

Research for global markets – Strategic approaches of the BMU

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Strategic approaches of the BMU

Energy research is part of our energy and climate policy. The key objectives of energy research in the BMU are:

1. Reducing greenhouse gas emissions

- Increasing energy efficiency
- Expanding renewable energies – reducing costs
- Improving quality and efficiency (e.g. efficiency rates)
 - System integration (e.g. storage, smart grids)
 - Opening up new fields of application (e.g. process heat in the solar thermal field) – Environmental and ecological compatibility, acceptance

2. Creating options for the future

- Institutional support of the BMBF
- BMBF research programme “Basic Energy Research 2020+”
- BMU projects for preliminary research, e.g. at the Fraunhofer ISE, ISFH and ZSW (PV) and the DLR (Concentrated Solar Power – CSP)

3. Jobs in Germany

- Promotion of technologies lacking potential applications in Germany (e.g. CSP, and to a lesser extent ocean energy)

All of this ultimately serves competitiveness on the world markets!

Who is funding what?

Institutional funding (basic research)

- BMBF and BMWi: HZB, FZ Jülich, Fraunhofer Institute
- Federal states: HGF, Fraunhofer, ISFH, ZSW, ZAE, universities

Project funding: basic and applied research

- BMBF:
 - Basic research – Applied research in multidisciplinary programmes
- BMU (renewable energies), BMELV (biomass only):
 - Applied research – As well as preliminary research
- Federal states:

RE research funding overview

- Project funding of the BMU and the BMELV
- Institutional support of the BMBF and the BMWi
- BMBF: “Basic Energy Research 2020+”
- Multidisciplinary programmes of the BMBF: PV cluster of excellence, PVcomB in Berlin
- Project funding of the BMWi (shallow geothermal energy, integration/grids/storage)
- Federal states (The Fraunhofer Centre for Silicon Photovoltaics in Halle, Competence Centre Thin-Film- and Nanotechnology for Photovoltaics Berlin)
- German Environment Foundation

