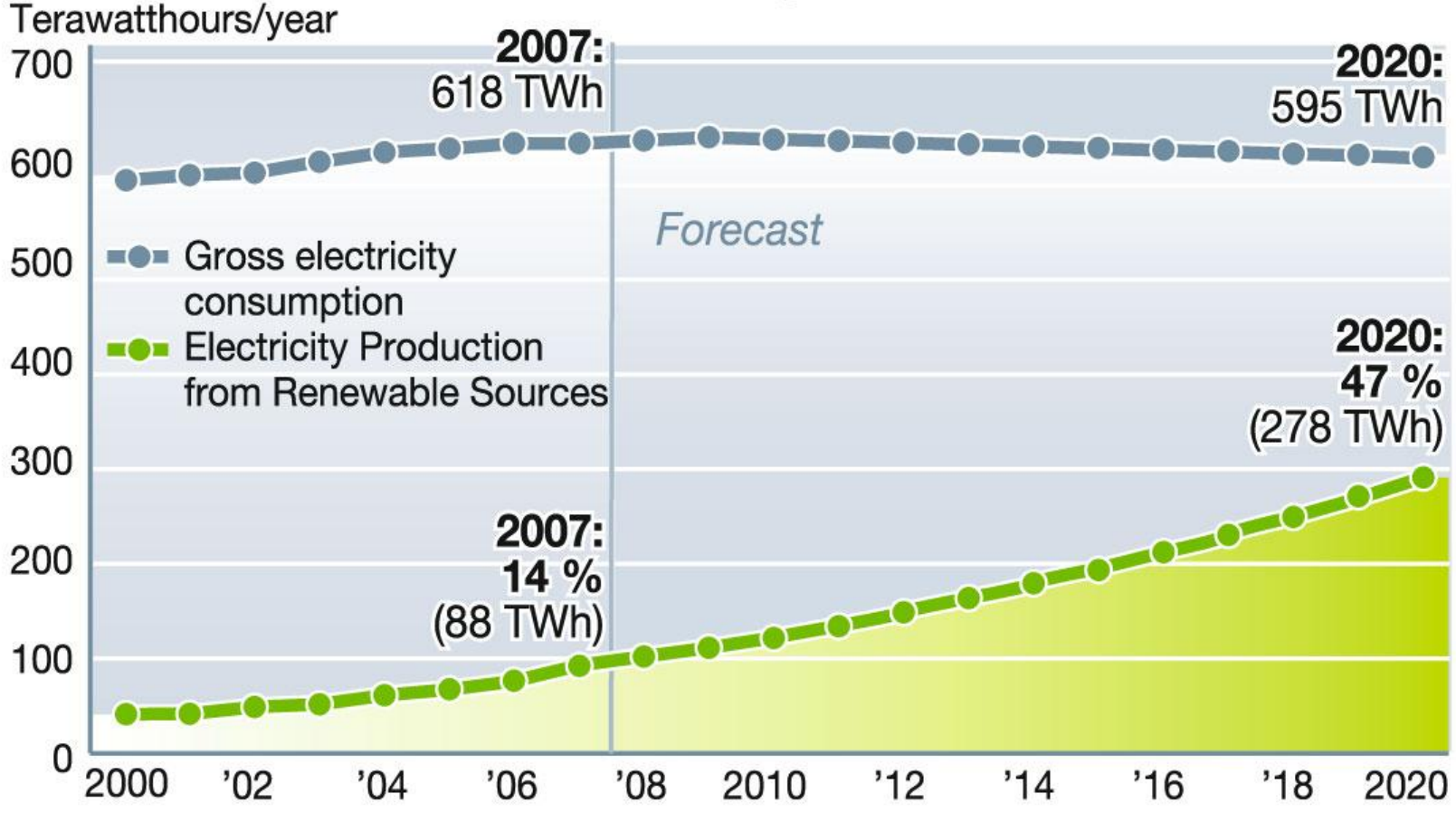
Share of Renewable Energies in Germany's Electricity Consumption until 2020

Until 2020, the share of Renewable Energies will reach 47 %.



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Source: Industry Forecast 2020; Status: 1/2009

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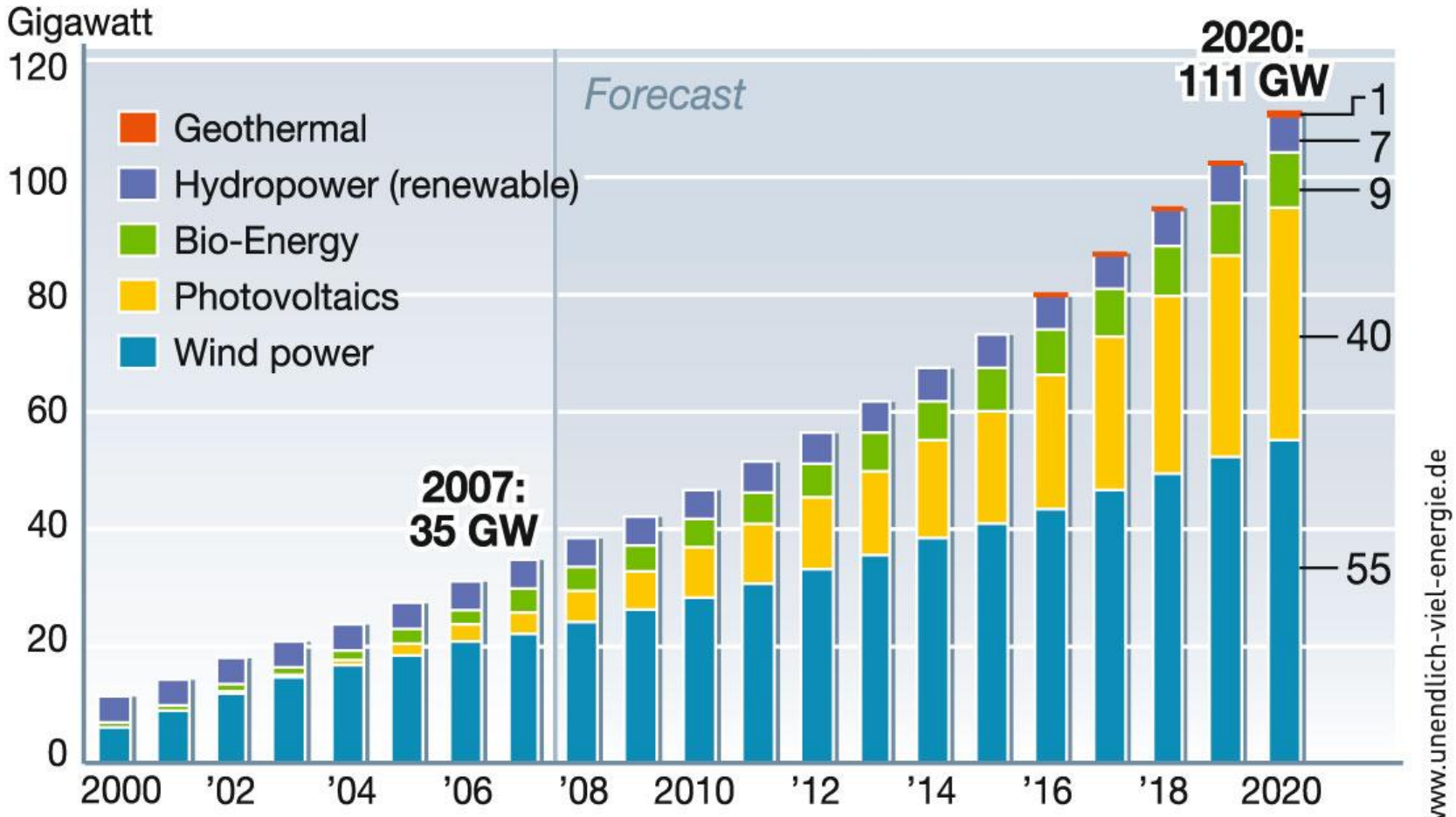
Installed Capacity for Electricity Production from Renewable Energies in Germany until 2020



