

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, biomass, 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. The forecasts provided in the table refer to the Reference Scenario of the *World Energy Outlook*.

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 combustible renewables and waste; For example, electricity generated from waste biomass in sugar refining remains largely unreported in some of these countries.

Overview

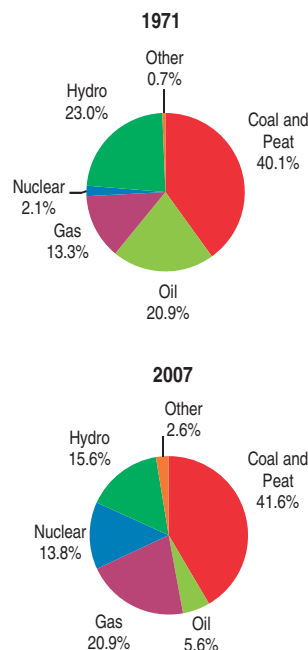
World electricity generation rose at an average annual rate of 3.8% from 1971 to 2007, greater than the 2.2% growth in total primary energy supply. This increase was largely due to more electrical appliances, the development of electrical heating in several developed countries and of rural electrification programmes in developing countries.

The share of electricity production from fossil fuels has gradually fallen, from just under 75% in 1971 to 68% in 2007. This decrease was due to a progressive move away from oil, which fell from 20.9% to 5.6%.

Oil for power generation has been displaced in particular by dramatic growth in nuclear electricity generation, which rose from 2.1% in 1971 to 13.8% in 2007. The share of coal remained stable, at 40-41% while that of natural gas increased from 13.3% to 20.9%. The share of hydro-electricity decreased from 23.0% to 15.6%. Due to large development programmes in several OECD countries, the share of new and renewable energies, such as solar, wind, geothermal, biomass and waste increased. However, these energy forms remain of limited importance: in 2007, they accounted for only 2.6% of total electricity production for the world as a whole.

World electricity generation by source of energy

As a percentage of world electricity generation



StatLink <http://dx.doi.org/10.1787/820207287871>

Sources

- IEA (2009), *Energy Balances of Non-OECD Countries*, IEA, Paris.
- IEA (2009), *Energy Balances of OECD Countries*, IEA, Paris.
- IEA (2009), *World Energy Outlook 2009*, IEA, Paris.

Further information

Analytical publications

- IEA (2007), *Fossil Fuel-Fired Power Generation: Case studies of recently constructed coal- and gas-fired power plants*, IEA, Paris.
- IEA (2007), *Tackling Investment Challenges in Power Generation in IEA Countries*, IEA, Paris.
- IEA (2009), *Electricity Transmission: Getting the Best Investments*, IEA, Paris.
- IEA (2009), *IEA Scoreboard 2009: 35 Key Energy Trends over 35 Years*, IEA, Paris.
- IEA (2009), *Sectoral Approaches in Electricity – Building Bridges to a Safe Climate*, IEA, Paris.

Statistical publications

- IEA (2009), *Electricity Information 2009*, IEA, Paris.

Online databases

- World Energy Statistics and Balances.

Web sites

- International Energy Agency, www.iea.org.