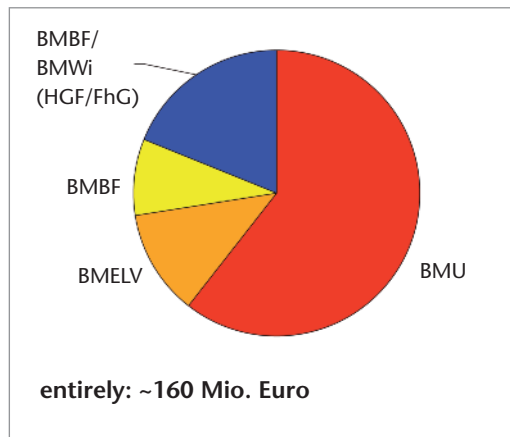


Figure 1
RE research funding by the various ministries in 2008

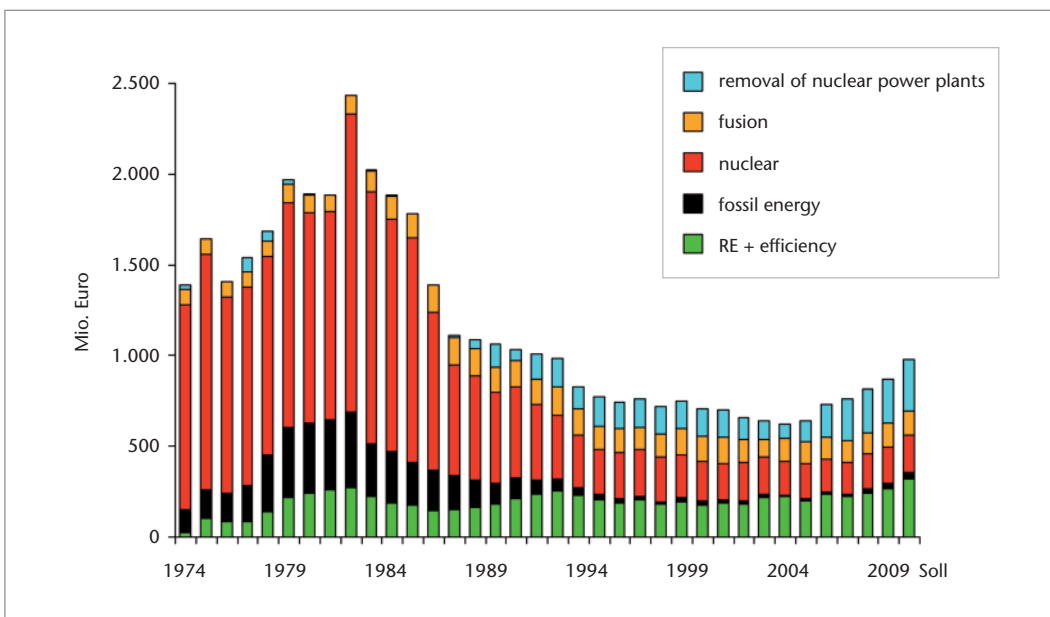


Figure 2
Energy research (actual) by German government

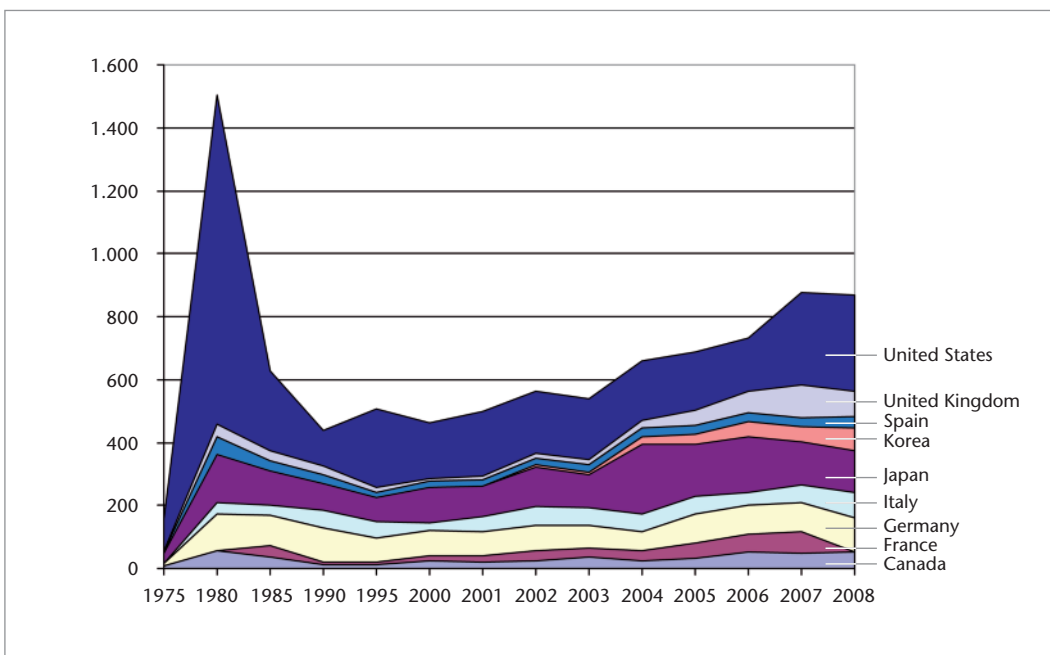


Figure 3
International RE research

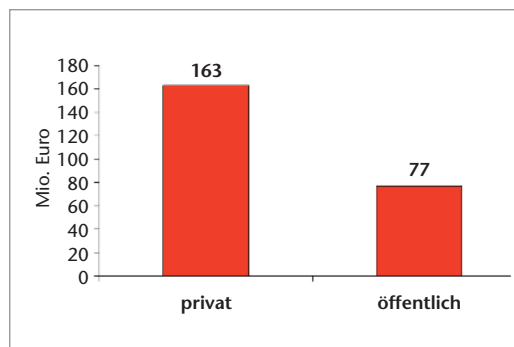
Export successes of renewables

- PV export quota: 48%
- Wind energy export quota: 82 %

Germany plays a technologically leading role in almost all renewable energies worldwide.

