ELECTRICITY GENERATION

The amount of electricity generated by a country, and the breakdown of that production by type of fuel, reflects the natural resources, imported energy, national policies on security of energy supply, population size, electrification rate as well as the stage of development and rate of growth of the economy in each country.

Definition

The table shows data on electricity generation from fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biofuels, etc. It includes electricity produced in electricity-only plants and in combined heat and power plants. Both main activity producer and autoproducer plants are included, where data are available. Main activity producers generate electricity for sale to third parties as their primary activity. Autoproducers generate electricity wholly or partly for their own use as an activity which supports their primary activity. Both types of plants may be privately or publicly owned.

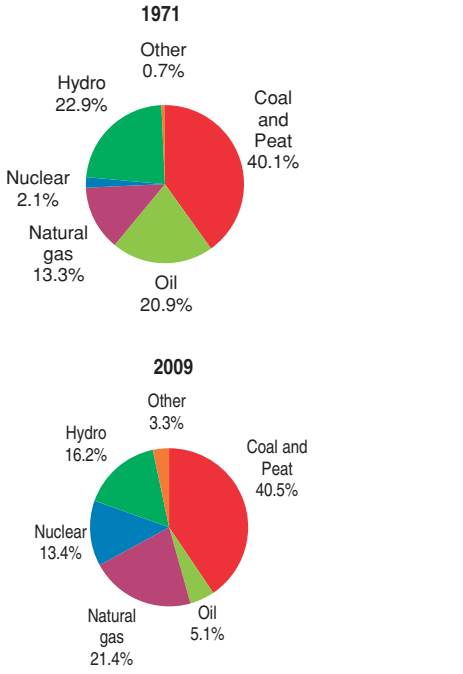
Electricity generation is measured in terawatt hours, which expresses the generation of 1 terawatt (10^{12} watts) of electricity for one hour.

Comparability

Some countries, both OECD member and non-member countries, have trouble reporting electricity generation from autoproducer plants. In some OECD non-member countries it is also difficult to obtain information on electricity generated by biofuels and waste. For example, electricity generated from waste biofuel in sugar refining remains largely unreported in some of these countries.

World electricity generation by source of energy

As a percentage of world electricity generation



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Overview

World electricity generation rose at an average annual rate of 3.6% from 1971 to 2009, greater than the 2.1% growth in total primary energy supply. This increase was largely due to more electrical appliances, the development of electrical heating in several developed countries and of rural electrification programmes in developing countries.

The share of electricity production from fossil fuels has gradually fallen, from just under 75% in 1971 to 67% in 2009. This decrease was due to a progressive move away from oil, which fell from 20.9% to 5.1%.

Oil for world electricity generation has been displaced in particular by dramatic growth in nuclear electricity generation, which rose from 2.1% in 1971 to 17.7% in 1996. However, the share of nuclear has been falling steadily since then and represented 13.4% in 2009. The share of coal remained stable, at 40-41% while that of natural gas increased from 13.3% to 21.4%. The share of hydro-electricity decreased from 22.9% to 16.2%. Due to large development programmes in several OECD countries, the share of new and renewable energies, such as solar, wind, geothermal, biofuels and waste increased. However, these energy forms remain of limited importance: in 2009, they accounted for only 3.3% of total electricity production for the world as a whole.

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), *Climate and Electricity Annual 2011: Data and Analyses*, IEA, Paris.
- IEA (2011), *Empowering Electricity Customers: Customer Choice and Demand Response in Competitive Markets*, IEA, Paris.
- IEA (2011), *IEA Scoreboard 2011: Implementing Energy Efficiency Policy: Progress and challenges in IEA member countries*, IEA, Paris.
- IEA (2011), *World Energy Outlook*, IEA, Paris.

