

Public expenditures for energy R&D in Austria 2009

PowerPoint Presentation

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Energy R&D Public Expenditure in Austria 2009

Andreas Indinger, Marion Katzenschlager

**Survey carried out by the Austrian Energy Agency
on behalf of the Federal Ministry of Transport, Innovation and Technology**

November 2010

- Austria's public expenditure for energy related research and development was 92.1 million EUR in 2009. This was an increase of 30% (21.1 million EUR) when compared to 2008.
- The highest portion of this expenditure (85.1%) was provided directly by the government (federal, regional and funding organisations), 14.9% was spent by publicly financed colleges of higher education, research institutions and universities.
- The expenditure of the federal ministries, either directly from the responsible departments or via projects within their field of responsibility (excluding the Climate and Energy Funds), totalled up to 27 million EUR, with the Federal Ministry of Transport, Innovation and Technology investing some 80%.
- 40.6% of expenditure concerned the “Energy Efficiency” sector, 2009 overtaking the “Renewable Energy Carriers” sector with 35.3%.
- Both of these areas continue to clearly define the priorities for the publicly financed energy research within Austria, particularly
 - Bio-Energy, 20 million EUR
 - R&D- topics in relation to energy efficient buildings, 15 million EUR.
- More than three quarters (79%) of the funding was used for applied research, 16% for experimental development and 5% for basic research.

Summary (2)

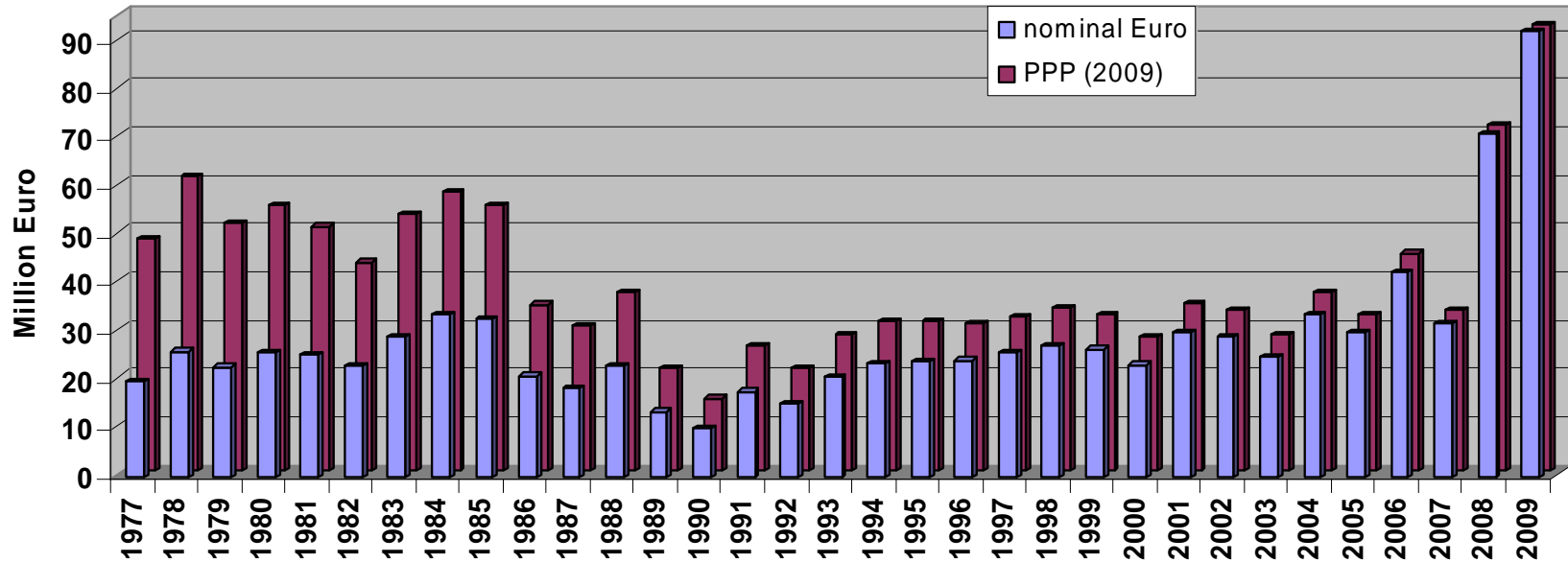
- Projects generated via the program “Neue Energien 2020” (“New Energies 2020”) helped the Climate and Energy Fund retain the position of the statistical unit with the highest expenditures (30.8 million EUR).
- In 2009, the Research Promotion Fund (FFG) processed 62.7 million EUR, the majority of transaction were related to programs run on behalf of the federal government and the Climate and Energy Funds.
- The bottom-up programs of the Research Promotion Fund tripled their funding for R&D in connection with energy up to 9.6 million EUR in 2009.
- The expenditure of 1.2 million EUR of the Austrian Science Fund (FWF) for basic research within the energy sector is clearly less than in the previous year.
- The aws (Austrian Business Service) for the first time announced expenditure of 1.6 Million EUR for energy-related R&D for 2009. Further projects, totalling up to 1.7 million EUR, from programmes carried out on behalf of the ministries, were also undertaken.

Summary (3)

- The total expenditure of the regional governments (federal provinces) was 8.3 million EUR. The highest expenditure was effected in Vienna, amounting to almost 50% of overall expenditures from provinces.
- The universities spent 7.1 million EUR in total. As in previous years, the technical universities in Vienna and Graz effected the highest expenditures.
- The expenditure of the (non-university) research institutions was 5 million EUR, more than half of the amount was invested by AIT (Austrian Institute of Technology).
- 1.6 million EUR was invested by universities for applied research from own financial sources.
- About 900 energy research projects and activities were registered and analysed for the year 2009.

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- Carried out annually since 1974
 - Till 2002 by Univ. Prof. Dr. G. Faninger, starting from 2003 by the Austrian Energy Agency
 - On behalf of the Federal Ministry of Transport, Innovation and Technology
 - International standards set by IEA and OECD (Frascati manual)
 - Data for Austria shows real expenditures, no budgets
 - Annual publication (full report)
 - See also IEA-Database for R&D: <http://www.iea.org/Textbase/stats/rd.asp>

Public expenditures for energy R&D in Austria

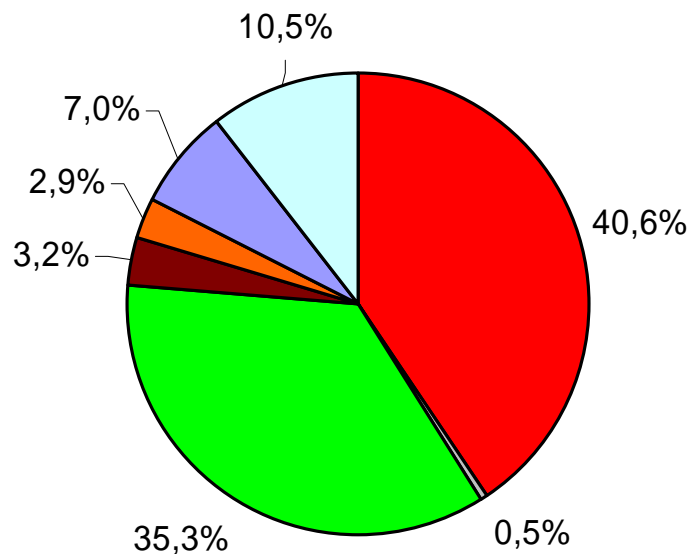


Public R&D Expenditures AUSTRIA ENERGY (2009)



Public R&D Expenditures AUSTRIA ENERGY (2009)

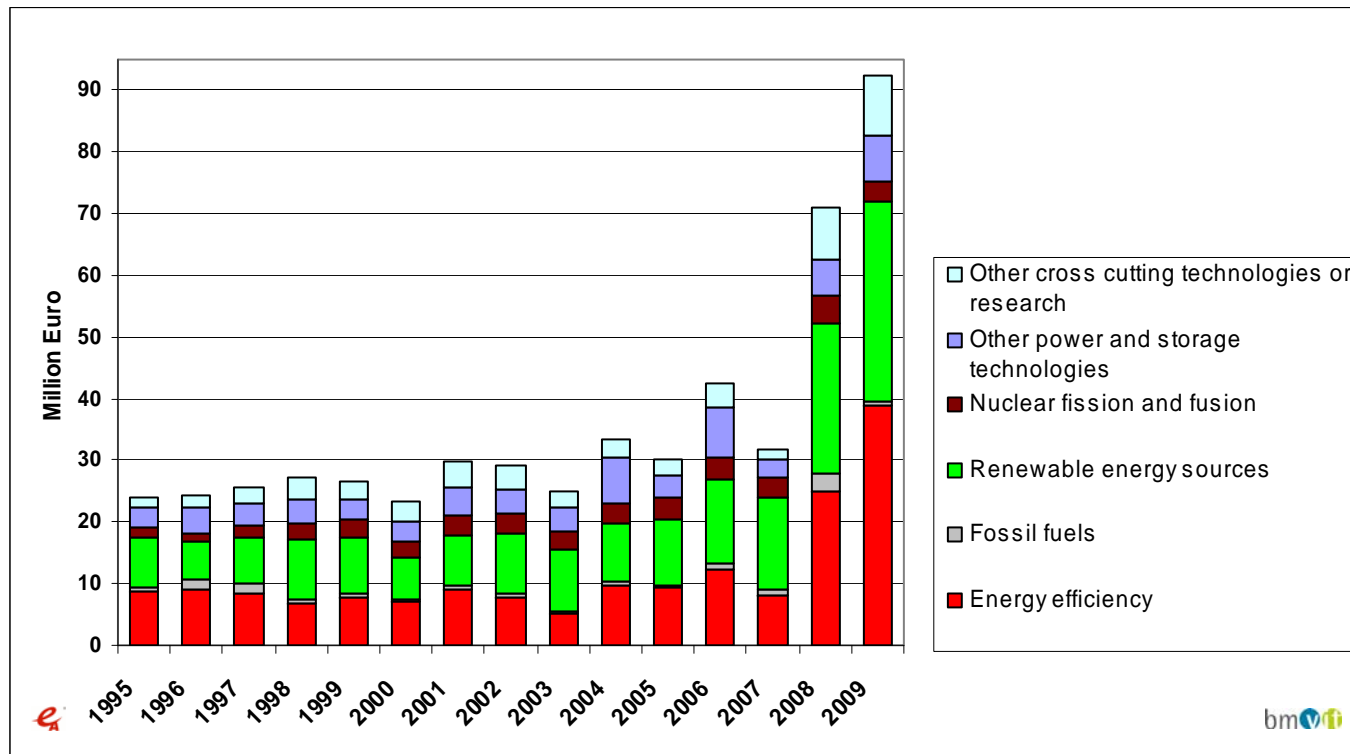
Total:
92 268 114 €



- Energy efficiency
- Fossil fuels
- Renewable energy sources
- Nuclear fission and fusion
- Hydrogen and fuel cells
- Other power and storage technologies
- Other cross cutting technologies or research



