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Energy

Political Framework for Renewable Energies in Germany

17 November 2009

AHK-Program "Renewables Made in Germany"
Vilnius, Lithuania

Pio Jaworski, Ecofys Germany GmbH

www.german-renewable-energy.com

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Contents

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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

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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

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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 (<20MW)	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 %

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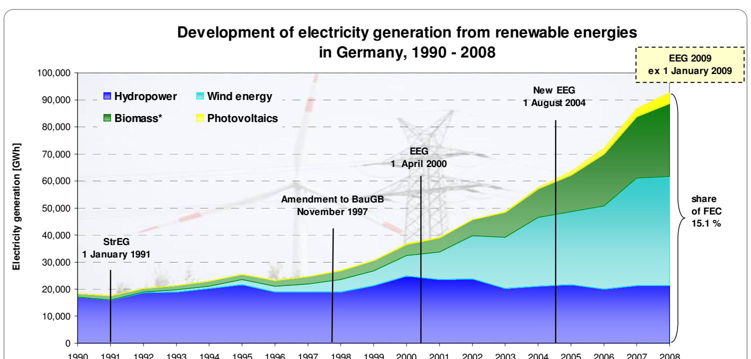
Electricity from RE



*Solid, liquid, gaseous biomass, biogenic share of waste, landfill and sewage gas;
StrEG: Act on the Sale of Electricity to the Grid; BauGB: Construction Code; EEG: Renewable Energy Sources Act;
Electricity from geothermal energy is not presented due to the negligible quantities of electricity produced;
Source: BMU-Brochure: "Renewable energy sources in figures – national and international development", KI III 1; Version: June 2009; provisional figures

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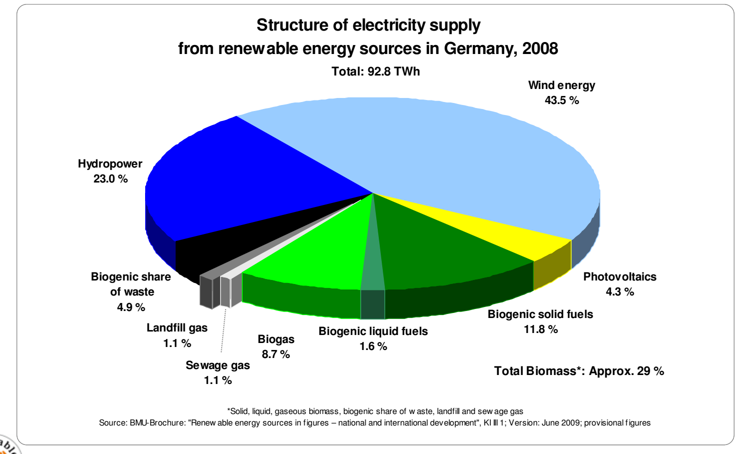
Structure of electricity from RE



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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-ended program
- Focus on energy efficient retrofit (1/3 higher support than for new) & innovative technologies (bonus system)

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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)

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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.

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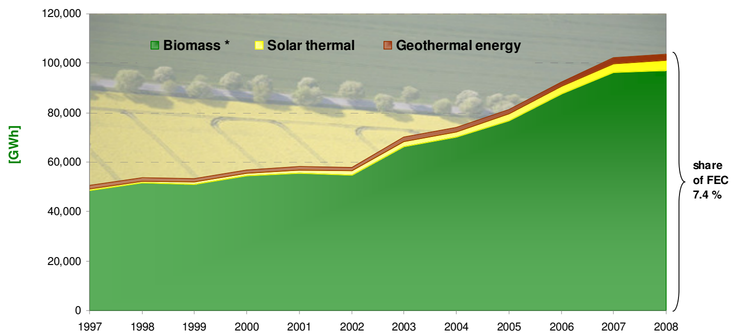
Contribution of RE to heat supply

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



* solid, liquid, gaseous biomass, biogenic share of w aste; Biomass total: 94 %

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

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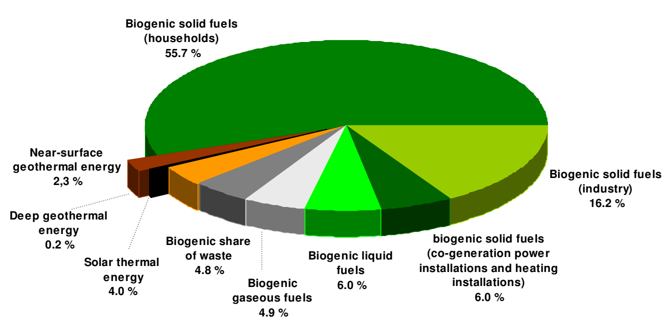
Structure RE heat supply

