RENEWABLE ENERGY

More and more governments are recognising the importance of promoting sustainable development and combating climate change when setting out their energy policies. Higher energy use has contributed to higher greenhouse gas emissions and higher concentration of these gases in the atmosphere. One way to reduce greenhouse gas emissions is to replace energy from fossil fuels by energy from renewables.

Definition

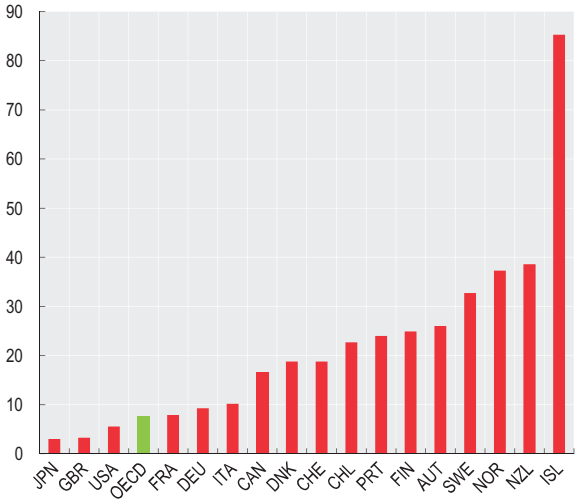
The table refers to the contribution of renewables to total primary energy supply (TPES) in OECD countries. Renewables include the primary energy equivalent of hydro (excluding pumped storage), geothermal, solar, wind, tide and wave. It also includes energy derived from solid biofuels, biogasoline, biodiesels, other liquid biofuels, biogases, and the renewable fraction of municipal waste. Biofuels are defined as fuels derived directly or indirectly from biomass (material obtained from living or recently living organisms). Included here are wood, vegetal waste (including wood waste and crops used for energy production), ethanol, animal materials/wastes and sulphite lyes. Municipal waste comprises wastes produced by the residential, commercial and public service sectors that are collected by local authorities for disposal in a central location for the production of heat and/or power.

Comparability

Biofuels and waste data are often based on small sample surveys or other incomplete information. Thus, the data give only a broad impression of developments and are not strictly comparable between countries. In some cases, complete categories of vegetal fuel are omitted due to lack of information.

Contribution of renewables to energy supply

As a percentage of total primary energy supply, 2010



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Overview

In OECD countries, total renewables supply grew by 2.4% per annum between 1971 and 2010 as compared to 1.2% per annum for total primary energy supply. Annual growth for hydro (1.1%) was lower than for other renewables such as geothermal (5.3%) and biofuels and waste (2.9%). Due to a very low base in 1971, solar and wind experienced the most rapid growth in OECD member countries, especially where government policies have stimulated expansion of these energy sources.

For the OECD as a whole, the contribution of renewables to energy supply increased from 4.8% in 1971 to 7.6% in 2010. The contribution of renewables varied greatly by country. On the high end, renewables represented 85% of energy supply in Iceland, 39% in New Zealand and 37% in Norway. On the low end, renewables contributed 3% or less of the energy supply for Japan, Korea, Luxembourg and the United Kingdom.

In general, the contribution of renewables to the energy supply in non-OECD countries is higher than in OECD countries. In 2009, renewables contributed 46% to the energy supply of Brazil, 34% in Indonesia, 26% in India, 12% in China, 10% in South Africa and 3% in the Russian Federation.

Sources

- IEA (2011), *Energy Balances of Non-OECD Countries*, IEA, Paris.
- IEA (2011), *Energy Balances of OECD Countries*, IEA, Paris.

Further information

Analytical publications

- IEA (2011), *Harnessing Variable Renewables: A Guide To The Balancing Challenge*, IEA, Paris.
- IEA (2011), *World Energy Outlook*, IEA, Paris.
- Ölz, S. and M. Beerepoot (2010), "Deploying Renewables in Southeast Asia: Trends and Potentials", *IEA Energy Papers*, No. 2010/06.

Statistical publications

- IEA (2011), *Renewables Information*, IEA, Paris.

Online databases

- *IEA World Energy Statistics and Balances.*

Websites

- International Energy Agency, *www.iea.org*.

