

## RENEWABLE ENERGY

More and more governments are recognising the importance of promoting sustainable development and combating climate change when setting out their energy policies. As energy use has increased, greenhouse gas emissions have spiraled up and their concentration in the atmosphere has increased. One way to reduce 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 solid biomass, biogasoline, biodiesel, other liquid biofuels, biogas, industrial waste and municipal waste. Biomass is defined as any plant matter used directly as fuel or converted into fuels (e.g. charcoal) or electricity and/or heat. 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. The forecasts provided in the table refer to the Reference Scenario of the *World Energy Outlook*.

### Long-term trends

In OECD countries, total renewables supply grew by 2.4% per annum between 1971 and 2007 as compared to 1.4% per annum for total primary energy supply. Annual growth for hydro (1.0%) was lower than for other renewables such as geothermal (5.8%) and combustible renewables and waste (2.8%). 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 total OECD, the contribution of renewables to energy supply increased from 4.8% in 1971 to 6.7% in 2007. The contribution of renewables varied greatly by country. On the high end, renewables represented 76% in Iceland and 50% in Norway. On the low end, renewables contributed 3% or less of the supply for Ireland, 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 2006, renewables contributed 43% to the supply of Brazil, 33% in Indonesia, 30% in India, 14% in China, 11% in South Africa and 3% in the Russian Federation.

### Comparability

Biomass 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.

### Sources

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- IEA (2008), *Energy Balances of Non-OECD Countries*, IEA, Paris.
- IEA (2008), *World Energy Outlook 2008*, IEA, Paris.

### Further information

#### Analytical publications

- IEA (2008), *Deploying Renewables: Principles for Effective Policies*, IEA, Paris.
- IEA (2008), *Energy Technology Perspectives: Scenarios and Strategies to 2050*, IEA, Paris.
- OECD (2008), *Biofuel Support Policies: An Economic Assessment*, OECD, Paris.
- IEA (2007), *Renewables for Heating and Cooling*, IEA, Paris.
- IEA (2006), *Renewable Energy RD&D Priorities: Insights from IEA Technology Programme*, IEA, Paris.

#### Statistical publications

- IEA (2008), *Renewables Information 2008*, IEA, Paris.

#### Online databases

- World Energy Statistics and Balances.


#### Websites

- International Energy Agency, [www.iea.org](http://www.iea.org).

## Contribution of renewables to energy supply

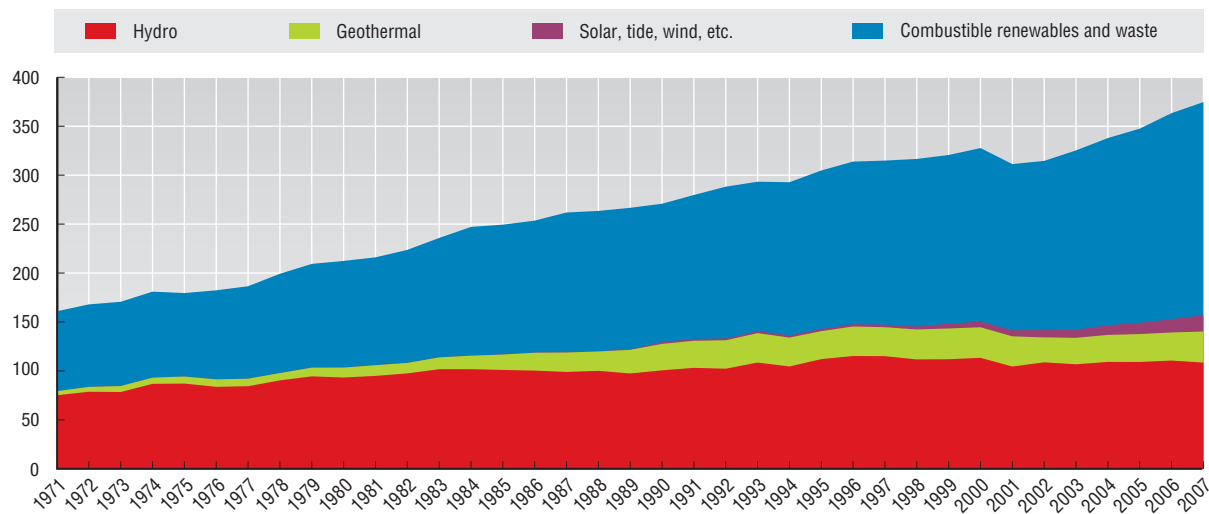
As a percentage of total primary energy supply