Source: Industry Forecast 2020; Status: 1/2009

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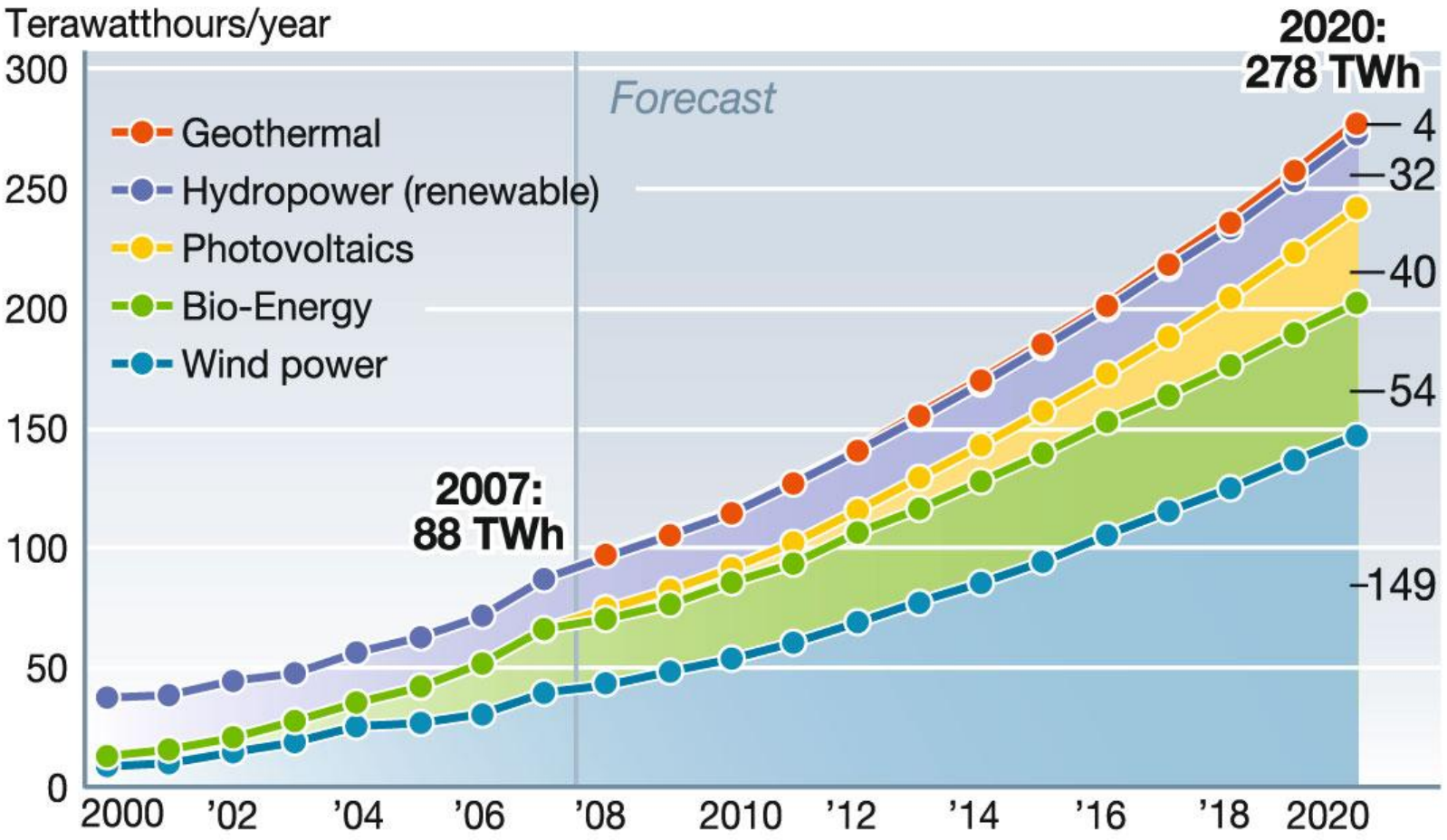
Electricity Production from Renewable Sources in Germany until 2020



Source: Industry Forecast 2020; Status: 1/2009

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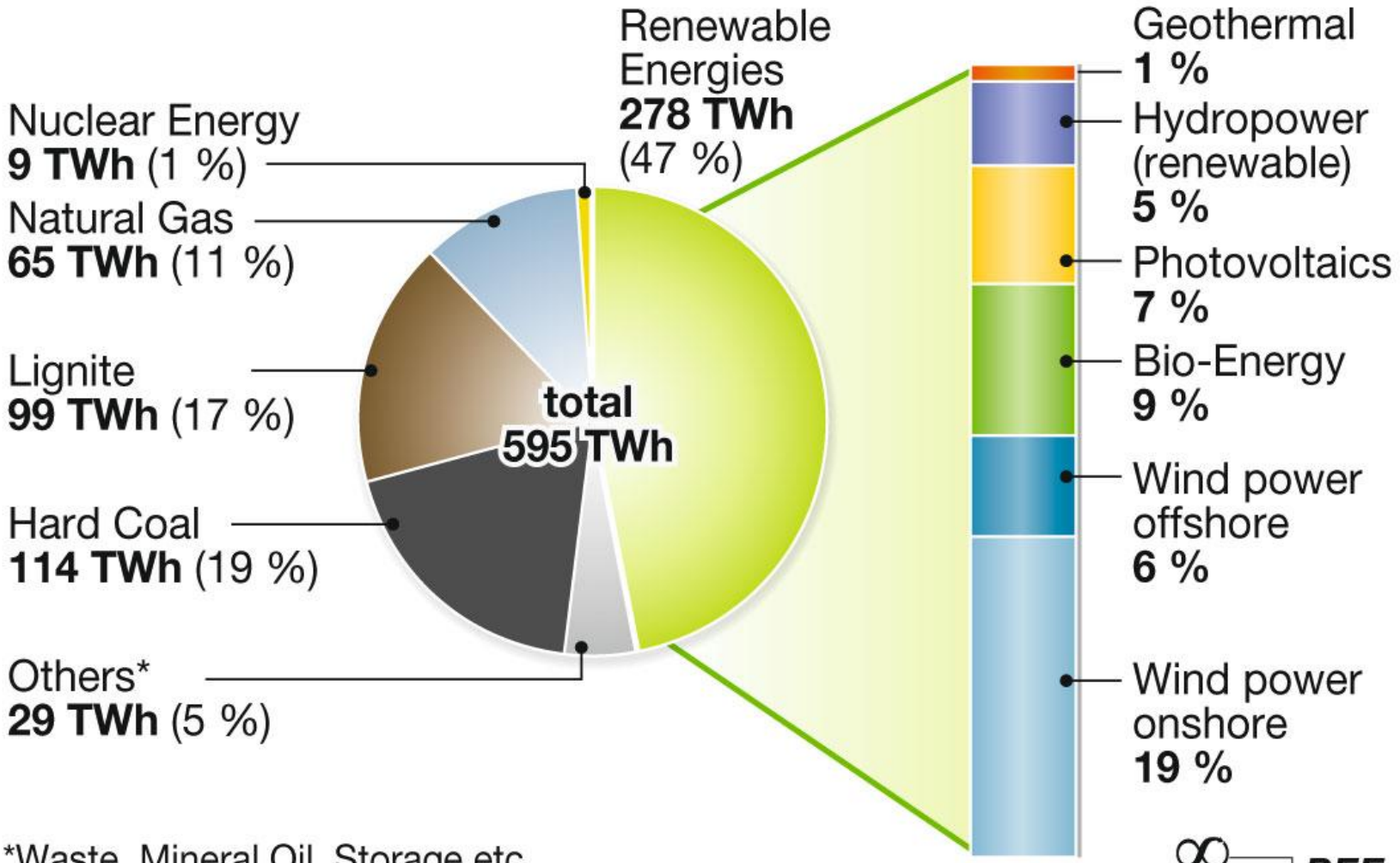
The Electricity Mix in 2020: Renewable Energies Ensuring 47 % of Supply



*Waste, Mineral Oil, Storage etc.
Source: Industry Forecast 2020; Status: 1/2009

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Development of the Support Volume for Electricity Production from Renewable Energies

Peak will be reached in 2013. Afterwards the support level will decrease.

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Source: IfnE based on Industry Forecast; Status: 1/2009

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Development of EEG-share until 2020

EEG-share for non-privileged end-users*

Eurocents per kilowatt hour

*EEG = Renewable Energy Law

Source: IfnE based on Industry Forecast; Status: 1/2009

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Challenges
for the Electricity Sector

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- ➔ Maintaining stable and reliable framework conditions – only moderate adaptation of remuneration for PV
- ➔ Securing priority for Renewable Energies – phasing-out nuclear to be continued
- ➔ Enabling post-2020-development now – incentives for combined renewable power plants to be developped

