



Federal Ministry
of Economics
and Technology

ECOFYS

Energy

Political Framework for Renewable Energies in Germany

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**AHK-Program "Renewables Made in Germany"
Madrid, Spain**

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www.german-renewable-energy.com



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- Renewable Energy Sources Act (RESA)
- Market Incentive Programme (MIP) and Renewable Energy Heat Act (REHA)
- Research and Development
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Examples for RE support mechanisms in Germany

- ▶ RESA (Renewable Energy Sources Act, „EEG“): Feed-in Tariff for electricity from RE
- ▶ MIP (market incentive program, „MAP“): state subsidies for investment in using heat from RE
- ▶ Renewable Energy Heat Act („EEWärmeG“)
- ▶ Research and Development

RESA – RE electricity feed-in tariff

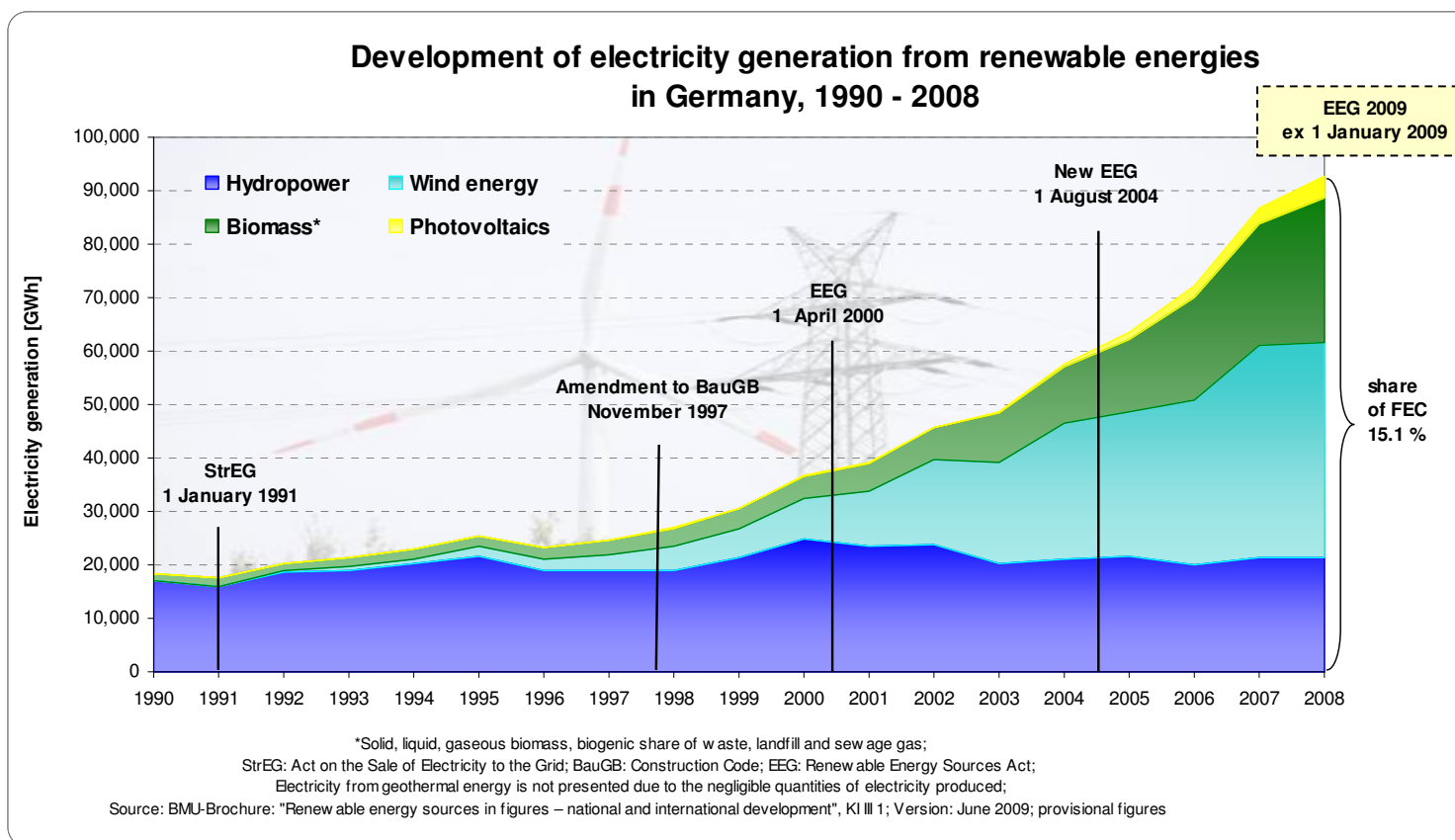
- ▶ RESA enacted in 2000, adjusted/amended in 2004, 2007 and 2009
- ▶ Priority for feed-in of RE
- ▶ Extensive regulation for grid access
- ▶ legally regulated payment rates
 - Long-term perspective and investment security (20years)
 - Strong incentive for efficiency boost by degression of payment rates

