Energy R&D
Public Expenditure in Austria 2012

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

September 2013

Summary (1)

- In 2012, Austria's public expenditure for energy-related research and development amounted to 120,098,940 euros. This is almost the same amount as in 2011 (120,821,607 euros).
- 46.1% of the expenditure was used for the sector "energy efficiency" and 23.5% for the sector „renewable energy carriers". Both areas, together with electricity transmission and distribution and energy storage clearly define the priorities for the publicly financed energy research in Austria. The sub-sectors with the highest expenditure in 2012 were:
  - Transport (20.8 million euros)
  - Electricity transmission and distribution (16.1 million euros)
  - Bioenergy (13.7 million euros)
  - R&D topics relating to energy-efficient buildings (planning, materials, heating, ventilation, air-conditioning, lighting etc.; about 13 million euros)
  - Solar energy (11.7 million euros)
  - Improving the efficiency of communal services (district heating and cooling, traffic management systems etc.; 9.5 million euros)

Summary (2)

- The highest proportion of this expenditure (76.4%) was provided by governmental bodies (federal, regional, funding organisations); the remaining part came from research institutions and universities.
- The expenditures of the federal ministries, either directly or via programmes within their fields of responsibility (excluding the Climate and Energy Fund), totaled to 30.1 million euros, with the Federal Ministry of Transport, Innovation and Technology investing more than half of this amount. The Climate and Energy Fund spent 32 million euros, which was far behind last year's expenditure.
- In 2012, the Research Promotion Fund (FFG) processed 68 million euros; the majority of transactions was related to programmes run on behalf of the federal ministries and the Climate and Energy Fund. The basic programmes of the Research Promotion Fund slightly increased their funding for energy-related R&D to 15.8 million euros.

Summary (3)

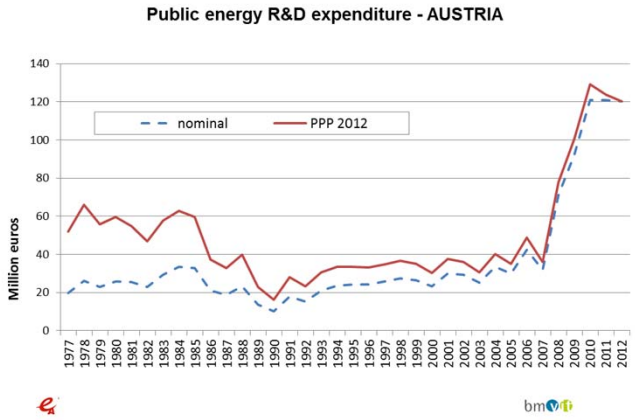
- The expenditure of the Austrian Science Fund (FWF) for basic research within the energy sector experienced substantial growth up to 3.5 million euros.
- The total expenditure of the federal provinces was 10.4 million euros , the highest amount ever spent.
- The universities spent 8.8 million euros in total. The Technical University of Vienna had the highest expenditures.
- The expenditure of the (non-university) research institutions was 18.5 million euros, more than 93% of this sum was invested by the Austrian Institute of Technology – AIT.
- An amount of one million euros was invested by Fachhochschulen (FH, universities of applied sciences) with equity capital.

- *Only expenditures from own equity capital provided by the public owners had been included by universities and non-university research.*

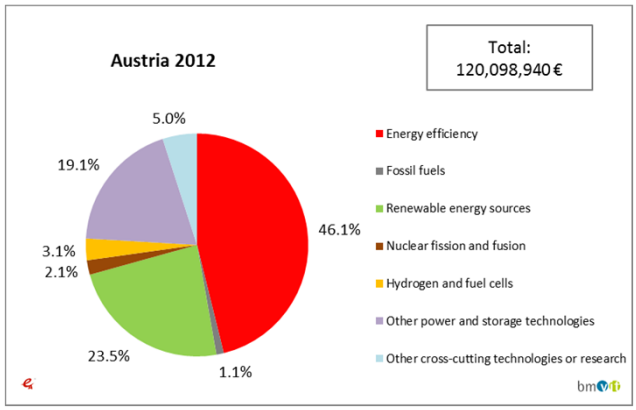
About the Survey

- Carried out annually since 1974, until 2002 by Prof. G. Faninger, from 2003 onwards 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
- Some 1,000 energy research projects and activities have been registered and analysed for the year 2012
- Annual publication (full report)
- New IEA format (topics, demonstration covered etc.) starting with this survey
- See also IEA-Database for R&D: http://www.iea.org/Textbase/stats/rd.asp