Public R&D Expenditures AUSTRIA ENERGY (1995 - 2009), nominal



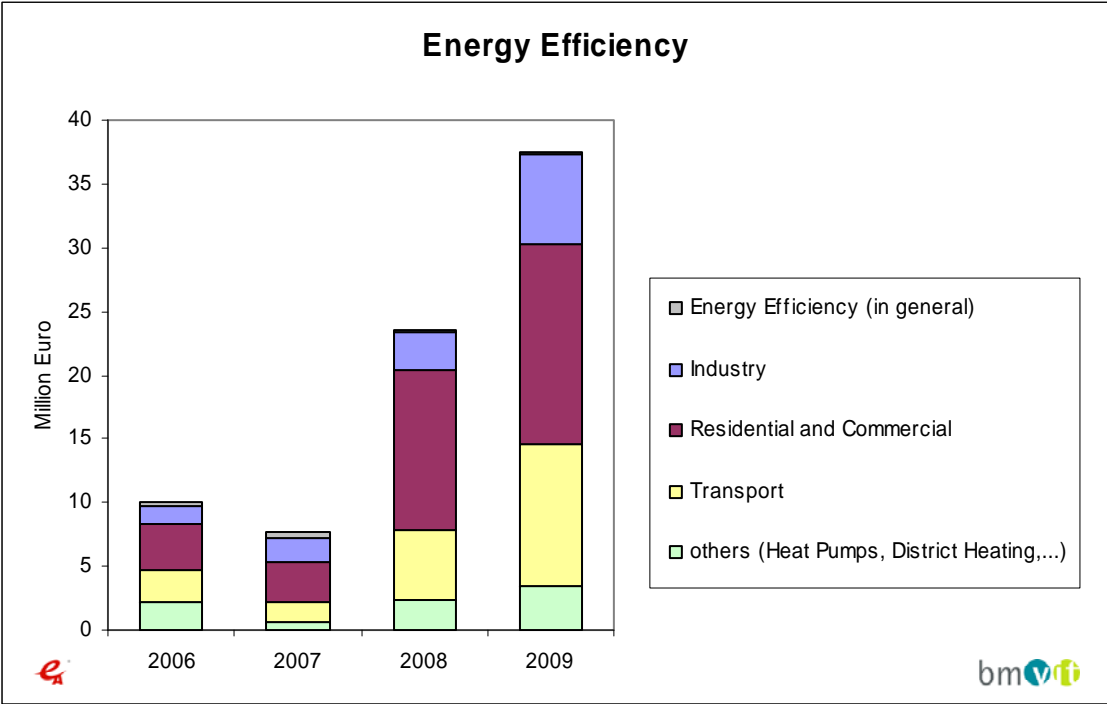
- Expenditures in the new categories for hydrogen and fuel cells (established in 2006) were transferred in the former IEA categories in order to preserve the timelines.

Trends in technology areas

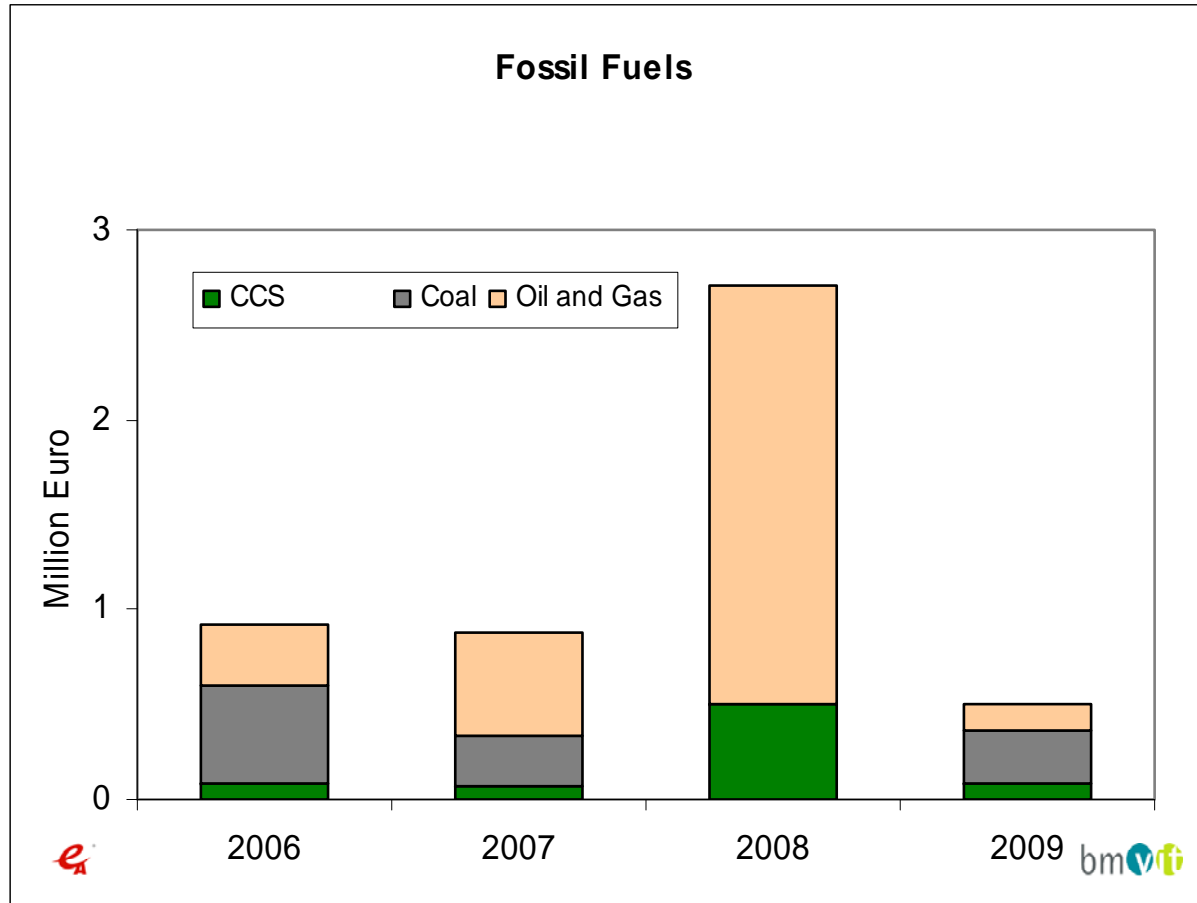


	Expenditures 2009 in EUR	2009 vs 2008 in EUR	2009 vs 2008 in %
Energy efficiency	37.434.226	+13.903.552	+59 %
Fossil fuels	495.923	-2.213.716	-82 %
Renewable energy sources	32.569.399	+8.104.733	+33 %
Nuclear fission and fusion	2.981.261	-1.471.812	-33 %
Hydrogen and fuel cells	2.643.800	+275.677	+12 %
Other power and storage technologies	6.481.875	+1.286.590	+25 %
Other cross cutting technologies or research	9.661.630	+1.216.134	+14 %
Total	92.268.114	+21.101.158	+30 %

