

ENERGY SUPPLY

An analysis of energy problems requires a comprehensive presentation of basic supply and demand data for all fuels in a manner which allows the easy comparison of the contribution that each fuel makes to the economy and their interrelationships through the conversion of one fuel into another. This type of presentation is suitable for the study of energy substitution, energy conservation and forecasting.

Definition

The table refers to total primary energy supply (TPES). TPES equals production plus imports minus exports minus international bunkers plus or minus stock changes. The International Energy Agency energy balance methodology is based on the calorific content of the energy commodities and a common unit of account. The unit of account adopted is the tonne of oil equivalent (toe) which is defined as 10^7 kilocalories (41.868 gigajoules). This quantity of energy is, within a few per cent, equal to the net heat content of one tonne of crude oil. The difference between the “net” and the “gross” calorific value for each fuel is the latent heat of vaporisation of the water produced during combustion of the fuel. For coal and oil, net calorific value is about 5% less than gross, for most forms of natural and manufactured gas the difference is 9-10%, while for electricity there is no difference. The International Energy Agency balances are calculated using the physical energy content method to calculate the primary energy equivalent.

Overview

Between 1971 and 2009, the world's total primary energy supply increased by 119%, reaching 12 141 Mtoe (million tonnes of oil equivalent). This equates to a compound growth rate of 2.1% per annum. By comparison, world population grew by 1.6% and gross domestic product by 3.5% per annum in real terms over the same period.

Energy supply growth was fairly constant over the period, except in 1974-1975 and in the early 1980s as a consequence of the first two oil shocks, and in the early 1990s following the dissolution of the Soviet Union. With the economic crisis in 2008/2009, world energy supply declined by 1% in 2009. However, early indicators suggest that growth in energy supply rebounded in 2010.

The share of OECD in world primary energy supply decreased from 61% in 1971 to 43% in 2009. Strong economic development in Asia led to a large increase in the share of non-OECD Asia (including China) in world energy supply, from 13% to 31% over the same period. By contrast, the combined share of non-OECD Europe and Eurasia (which includes the Former Soviet Union) decreased significantly in the late 1980s.

Comparability

While every effort is made to ensure the accuracy of the data, quality is not homogeneous for all countries and regions. In some countries, data are based on secondary sources, and where incomplete or unavailable, the International Energy Agency has made estimates. In general, data are likely to be more accurate for production and trade than for international bunkers or stock changes. Moreover, statistics for biofuels and waste are less accurate than those for traditional commercial energy data in most countries.

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), *Energy Policies of IEA Countries*, series, 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.
- IEA (2010), *Energy Technology Perspectives*, IEA, Paris.
- IEA (2009), *Energy Technology Transitions for Industry: Strategies for the Next Industrial Revolution*, IEA, Paris.

Online databases

- IEA World Energy Statistics and Balances.

Websites

- International Energy Agency, www.iea.org.