	1971	1990	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2030
Australia	8.7	6.0	6.4	6.0	6.0	5.9	6.1	6.2	5.9	5.9	5.5	5.3	6.0	..
Austria	10.9	20.7	21.5	21.2	23.5	23.5	22.6	22.4	19.8	21.2	21.2	22.7	23.2	..
Belgium	-	2.6	4.3	4.4	4.6	4.8	5.0	4.8	5.0	5.2	5.5	6.0	6.3	..
Canada	15.2	16.1	16.8	16.4	16.8	16.8	15.9	16.8	15.6	15.5	15.9	16.1	16.5	..
Czech Republic	0.2	0.2	1.7	1.7	2.4	2.0	2.1	2.5	3.7	4.1	4.3	4.5	4.9	..
Denmark	1.7	6.6	8.4	8.8	9.7	11.0	11.5	12.5	13.4	15.1	16.6	15.6	16.8	..
Finland	27.2	19.1	21.2	22.5	22.5	24.5	23.0	22.7	21.7	23.3	23.4	23.1	23.2	..
France	8.5	7.2	7.1	7.0	7.3	7.0	6.9	6.3	6.4	6.3	6.1	6.3	6.9	..
Germany	1.2	1.8	2.5	2.8	2.8	3.1	3.4	3.8	4.1	4.8	5.1	6.1	7.2	..
Greece	7.4	4.9	5.5	5.2	5.6	5.3	4.7	4.9	5.2	5.2	5.4	5.8	5.2	..
Hungary	2.9	1.7	2.0	1.9	1.9	2.1	2.0	3.5	3.5	3.7	4.4	4.7	5.1	..
Iceland	42.9	64.8	66.7	67.3	71.1	71.5	73.1	72.6	72.8	71.9	72.9	75.3	75.5	..
Ireland	0.6	1.6	1.4	1.7	1.6	1.6	1.5	1.7	1.5	1.9	2.4	2.7	2.9	..
Italy	5.5	4.5	5.4	5.5	6.0	6.0	6.2	5.9	6.2	7.0	6.6	7.2	7.2	..
Japan	2.7	3.5	3.4	3.4	3.3	3.3	3.2	3.2	3.5	3.4	3.2	3.4	3.1	6.7
Korea	0.6	1.4	0.7	0.9	0.8	0.9	1.0	0.9	1.1	1.1	1.2	1.3	1.4	..
Luxembourg	-	0.8	1.5	1.5	1.4	1.4	1.6	1.3	1.4	1.5	1.7	1.7	2.6	..
Mexico	16.6	11.2	10.7	10.4	10.5	10.6	10.1	9.5	9.5	9.7	9.7	9.4	9.3	..
Netherlands	-	1.4	2.1	2.2	2.3	2.4	2.5	2.7	2.6	2.9	3.5	3.7	3.6	..
New Zealand	31.0	34.7	28.6	30.9	31.1	31.5	29.5	28.6	28.3	30.1	30.4	30.0	31.0	..
Norway	40.2	53.5	43.6	44.1	44.7	51.8	44.3	50.1	38.5	36.7	39.4	44.7	50.4	..
Poland	1.6	2.4	4.3	4.6	4.5	4.7	5.0	5.2	5.1	5.2	5.3	5.7	5.4	..
Portugal	18.9	19.0	17.4	16.0	13.5	15.2	16.1	13.8	16.8	14.7	13.3	17.1	18.0	..
Slovak Republic	2.4	1.5	3.9	4.0	4.4	4.6	4.4	4.2	3.6	4.2	4.6	4.7	5.4	..
Spain	6.4	6.9	6.4	6.2	5.3	5.7	6.5	5.4	6.9	6.3	5.9	6.5	7.2	..
Sweden	20.4	24.7	27.1	27.6	26.9	31.2	28.4	25.8	25.0	25.5	29.3	29.0	30.0	..
Switzerland	15.0	14.3	16.2	16.1	18.1	17.5	18.2	16.8	17.2	17.6	17.7	17.2	19.9	..
Turkey	31.0	18.2	15.8	15.9	15.1	13.2	13.2	13.4	12.8	13.2	11.9	11.0	9.6	..
United Kingdom	0.1	0.5	0.9	1.0	1.0	1.0	1.2	1.4	1.5	1.7	1.9	2.0	2.3	..
United States	3.7	5.2	5.2	5.1	4.9	4.8	4.3	4.3	4.6	4.6	4.7	5.0	5.0	11.0
EU27 total	..	4.5	5.7	5.8	5.9	6.1	6.2	6.1	6.3	6.7	6.8	7.3	..	16.1
OECD total	4.8	6.0	6.2	6.2	6.2	6.2	5.9	5.9	6.0	6.1	6.3	6.6	6.7	12.6
Brazil	56.4	46.7	40.7	40.1	39.9	38.9	37.4	39.2	41.8	42.1	42.7	43.0	..	..
China	40.0	24.5	20.6	20.9	21.1	21.2	21.8	20.4	18.1	16.0	15.2	14.2	..	9.4
India	62.5	43.6	35.9	35.6	34.1	33.8	33.8	33.1	32.8	31.6	31.1	30.1	..	17.2
Indonesia	75.9	45.3	36.6	35.1	36.4	36.3	35.8	35.3	34.9	33.5	32.8	32.9	..	..
Russian Federation	..	3.0	3.4	3.3	3.5	3.4	3.5	3.4	3.1	3.5	3.4	3.4	..	5.0
South Africa	10.4	11.5	11.2	11.2	11.3	11.4	11.9	12.6	11.3	10.3	10.8	10.8	..	..
World	13.2	12.8	13.2	13.2	13.3	13.2	13.2	13.1	13.0	12.8	12.8	12.9	..	14.3

StatLink  <http://dx.doi.org/10.1787/542517717367>

## OECD renewable energy supply

Million tonnes of oil equivalent (Mtoe)



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