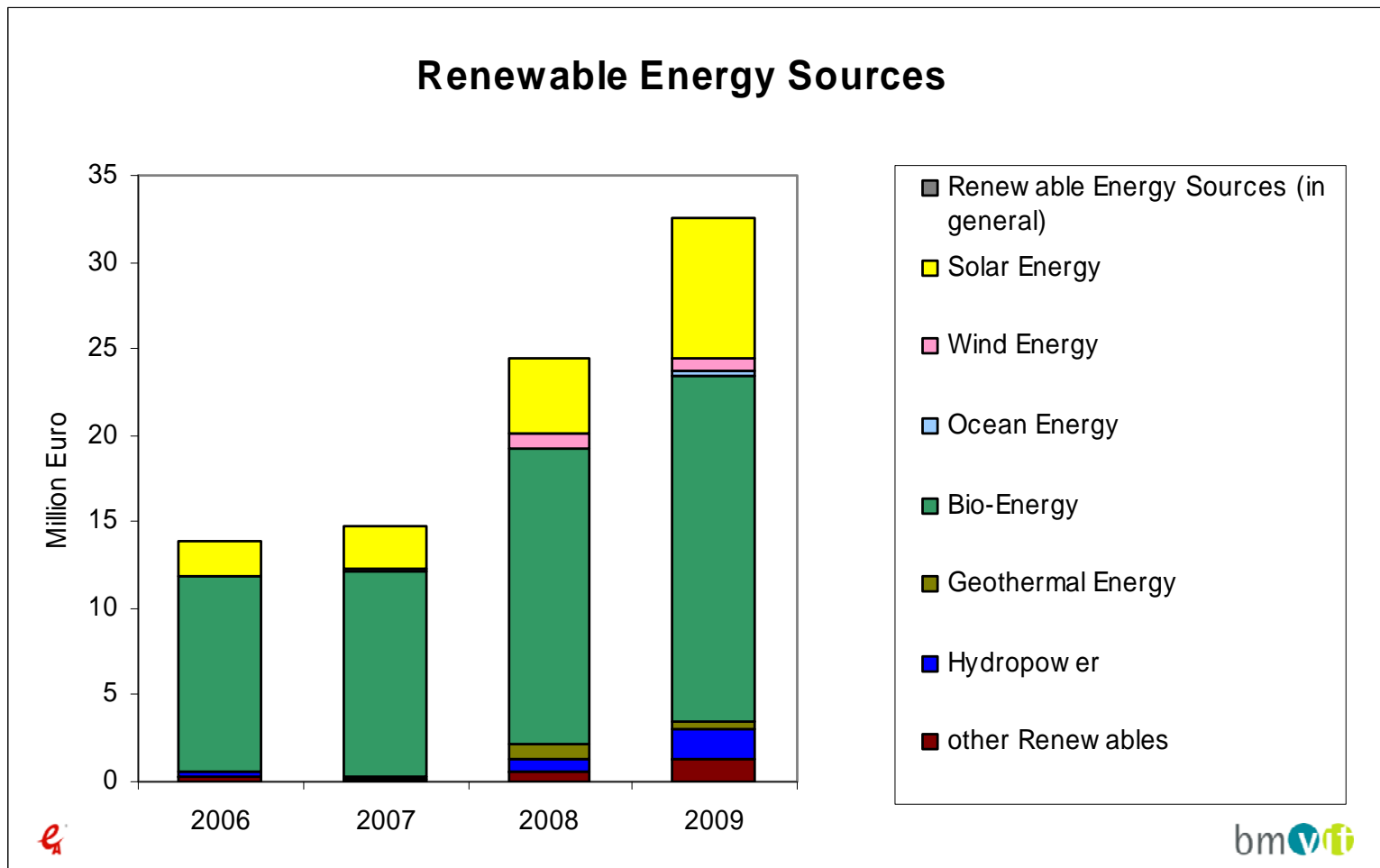
Energy Efficiency

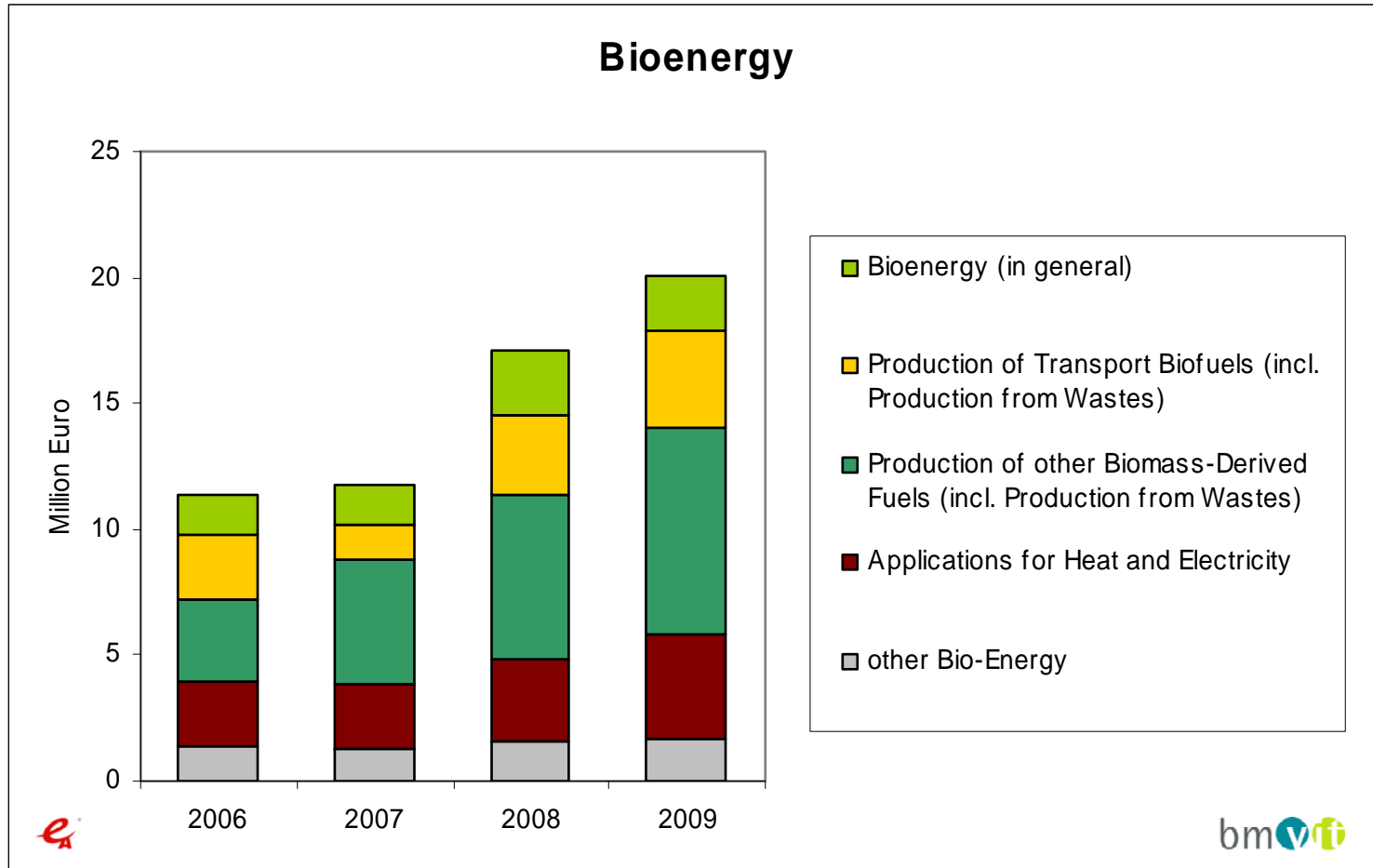


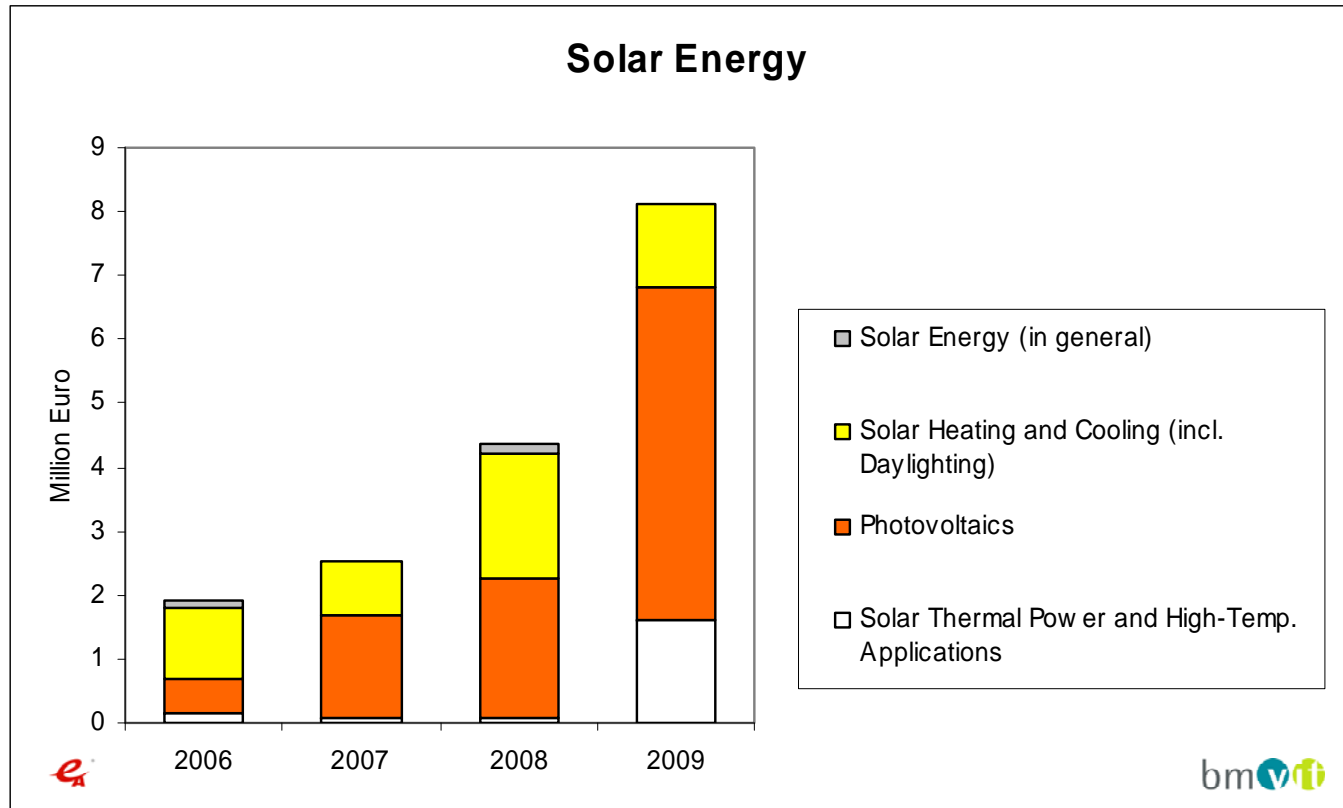
Fossil Fuels



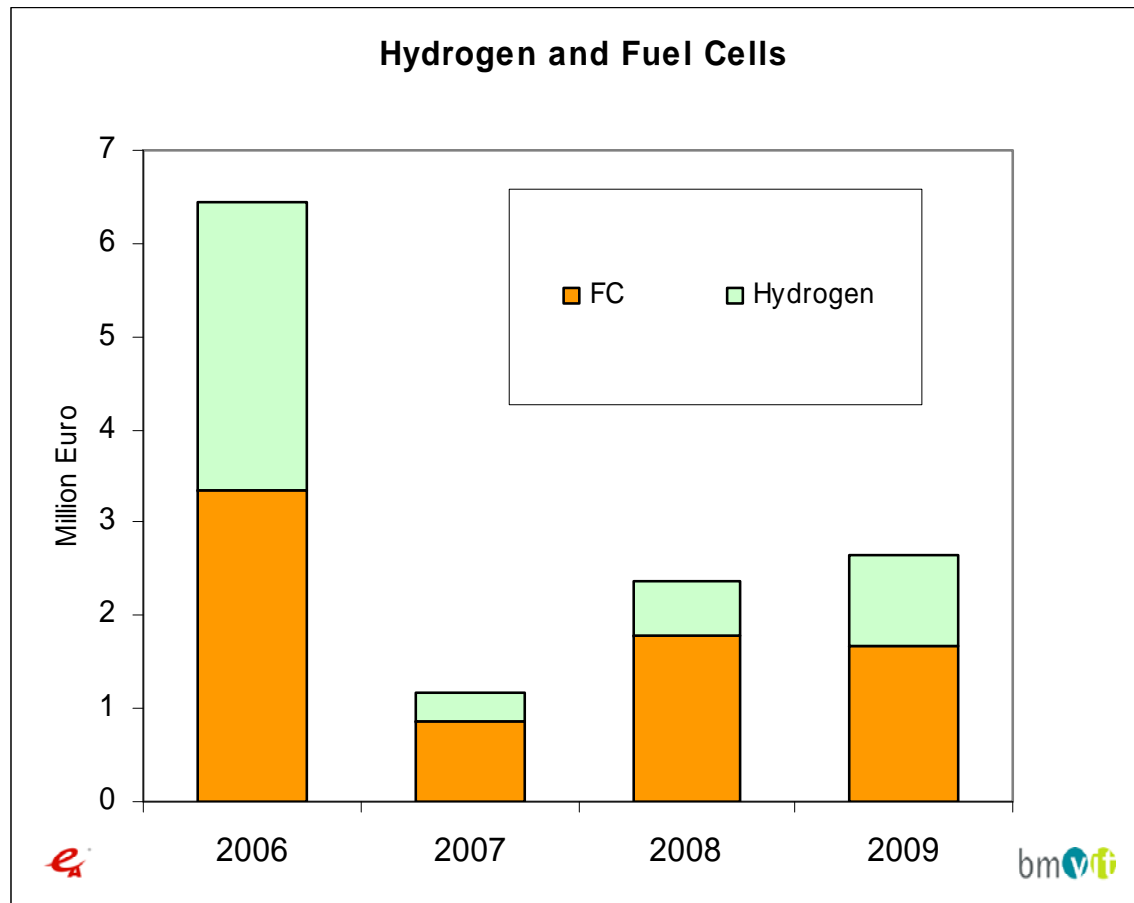
Renewables with a focus on bioenergy







Hydrogen and Fuel Cells



The definitions of "R&D" used in this review are the same as those used in the "Survey of the Resources Devoted to RD&D by OECD Member Countries" compiled by the OECD Directorate for Science, Technology and Industry (with an exception for basic research):