Contribution of renewables to energy supply

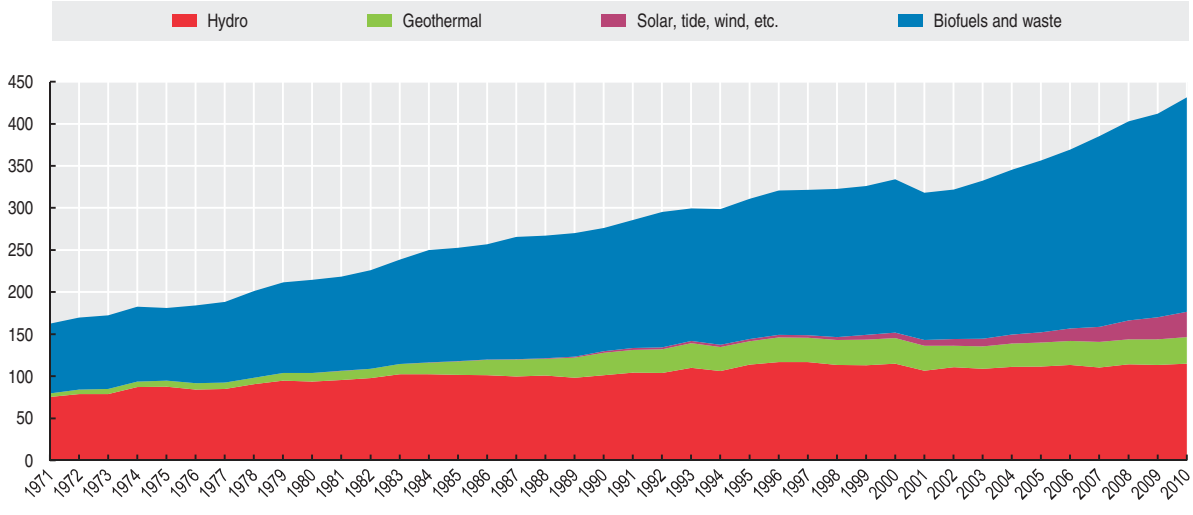
As a percentage of total primary energy supply