- ▶ 2005: European Commission attested feed-in tariffs to be an effective and cost efficient instrument

Feed-in tariffs - RESA 2009

	Cent(EUR)/kWh	Degression
Hydropower (< 5 MW)	7.65 – 12.67	0 %
Biomass (< 20 MW)	7.79 – 27.67	1.0 % (on base tariff)
Geothermal Energy (< 20 MW)	10.5 – 23.00	1.0 %
Wind energy (onshore)	5.02 – 9.7	1.0 %
Wind energy (offshore)	3.50 – 15.00	5.0% (as of 2015)
PV power	31.94 – 43.01	8.0% – 10.0 %

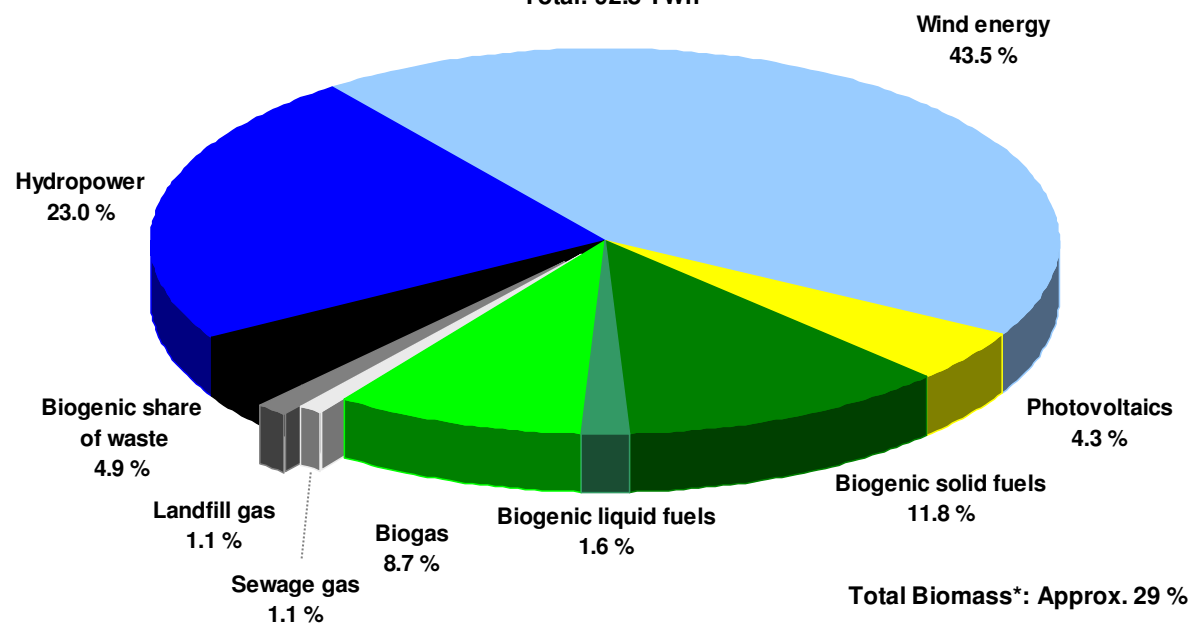
Electricity from RE



Structure of electricity from RE

**Structure of electricity supply
 from renewable energy sources in Germany, 2008**

Total: 92.8 TWh



*Solid, liquid, gaseous biomass, biogenic share of waste, landfill and sewage gas