Basic Research

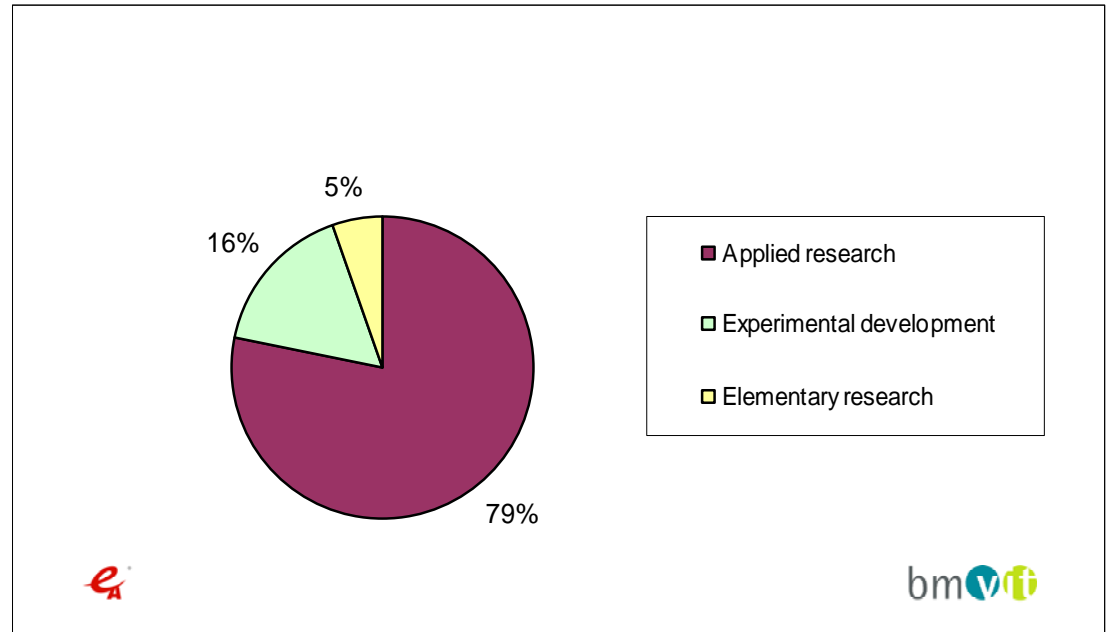
- has to be clearly oriented towards the development of energy-related technologies (otherwise it has to be excluded)

Applied Research

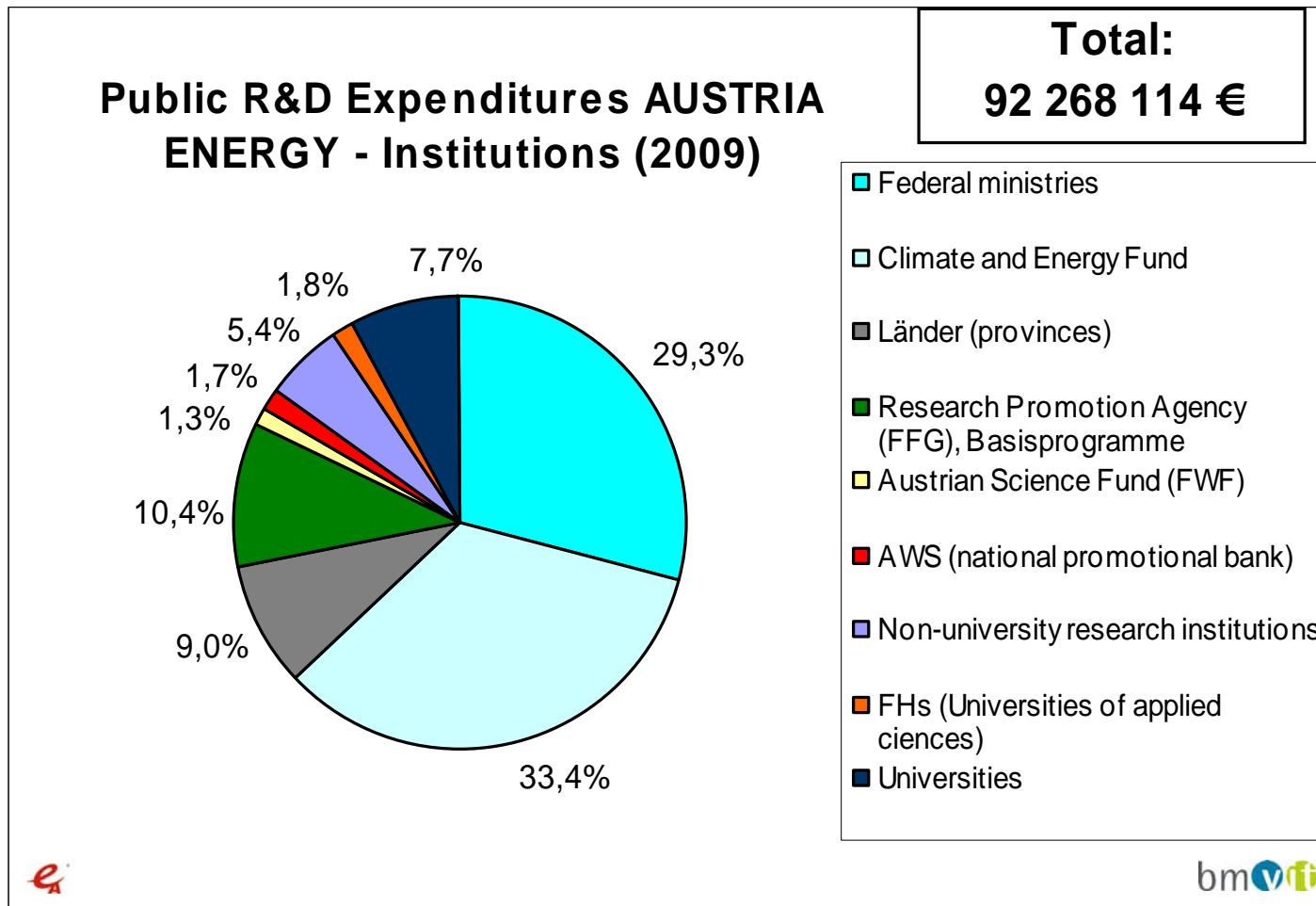
- incl. accompanying projects for demonstration

Experimental Development

- Frascati-Manual: „Experimental development is systematic work, drawing on existing knowledge gained from research and practical experience, that is directed to producing new materials, products and devices“.
- Incl. prototypes und pilots, but not demonstration facilities which operate in a commercial environment



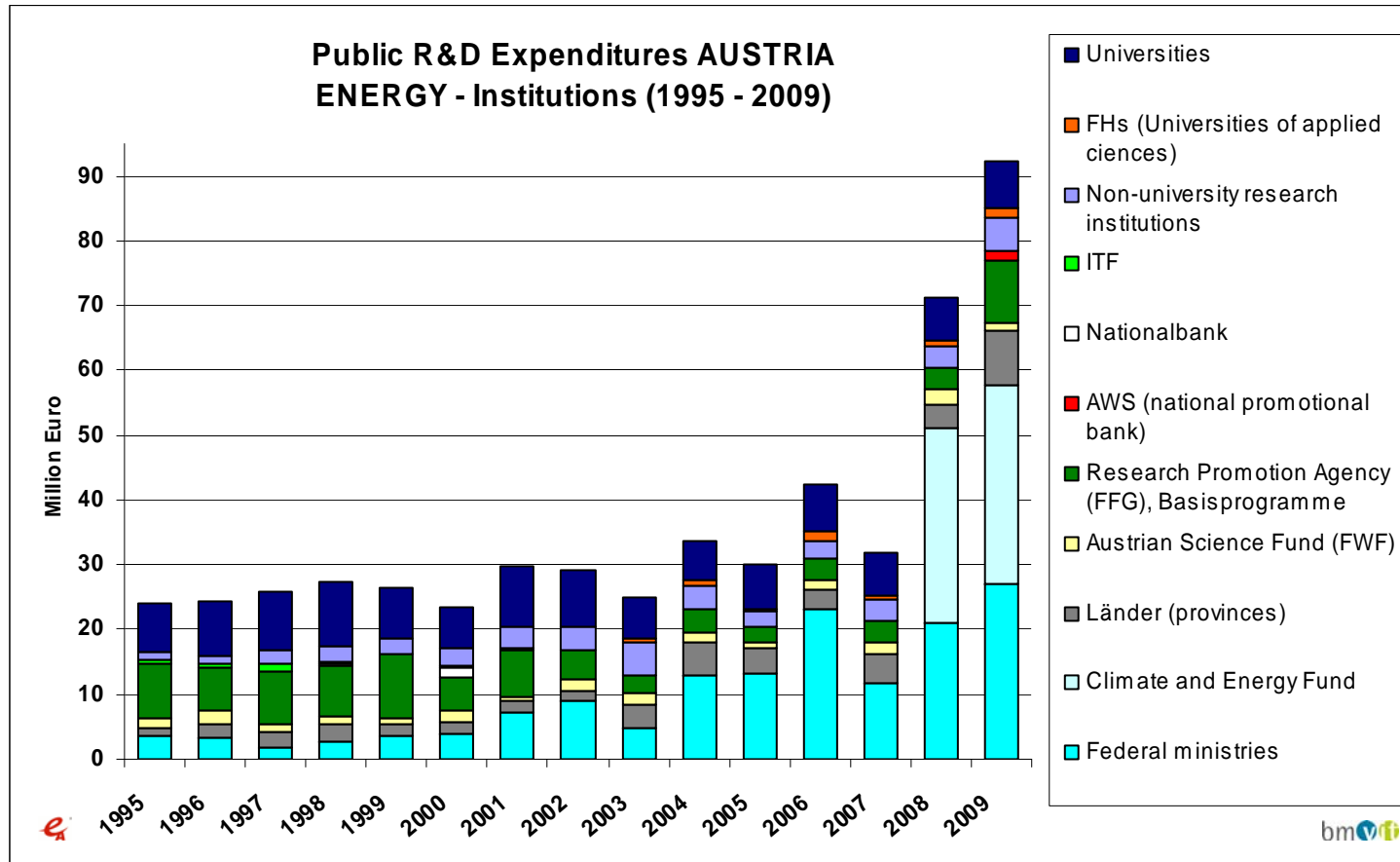
Who was financing?