Electricity generation

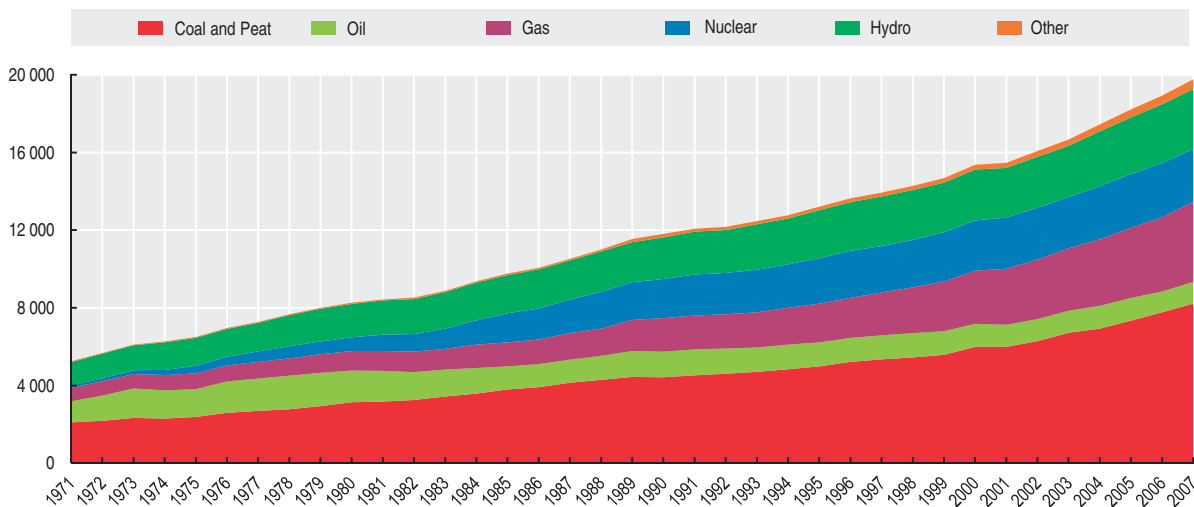
Terawatt hours (TWh)