Statistical publications

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

Online databases

- *IEA World Energy Statistics and Balances.*

Websites

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

Electricity generation

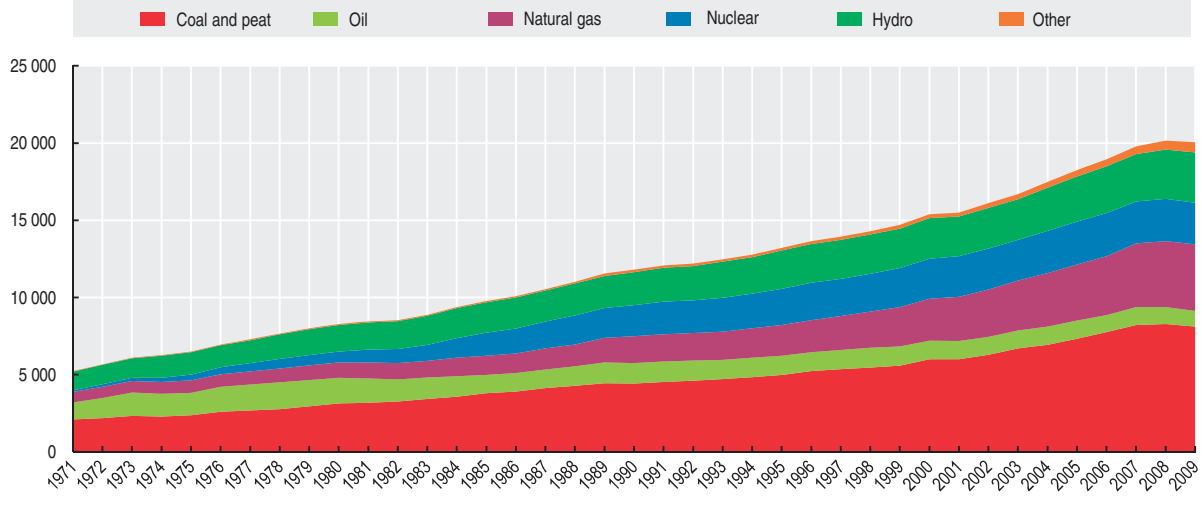
Terawatt hours (TWh)

