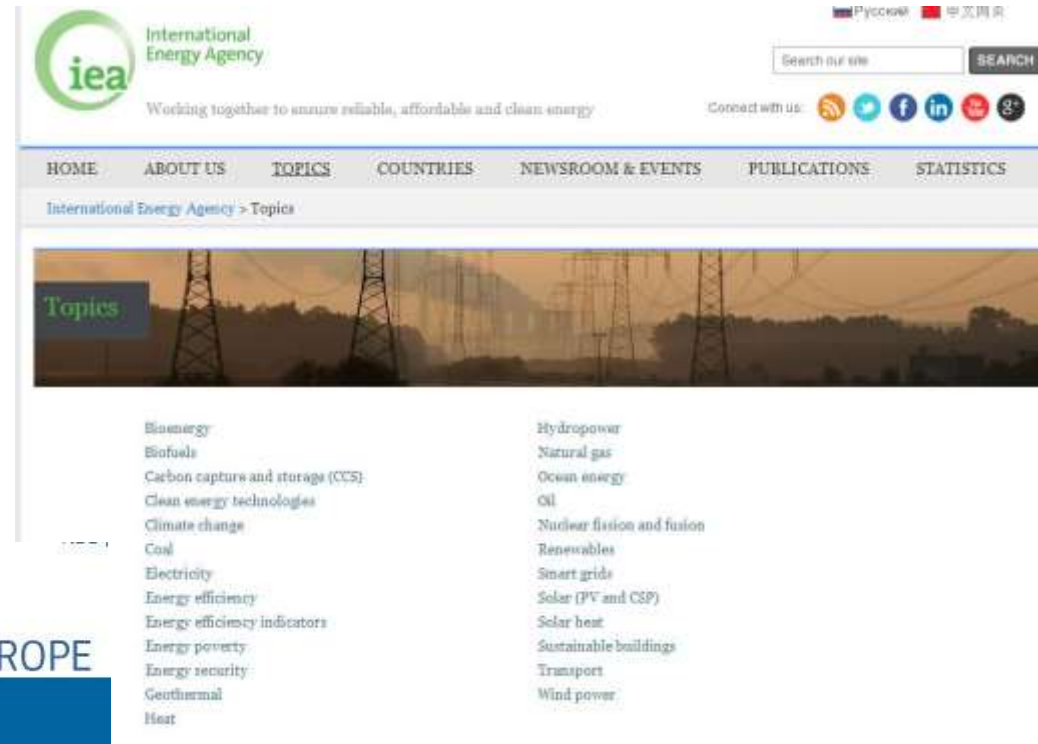


Preparing the next generation

Patrick Willems
Program Manager
IFC Russia Renewable Energy
Program

Research in Renewables

- IEA, Aenergy, IHS
- MIT, Colorado State University, DAAD, SANDI, NREL
- Bloomberg New Energy Finance, Ernst & Young, McKinsey Global Institute
- REN 21
- WBG
- NREL
- UNEP
- Plos One



INTELLIGENT ENERGY EUROPE

Investment in RE research

- **The IEA** is funded by its 28 member countries and revenue generated from its publications. The 2012 annual budget is € 26,612,600. In 2011, € 11.5 million of IEA expenditures was financed by voluntary contributions. Most of this came from government sources, although the Agency does receive some funding from private sources
- **Intelligent Energy Europe Program (IEE)** - € 730 million for research between 2007 and 2013
- **IFC RREP** \$300,000 and \$600,000 in investment in 2013 - 2014 for research in several Russian regions
- **German Ministry of Energy:** \$661m of the energy budget in 2013 went towards renewable and efficiency research
- **European Union investment:** €1,599,032.56 (2010-2011)

Investment in RE research.

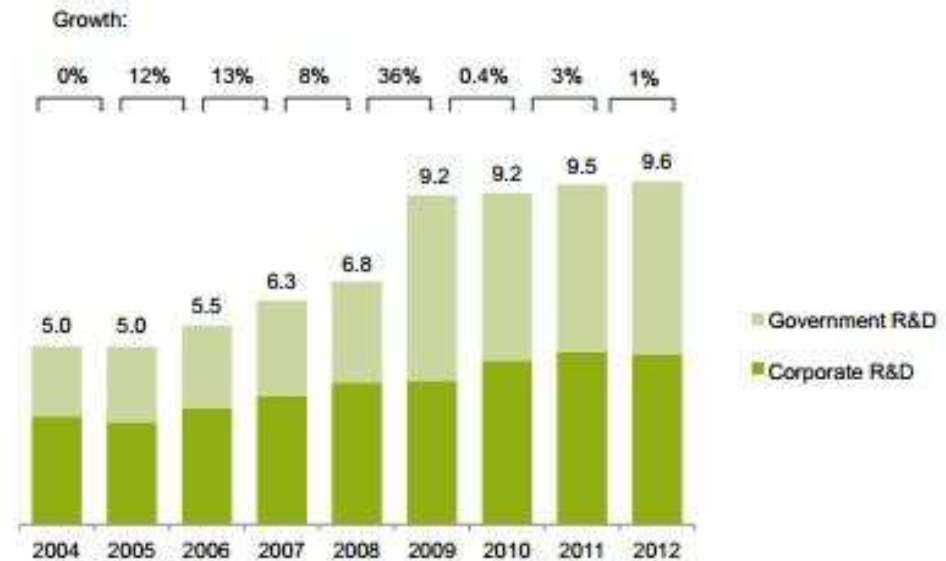
Europe remained the leader in R&D worldwide in 2012. However, China was slightly ahead on the government component and was by far the largest location for solar R&D.