Source: BMJ-Brochure: "Renewable energy sources in figures – national and international development", KI III 1; Version: June 2009; provisional figures

MIP and REHA – Stimuli and demands

REHA - Renewable Energy Heat Act (1 Jan 2009)

- ▶ new buildings must use RE
- ▶ exceptions and substitutes possible
- ▶ Solar keymark, guaranteed heat, min. efficiencies, heat meters etc.
- ▶ Apply before project start

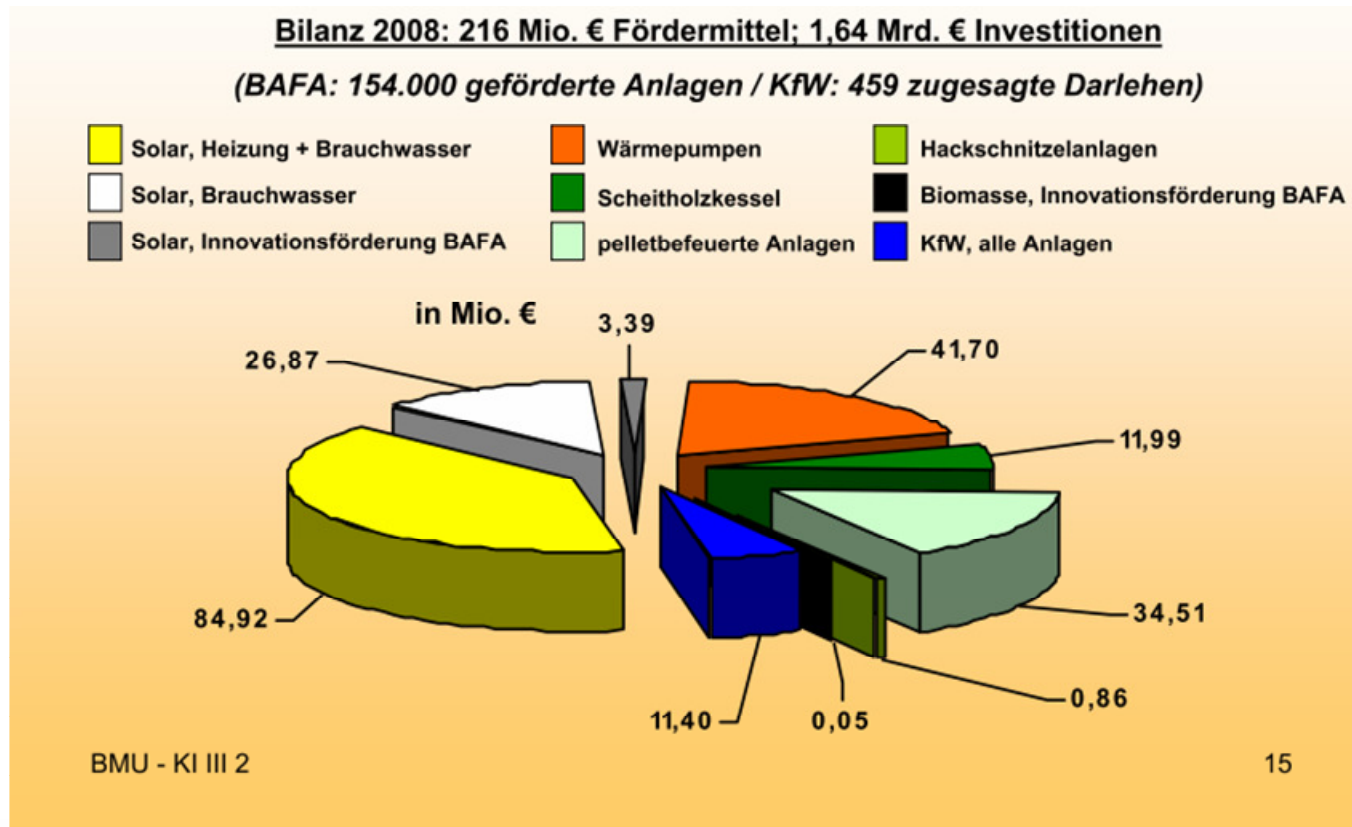
MIP - Market Incentive Programme

- ▶ increased budget
- ▶ Open-end program
- ▶ Focus on energy efficient retrofit (1/3 higher support than for new) & innovative technologies (bonus system)

Renewable heat: Market Incentive Programme (MIP)