	1971	1990	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Australia	53.0	154.3	203.6	209.9	224.3	227.4	226.3	236.3	245.2	247.0	250.8	257.1	260.9	256.2
Austria	28.2	49.3	59.7	59.9	60.9	60.4	57.7	61.5	63.6	61.7	62.2	64.1	65.6	67.0
Belgium	33.2	70.3	83.4	82.8	78.6	80.9	83.6	84.4	85.7	84.3	87.5	83.6	89.8	95.1
Canada	221.8	482.0	578.9	605.6	589.8	601.2	589.5	599.9	626.0	615.9	642.0	640.9	603.1	598.0
Chile	8.5	18.4	38.4	40.1	42.5	43.7	46.8	51.2	52.5	55.3	58.5	59.7	60.7	62.5
Czech Republic	36.4	62.3	64.2	72.9	74.2	76.0	82.8	83.8	81.9	83.7	87.8	83.2	81.7	85.3
Denmark	18.6	26.0	38.9	36.1	37.7	39.3	46.2	40.4	36.2	45.6	39.3	36.6	36.4	38.6
Estonia	..	17.4	8.3	8.5	8.5	8.6	10.2	10.3	10.2	9.7	12.2	10.6	8.8	13.0
Finland	21.7	54.4	69.5	70.0	74.5	74.9	84.2	85.8	70.6	82.3	81.2	77.4	72.1	80.4
France	155.8	417.2	521.3	536.1	545.7	553.9	561.8	569.1	571.5	569.3	564.4	569.5	537.4	567.6
Germany	327.2	547.7	552.5	572.3	581.9	582.0	601.5	608.5	613.4	629.4	629.5	631.2	586.4	614.1
Greece	11.6	34.8	49.4	53.4	53.1	53.9	57.9	58.8	59.4	60.2	62.7	62.9	61.1	60.8
Hungary	15.0	28.4	37.8	35.2	36.4	36.2	34.1	33.7	35.8	35.9	40.0	40.0	35.9	37.4
Iceland	1.6	4.5	7.2	7.7	8.0	8.4	8.5	8.6	8.7	9.9	12.0	16.5	16.8	17.1
Ireland	6.3	14.2	21.8	23.7	24.6	24.8	24.9	25.2	25.6	27.1	27.9	29.9	27.9	28.3
Israel	7.6	20.9	39.2	42.7	44.0	45.5	47.0	47.3	48.6	50.6	53.8	57.0	55.0	57.2
Italy	123.9	213.1	259.3	269.9	271.9	277.5	286.3	295.8	296.8	307.7	308.2	313.5	288.3	295.0
Japan	382.9	835.5	1 028.1	1 049.0	1 030.3	1 049.0	1 038.4	1 068.3	1 089.9	1 094.8	1 125.5	1 075.5	1 041.0	1 071.3
Korea	10.5	105.4	235.6	288.5	309.1	329.8	343.2	366.6	387.9	402.3	425.9	443.9	451.7	478.0
Luxembourg	1.3	0.6	0.4	0.4	0.9	2.8	2.8	3.4	3.3	3.5	3.2	2.7	3.2	3.2
Mexico	31.0	115.8	190.0	204.2	211.9	215.9	213.7	232.6	243.8	249.5	257.2	261.9	261.0	268.4
Netherlands	44.9	71.9	86.7	89.6	93.7	95.9	96.8	102.4	100.2	98.4	105.2	107.6	113.5	114.7
New Zealand	15.5	32.3	37.8	39.2	39.9	40.7	40.8	42.5	43.0	43.6	43.8	43.9	43.5	44.8
Norway	63.5	121.6	122.3	139.6	119.2	130.3	106.8	110.2	137.2	121.2	136.1	141.2	132.0	124.1
Poland	69.5	134.4	140.0	143.2	143.7	142.5	150.0	152.6	155.4	160.8	158.8	154.7	151.1	157.0
Portugal	7.9	28.4	42.9	43.4	46.2	45.7	46.5	44.8	46.2	48.6	46.9	45.5	49.5	52.7
Slovak Republic	10.9	25.5	28.1	30.8	31.9	32.2	31.0	30.5	31.4	31.3	27.9	28.8	25.9	27.3
Slovenia	..	12.4	13.3	13.6	14.5	14.6	13.8	15.3	15.1	15.1	15.0	16.4	16.4	16.2
Spain	61.6	151.2	205.9	222.2	233.2	241.6	257.9	277.2	288.9	295.5	301.8	311.1	291.0	295.3
Sweden	66.5	146.0	154.8	145.2	161.6	146.7	135.4	151.7	158.4	143.3	148.8	149.9	136.6	152.8
Switzerland	31.2	55.0	68.7	66.1	71.1	65.5	65.4	63.9	57.8	62.1	66.4	67.0	66.7	66.6
Turkey	9.8	57.5	116.4	124.9	122.7	129.4	140.6	150.7	162.0	176.3	191.6	198.4	194.8	211.2
United Kingdom	255.8	317.8	365.3	374.4	382.4	384.6	395.5	391.3	395.4	393.4	393.0	384.6	372.0	378.1
United States	1 703.4	3 202.8	3 873.6	4 025.9	3 838.8	4 026.4	4 054.6	4 148.1	4 268.9	4 275.0	4 323.9	4 343.0	4 165.4	4 337.1
EU27 total	..	2 567.8	2 914.3	2 996.7	3 077.5	3 099.0	3 187.5	3 254.2	3 274.5	3 318.9	3 333.4	3 339.4	3 178.3	..
OECD total	3 836.9	7 629.3	9 343.3	9 726.9	9 607.5	9 888.0	9 982.6	10 252.7	10 516.6	10 590.3	10 790.9	10 809.8	10 403.1	10 772.2
Brazil	51.6	222.8	334.7	349.2	328.2	346.0	365.3	387.9	403.4	419.9	445.8	463.4	466.5	..
China	138.4	621.2	1 239.8	1 356.2	1 472.4	1 641.4	1 908.5	2 201.0	2 499.7	2 864.3	3 276.3	3 458.8	3 695.9	..
India	66.4	289.4	536.6	561.2	579.9	597.3	634.0	666.6	698.2	753.2	813.9	843.3	899.4	..
Indonesia	1.8	32.7	85.8	93.4	101.4	108.3	114.1	121.3	127.8	132.7	140.9	148.4	155.5	..
Russian Federation	..	1 082.2	845.3	876.5	889.3	889.3	914.3	929.9	951.2	993.9	1 013.4	1 038.4	990.0	..
South Africa	54.6	165.4	200.4	207.8	208.2	215.7	231.2	240.9	242.1	250.9	260.5	255.5	246.8	..
World	5 245.0	11 819.1	14 708.1	15 403.4	15 511.9	16 114.5	16 701.2	17 490.9	18 256.4	18 960.6	19 801.7	20 164.0	20 052.8	..

StatLink http://dx.doi.org/10.1787/888932504842

World electricity generation by source of energy

Terawatt hours (TWh)



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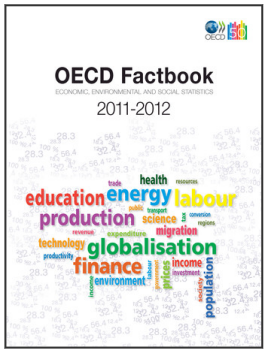

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