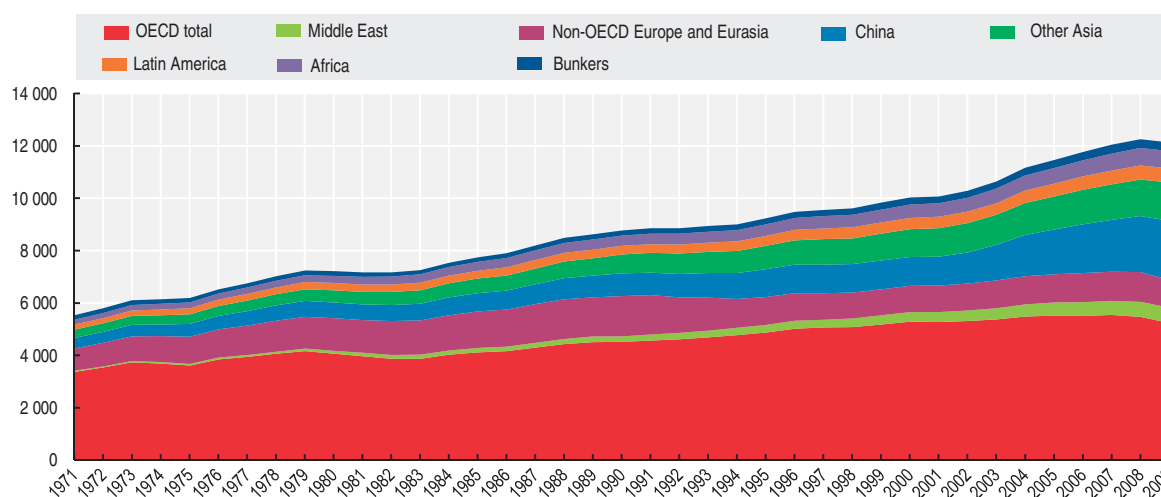
Total primary energy supply

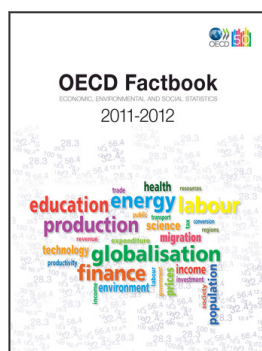
Million tonnes of oil equivalent (Mtoe)