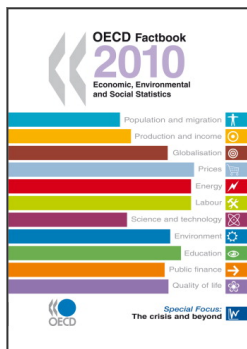
	1971	1990	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2030
Australia	53.0	154.3	195.6	203.0	207.4	216.5	226.2	227.9	234.3	245.1	251.3	254.6	265.3	..
Austria	28.2	49.3	55.9	59.7	59.9	60.7	60.3	57.7	61.6	63.0	60.8	60.9	64.1	..
Belgium	33.2	70.3	82.1	83.4	82.8	78.6	80.9	83.6	84.4	85.7	84.3	87.5	83.1	..
Canada	221.8	482.0	561.6	578.9	605.6	589.8	601.2	589.5	599.9	626.0	615.9	639.7	632.6	..
Czech Republic	36.4	62.3	64.6	64.2	72.9	74.2	76.0	82.8	83.8	81.9	83.7	87.8	83.2	..
Denmark	18.6	26.0	41.1	38.9	36.0	37.7	39.3	46.2	40.4	36.2	45.6	39.2	36.4	..
Finland	21.7	54.4	70.2	69.5	70.0	74.5	74.9	84.2	85.8	70.6	82.3	81.2	77.1	..
France	155.8	417.2	507.3	521.3	536.1	545.7	553.9	561.8	569.1	571.5	569.3	564.4	569.9	..
Germany	327.2	547.7	552.4	552.5	572.3	581.9	582.0	601.5	608.5	613.4	629.4	629.5	626.7	..
Greece	11.6	34.8	46.2	49.4	53.4	53.1	53.9	57.9	58.8	59.4	60.2	62.7	58.6	..
Hungary	15.0	28.4	37.2	37.8	35.2	36.4	36.2	34.1	33.7	35.8	35.9	40.0	40.0	..
Iceland	1.6	4.5	6.3	7.2	7.7	8.0	8.4	8.5	8.6	8.7	9.9	12.0	16.5	..
Ireland	6.3	14.2	20.9	21.8	23.7	24.6	24.8	24.9	25.2	25.6	27.1	27.9	28.5	..
Italy	123.9	213.1	253.7	259.3	269.9	271.9	277.5	286.3	295.8	296.8	307.7	308.2	312.4	..
Japan	382.9	835.5	1 010.0	1 027.9	1 048.6	1 029.8	1 048.4	1 037.5	1 067.2	1 088.4	1 093.0	1 123.5	1 078.1	1 302
Korea	10.5	105.4	216.1	235.6	288.5	309.1	329.8	343.2	366.6	387.9	402.3	425.9	440.5	..
Luxembourg	1.3	0.6	0.4	0.4	0.4	0.5	2.8	2.8	3.4	3.4	3.5	3.2	2.7	..
Mexico	31.0	124.1	181.2	189.9	203.6	209.1	214.6	217.8	224.1	242.0	249.6	257.5	258.3	..
Netherlands	44.9	71.9	91.2	86.9	89.7	93.8	96.1	96.8	100.8	100.2	98.4	103.2	107.7	..
New Zealand	15.5	32.3	36.3	38.2	39.2	39.4	41.1	41.2	42.9	43.1	43.5	43.8	43.8	..
Norway	63.5	121.6	116.1	122.3	139.6	119.2	130.3	106.8	110.2	137.2	121.2	136.4	141.7	..
Poland	69.5	134.4	140.8	140.0	143.2	143.7	142.5	150.0	152.6	155.4	160.8	158.8	154.0	..
Portugal	7.9	28.4	38.9	42.9	43.4	46.2	45.7	46.5	44.8	46.2	48.6	46.9	45.4	..
Slovak Republic	10.9	25.5	25.7	28.1	30.8	31.9	32.2	31.0	30.5	31.4	31.3	27.9	29.3	..
Spain	61.6	151.2	193.4	205.9	222.2	233.2	241.6	257.9	277.2	288.9	295.5	300.2	306.5	..
Sweden	66.5	146.0	158.8	154.8	145.2	161.6	146.7	135.4	151.7	158.4	143.3	148.8	149.5	..
Switzerland	31.2	55.0	62.3	68.7	66.1	71.1	65.5	65.4	63.9	57.8	62.1	66.5	67.2	..
Turkey	9.8	57.5	111.0	116.4	124.9	122.7	129.4	140.6	150.7	162.0	176.3	191.6	198.6	..
United Kingdom	255.8	317.8	361.1	365.3	374.4	382.4	384.6	395.5	391.2	395.4	394.0	392.3	386.2	..
United States	1 703.4	3 202.8	3 804.5	3 873.5	4 025.7	3 838.6	4 026.1	4 054.4	4 147.7	4 268.4	4 274.3	4 322.9	4 329.4	5 277
EU27 total	..	2 567.8	2 886.8	2 914.5	2 996.7	3 077.1	3 099.1	3 187.4	3 252.6	3 273.7	3 318.4	3 327.9	..	3 968
OECD total	3 820.7	7 568.5	9 042.9	9 243.6	9 618.5	9 486.0	9 772.8	9 869.7	10 115.1	10 385.7	10 460.9	10 645.0	10 633.2	13 215
Brazil	51.6	222.8	321.9	334.7	349.2	327.9	345.7	364.9	387.5	403.0	419.3	445.1	..	..
Chile	8.5	18.4	35.5	38.4	40.1	42.5	43.7	46.8	51.2	52.5	55.3	58.5	..	..
China	138.4	621.2	1 166.6	1 239.8	1 356.2	1 472.4	1 641.4	1 908.5	2 201.0	2 499.6	2 864.2	3 279.2	..	8 847
Estonia	..	17.4	8.6	8.3	8.5	8.5	8.6	10.2	10.3	10.2	9.7	12.2	..	..
India	66.4	289.4	496.9	537.4	562.2	581.0	598.4	635.2	667.6	699.1	753.0	803.4	..	2 737
Indonesia	2.4	33.3	77.3	84.3	92.6	101.6	108.2	112.9	120.2	127.4	133.1	142.2	..	..
Israel	7.6	20.9	38.0	39.2	42.7	44.0	45.5	47.0	47.2	48.6	50.6	53.8	..	..
Russian Federation	..	1 082.2	826.2	845.3	876.5	889.3	889.3	914.3	929.9	951.2	993.9	1 013.4	..	1 424
Slovenia	..	12.4	13.7	13.3	13.6	14.5	14.6	13.8	15.3	15.1	15.1	15.0	..	..
South Africa	54.6	165.4	203.0	200.4	207.8	208.2	215.7	231.2	240.9	242.1	250.9	260.5	..	..
World	5 245.7	11 813.7	14 282.9	14 685.0	15 378.0	15 477.2	16 085.1	16 678.7	17 446.6	18 226.0	18 934.5	19 771.1	..	34 292

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World electricity generation by source of energy

Terawatt hours (TWh)

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