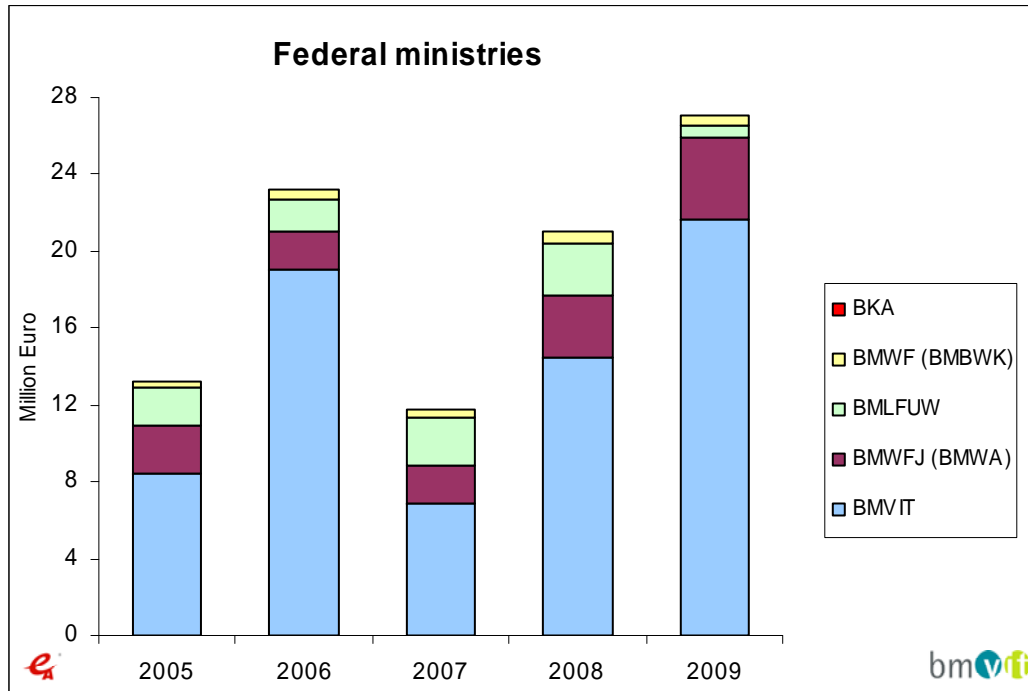


Recent trends

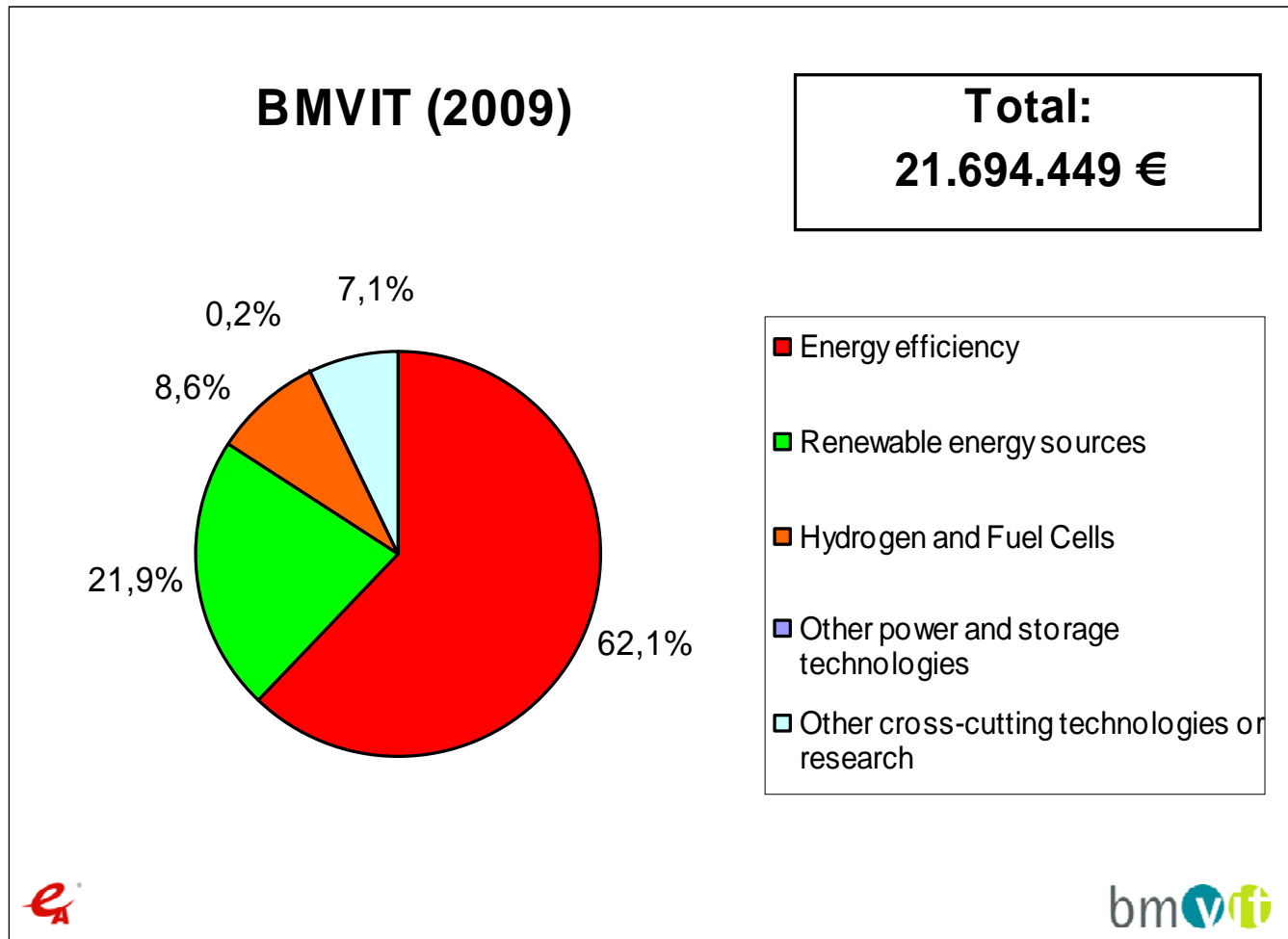
Institution	Expenditures 2009 in EUR	2009 vs 2008 in EUR	2009 vs 2008 in %
Federal ministries	27.016.311	+5.985.920	+28 %
Climate and Energy Fund	30.836.148	+644.797	+2 %
Länder (provinces)	8.342.794	+4.813.096	+136 %
Research Promotion Agency (FFG), Basisprogramme	9.593.460	+6.335.260	+194 %
Austrian Science Fund (FWF)	1.201.718	-1.163.515	-49 %
AWS (national promotional bank)	1.565.027	+1.565.027	+0 %
Non-university research institutions	4.966.606	+1.582.930	+47 %
FHs (Universities of applied sciences)	1.649.172	+792.571	+93 %
Universities	7.096.878	+545.072	+8 %
Total	92.268.114	+21.101.158	+30 %