Heating

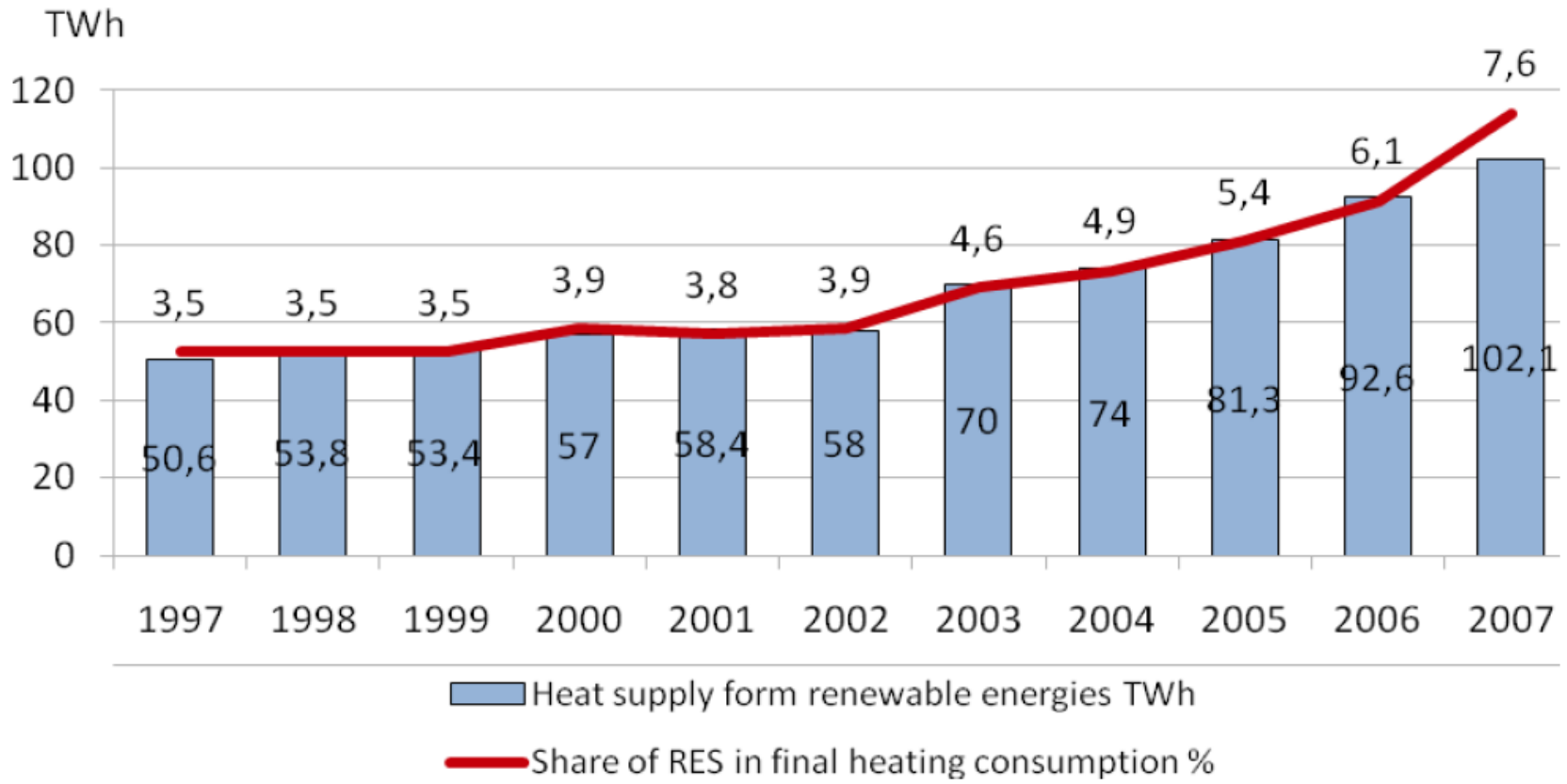
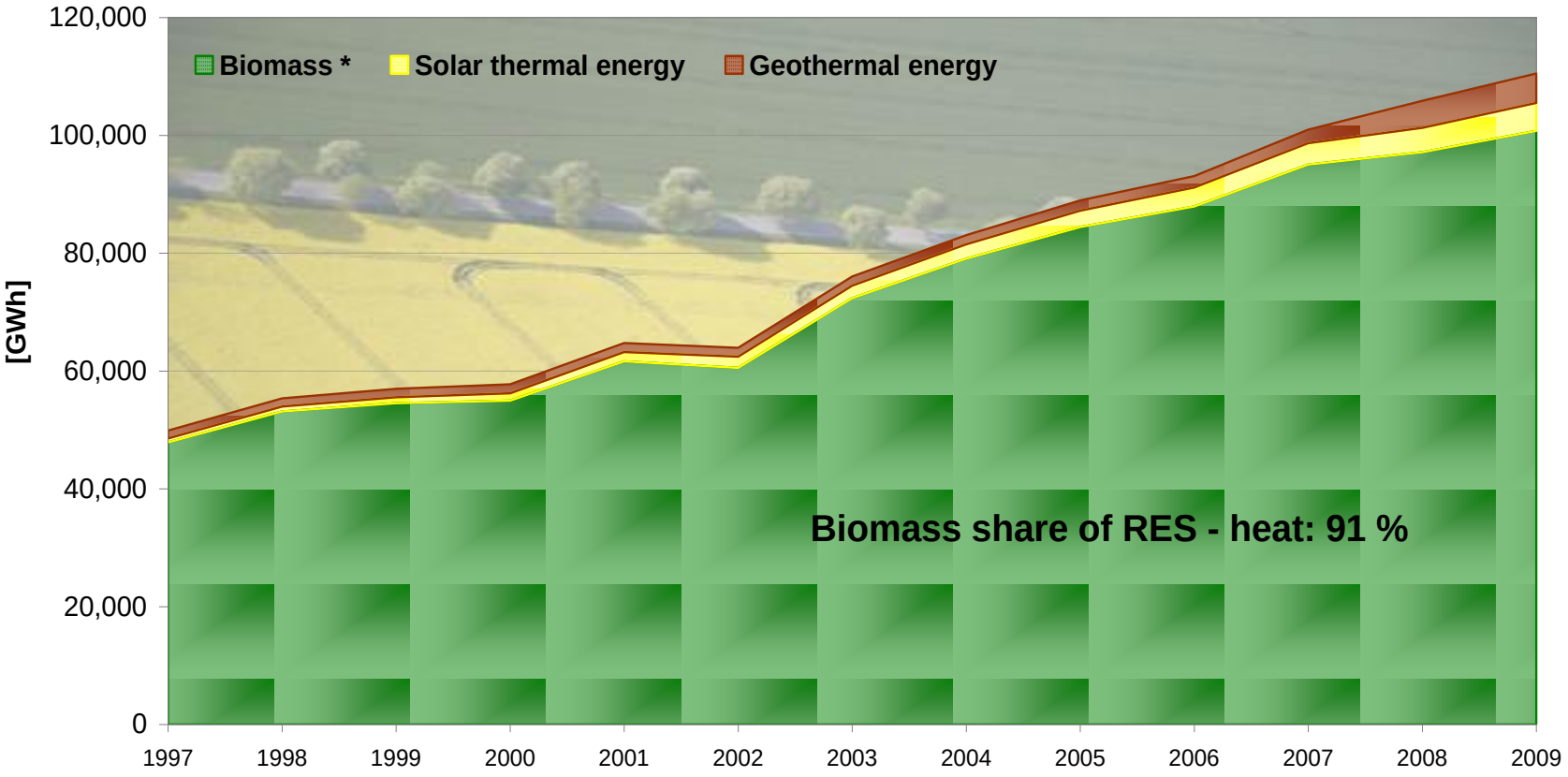


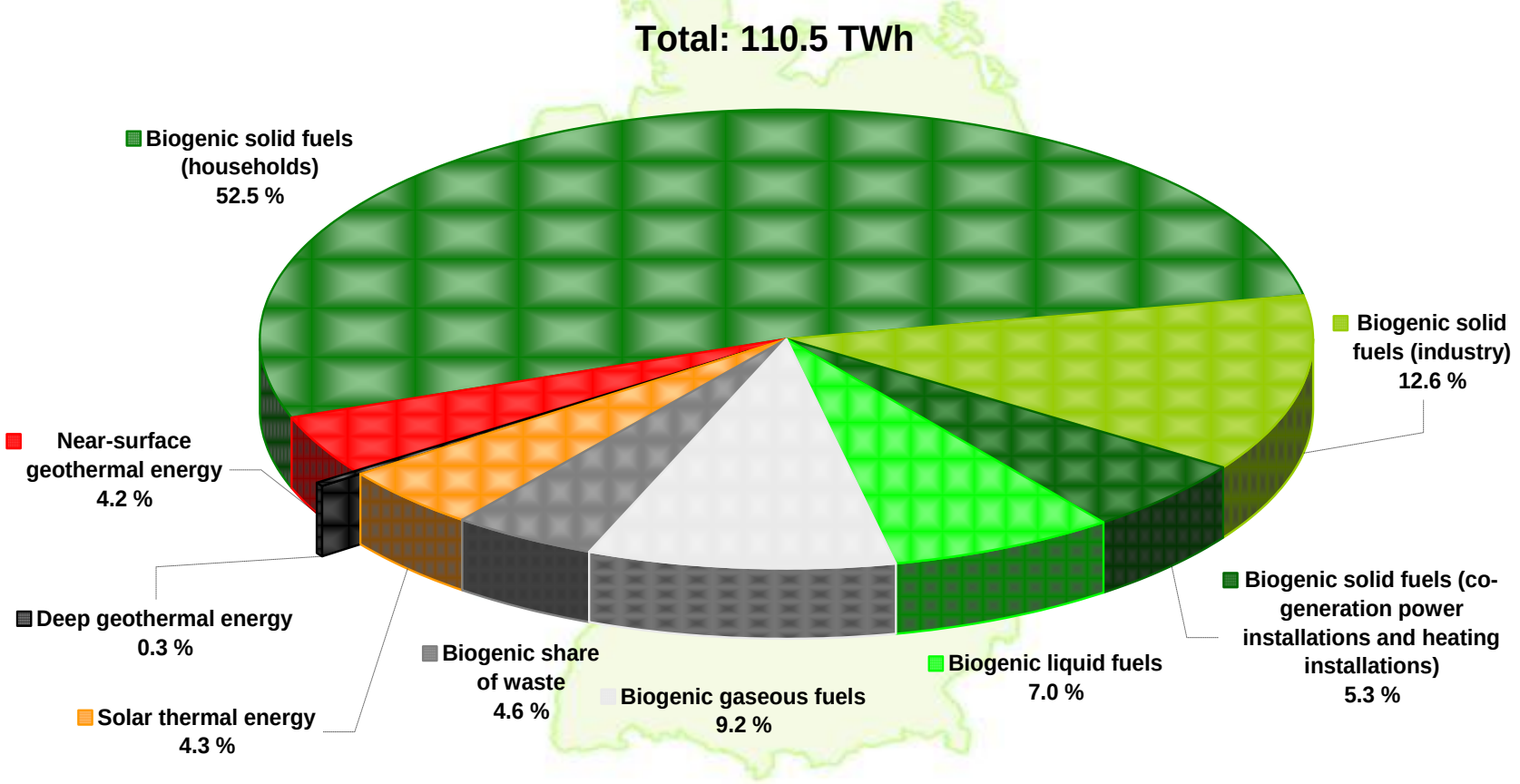
Figure 3: Heat supply from renewable energies

Contribution of renewable energy sources to heat supply in Germany 1997 - 2009



* Solid, liquid, gaseous biomass, biogenic share of waste, landfill and sewage gas;
Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); Image: BMU / Brigitte Hiss; all figures provisional

