

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*.

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.

Long-term trends

In OECD countries, total renewables supply grew by 2.3% per annum between 1971 and 2006 as compared to 1.4% per annum for total primary energy supply. Annual growth for hydro (1.1%) was lower than for other renewables such as geothermal (5.8%) and combustible renewables and waste (2.7%). 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 4.7% in 1971 to 6.5% in 2006. The contribution of renewables varied greatly by country. On the high end, renewables represented 78% in Iceland and 39% in Norway. On the low end, renewables contributed only 1% to 2% of supply for 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 2005, renewables contributed 40% to the supply of Brazil, 31% in India, 15% in China, 11% in South Africa and 3% in the Russian Federation.

Sources

- IEA (2007), *Energy Balances of Non-OECD Countries*, IEA, Paris.
- IEA (2007), *Energy Balances of OECD Countries*, IEA, Paris.
- IEA (2007), *World Energy Outlook 2007: China and India Insights*, IEA, Paris.

Further information

Analytical publications

- IEA (2006), *Energy Technology Perspectives: Scenarios and Strategies to 2050*, IEA, Paris.
- IEA (2006), *Renewable Energy RD D Priorities: Insights from IEA Technology Programme*, IEA, Paris.
- IEA (2007), *Renewables for Heating and Cooling*, IEA, Paris.

Statistical publications

- IEA (2007), *Renewables Information: 2007 Edition*, IEA, Paris.

Online databases

- *World Energy Statistics and Balances*.


Websites

- International Energy Agency, www.iea.org.