Research expenditure for PV in 2008

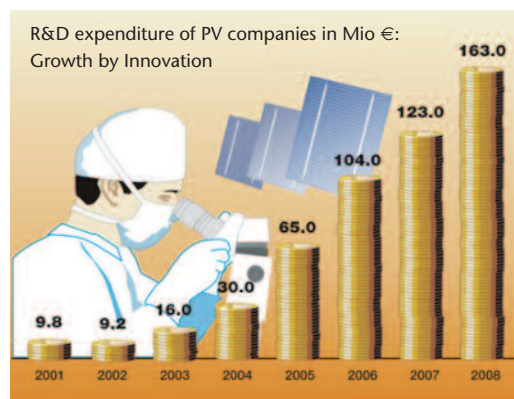
Figure 4
PV research
expenditure in 2008



Private research expenditure

- R&D expenditure of companies for RE increased by 80% in 2008 (source: EU Commission)
- 5 of the 6 "top-spending green energy firms" were from Germany (source: EU Commission)
- Companies have their own research centres or research organisations (e.g. q-Cells, SolarWorld, Würth Solar, Enercon)

Figure 5
Private research
expenditure



The German Renewable Energy Sources Act (EEG) as an innovation driver

- Private R&D expenditure is ultimately based on the EEG, thus being “induced by the government”.
- The degression of the feed-in tariff provides incentives for innovation.
- The technology bonus provides for additional incentives for innovation in some selected areas.
- The market incentive programme (MAP) also provides incentives for innovation.

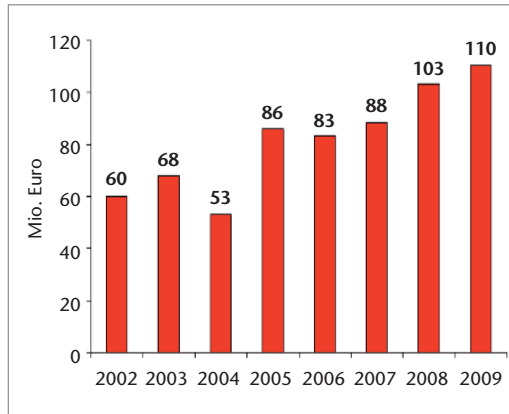


Figure 6
BMU budget estimates for R&D in the area of RE

Research funding of the BMU in the area of renewables

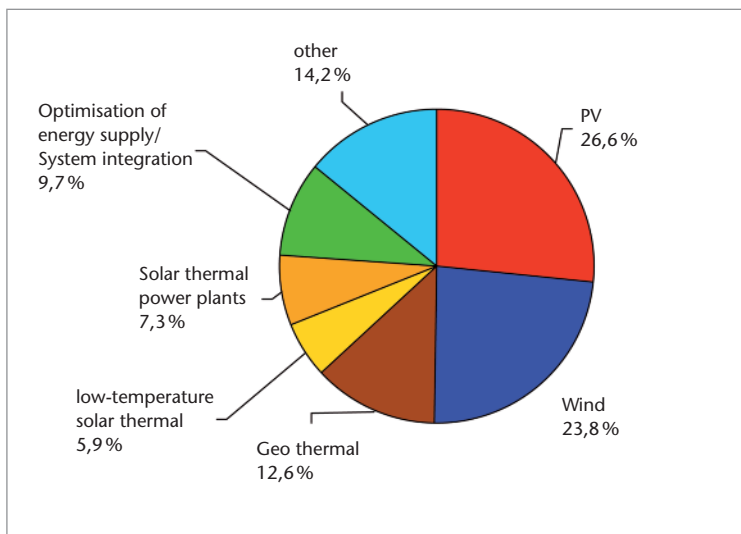


Figure 7
Newly approved projects of the BMU in 2009 (118.44 million euros)