- ▶ Program to stimulate RE use for heat
- ▶ Subsidies for smaller systems
(biomass < 100 kW, solar thermal < 430 ft², efficient heat pumps)
- ▶ Low interest loans for bigger systems
(also district heating, geothermal)
- ▶ Bonus for efficient, innovative or combination of technologies
- ▶ Budget 2008 350 Million € (\$ 515 Mio.)
- ▶ Budget 2009 (-2012) 500 Million € (\$ 735 Mio.)
- ▶ Since 1999 965 Million € (\$ 1,419 Mio.)
- ▶ Activated investment 8.2 Billion € (~ \$ 12 Billion)

Support via MIP



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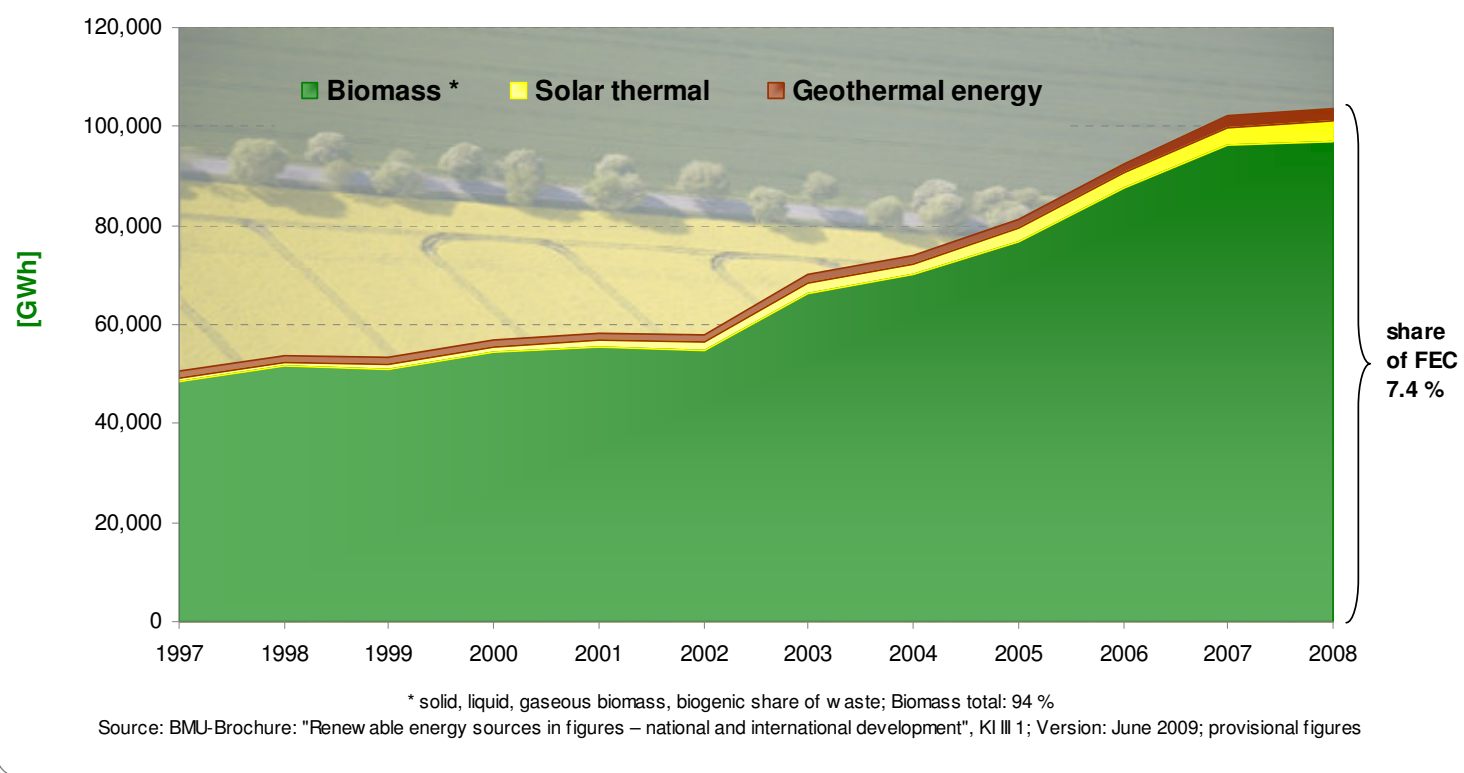
Abbildung finde ich persönlich zu unübersichtlich
cte; 22/09/2009