Structure of heat supply from renewable energy sources in Germany 2009



Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); all figures provisional

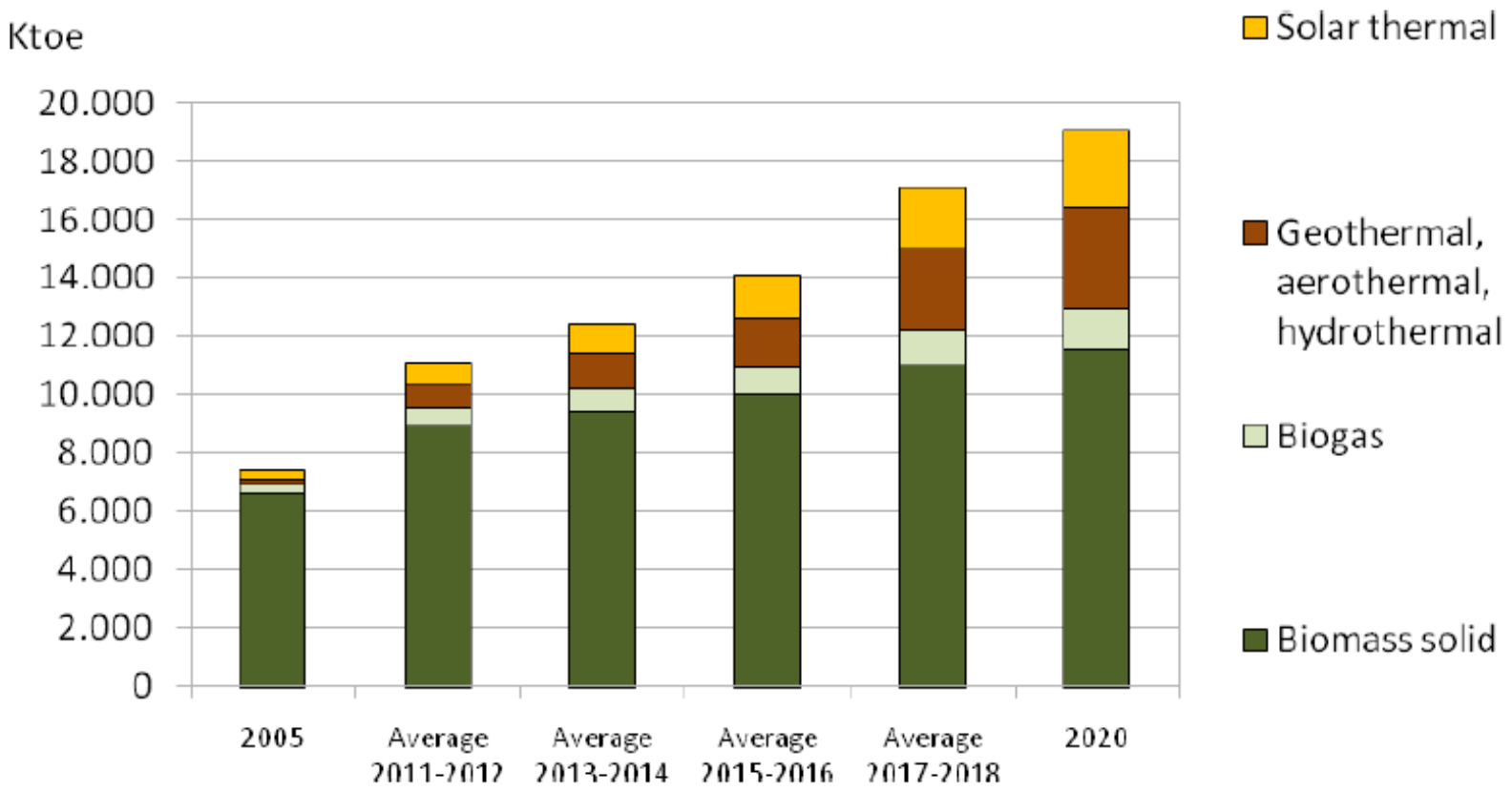
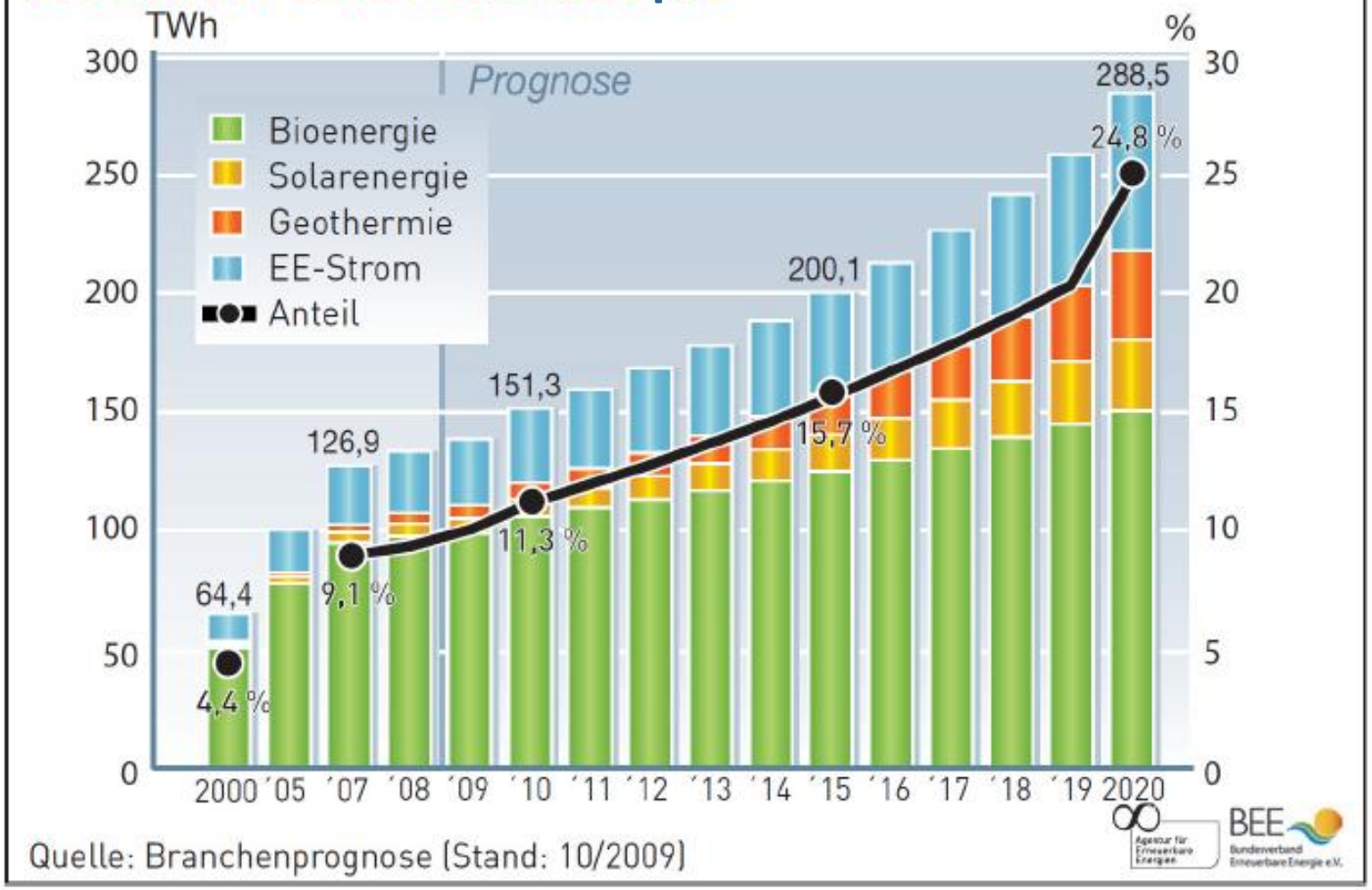


Figure 6: Heat generation from renewable energies until 2020

Heat Production from Renewable Energies and Share of Heat Consumption



Challenges for the Heating Sector

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- ➔ Accelerating modernization of heating systems – quality standards for break through of renewable energies
- ➔ Perpetuating market development – Market Incentive Programme to be optimized
- ➔ Solving the user-Investor-Dilemma – reconciliation of interests
- ➔ Triggering readiness to investment – more market confidence through information and communication

