Biogas
Opportunities in Germany

Aktualisierung 2012

German Energy Concept

Targets and development path

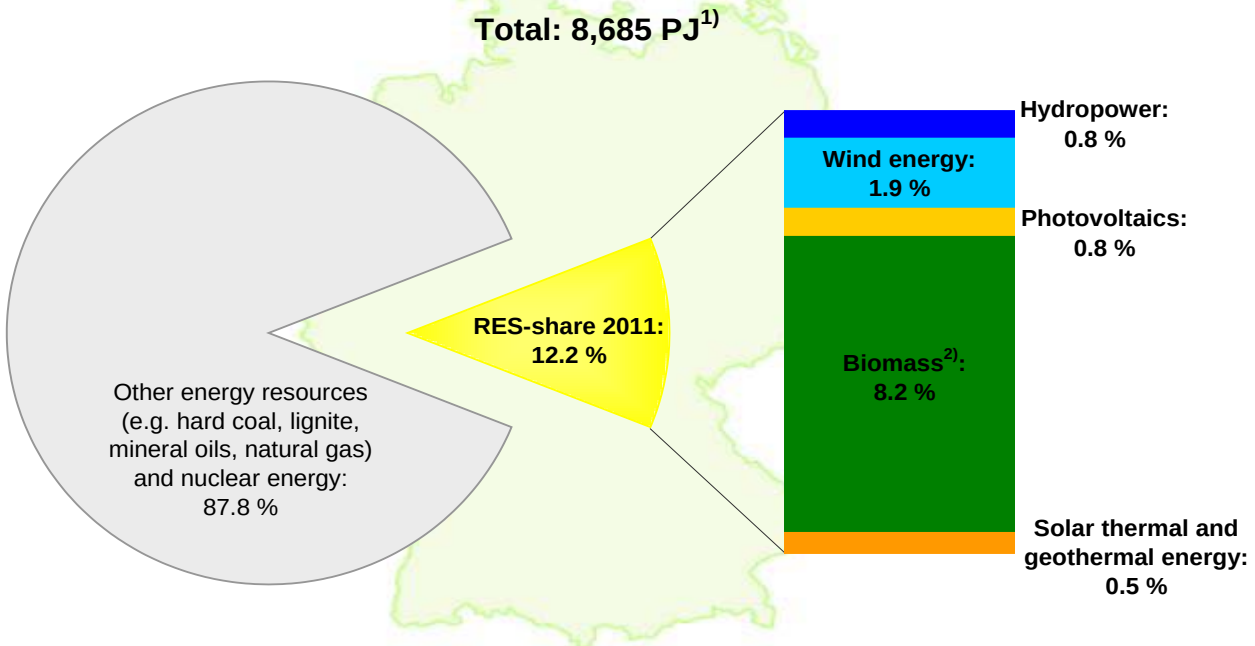
- The goal is to reduce **greenhouse gas emissions** by 40% by 2020, 55% by 2030, 70% by 2040 and 80-95% by 2050 (compared with 1990 levels).
- By 2020, the **share of renewable energy sources (RES) in final energy consumption** is to reach 18%, and then gradually increase further to 30% by 2030 and 60% by 2050.
- We are even striving for a 35% share in **electricity production** by 2020 and for an 80% share by 2050.
- **Energy efficiency:** We aim to reduce primary energy consumption by 20% by 2020 and 50% by 2050 compared with 2008.
- We will double the **energy efficient building modernisation rate** from 1% to 2 %.
- The plan is to cut energy consumption in the **transport sector** by around 10% by 2020 and around 40% by 2050. We want to have six million electric vehicles on Germany's roads by 2030.

Source: BMU

Renewable Energy Sources (RES)

Share of RES in total final energy consumption

Renewable energy sources shares of total final energy consumption in Germany 2011