Market Incentive Programme – Supported technologies

- ▶ Solar thermal (DHW, (process) heating, cooling)
- ▶ Wood boilers (pellets, chips, logs)
- ▶ Heat pumps (incentive only)
- ▶ Small district heat grids (loan only)
- ▶ Deep geothermal heat (loan only)
- ▶ Very innovative technologies
- ▶ Large solar plants
- ▶ Large heat storages etc.

Contribution of RE to heat supply

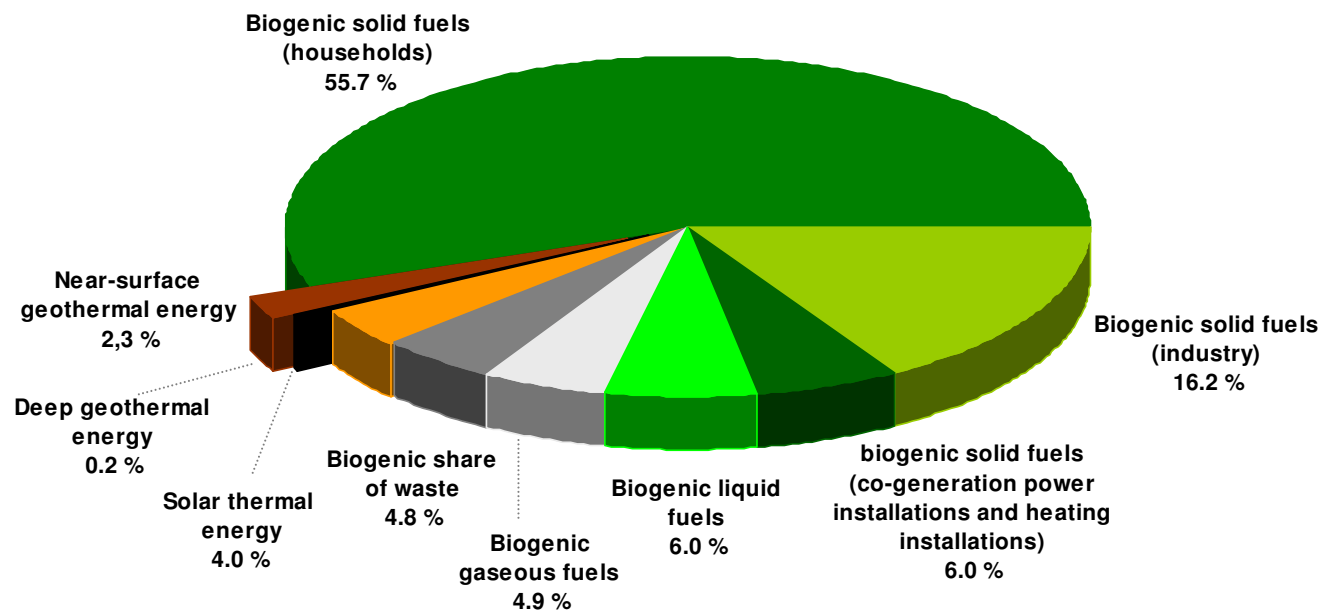
**Contribution of renewable energy sources to heat supply
 in Germany, 1997 - 2008**