Table 3. Government Expenditures for RTD&D for RES (Million Euro 2002)

Country	2001	2000	1999	1998	1997	1996
AT - Austria	8.0	6.7	9.7	10.3	7.9	6.5
BE - Belgium	12.4	6.6	3.1	1.0	2.2	2.0
DE - Germany	113.8	130.8	144.5	158.2	146.7	158.4
DK - Denmark	25.9	-	-	-	-	-
EL - Greece	2.6	2.0	2.2	2.5	3.3	3.3
ES - Spain	25.4	18.4	17.0	22.0	16.0	-
FI - Finland	13.1	13.5	-	-	-	-
FR - France	18.3	13.5	13.0	4.0	3.0	4.8
IE - Ireland	0.3	0.8	-	-	-	-
IT - Italy	25.8	30.0	26.1	34.3	36.8	39.9
LU - Luxembourg	0.3	-	-	-	-	-
NL - The Netherlands	51.9	41.4	44.5	42.9	38.9	29.4
PT - Portugal	0.9	0.8	1.4	1.3	0.6	1.2
SE - Sweden	25.1	24.6	29.3	24.6	-	-
UK - United Kingdom	32.5	21.4	-	-	-	-

Source: European research spending for renewable energy sources, European Commission Directorate-General for Research. 2002

FIGURE 55: R&D INVESTMENT IN RENEWABLE ENERGY, 2004-2012, \$BN



Source: Bloomberg, Bloomberg New Energy Finance, IEA, IMF, various government agencies

The most popular topics

- Global R&D spending on renewable energy inched 1% higher to \$9.6 billion in 2012, in spite of the **winding-down of green stimulus programs** and pressure on the **profit margins of many renewable energy companies**.
- Government R&D spending rose 3% to \$4.8 billion, while corporate R&D fell 1% to just below \$4.8 billion, making public and private spending broadly equal for the third year in a row.
- **Solar** continued to dominate, claiming a fraction over half (51%) of all research dollars spent, despite a 1% fall to \$4.9 billion. R&D efforts focused on **improving the energy output of PV cells and the efficiency of production processes**.
- **Wind** R&D was up 4% at \$1.7 billion, one major focus being the quest to **reduce the cost of offshore development**.
- **Biofuels** R&D was up 2% at \$1.7 billion, much of it going on **next-generation technologies** like cellulosic ethanol, Fischer-Tropsch biodiesel and algal oil.
- **Renewable energy storage**

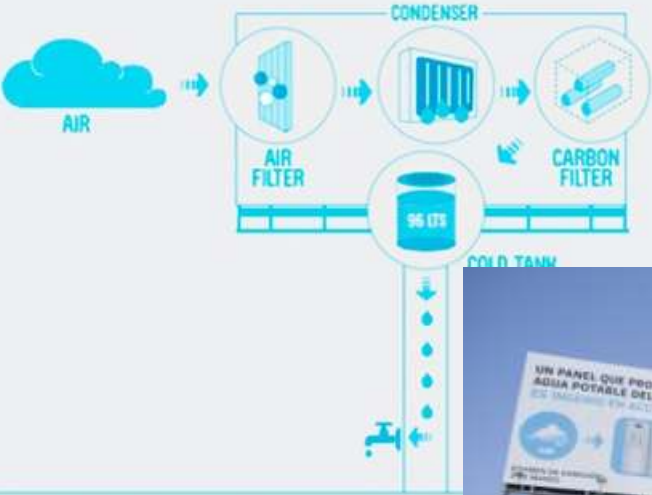
Source: GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT 2013

Iceland



Source: nea.is

Water billboard in Peru, 2013



norden

Nordic Energy Research

“Nordic Energy Research supplies the knowledge that makes it possible for us to make the right decisions to ensure that future generations will have access to renewable, zero-emission energy sources at a reasonable price,”

Education

- Investment into on-line education: IFC in July 2013 invested 5 mln into Coursera to provide free on-line education in Emerging Markets
- Invest in research in countries and regions

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from the world's best colleges and universities

Education

Executive Programs

Renewable Energy
Finance

Sustainable Energy

Finance Summer
Academy

E-Learning: Certified

Expert for Climate &
Renewable Energy
Finance





**Thank
You!**

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