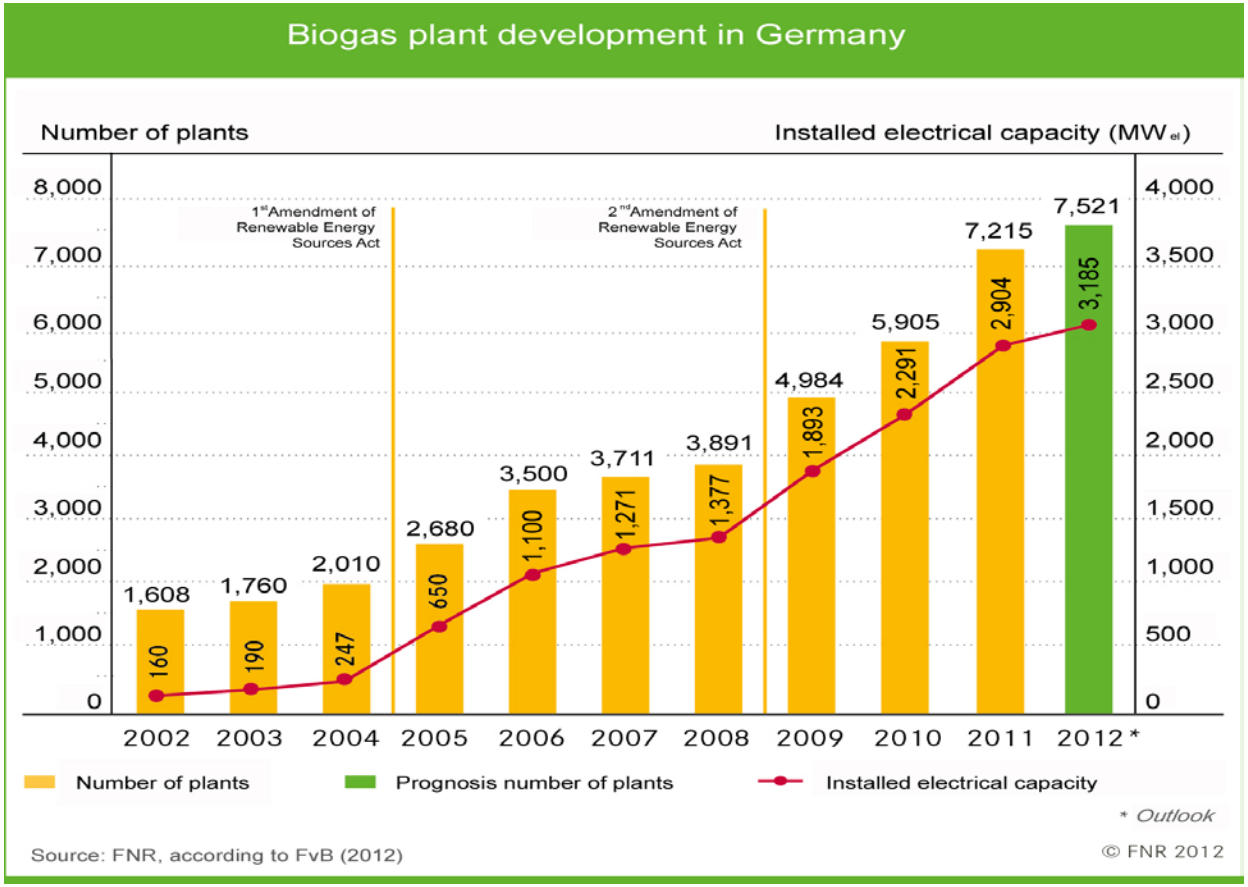


1) Energy Environment Forecast Analysis (EEFA) GmbH & Co KG; 2) solid and liquid biomass, biogas, sewage and landfill gas, biogenic share of waste, biofuels;
source: BMU-KI III 1 based on Working Group on Renewable Energy-Statistics (AGEE-Stat) and Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), according to Working Group on Energy Balances e.V. (AGEB); RES: Renewable Energy Sources; deviations in the totals are due to rounding; 1 PJ = 10^{15} Joule; as at: March 2012; all figures provisional