Structure RE heat supply

Structure of heat supply from
renewable energy sources in Germany, 2008

Total: 103.8 TWh



Source: BMU-Brochure: "Renew able energy sources in figures – national and international development", KI III 1; Version: June 2009; provisional figures

MIP: Incentives 2009, examples

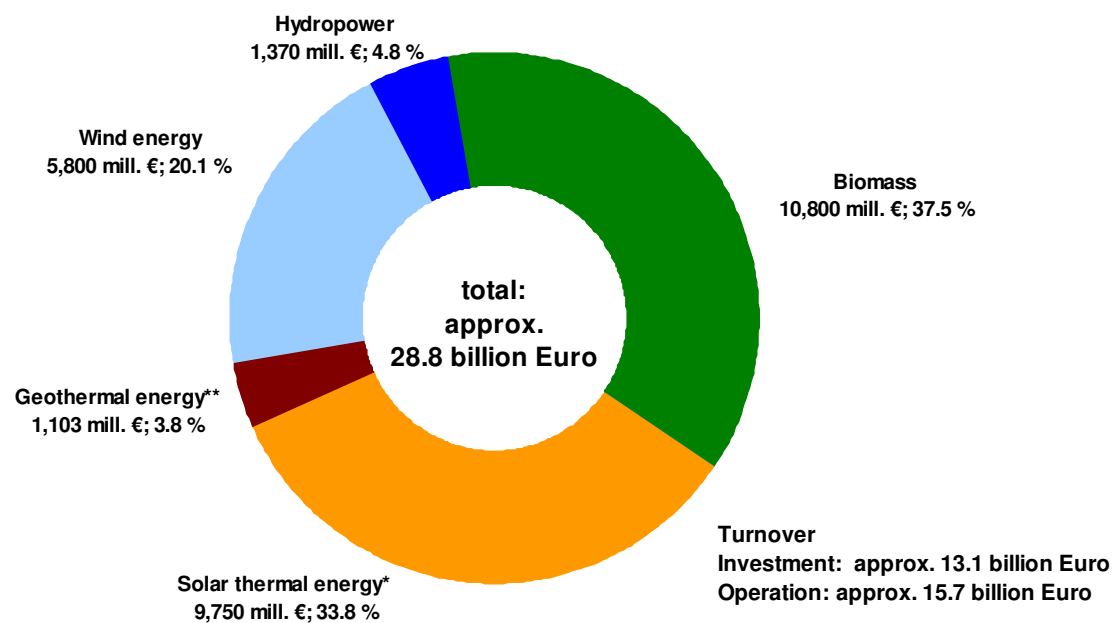
	Stock	New	Bonus
Solar collectors, DHW <= 40m ² gross collector area	60 €/m ²	45 €/m ²	New efficient boiler (gas, fuel oil) Additional heat pump Efficient circulation/solar pump
Solar collectors, DHW & space, process heat, cooling > 7 / 9 m ² flat plate/ vacuum < 40m ²	105 €/m ²	78.75 €/m ²	See before PLUS: efficiency bonus 50%/100% for very/super efficient buildings
Solar collectors, innovative 20 to 40m ² gross collector area	210 €/m ²	157,50 €/m ²	
Heat pumps (water/water) (per installation):	20 €/m ² (max. 3000 €)	10€/m ² (max. 3000 €)	Additional solar collectors Efficient circulation/solar pump very/super efficient buildings
Wood pellet boilers (5-200 kW; $\eta > 89\%$) per installation):	36 €/kW	27 €/kW	