Public energy R&D expenditure in Austria 1977–2012



Public R&D expenditure 2012



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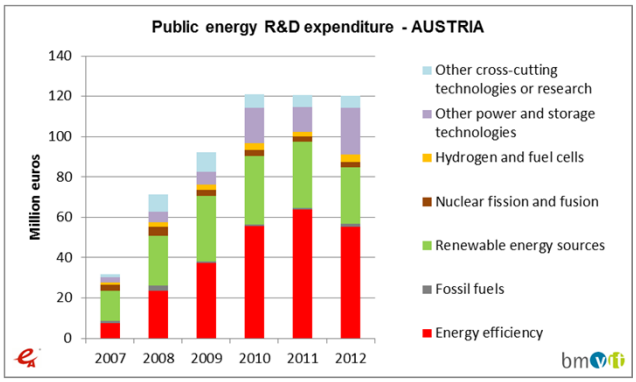
Recent trends and priorities



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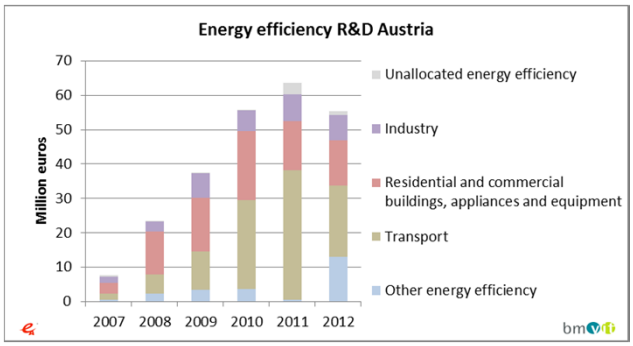
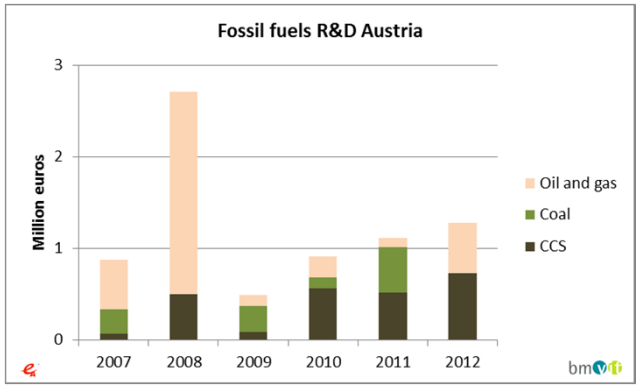
Trends in technology areas

Topics according to the IEA code	Expenditure 2012 in euros	Changes compared to 2011 in euros	Changes compared to 2011 in %
Energy efficiency	55,399,362	-8,297,573	-13.0%
Fossil fuels	1,282,849	+171,815	15.5%
Renewable energy sources	28,219,306	-4,553,490	-13.9%
Nuclear fission and fusion	2,517,721	-109,805	-4.2%
Hydrogen and fuel cells	3,765,666	+1,598,469	73.8%
Other power and storage technologies	22,922,034	+10,691,068	87.4%
Other cross-cutting technologies or research	5,992,002	-223,151	-3.6%
Total	**120,098,940**	**-722,667**	**-0.6%**

Energy efficiency



Fossil fuels



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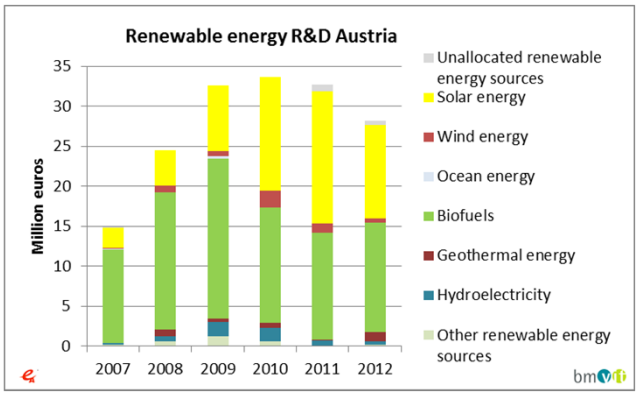
Renewables