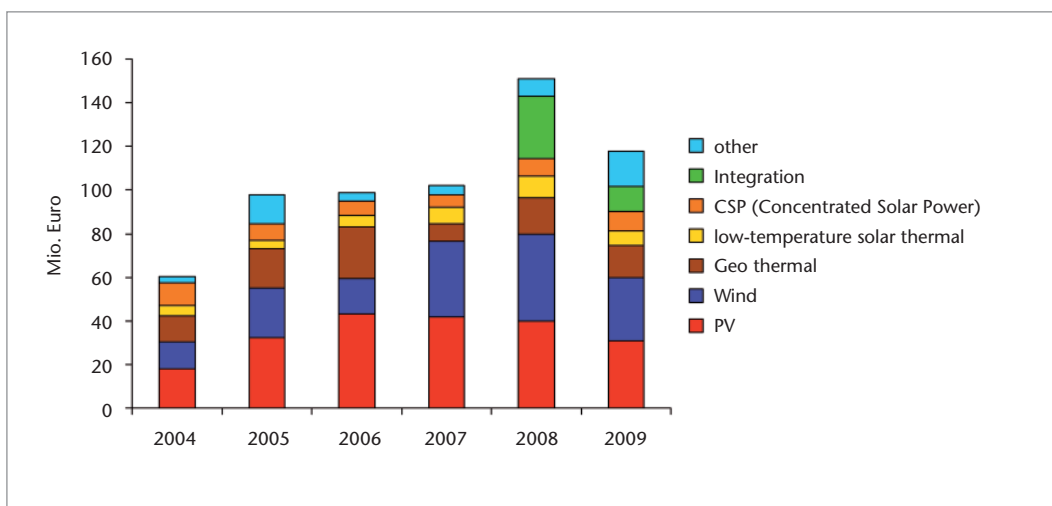


Figure 8
New grants of the BMU from 2004 to 2009

Figure 9
Development of applications in photo-voltaics: increasing number lowers approval rate

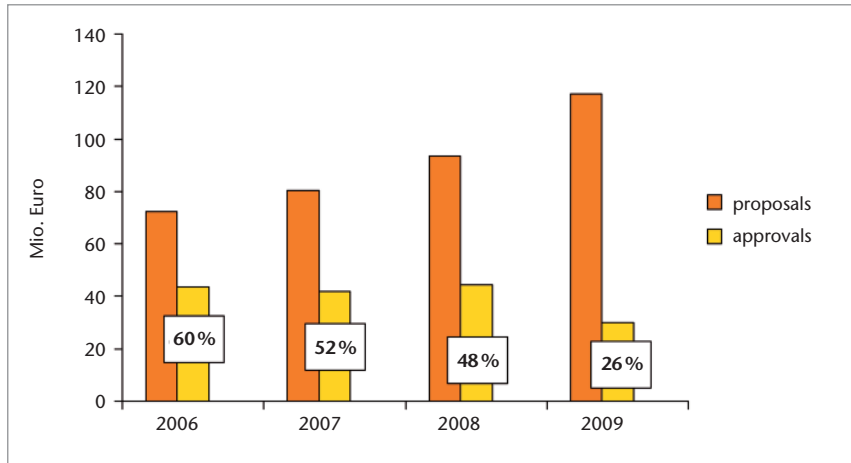
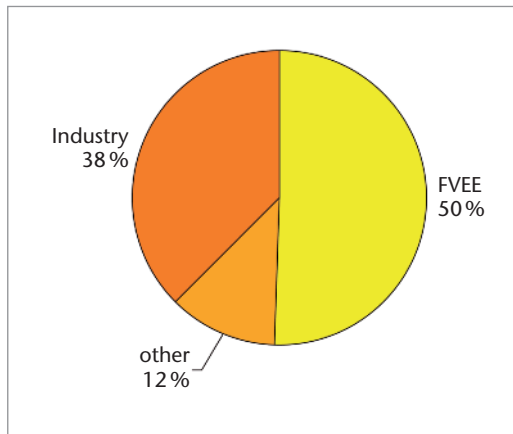


Figure 10
Beneficiaries of the PV budget 2006-2009



Conclusions

- Public RE research funding is well-positioned in Germany.
- EEG and MAP are the innovation drivers
- Excellent research landscape: HGF, FhG and other institutes, universities and private research centres
- Germany is the technological leader in almost all RE.
- But: there are new developments in other countries, notably the USA and China.

Further information

- Annual Report 2008: www.erneuerbare-energien.de
bmu@broschuerenversand.de
- Newsletter of the BMU
- Homepage: "Research" at www.erneuerbare-energien.de
- Research year-book and CD with a brief description of all funded projects (available from PTJ and BINE)