Conclusion policy measures

- ▶ Big future challenges
- ▶ German approach has been very successful so far – electricity: targets exceeded
- ▶ Technologies are available / strong industry has developed
- ▶ Increased & improved support needed for heat & fuels to reach targets
- ▶ Smart support schemes must aim at making technologies competitive
- ▶ International cooperation needed

RE business: construction & operation turnover

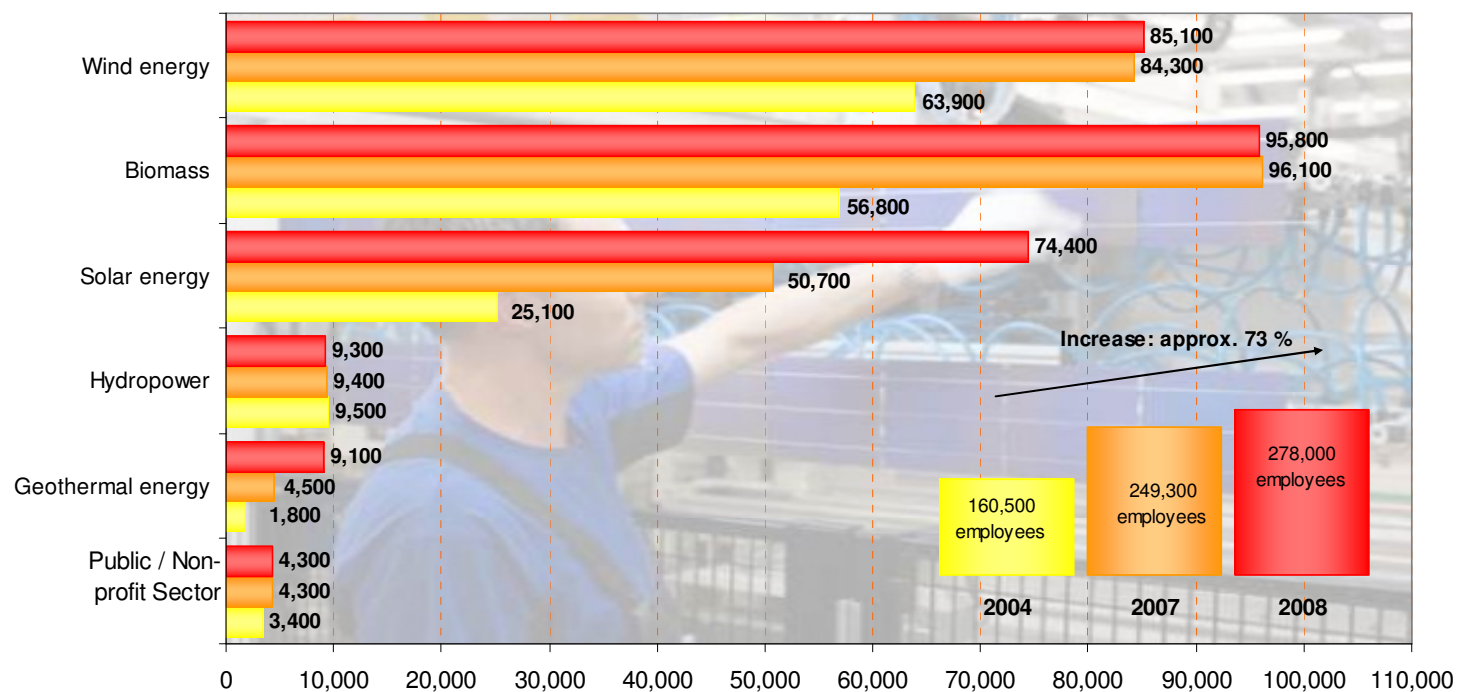
**Total Turnover from Renewable Energy Sources in Germany in 2008
(Investment and Operation)**



* Photovoltaics and solar thermal energy, ** large-scale plants and heat pumps; provisional figures
Source: BMU-KI III 1 according to Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), Version: June 2009