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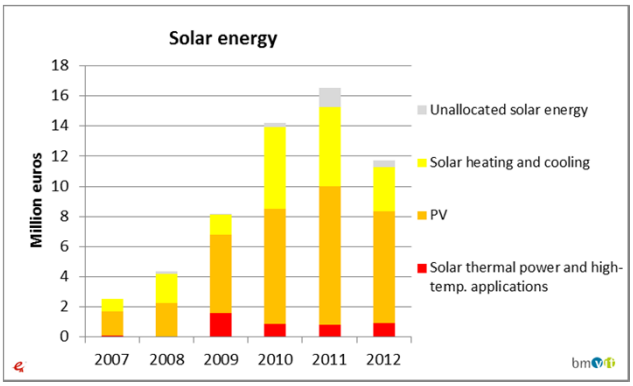
Solar energy



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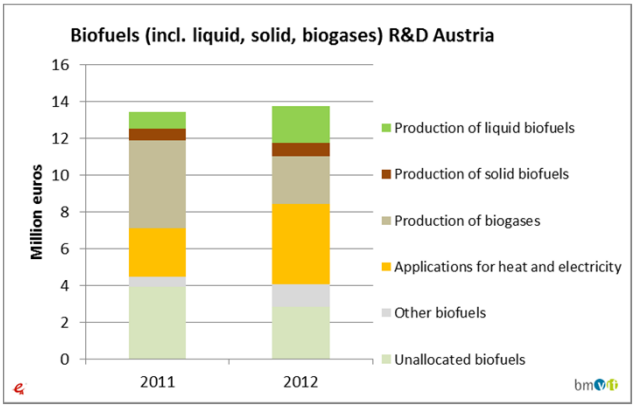
Bioenergy



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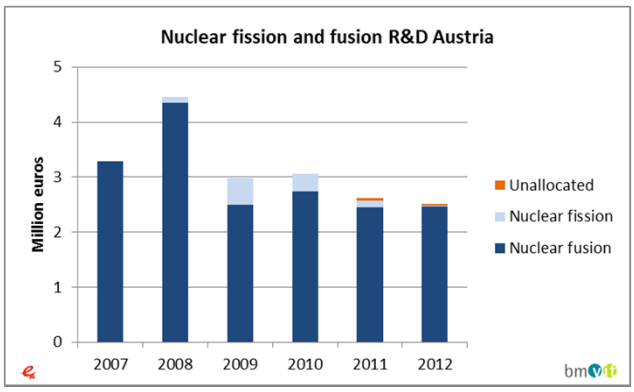
Nuclear fission and fusion



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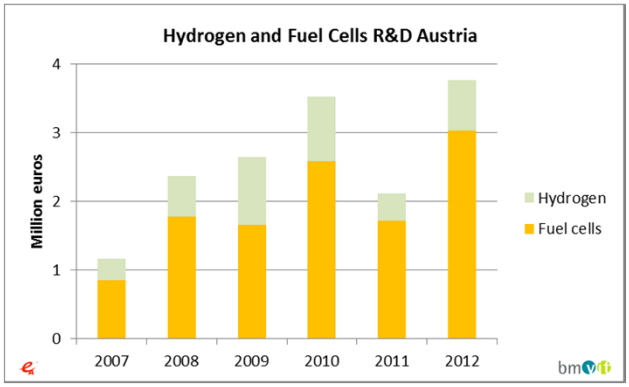
Hydrogen and fuel cells