Transport

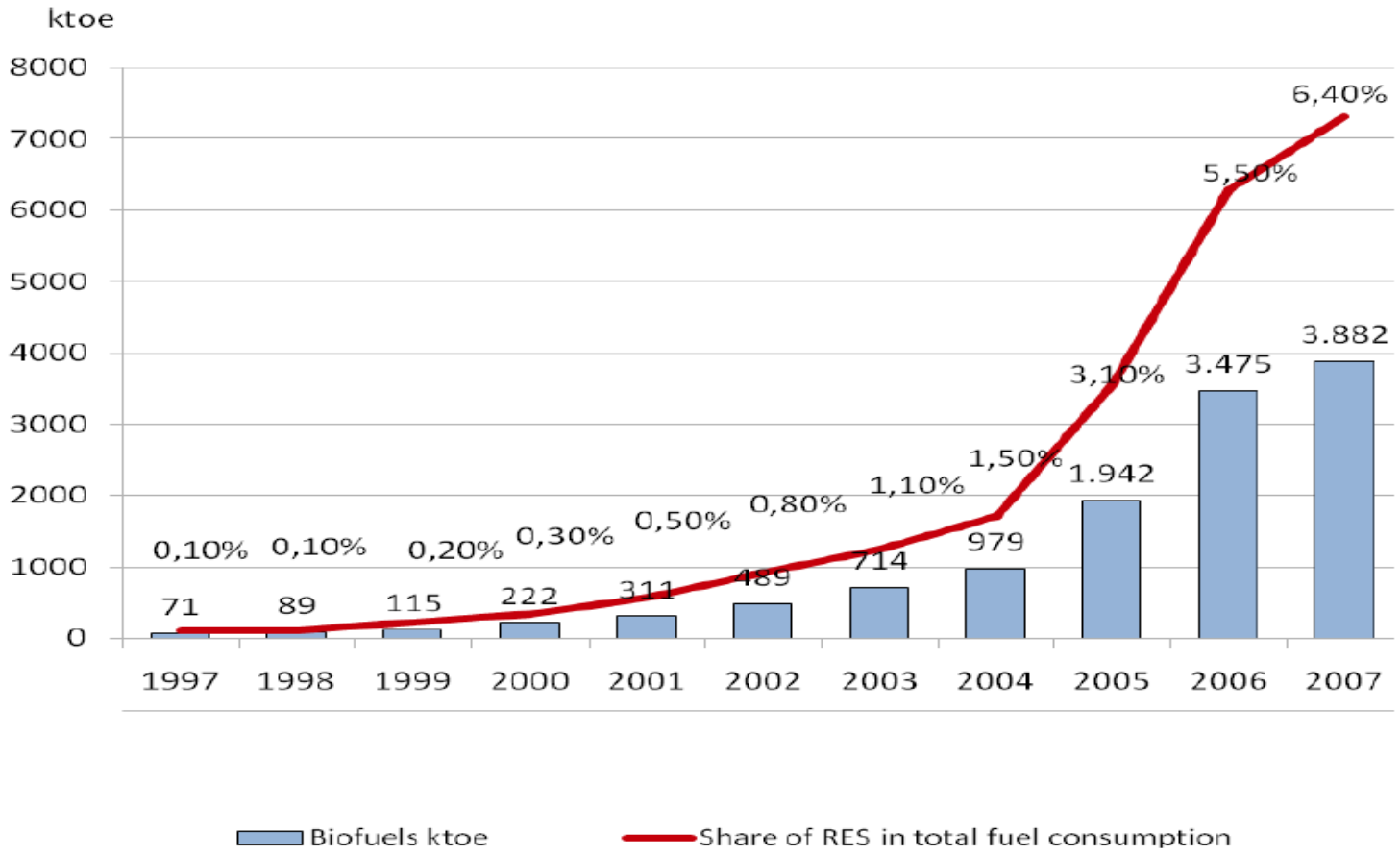
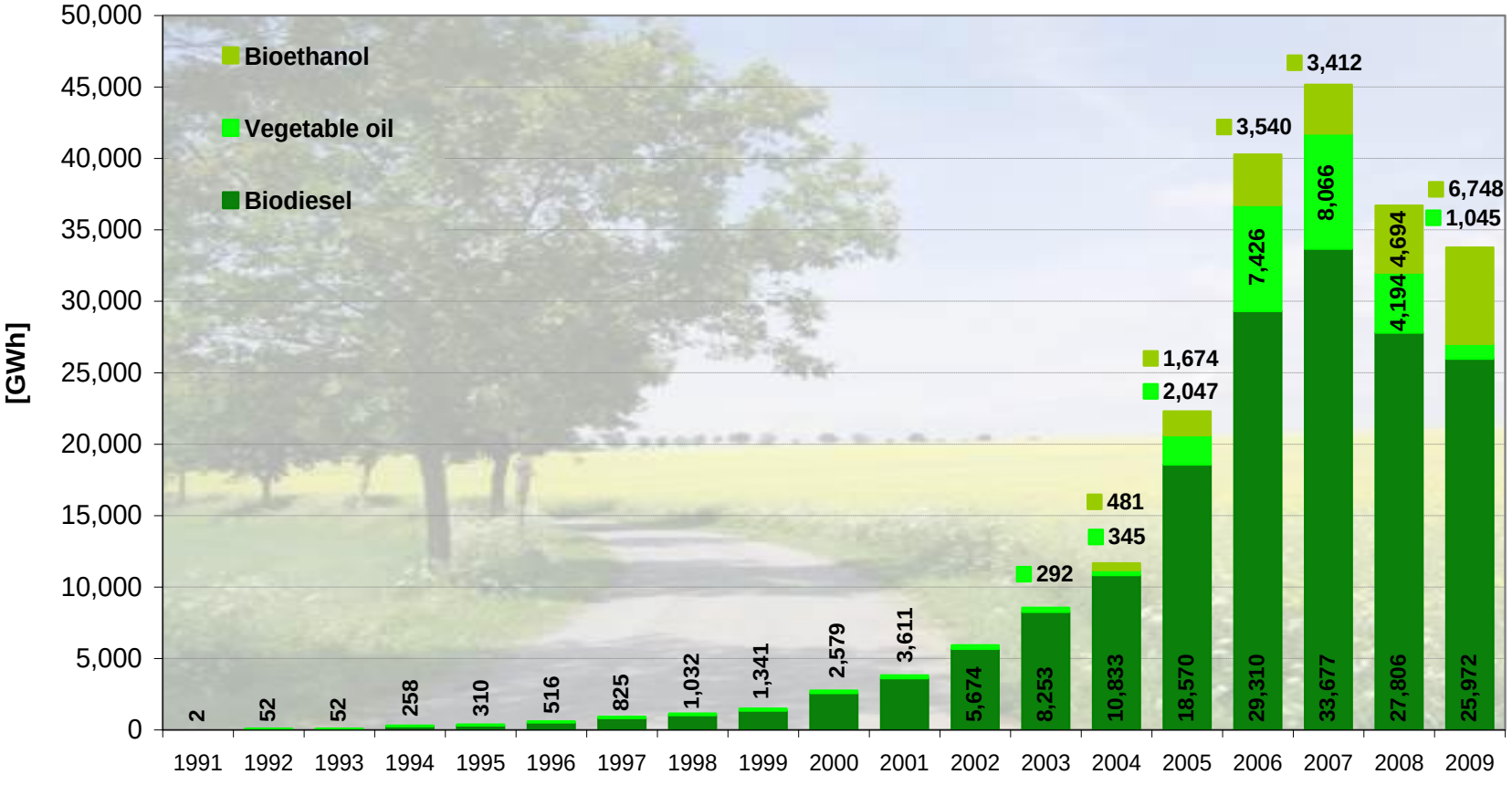