	1971	1990	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Australia	8.8	5.9	5.9	5.9	6.1	6.1	5.8	5.7	5.4	5.4	5.5	5.6	5.6	5.2
Austria	11.0	20.2	23.1	23.0	21.9	21.2	18.7	19.8	21.1	22.1	24.1	25.3	27.8	26.0
Belgium	-	1.0	1.0	1.1	1.2	1.3	1.5	1.6	2.0	2.3	2.7	3.1	3.9	4.1
Canada	15.3	16.1	16.8	16.9	15.9	16.9	15.6	15.6	15.9	15.7	16.3	16.6	16.9	16.5
Chile	20.8	25.4	21.3	23.7	25.0	24.8	23.4	22.9	24.0	24.8	23.6	23.7	25.1	22.7
Czech Republic	0.2	1.8	3.7	3.3	3.5	3.7	3.4	3.8	4.0	4.2	4.7	5.0	5.8	6.4
Denmark	1.8	6.2	8.7	9.8	10.3	11.2	12.1	13.8	15.1	14.3	16.3	16.8	17.4	18.8
Estonia	..	1.9	10.8	10.8	11.0	11.7	11.2	11.4	11.4	10.5	10.7	11.9	15.2	14.4
Finland	27.3	19.3	22.3	23.9	22.6	22.2	21.2	23.4	23.6	23.3	23.5	25.7	23.8	24.9
France	8.6	6.8	6.6	6.3	6.4	5.8	5.9	5.9	5.8	6.1	6.6	7.3	7.7	7.9
Germany	1.2	1.5	2.4	2.7	2.8	3.2	3.8	4.4	4.9	5.8	7.8	7.9	8.7	9.3
Greece	7.8	5.1	5.5	5.2	4.7	4.9	5.3	5.3	5.4	5.9	5.7	5.6	6.4	7.5
Hungary	2.9	2.6	3.3	3.3	3.4	3.4	3.5	3.6	4.3	4.5	5.1	6.0	7.4	7.6
Iceland	46.7	67.0	74.0	74.2	75.6	75.0	75.2	74.8	75.9	78.4	80.8	82.9	84.3	85.3
Ireland	0.6	1.7	1.7	1.7	1.6	1.8	1.7	1.9	2.5	2.9	3.1	3.8	4.5	4.0
Israel	-	3.1	3.3	3.3	3.3	3.5	3.5	3.8	3.7	3.6	3.5	4.8	5.0	4.9
Italy	5.6	4.4	5.8	5.9	6.0	5.8	6.0	6.6	6.3	6.9	6.7	7.7	9.7	10.2
Japan	2.7	3.5	3.2	3.2	3.1	3.2	3.4	3.3	3.2	3.3	3.2	3.3	3.3	3.0
Korea	0.6	1.1	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7
Luxembourg	-	0.6	1.0	1.2	1.1	1.1	1.0	1.2	1.6	1.6	2.6	2.9	3.0	2.9
Mexico	16.8	12.2	11.4	11.7	10.9	10.2	10.2	10.4	10.4	10.0	10.0	10.1	9.6	10.3
Netherlands	-	1.1	1.6	1.7	1.8	1.9	1.8	2.1	2.7	3.0	3.0	3.5	4.0	3.6
New Zealand	32.0	32.7	28.4	29.6	27.6	29.7	30.0	31.6	31.2	31.2	32.1	33.3	36.1	38.6
Norway	40.9	54.3	45.2	51.2	42.5	49.5	38.3	40.0	48.5	42.6	46.5	44.8	43.3	37.3
Poland	1.4	1.5	4.0	4.3	4.5	4.7	4.6	4.7	4.8	4.8	5.0	5.7	6.7	6.9
Portugal	19.6	19.6	13.6	15.2	16.2	13.7	16.9	14.7	13.1	17.1	17.7	17.7	19.7	24.0
Slovak Republic	2.3	1.5	2.6	2.8	4.1	4.0	3.5	4.0	4.3	4.5	5.4	5.4	7.2	6.7
Slovenia	..	9.1	8.6	12.3	11.6	10.5	10.3	11.5	10.6	10.5	10.1	11.0	12.8	12.7
Spain	6.5	6.9	5.2	5.7	6.5	5.5	6.9	6.4	5.9	6.5	6.9	7.7	9.6	11.4
Sweden	20.4	24.4	26.6	31.0	28.2	25.3	24.5	25.0	28.8	28.7	30.5	31.5	34.8	32.7
Switzerland	15.5	15.0	18.6	17.7	18.3	16.8	16.8	16.4	15.9	15.4	17.7	17.8	17.7	18.8
Turkey	31.0	18.3	15.2	13.2	13.3	13.5	12.9	13.3	12.0	11.1	9.6	9.5	10.2	11.0
United Kingdom	0.1	0.5	1.0	1.0	1.0	1.2	1.2	1.5	1.8	1.9	2.2	2.6	3.2	3.3
United States	3.7	5.0	4.7	4.5	4.0	4.0	4.3	4.4	4.5	4.8	4.7	5.1	5.4	5.6
EU27 total	..	4.3	5.5	5.8	5.8	5.7	5.9	6.3	6.5	7.0	7.7	8.2	9.2	..
OECD total	4.8	5.9	6.0	6.0	5.7	5.7	5.8	6.0	6.2	6.4	6.6	7.0	7.5	7.6
Brazil	56.4	46.8	40.3	39.1	37.6	39.4	42.1	42.4	43.0	43.4	44.5	44.5	45.8	..
China	40.0	24.5	20.5	20.5	21.0	19.5	17.1	15.1	14.2	13.3	12.8	12.3	11.9	..
India	62.8	44.1	34.3	34.0	33.9	33.2	32.9	31.6	31.1	30.2	29.0	28.2	26.1	..
Indonesia	75.3	45.3	35.5	37.5	38.2	37.0	37.1	35.1	34.5	34.0	34.4	35.2	34.4	..
Russian Federation	..	3.0	3.1	2.9	3.0	2.8	2.7	2.9	2.9	2.8	2.9	2.6	2.8	..
South Africa	10.4	11.2	10.8	11.1	11.4	11.8	11.0	10.3	10.5	10.7	10.1	9.4	10.0	..
World	13.2	12.8	13.0	13.0	12.9	12.8	12.7	12.5	12.5	12.5	12.6	12.7	13.1	..

StatLink http://dx.doi.org/10.1787/888932504937

OECD renewable energy supply

Million tonnes of oil equivalent (Mtoe)



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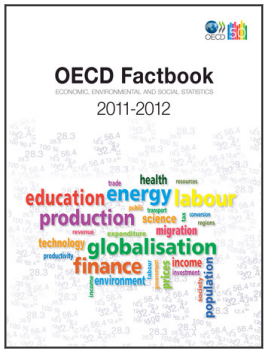

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