Timeline - Institutions

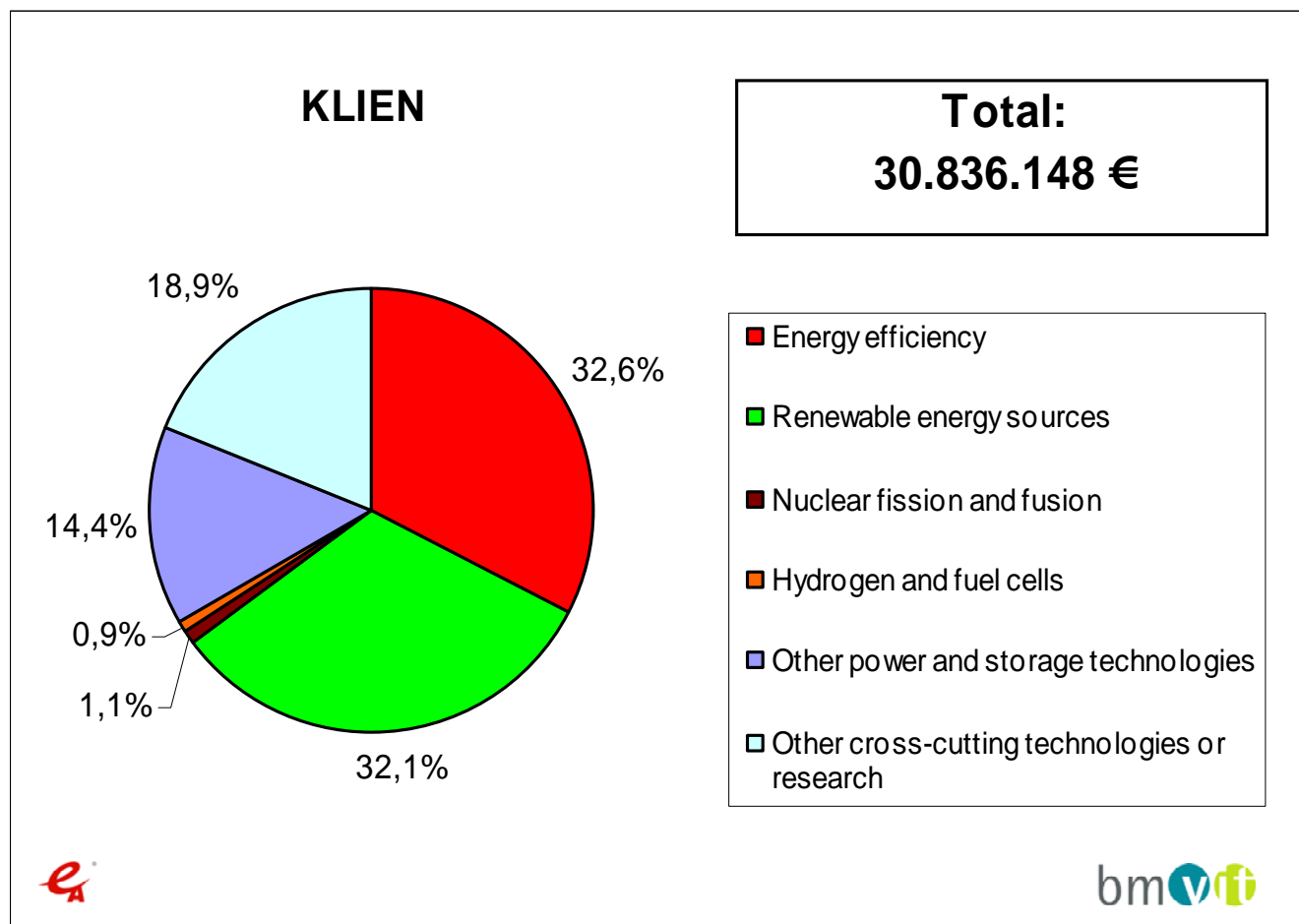




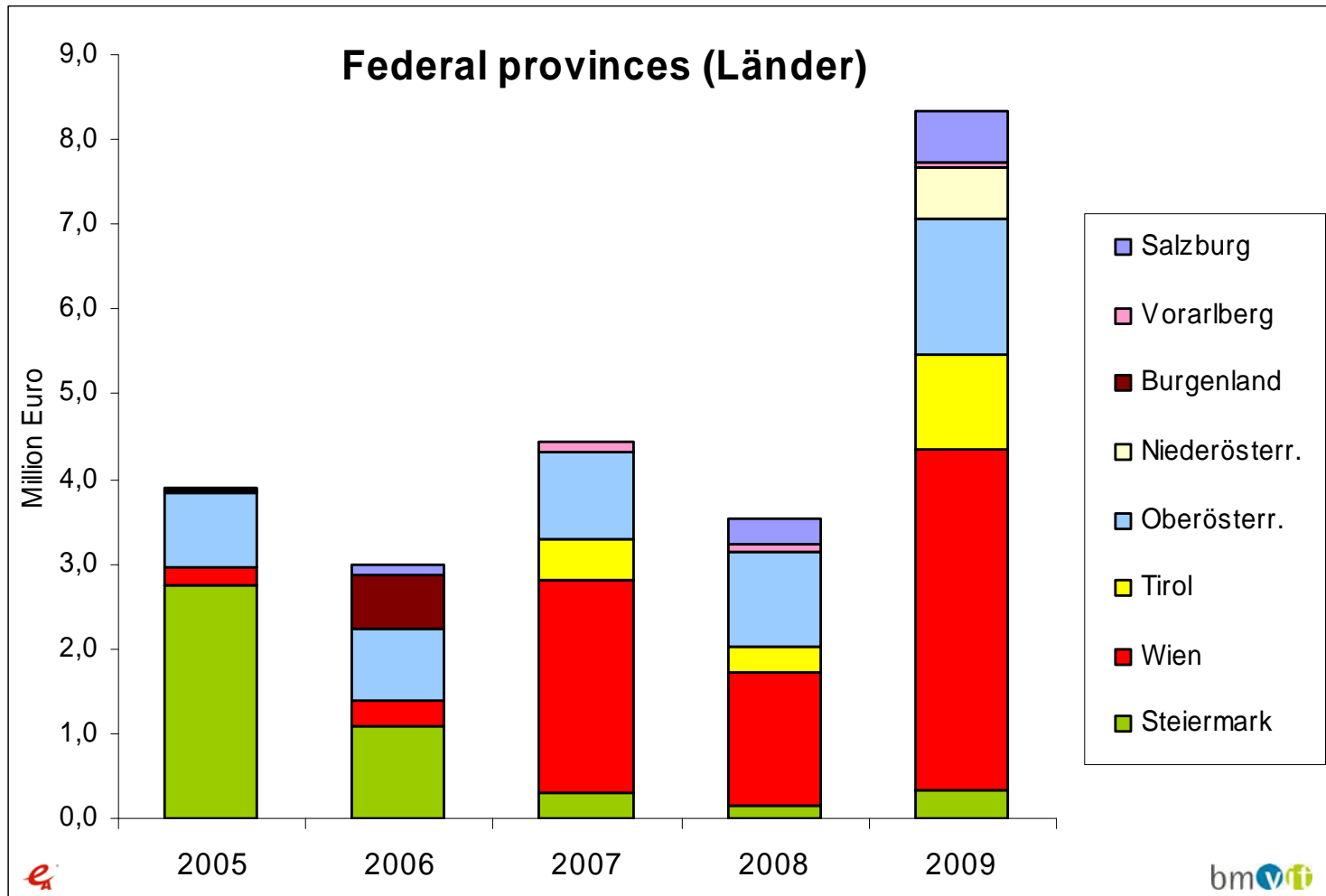
- BKA: Austrian Federal Chancellery (minor activities in 2008)
- BMWF: Austrian Federal Ministry for Science and Research
- BMLFUW: Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management
- BMWFJ: Austrian Federal Ministry of Economy, Family and Youth
- BMVIT: Austrian Federal Ministry for Transport, Innovation and Technology



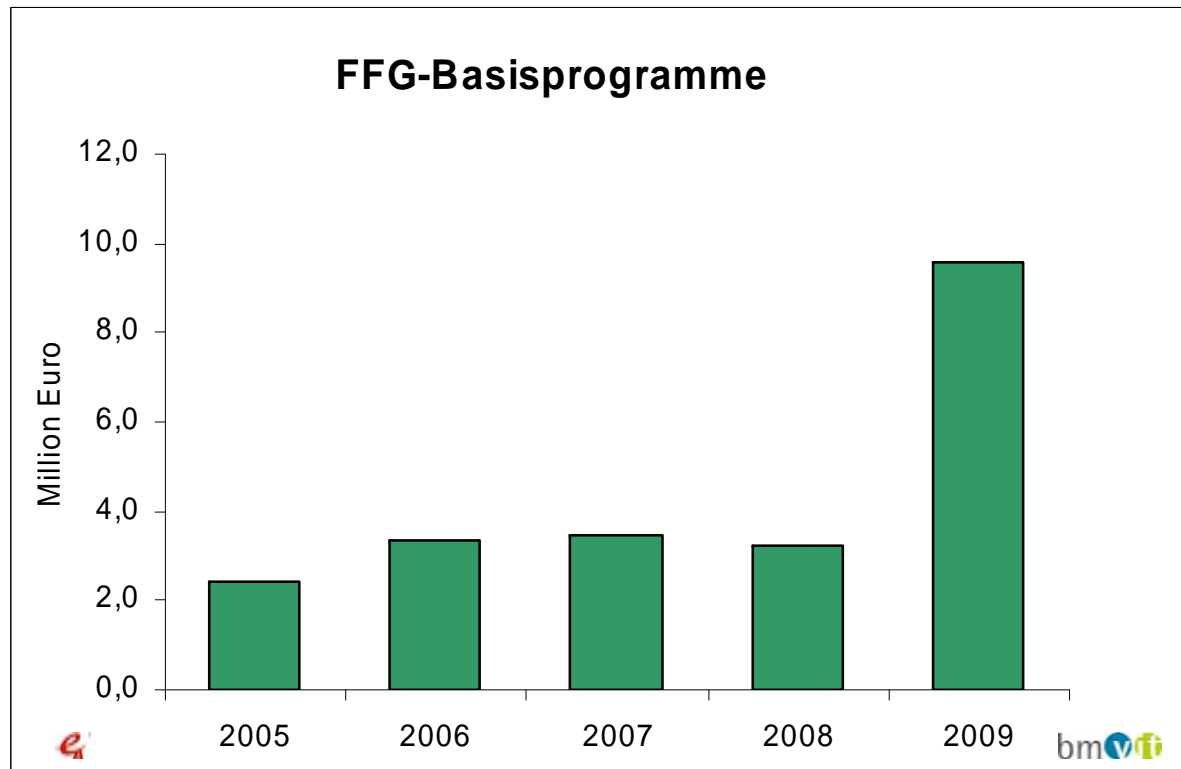
Climate and Energy Fund (KLIEN)

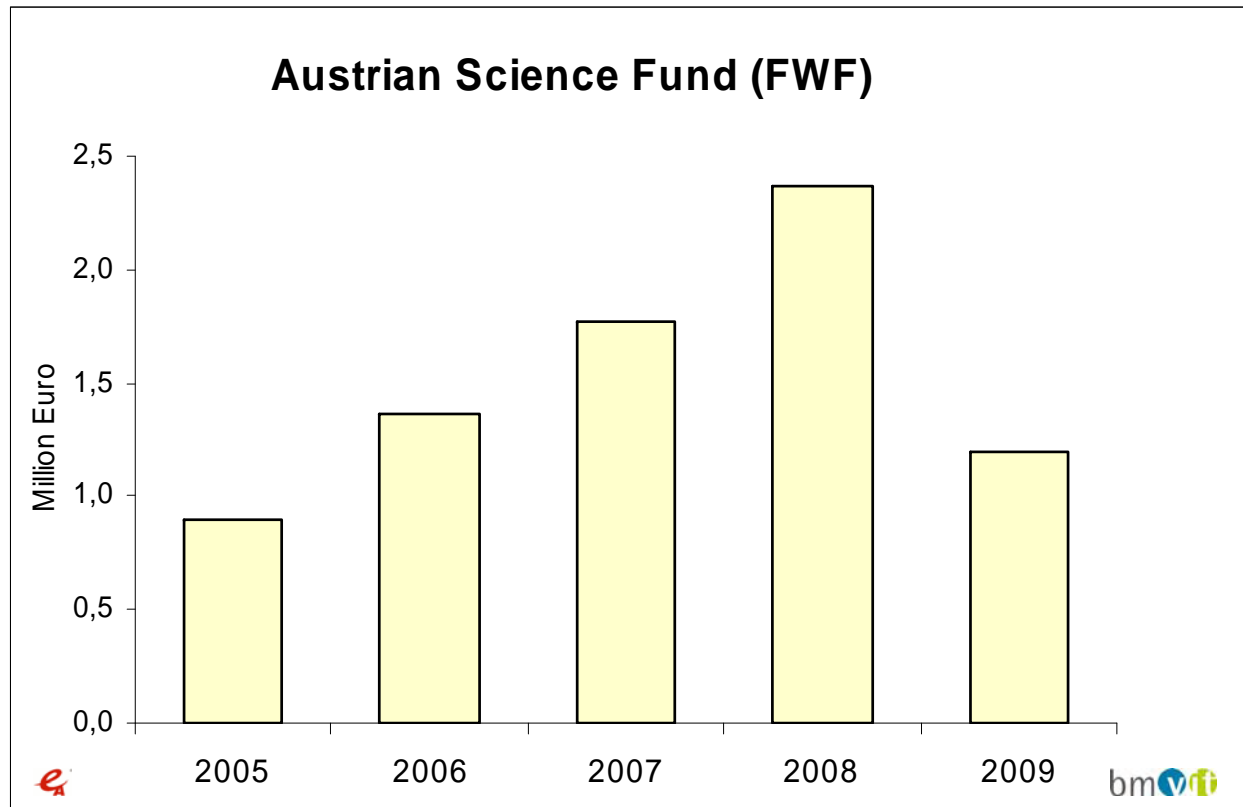


Federal provinces

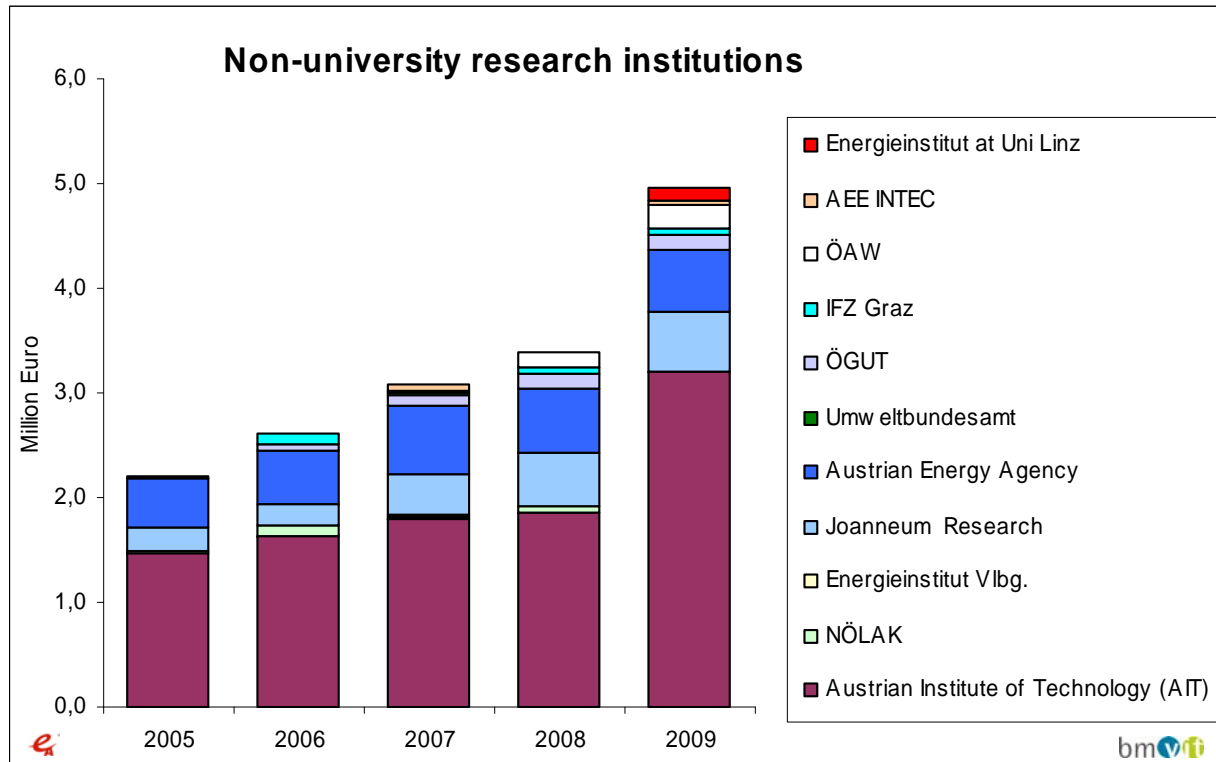


Bottom-up programmes of the Research Promotion Fund (FFG)