Contribution of renewables to energy supply

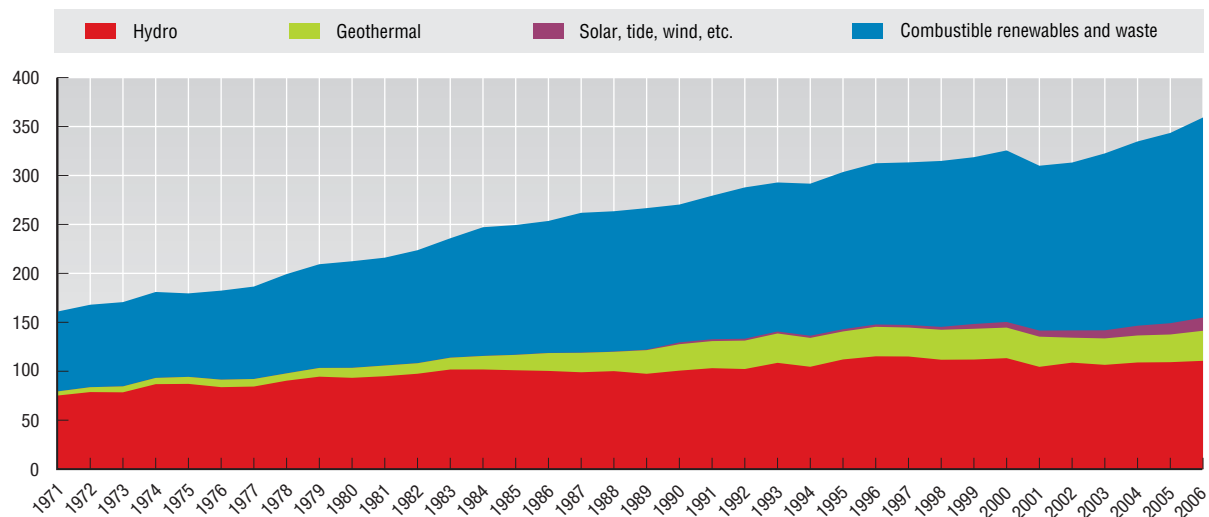

As a percentage of total primary energy supply

| | 1971 | 1990 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2030 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Australia | 8.7 | 6.0 | 6.3 | 6.4 | 6.0 | 6.0 | 5.9 | 6.1 | 6.2 | 5.9 | 6.0 | 5.5 | 5.2 | .. |
| Austria | 10.9 | 20.7 | 21.0 | 21.6 | 21.1 | 22.9 | 23.3 | 22.8 | 22.5 | 20.0 | 21.6 | 21.3 | 21.3 | .. |
| Belgium | .. | 1.6 | 1.6 | 1.6 | 1.6 | 1.8 | 1.8 | 2.1 | 2.1 | 2.4 | 2.6 | 2.9 | 3.1 | .. |
| Canada | 15.2 | 16.1 | 17.1 | 16.7 | 16.3 | 16.7 | 17.0 | 16.1 | 16.8 | 15.6 | 15.5 | 16.2 | 16.1 | .. |
| Czech Republic | 0.2 | 0.2 | 1.5 | 1.7 | 1.7 | 2.4 | 2.0 | 2.1 | 2.5 | 3.7 | 4.1 | 4.3 | 4.5 | .. |
| Denmark | 1.7 | 6.6 | 7.3 | 8.4 | 8.8 | 9.7 | 11.0 | 11.5 | 12.5 | 13.4 | 15.1 | 16.1 | 15.6 | .. |
| Finland | 26.9 | 18.8 | 19.8 | 20.9 | 22.2 | 22.2 | 24.1 | 22.7 | 22.3 | 21.4 | 23.1 | 23.3 | 22.6 | .. |
| France | 8.4 | 7.2 | 7.3 | 7.1 | 7.0 | 7.3 | 7.0 | 7.1 | 6.4 | 6.4 | 6.3 | 6.0 | 6.3 | .. |
| Germany | 1.2 | 1.8 | 2.2 | 2.5 | 2.8 | 2.8 | 3.1 | 3.4 | 3.8 | 3.9 | 4.4 | 4.9 | 6.3 | .. |
| Greece | 7.4 | 5.0 | 5.8 | 5.5 | 5.2 | 5.6 | 5.3 | 4.7 | 4.9 | 5.3 | 5.2 | 5.3 | 5.8 | .. |
| Hungary | 2.9 | 1.7 | 1.9 | 2.0 | 1.9 | 1.9 | 2.1 | 2.0 | 3.5 | 3.5 | 3.7 | 4.4 | 4.3 | .. |
| Iceland | 42.4 | 64.5 | 64.9 | 66.4 | 67.0 | 70.9 | 71.3 | 72.9 | 72.4 | 72.6 | 71.7 | 72.5 | 77.6 | .. |
| Ireland | 0.6 | 1.6 | 1.5 | 1.6 | 1.9 | 1.8 | 1.8 | 1.7 | 1.9 | 1.7 | 2.0 | 2.6 | 2.9 | .. |
| Italy | 5.1 | 4.5 | 5.3 | 5.4 | 5.5 | 6.0 | 6.0 | 6.2 | 5.9 | 6.1 | 6.8 | 6.5 | 6.8 | .. |
| Japan | 2.7 | 3.5 | 3.2 | 3.4 | 3.4 | 3.3 | 3.3 | 3.2 | 3.2 | 3.5 | 3.4 | 3.2 | 3.4 | 6.2 |
| Korea | 0.6 | 1.4 | 0.7 | 0.7 | 0.9 | 0.8 | 0.9 | 0.9 | 0.9 | 1.1 | 1.1 | 1.2 | 1.3 | .. |
| Luxembourg | .. | 0.8 | 1.2 | 1.5 | 1.5 | 1.4 | 1.4 | 1.6 | 1.2 | 1.4 | 1.5 | 1.7 | 1.7 | .. |
| Mexico | 16.6 | 11.1 | 11.3 | 10.6 | 10.3 | 10.5 | 10.6 | 10.1 | 9.5 | 9.5 | 9.7 | 9.7 | 9.4 | .. |
| Netherlands | .. | 1.5 | 1.9 | 2.1 | 2.2 | 2.4 | 2.4 | 2.5 | 2.7 | 2.6 | 2.9 | 3.5 | 3.6 | .. |
| New Zealand | 30.8 | 34.7 | 30.2 | 28.6 | 30.9 | 31.0 | 30.9 | 28.9 | 28.0 | 27.6 | 29.4 | 28.9 | 30.0 | .. |
| Norway | 39.9 | 53.2 | 43.4 | 43.4 | 43.9 | 44.6 | 51.6 | 44.1 | 50.1 | 38.5 | 37.7 | 40.6 | 38.5 | .. |