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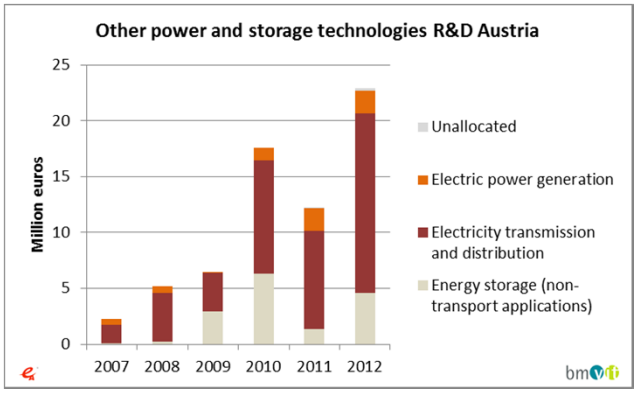
Other power and storage



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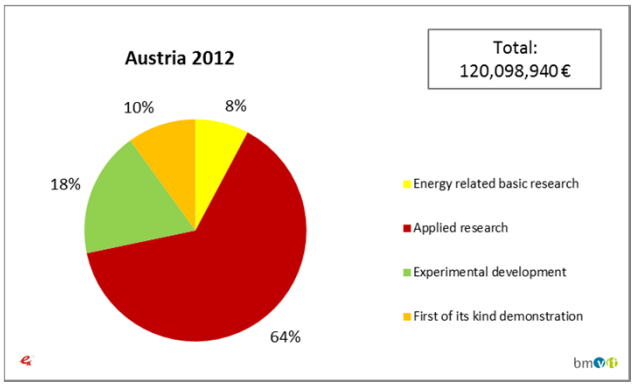
Type of research



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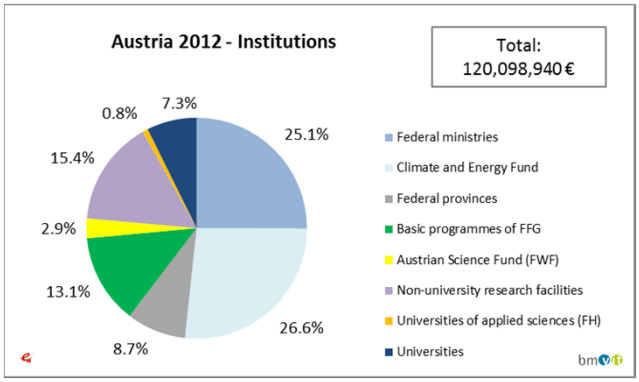
Who was financing?

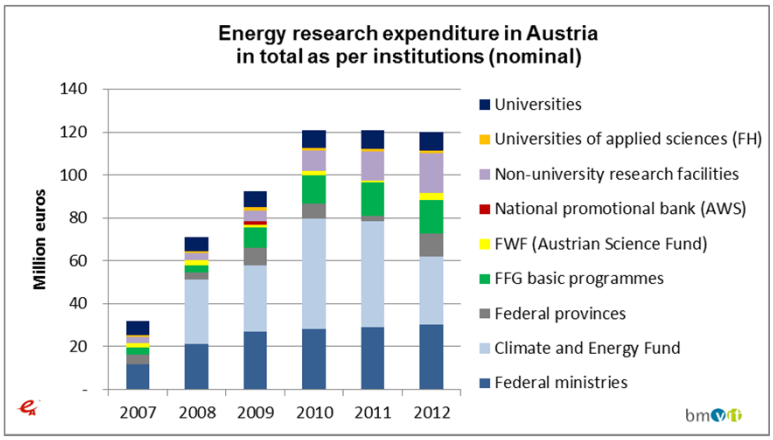


Recent trends

Institution	Expenditure 2012 in euros	Changes compared to 2011 in euros	Changes compared to 2011 in percent
Federal ministries	30,111,476	+1,001,785	3.4%
Climate and Energy Fund	31,998,188	-17,486,236	-35%
Federal provinces	10,436,773	+8,166,667	360%
FFG (Research Promotion Agency) basic programmes	15,766,786	+120,867	0.8%
FWF (Austrian Science Fund)	3,473,734	+2,405,807	225%
Non-university research facilities	18,539,000	+5,301,369	40%
Fachhochschulen (FH) (universities of applied sciences)	978,646	-512,237	-34%
Universities	8,794,337	+279,311	3.3%
Total	**120,098,940**	**-722,667**	**-0.6%**

Institutions

While the expenditure of the Climate and Energy Fund experienced a severe cut-back, the activities of the federal provinces and the sector of non-university research facilities both showed substantial increases.