Source: BMU - KI III 1

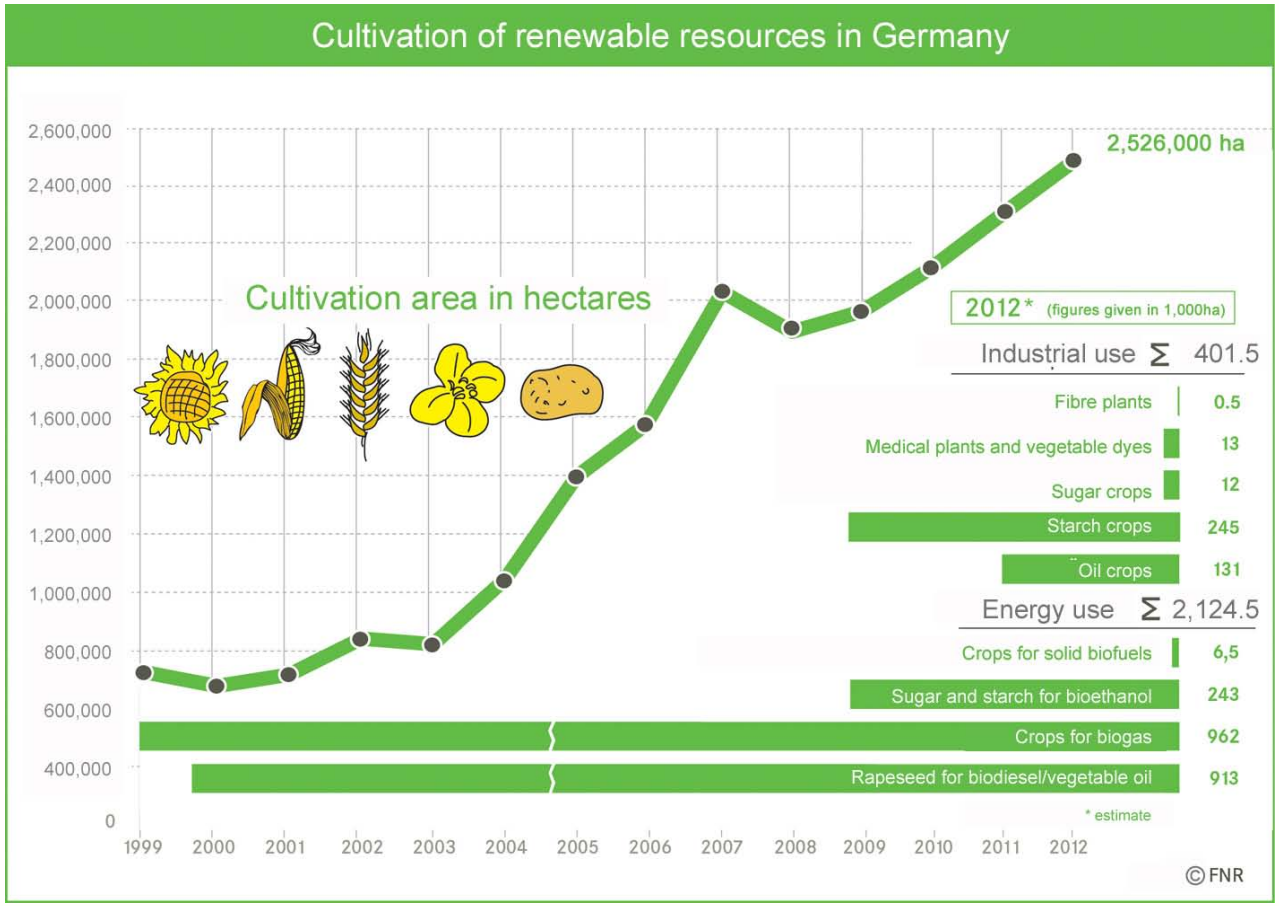
Biogas

Plant development in Germany



Biogas

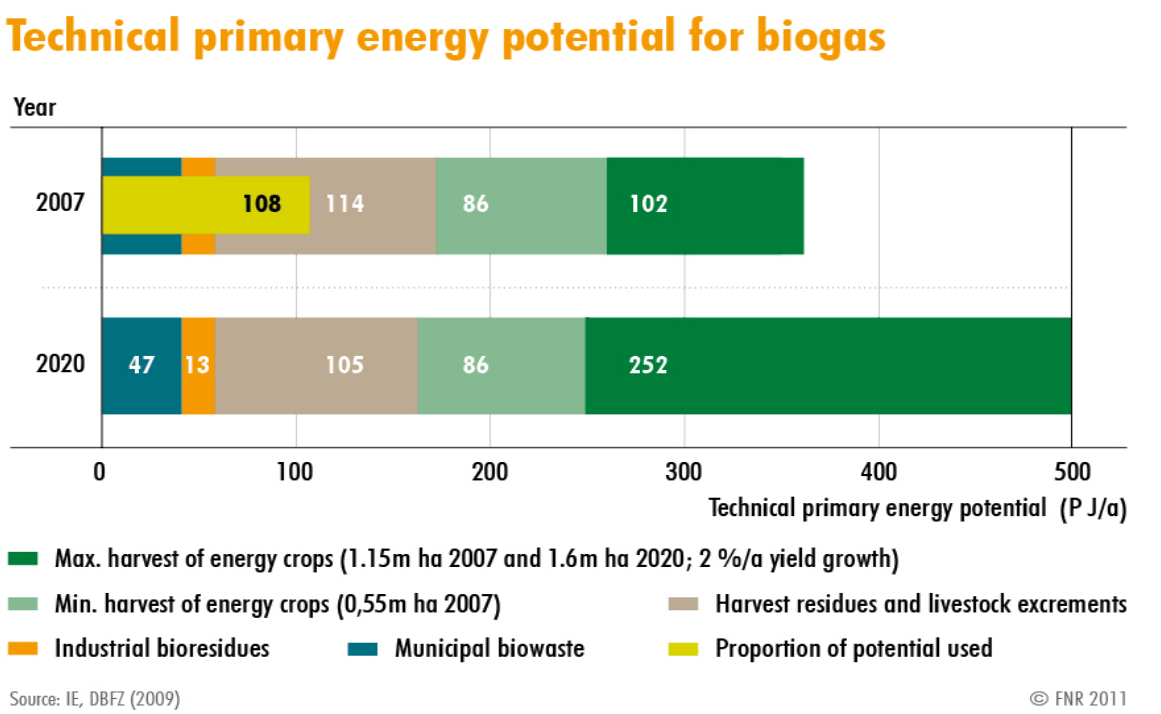
Cultivation area of renewable resources



Cultivation of crops for biogas in 2012: approx. 962,000 ha (additional 110.000 ha permanent pasture);
-> this equals about 8.1 % of the total cultivation area in Germany (11.8 million ha)

Biogas

Energetic potential in Germany



Biogas has an energetic potential of 500 PJ/a by 2020;
this consists of 67 % energy crops / 21 % livestock excrements and harvest residues / 12 % biowaste
-> this is equal to about 4 % of total electricity generation in Germany
-> today less than 30 % of this potential is used