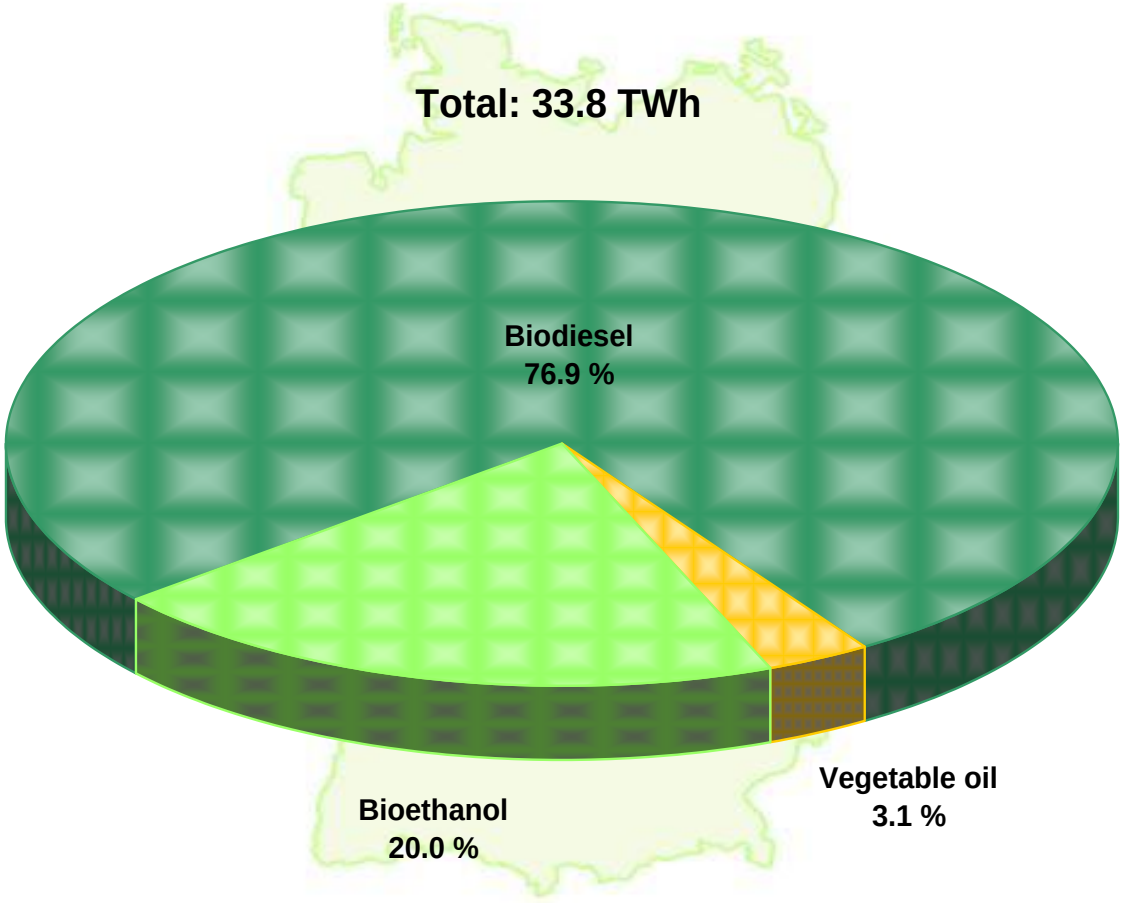
Figure 4: Biofuel consumption

Contribution of renewable energy sources to fuel supply in Germany 1991 - 2009



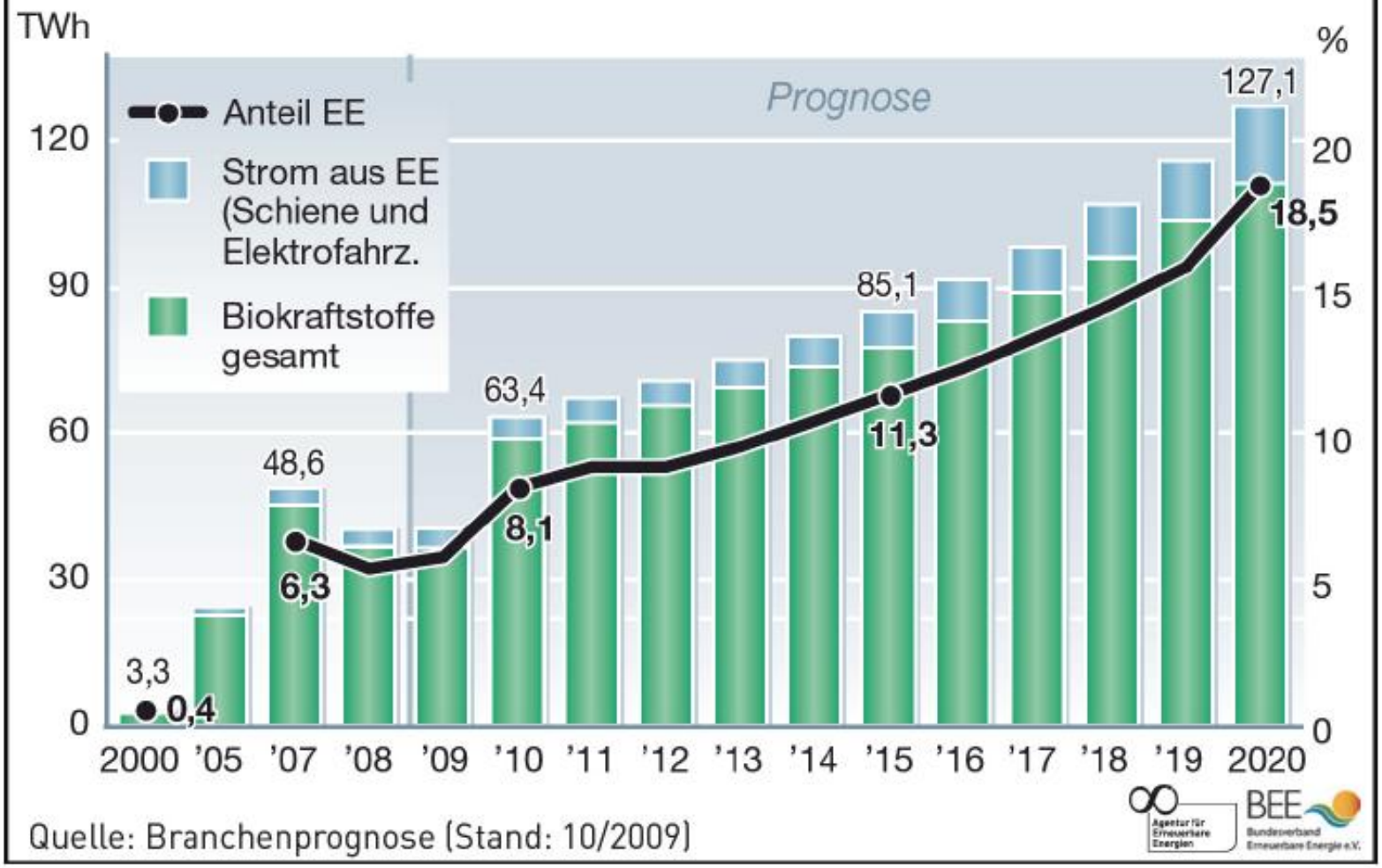
Vegetable oil as a part of biogenic fuels used since 1992, Bioethanol since 2004;
Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); Image: BMU / Dieter Böhme; all figures provisional

Structure of biogenic fuels in Germany 2009



Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); all figures provisional

Development and Share of Renewable Energies in Transport



Challenges
for the Transport Sector

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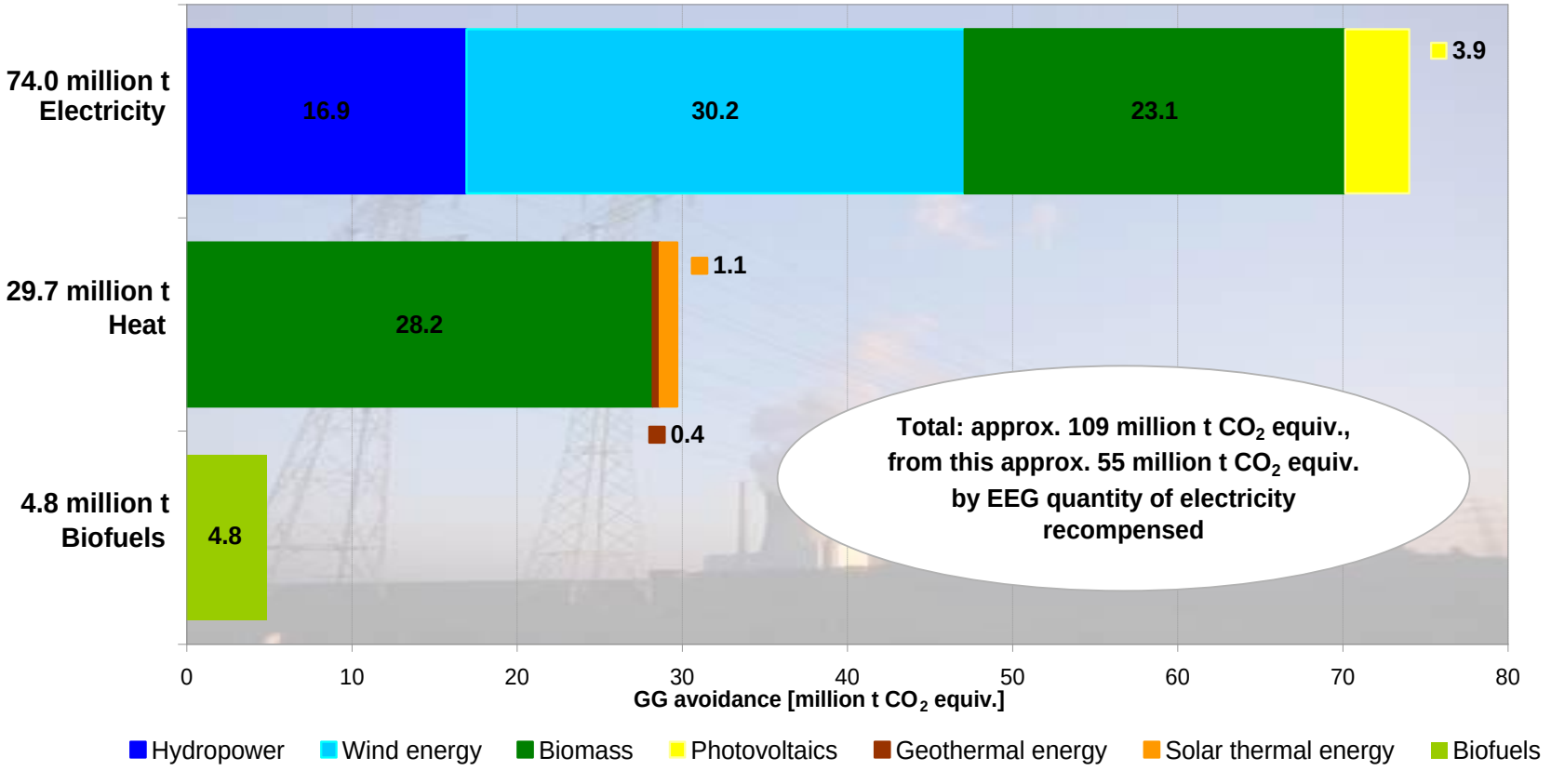
➔ Restarting policies for biofuels

➔ Reanimating market for pure biofuels

➔ Increasing electro-mobility as part of combined renewable energy power plants

Total Greenhouse-Gas (CO_2 equiv.) avoidance via the use of renewable energy sources in Germany 2009



GG: Greenhouse-Gas; Deviations in the totals are due to rounding;
Source: BMU-KI III 1 according to Working Group on Renewable Energies-Statistics (AGEE-Stat); Image: H. G. Oed; all figures provisional