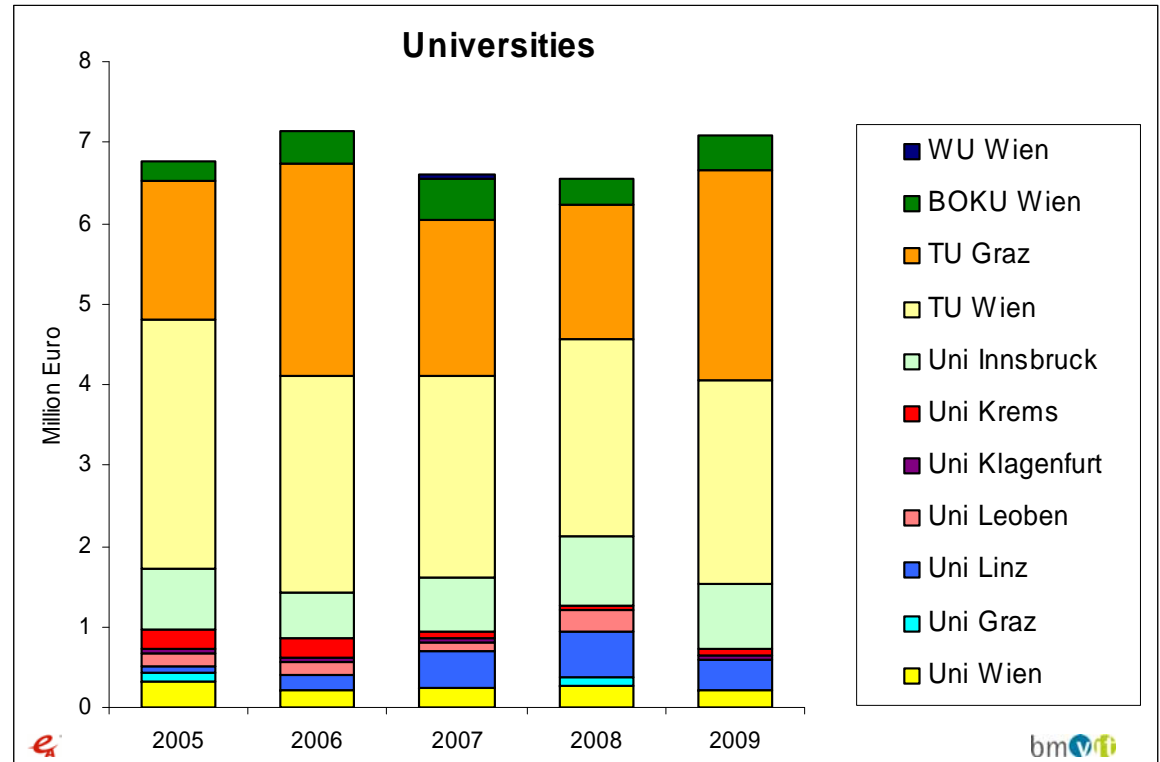


Non-university research institutions



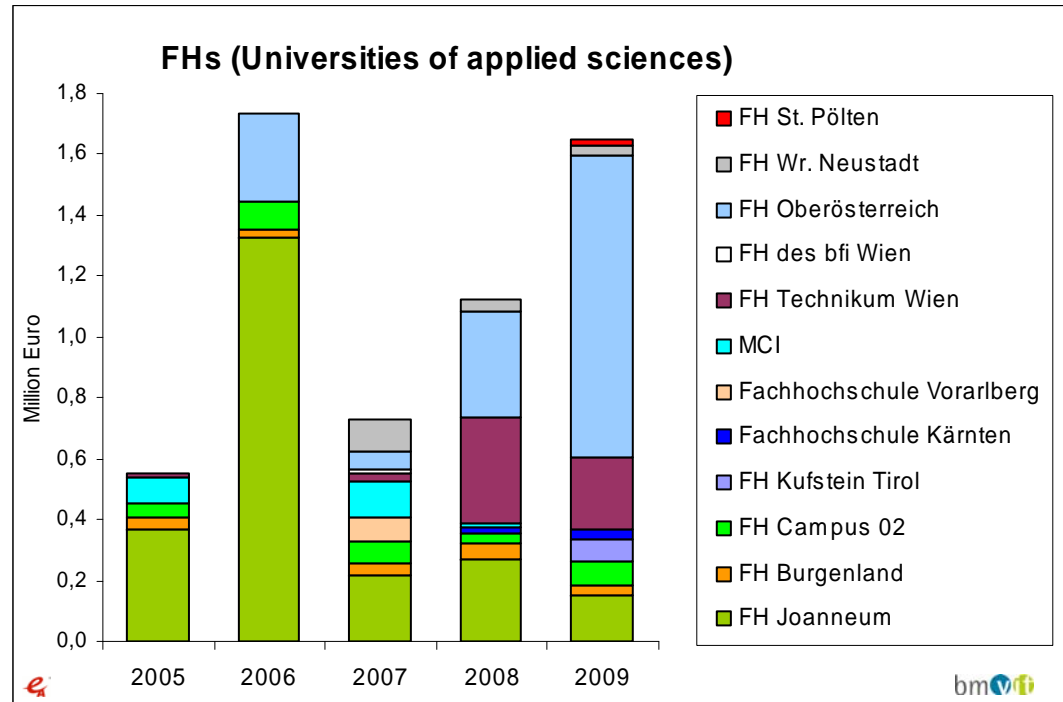
- Expenditures from own resources provided by the public
- No third party financed R&D included

- 11 out of 22 public universities carry out energy related research
- Expenditures from own resources provided by the public (GUF etc.)
- No third party financed R&D included

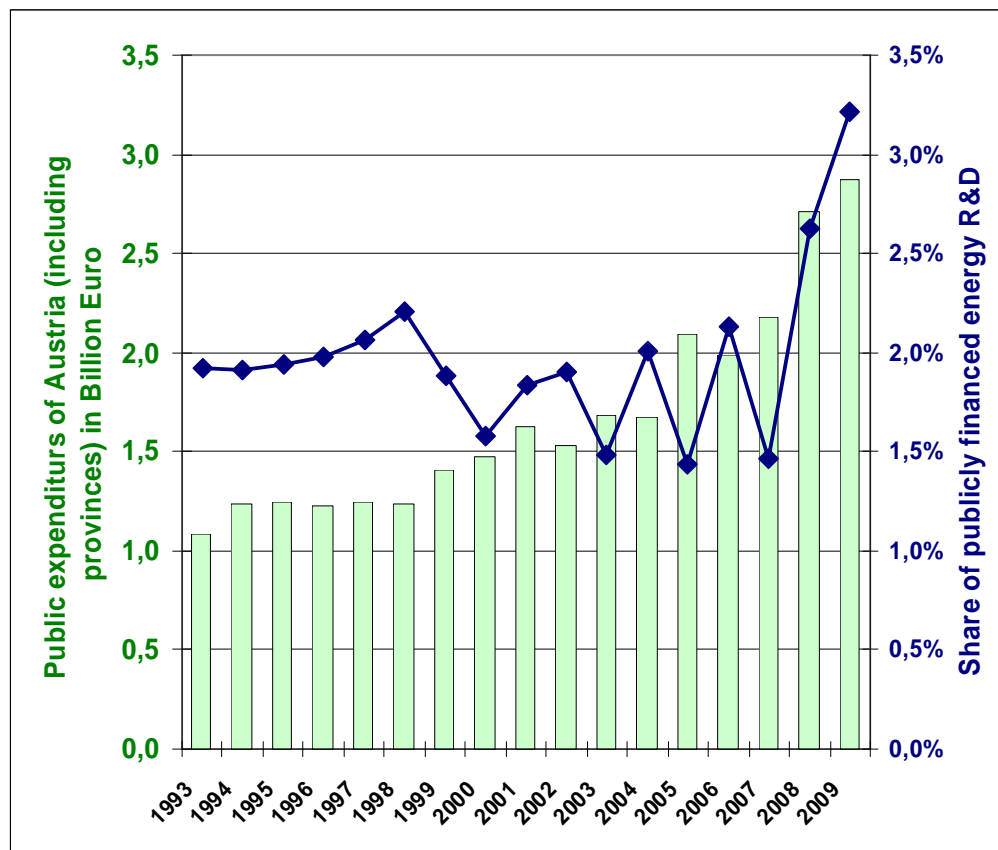


Universities of applied sciences (FHs)

- First Universities of applied sciences established in 1994
- 12 out of 19 FHs carry out (mostly applied) research
- Expenditure from own resources provided by the public
- No third party financed R&D included