Source: IE, DBFZ 2009; FNR 2011

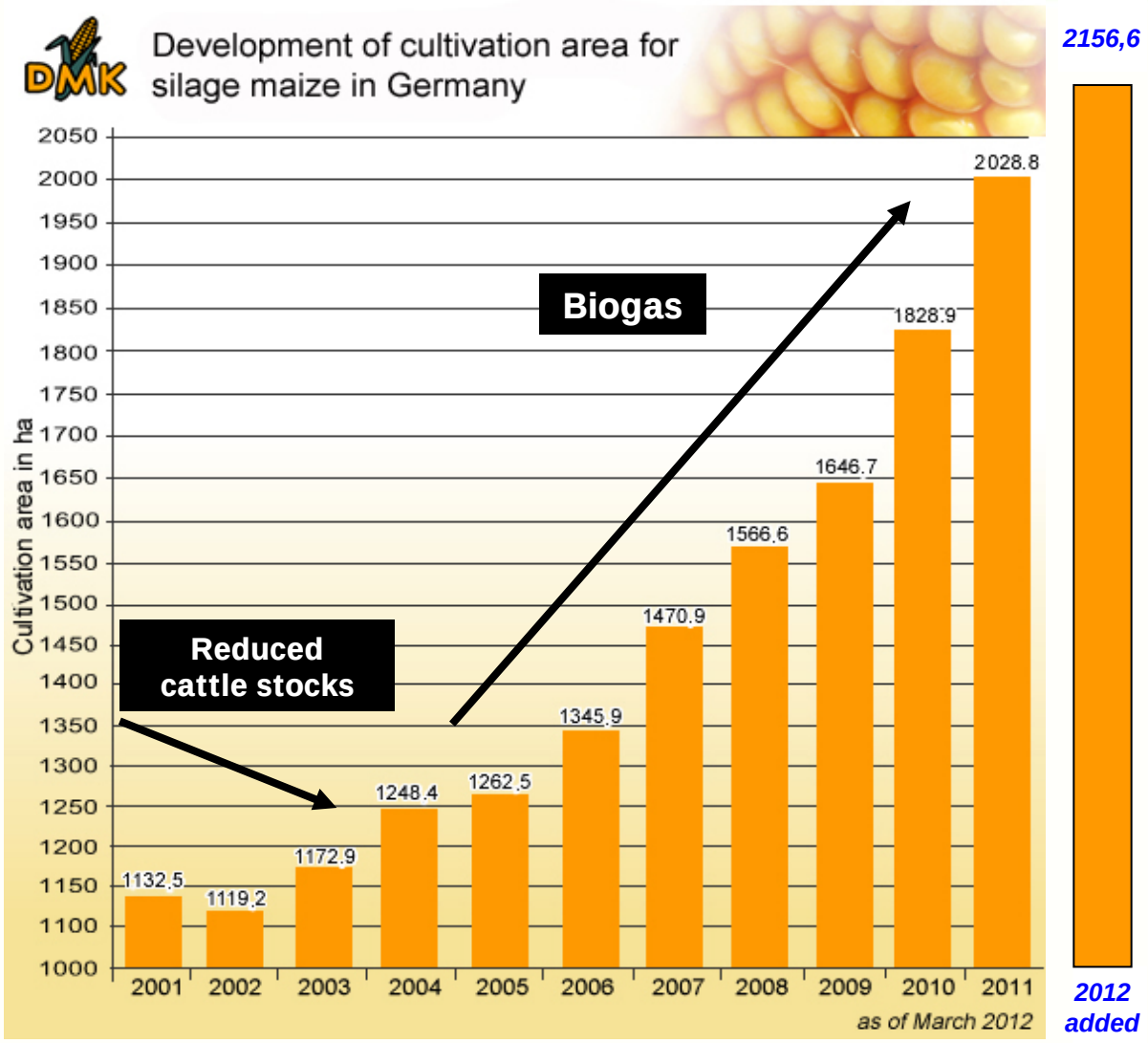
Biogas

Legal framework in Germany

- **Power production**
  The Renewable Energy Source Act (-> EEG)
- **Heat production**
  The Renewable Energies Heat Act (-> EEWärmeG)
- **Biofuel production**
  The Biofuel Quota Act (-> BioKraftQuG)
- **Biomethane production**
  Acts and guidelines for feeding upgraded biogas into the natural gas grid –
  Gas Network Access Ordinance (GasNZV) & Gas Network Tariff Ordinance (GasNEV)

But there are also adverse side-effects:

- Competition between uses in regional areas
- Increased maize cultivation and shifts in the use of maize
- More leasehold rent increases
- Shorter crop cycles
- More ploughing-up of grassland
- Coupling of manure bonus to the renewable materials bonus
- Inefficient, bonus-driven plant concepts
- Problems of acceptance amongst the population



Comparison of silage maize in Germany over several years

Source: German Maize Commitee (DMK)

Total maize cultivation in 2012 > 2.6 million ha

Solutions to the conflict

On January, 1, 2012 the amended Renewable Energy Sources Act (EEG) comes into force.
How to tackle the problem:

- Limit the increasing cultivation of maize
- Greater support for residual matter and waste materials and decentralised plants
- Simplification of EEG when adjusting the levels and reducing the number of bonuses
- Tying of EEG support to efficiency criteria
- Incentives for demand-driven electricity production and feed-in

Remuneration EEG 2012

	Basic remuneration	Raw material remuneration class I (RES, silage)	Raw material remuneration class II (manure, LPM, etc.)	Biomethane bonus
Up to and including 75 kW_{el} and at least 80 % slurry	25 (not including any other bonuses)			
Up to 150 kW_{el}	14.3 (cent/kWh)	6.0	8.0	
> 150 kW_{el} up to 500 kW_{el}	12.3	6.0	8.0	
> 500 kW_{el} up to 750 kW_{el}	11.0	5.0	8.0 (6.0 for slurry and manure)	
> 750 kW_{el} up to 5 MW	11.0	4.0	8.0 (6.0 for slurry and manure)	3 (up to 700 Nm^3= 2.8 MW 2 (up to 1000 Nm^3 = 4 MW)
> 5 MW up to 20 MW	6.0	-	-	1 (up to 1400 Nm^3 = 5.6 MW)

Biogas

National government aid and funding programmes

- **Incentive programme for renewable energy projects**
- **Granting loans with low interest rates for RES projects (KfW)**
- **Promotion of investments in local heat and biogas pipelines and biogas upgrading plants (KfW)**
- **Promotion of investments by the Agro-Investment-Programme (AFP) or by supporting programmes of the Federal States**
- **Assistance for consultation and diversification for farmers**
- **Funding of R & D by the research programme “Renewable Resources”, managed by FNR on behalf of BMELV**
- **Other R &D programmes (BMU, BMBF)**

Requirements

- Only national projects/project partners eligible

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Source: BMU

Thank you for your attention!