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

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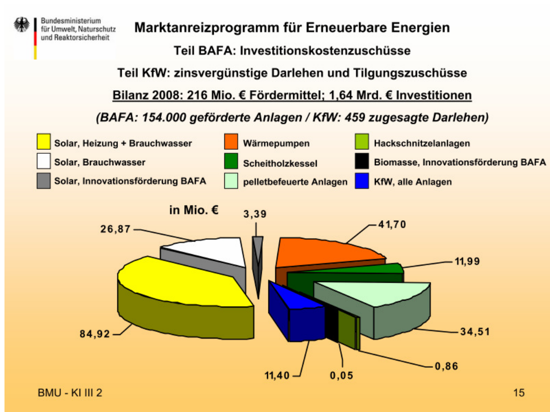

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MIP: Incentives 2009, examples

	Stock	New	Bonus
Solar collectors, DHW <= 40m2 gross collector area	60€/m²	45€/m²	New efficient boiler (gas, fuel oil) Additional heat pump Efficient circulation/solar pump
Solar collectors, DHW & space, peocess heat, cooling > 7 / 9 m2 flat plate/vacuum <40m2	105€/m²	78.75€/m²	See before PLUS: efficiency bonus 50%/100% for very/super efficient buildings
Solar collectors, innovative 20 to 40m2 gross collector area	210€/m²	157,50€/m²	
Heat pumps (water/water) (per installation):	20€/m² (max. 3000 €)	10€/m² (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	

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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

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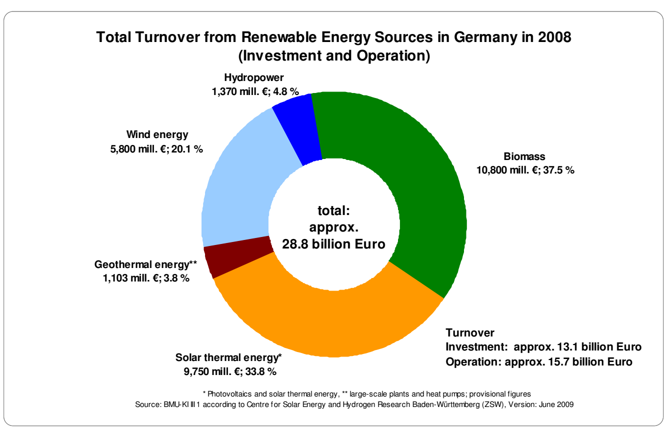
RE business: construction & operation turnover



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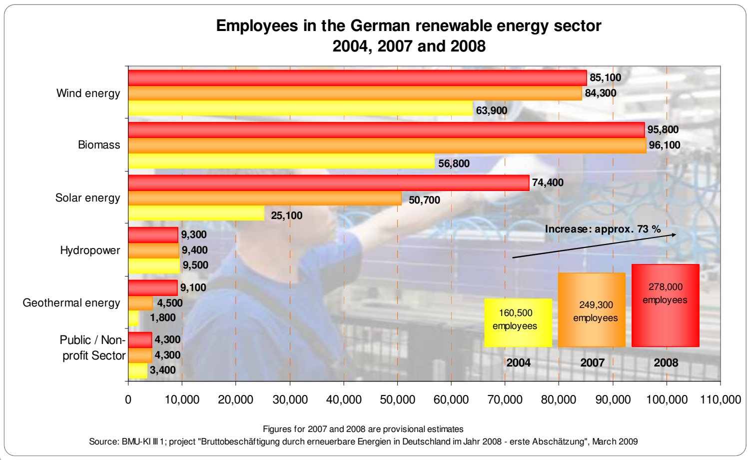
RE and employment



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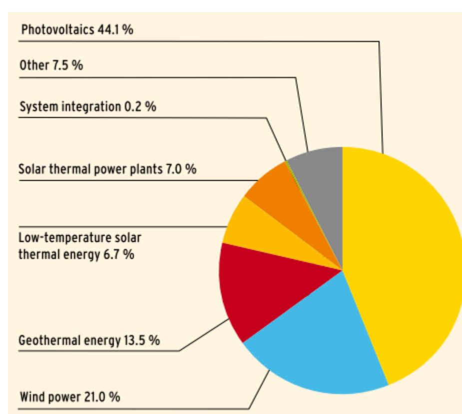
Research in Renewable Energy

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



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Conclusions

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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

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Companies present at this event

- MWM GmbH – Mr. Klaus Kohlhase
- Prolignis Energie Consulting GmbH & Co. KG – Mr. Julius Chaloupka
- ATRES engineering biogas – Mr. Gunther Pesta
- SHW – Storage & Handling Solutions GmbH – Mr. Jürgen Blessing
- REHAU Ag+Co – Mr. Andreas Jenne
- Gothaer Allgemeine Versicherung AG – Mr. Thiomas Schuindler

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Thank you!

Thank you for your attention!

Piotr Jaworski

p.jaworski@ecofys.com