GHG-avoidance

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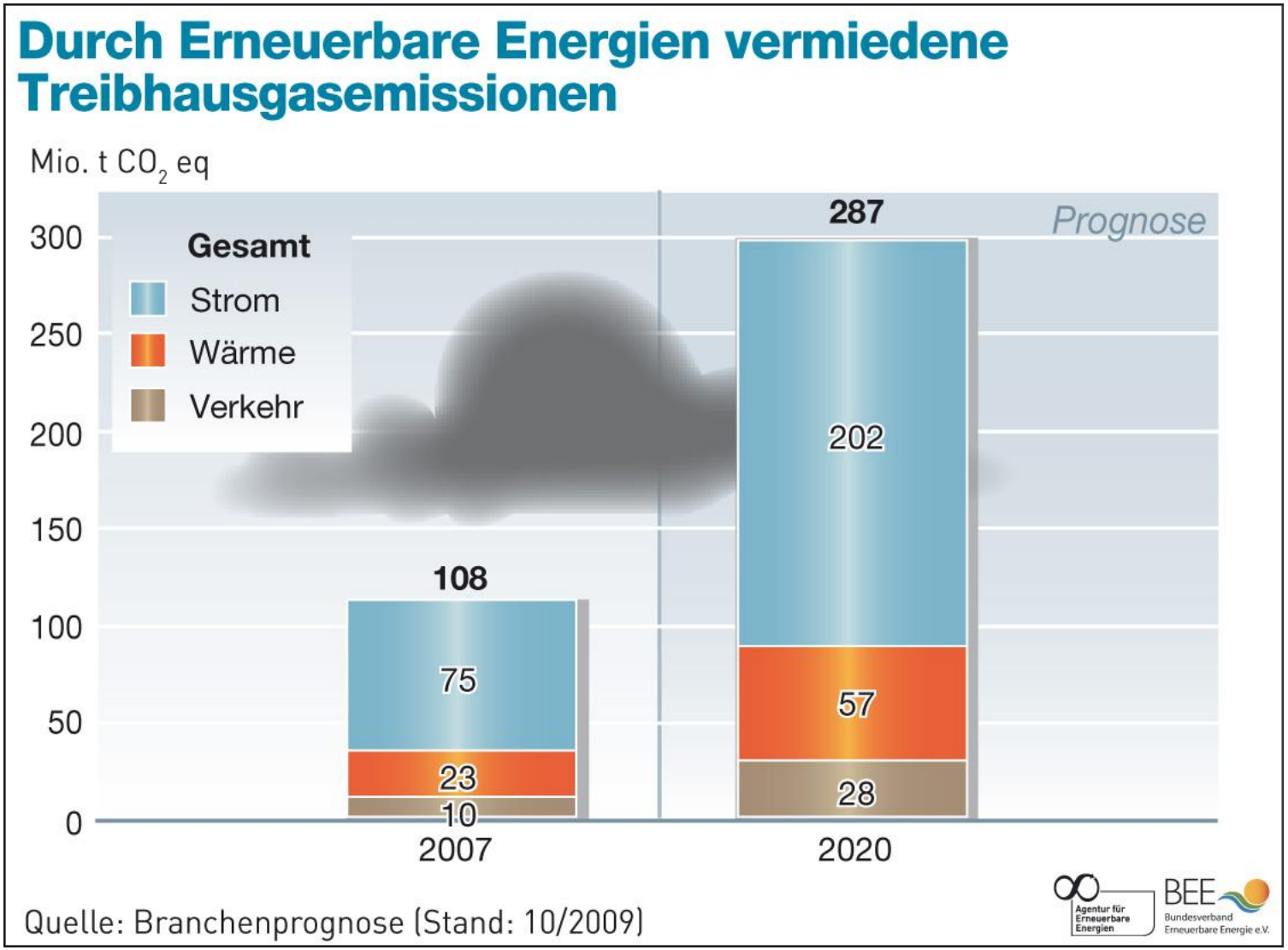
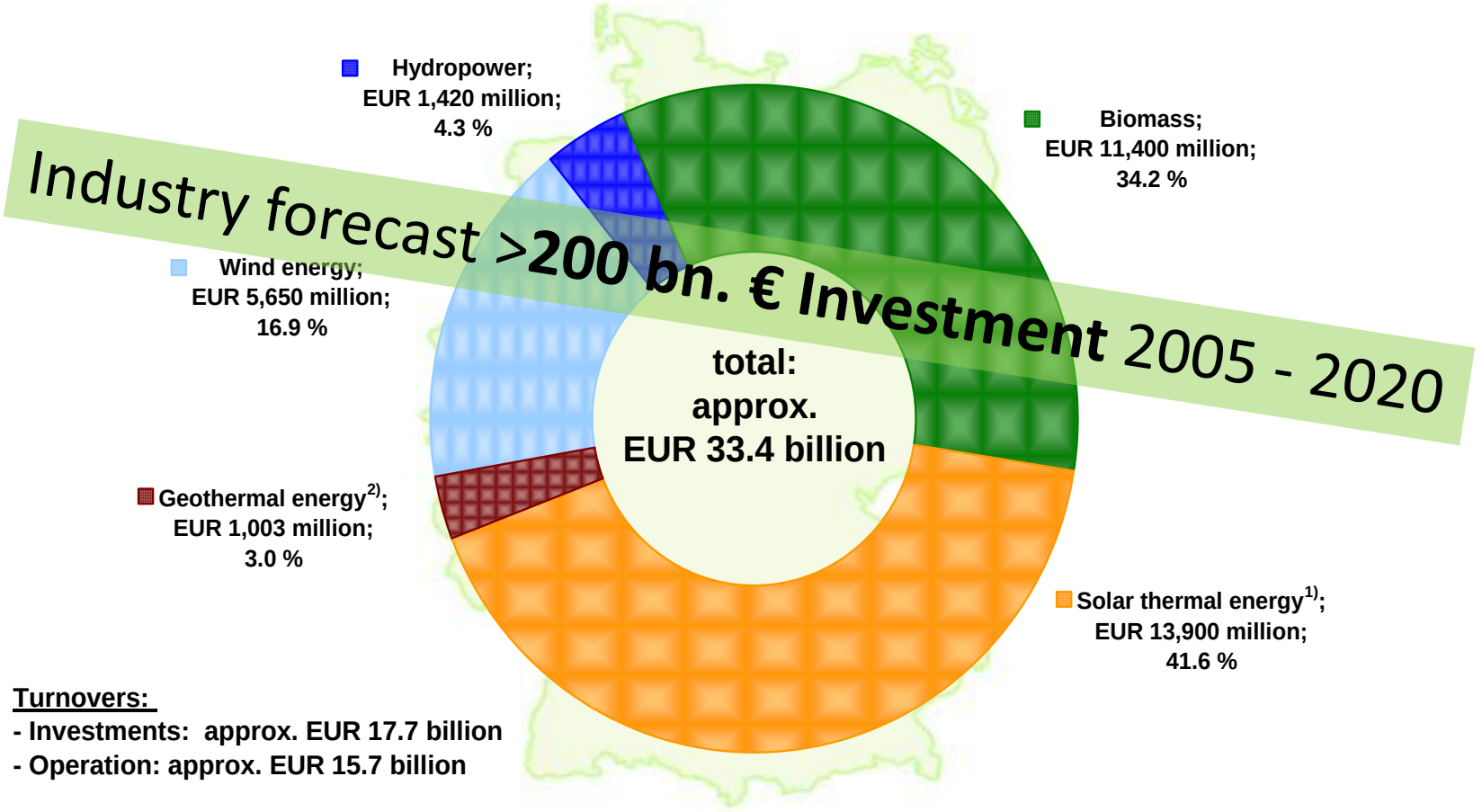


Total turnover from renewable energy sources in Germany 2009 (investments and operation)



Turnovers:
- **Investments: approx. EUR 17.7 billion**
- **Operation: approx. EUR 15.7 billion**

[1] Photovoltaics and solar thermal energy; [2] Large plants and heat pumps; Deviations in the totals are due to rounding;
Source: BMU-KI III 1 according to the Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW); all figures provisional