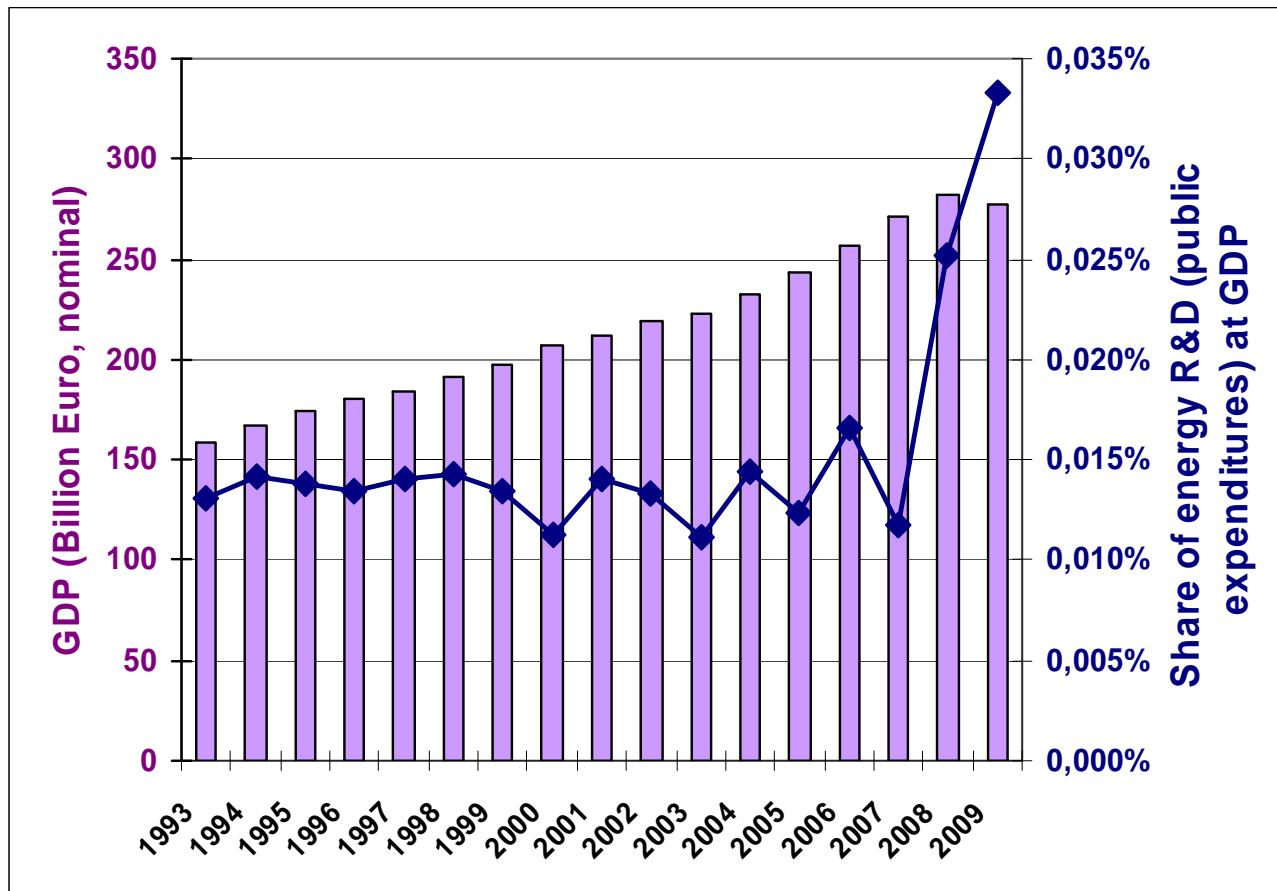


Share - overall public R&D



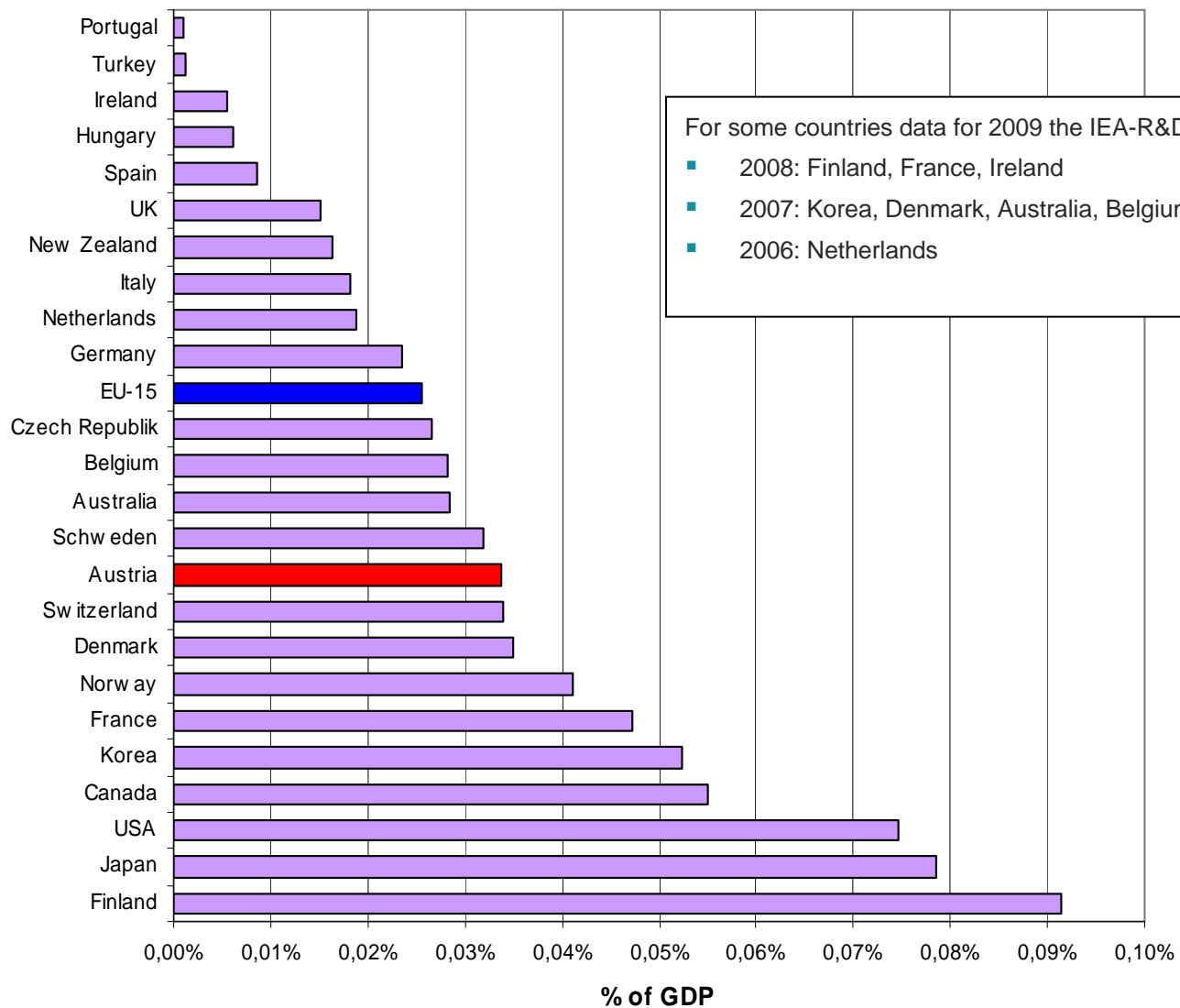
- Data: AEA, Statistik Austria

Share - GDP

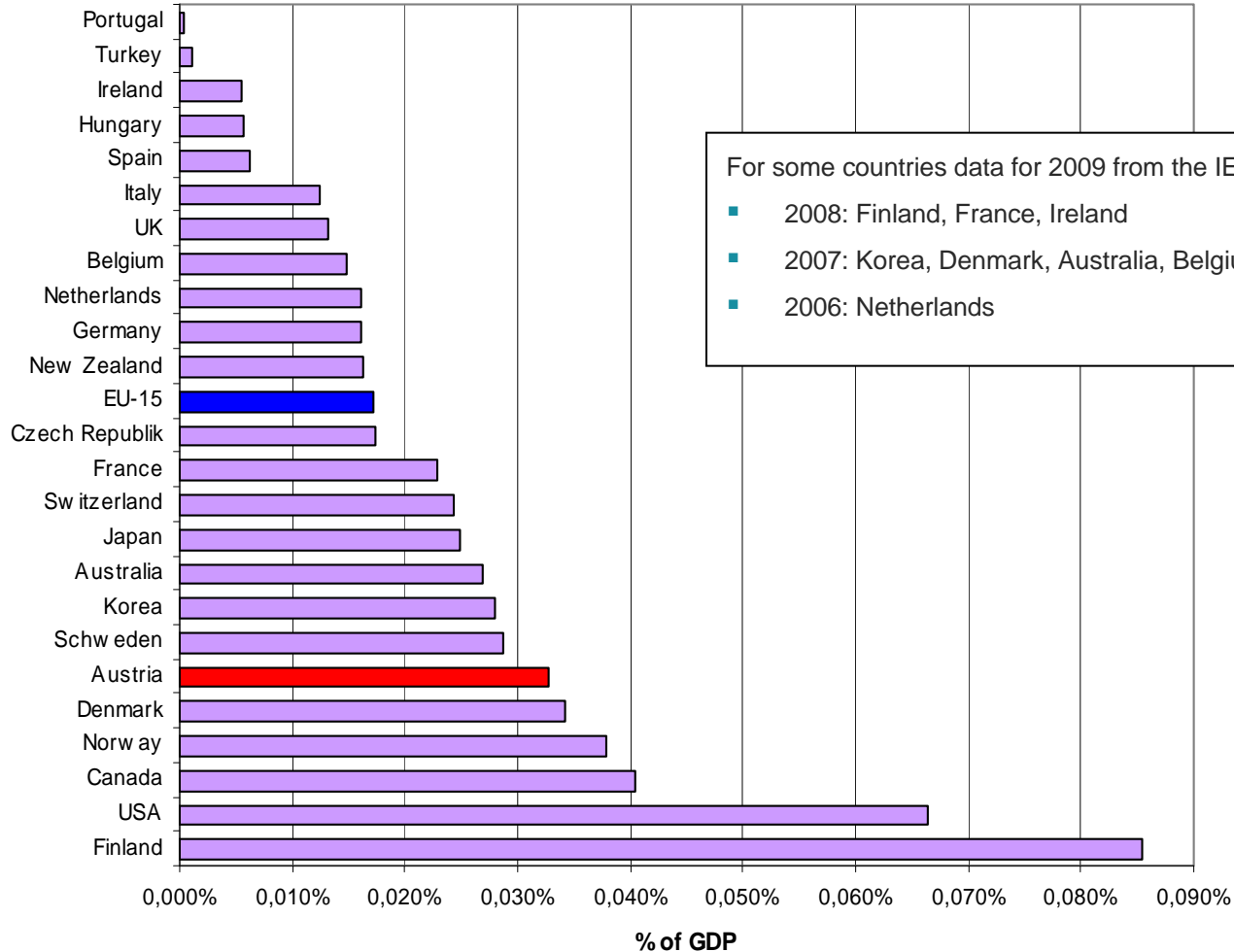


- Data: AEA, Statistik Austria

Public expenditures for energy R&D



Public expenditures for non-nuclear energy R&D



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- In 2009, Austrian companies and researchers succeeded in European programmes with new projects in 2009 with an EU contribution of about 13 Million EUR
 - 7th Framework Programme for RTD: 9.2 Million EUR (Data: proviso)
 - Intelligent Energy – Europe: 3.2 Million EUR
 - Coal research in RFCS: 0.8 Million EUR

- Andreas Indinger, Marion Katzenschlager, Energieforschungserhebung 2008 – Ausgaben der öffentlichen Hand in Österreich. In: BMVIT (Hrsg.) Schriftenreihe 36/2010, Download unter <http://www.nachhaltigwirtschaften.at/publikationen/view.html/id745>
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