| Poland | 1.6 | 2.4 | 4.4 | 4.3 | 4.5 | 4.5 | 4.7 | 5.0 | 5.2 | 5.1 | 5.2 | 5.3 | 5.2 | .. |
| Portugal | 18.8 | 18.5 | 18.5 | 17.4 | 16.0 | 13.4 | 15.2 | 16.1 | 13.8 | 16.8 | 14.7 | 13.2 | 16.9 | .. |
| Slovak Republic | 2.4 | 1.5 | 3.9 | 3.9 | 4.0 | 4.4 | 4.6 | 4.4 | 4.2 | 3.7 | 4.2 | 4.6 | 4.8 | .. |
| Spain | 6.4 | 6.9 | 7.1 | 6.4 | 6.2 | 5.3 | 5.7 | 6.5 | 5.4 | 6.9 | 6.4 | 6.0 | 6.6 | .. |
| Sweden | 20.2 | 24.7 | 23.2 | 27.1 | 27.6 | 26.9 | 31.2 | 28.4 | 25.8 | 25.0 | 25.5 | 29.4 | 29.3 | .. |
| Switzerland | 14.9 | 14.2 | 14.8 | 16.1 | 16.0 | 18.0 | 17.4 | 18.1 | 16.7 | 17.1 | 17.5 | 17.6 | 17.0 | .. |
| Turkey | 31.1 | 18.2 | 16.7 | 15.8 | 15.9 | 15.1 | 13.1 | 13.2 | 13.4 | 12.7 | 13.2 | 11.9 | 12.2 | .. |
| United Kingdom | 0.1 | 0.5 | 0.8 | 0.9 | 1.0 | 1.0 | 1.0 | 1.2 | 1.4 | 1.5 | 1.7 | 2.0 | 2.1 | .. |
| United States | 3.7 | 5.2 | 5.4 | 5.2 | 5.1 | 4.9 | 4.8 | 4.3 | 4.3 | 4.6 | 4.6 | 4.7 | 5.0 | 8.7 |
| EU27 total | .. | 4.5 | 5.3 | 5.6 | 5.7 | 5.8 | 6.0 | 6.1 | 6.0 | 6.2 | 6.5 | 6.7 | .. | 14.5 |
| OECD total | 4.7 | 6.0 | 6.2 | 6.1 | 6.1 | 6.1 | 6.1 | 5.8 | 5.9 | 6.0 | 6.1 | 6.2 | 6.5 | 10.8 |
| Brazil | 56.5 | 44.3 | 39.0 | 37.9 | 37.8 | 37.9 | 37.2 | 35.6 | 37.2 | 39.6 | 40.0 | 40.4 | .. | .. |
| China | 40.0 | 24.5 | 20.5 | 20.6 | 20.8 | 21.1 | 21.1 | 21.8 | 20.3 | 17.9 | 15.9 | 15.0 | .. | 9.1 |
| India | 62.5 | 43.6 | 36.8 | 35.9 | 35.6 | 34.1 | 33.8 | 33.7 | 33.1 | 32.8 | 31.5 | 31.1 | .. | 17.3 |
| Russian Federation | .. | 3.0 | 3.2 | 3.4 | 3.3 | 3.5 | 3.4 | 3.5 | 3.4 | 3.1 | 3.5 | 3.4 | .. | 3.6 |
| South Africa | 10.4 | 11.5 | 11.1 | 11.2 | 11.2 | 11.4 | 11.5 | 11.9 | 12.6 | 11.3 | 10.3 | 10.8 | .. | .. |
| World | 13.2 | 12.8 | 13.1 | 13.1 | 13.2 | 13.2 | 13.2 | 13.1 | 13.1 | 13.0 | 12.8 | 12.7 | .. | 13.2 |

StatLink  <http://dx.doi.org/10.1787/273766530064>

OECD renewable energy supply

Million tonnes of oil equivalent (Mtoe)

StatLink  <http://dx.doi.org/10.1787/268021727170>



From:
OECD Factbook 2008
Economic, Environmental and Social Statistics

Access the complete publication at:
<https://doi.org/10.1787/factbook-2008-en>

Please cite this chapter as:

OECD (2009), “Renewable energy”, in *OECD Factbook 2008: Economic, Environmental and Social Statistics*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/factbook-2008-37-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.