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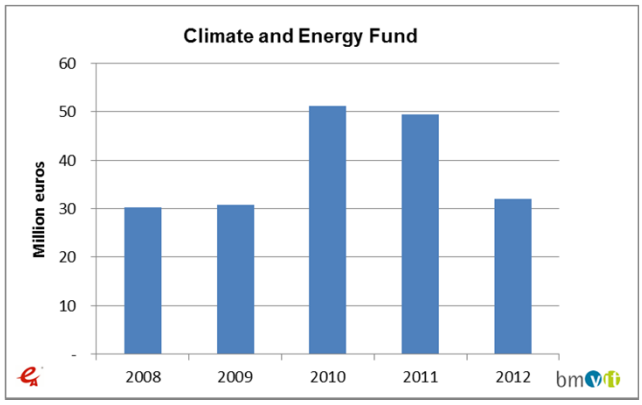
Climate and Energy Fund

- The Climate and Energy Fund's high expenditure level of 2010 and 2011 was clearly missed in 2012
- 2012 showed a cut-back of about 35%.
- It has to be considered that only the energy research-related activities of the Climate Fund were recorded, but not the topic areas climate research and climate impact research or deployment activities.



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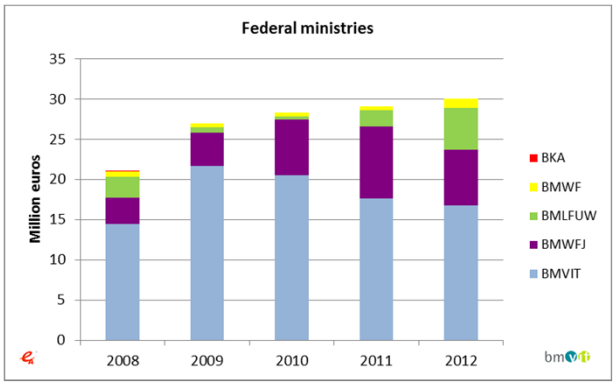
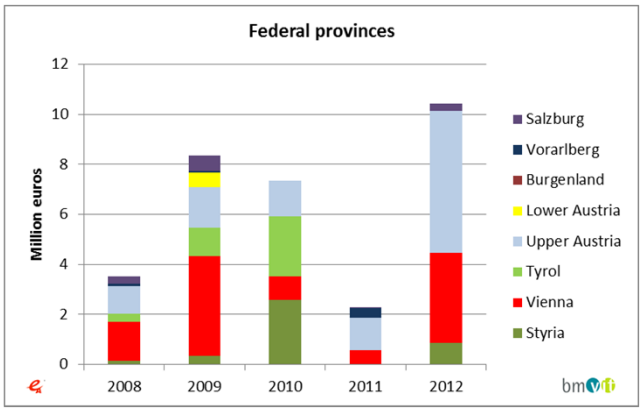
Federal ministries (expenditure of Climate and Energy Fund excluded)