RE and employment

Employees in the German renewable energy sector
2004, 2007 and 2008

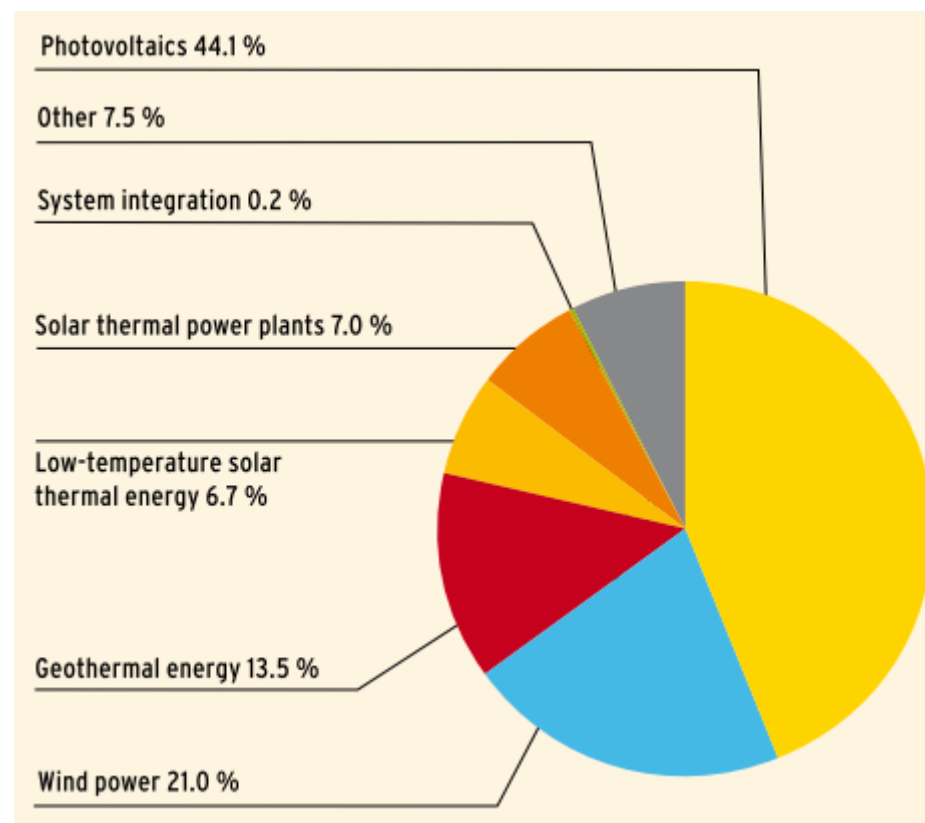


Figures for 2007 and 2008 are provisional estimates

Source: BMJ-KI III 1; project "Bruttobeschäftigung durch erneuerbare Energien in Deutschland im Jahr 2008 - erste Abschätzung", March 2009

Research in Renewable Energy

- ▶ German Environmental Ministry
- ▶ Average budget (2005-2008): 90 Mio €
- ▶ Budget 2008: ca. 105 Mio. € (project value 150 Mio) for 169 projects



Energy

Conclusions

Conclusions

- ▶ RE are climate friendly, technologically mature, a „job wonder“, highly popular, approaching competitiveness,... => i.e. a widely accepted option for today AND tomorrow
- ▶ Political will / smart support is essential for further market development
- ▶ EU RE targets: in fact not „burden sharing“ but sharing of new business opportunities

Companies present at this event

- ▶ A.P. Bioenergietechnik GMBH (Öko-Therm®), Uli Dobler
- ▶ Nolting Holz-und Feuerungstechnik GmbH, Joachim Eggers
- ▶ Ruf GmbH & Co.KG, Isidro Herrero
- ▶ Stela Laxhuber GmbH, Thomas Laxhuber
- ▶ ReFood GmbH, Michael Weber
- ▶ Pro2 Anlagentechnik GmbH, Philipp Stolzenburg
- ▶ MWM GmbH, José Antonio Fernández Muñoz
- ▶ Inper, S.L., Francisco Repullo

Thank you!

Thank you for your attention!

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