	1971	1990	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Australia	51.6	86.2	106.2	108.1	106.8	111.5	113.1	113.7	119.6	122.3	124.9	129.4	131.1	125.8
Austria	18.8	24.8	28.6	28.6	30.3	30.6	32.3	32.5	34.0	33.8	33.3	33.5	31.7	33.1
Belgium	39.7	48.3	58.2	58.5	58.4	56.4	59.2	58.9	58.7	58.1	57.0	58.6	57.2	56.8
Canada	141.3	208.6	244.3	251.4	247.9	248.2	262.0	267.6	272.2	268.5	272.0	266.5	254.1	255.3
Chile	8.7	13.6	24.6	24.7	24.2	25.1	25.4	27.0	27.7	28.3	28.5	29.3	28.8	31.3
Czech Republic	45.4	49.6	39.0	41.0	42.1	42.5	44.4	45.5	44.9	45.8	45.8	44.6	42.0	42.3
Denmark	18.5	17.4	19.2	18.6	19.2	19.0	20.1	19.4	18.9	20.3	19.8	19.2	18.6	19.7
Estonia	..	9.9	4.8	4.7	4.9	4.7	5.2	5.3	5.2	5.0	5.6	5.4	4.7	5.5
Finland	18.2	28.4	32.5	32.3	33.0	34.8	36.9	37.1	34.2	37.3	36.8	35.3	33.2	35.6
France	158.6	223.9	249.3	251.9	260.3	261.1	265.8	269.7	270.6	267.4	264.4	267.2	256.2	264.2
Germany	305.0	351.4	335.6	337.3	347.4	339.3	342.1	343.5	338.7	341.2	331.8	334.7	318.5	331.5
Greece	8.7	21.4	25.7	27.1	28.0	28.3	29.1	29.7	30.2	30.2	30.2	30.4	29.4	27.0
Hungary	19.0	28.7	25.5	25.0	25.6	25.6	26.1	26.2	27.6	27.3	26.7	26.5	24.9	25.4
Iceland	0.9	2.1	3.0	3.1	3.2	3.3	3.3	3.4	3.5	4.2	4.9	5.3	5.2	5.4
Ireland	6.7	10.0	13.3	13.7	14.5	14.5	14.3	14.6	14.4	14.7	15.0	14.9	14.3	14.9
Israel	5.7	11.5	16.8	18.2	19.2	19.2	19.9	19.7	20.2	20.9	21.5	22.3	21.5	21.9
Italy	105.4	146.6	168.3	171.5	172.1	172.4	179.4	182.0	183.9	182.1	179.1	176.1	164.6	170.2
Japan	267.5	439.3	512.3	518.9	510.8	510.4	506.2	522.5	520.5	519.8	515.2	495.5	472.0	494.9
Korea	17.0	93.1	172.9	188.1	191.0	198.6	202.6	208.2	210.1	213.5	222.1	226.9	229.2	246.5
Luxembourg	4.1	3.4	3.1	3.3	3.5	3.6	3.8	4.3	4.4	4.3	4.2	4.2	3.9	4.2
Mexico	43.0	122.5	146.8	145.1	146.1	150.7	153.6	159.1	170.2	171.4	175.9	181.1	174.6	169.8
Netherlands	50.9	65.7	71.5	73.2	75.6	75.7	78.0	79.1	78.8	76.8	79.3	79.6	78.2	83.3
New Zealand	6.9	12.8	16.4	16.8	16.8	17.2	16.9	16.9	16.6	16.8	16.9	17.3	17.4	18.3
Norway	13.3	21.0	26.3	25.9	26.6	24.9	27.0	26.4	26.8	27.1	27.5	29.8	28.2	30.9
Poland	86.1	103.1	93.0	89.1	89.7	88.9	91.1	91.4	92.4	97.0	96.7	97.9	94.0	101.7
Portugal	6.3	16.7	24.5	24.7	24.8	25.8	25.1	25.8	26.5	24.7	25.3	24.4	24.1	23.5
Slovak Republic	14.3	21.3	17.7	17.7	18.6	18.7	18.6	18.4	18.8	18.6	17.8	18.3	16.7	17.3
Slovenia	..	5.7	6.4	6.4	6.7	6.8	6.9	7.1	7.3	7.3	7.3	7.7	7.0	7.1
Spain	42.6	90.1	116.2	121.9	125.0	128.9	133.2	139.1	141.8	141.5	143.9	138.8	126.5	128.1
Sweden	36.0	47.2	50.1	47.6	50.5	51.8	50.6	52.6	51.6	50.2	50.1	49.6	45.4	50.8
Switzerland	16.4	24.3	25.3	25.0	26.5	25.9	26.0	26.1	25.9	27.1	25.8	26.8	27.0	26.3
Turkey	19.5	52.8	70.4	76.3	70.4	74.2	77.8	80.9	84.4	93.0	100.0	98.5	97.7	104.8
United Kingdom	208.7	205.9	222.0	222.9	223.8	218.5	222.2	221.9	222.4	219.0	210.3	208.1	196.8	204.2
United States	1 587.5	1 915.0	2 210.9	2 273.3	2 230.8	2 256.0	2 261.2	2 307.8	2 318.9	2 296.7	2 337.0	2 277.0	2 162.9	2 235.0
EU27 total	..	1 636.3	1 673.6	1 685.5	1 725.2	1 720.3	1 759.9	1 778.0	1 779.4	1 779.1	1 757.2	1 751.3	1 655.8	..
OECD total	3 372.3	4 522.1	5 180.8	5 292.1	5 274.4	5 313.0	5 379.7	5 483.2	5 521.7	5 512.4	5 552.7	5 480.8	5 237.7	5 412.8
Brazil	69.8	140.2	186.7	189.2	190.3	195.8	199.1	209.7	215.4	223.0	235.4	248.6	240.2	..
China	391.7	863.0	1 085.8	1 094.9	1 091.4	1 181.7	1 345.0	1 567.9	1 696.4	1 854.0	1 964.0	2 117.5	2 257.1	..
India	156.5	316.7	448.3	457.2	464.5	477.5	489.5	518.6	537.9	565.0	596.6	619.0	675.8	..
Indonesia	35.1	101.3	152.9	155.7	160.0	166.5	166.9	178.6	181.4	187.7	188.3	191.8	202.0	..
Russian Federation	..	879.2	609.0	619.3	626.0	623.1	645.3	647.4	651.7	670.7	672.6	688.5	646.9	..
South Africa	45.1	93.9	114.3	114.4	114.9	112.4	120.8	131.4	130.4	130.7	138.8	150.0	144.0	..
World	5 532.5	8 782.3	9 836.3	10 031.8	10 074.4	10 297.6	10 645.7	11 178.5	11 468.5	11 776.2	12 049.4	12 265.1	12 140.9	..

StatLink  <http://dx.doi.org/10.1787/888932504690>**Total primary energy supply by region**

Million tonnes of oil equivalent (Mtoe)

StatLink  <http://dx.doi.org/10.1787/888932504709>



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