Industry Forecast – avoided fossil fuel imports

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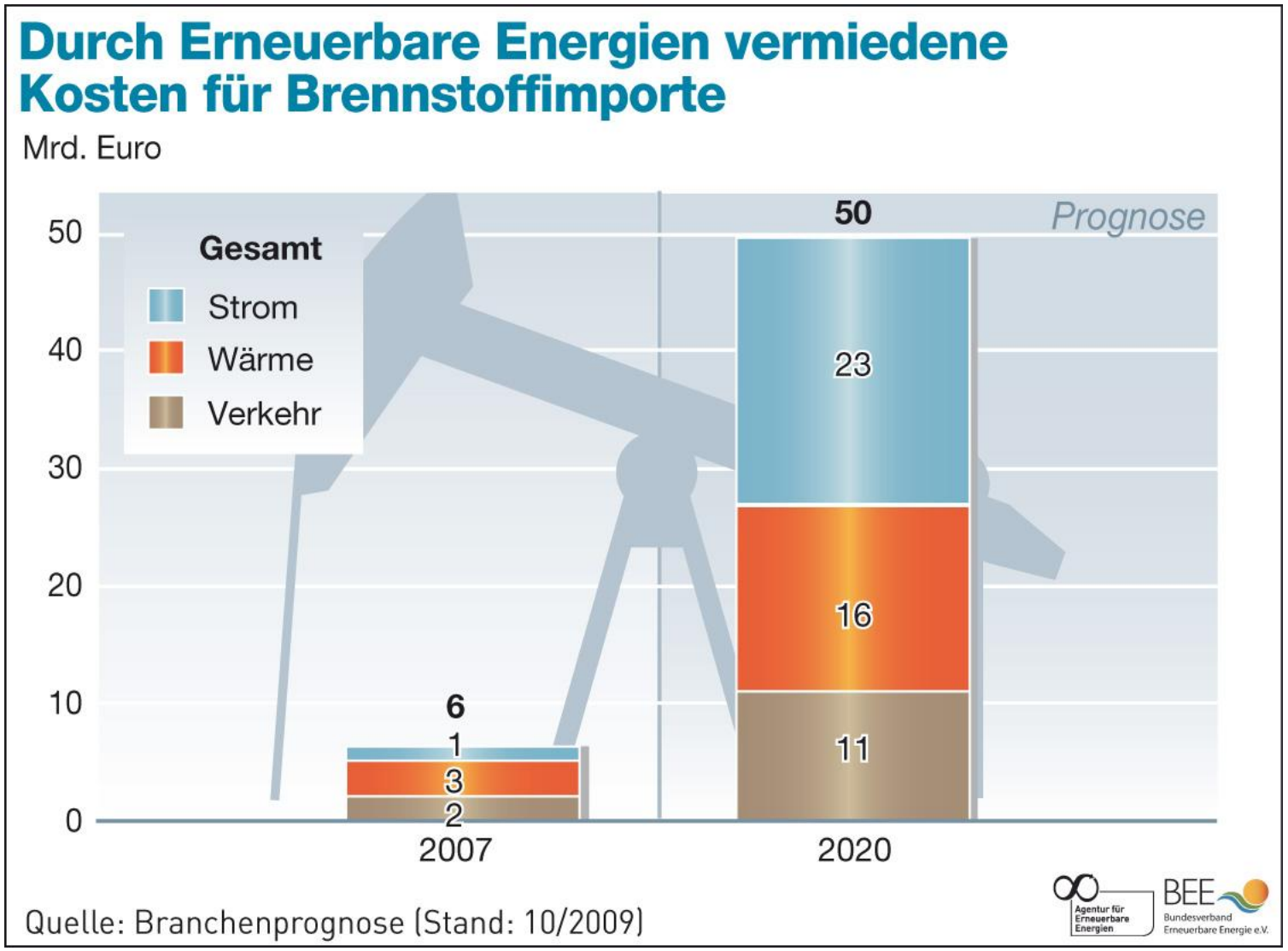
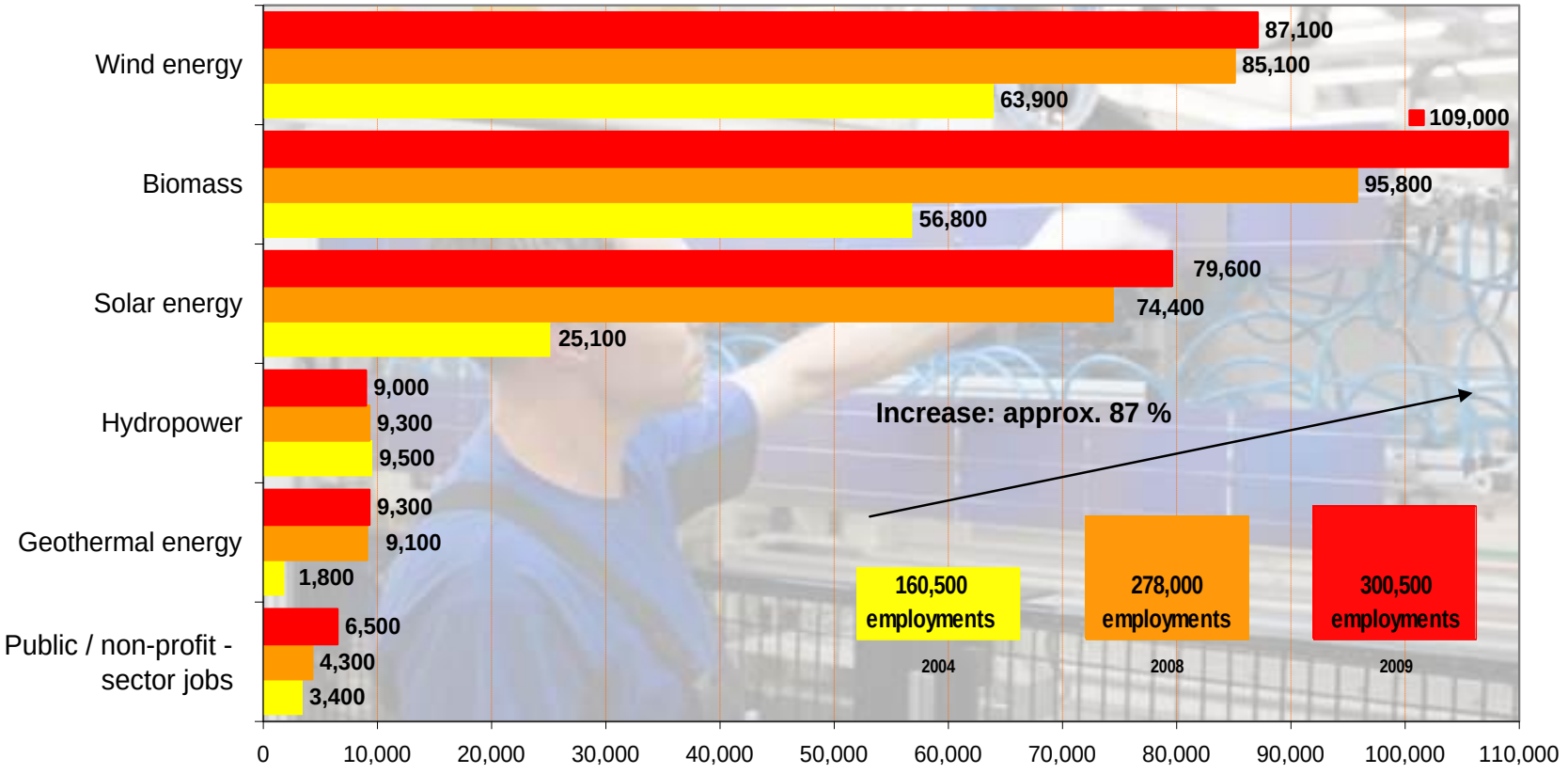
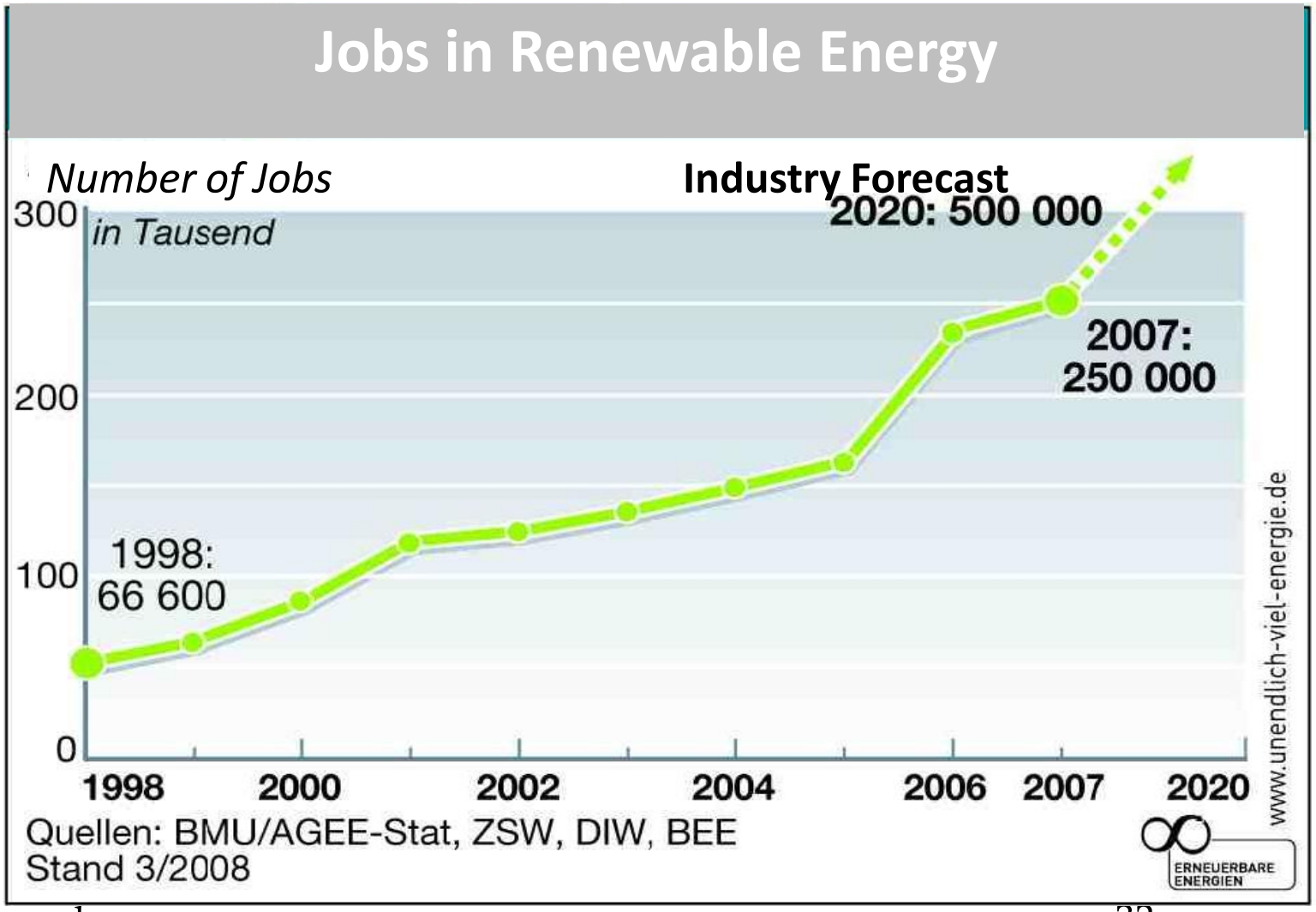


Jobs in the renewable energy sector in Germany 2004, 2008 und 2009



Figures for 2008 and 2009 are provisional estimate;
Source: BMU-KI III Projekt "Gross employment from renewable energy in Germany in the year 2009, a first estimate"; Image: BMU / Christoph Busse / transit

500,000 jobs in 2020



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Thank you for listening!

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