- 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

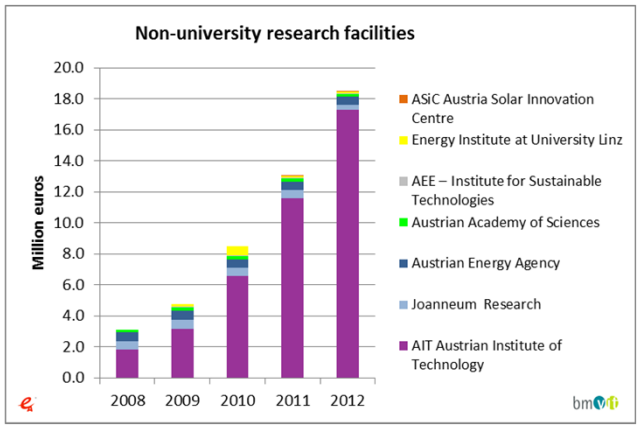


Federal provinces



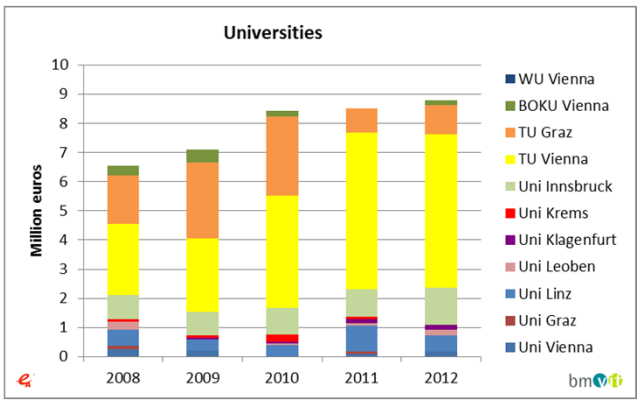
Non-university research

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



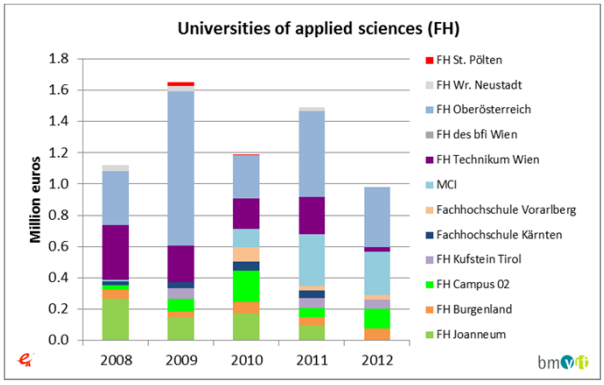
Universities

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

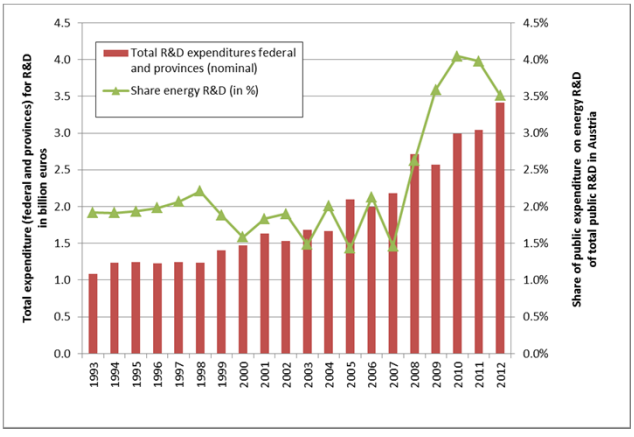


Universities of applied sciences

- First Universities of applied sciences (FH) established in 1994
- 12 out of 21 FHs carry out (mostly applied) research
- Expenditure from own equity capital provided by the public
- No third party financed R&D included



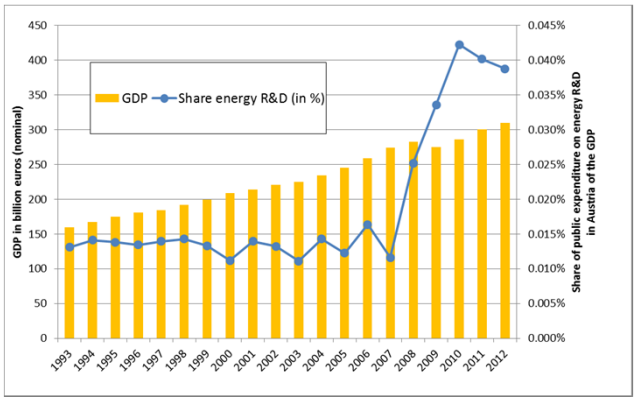
Share – overall public R&D



- Data: AEA, Statistik Austria

Share – GDP

Data: AEA, Statistik Austria



Success in EU programmes

- Austrian companies and researchers succeeded in European programmes with new projects in 2012 with an EU contribution of about 7 million Euro
  - 7th Framework Programme for RTD: 2 million Euro (Data: proviso)
  - Intelligent Energy – Europe: 5 million Euro (Data: AEA)
  - No projects in coal R&D under the Research Funds for Coal and Steel (RFCS) in 2012 with Austrian participants (Data: AEA)

Publications

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