

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. Note that starting this year, international aviation bunkers are subtracted out of supply in the same way as international marine bunkers. The IEA 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 IEA balances are calculated using the physical energy content method to calculate the primary energy equivalent. The forecasts provided in the table refer to the Reference Scenario of the *World Energy Outlook*; this scenario projects supply and demand if present policies were to continue. The *World Energy Outlook* also presents a scenario for stabilising greenhouse gas concentrations at 450 parts per million (ppm) of CO₂-equivalent (which would limit the temperature increase to about 2°C).

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 IEA 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 combustible renewables and waste are less accurate than those for traditional commercial energy data in most countries.

Overview

Between 1971 and 2007, the world's total primary energy supply increased by 117%, reaching 12 029 Mtoe (million tonnes of oil equivalent). This equates to a compound growth rate of 2.2% 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 current economic crisis, early indicators suggest that growth in energy supply slowed in 2008 and may have declined in 2009.

The share of OECD in world primary energy supply decreased again in 2007. 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% in 1971 to 28% in 2007. By contrast, the combined share of the former USSR and non-OECD Europe decreased significantly in the late 1980s.

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 (2008), *Energy Technology Perspectives: Scenarios and Strategies to 2050*, IEA, Paris.
- IEA (2009), *Energy Policies of IEA Countries*, series, IEA, Paris.
- IEA (2009), *Energy Technology Transitions for Industry: Strategies for the Next Industrial Revolution*, 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.

Online databases

- *World Energy Statistics and Balances*.

Web sites

- International Energy Agency, www.iea.org.



Total primary energy supply

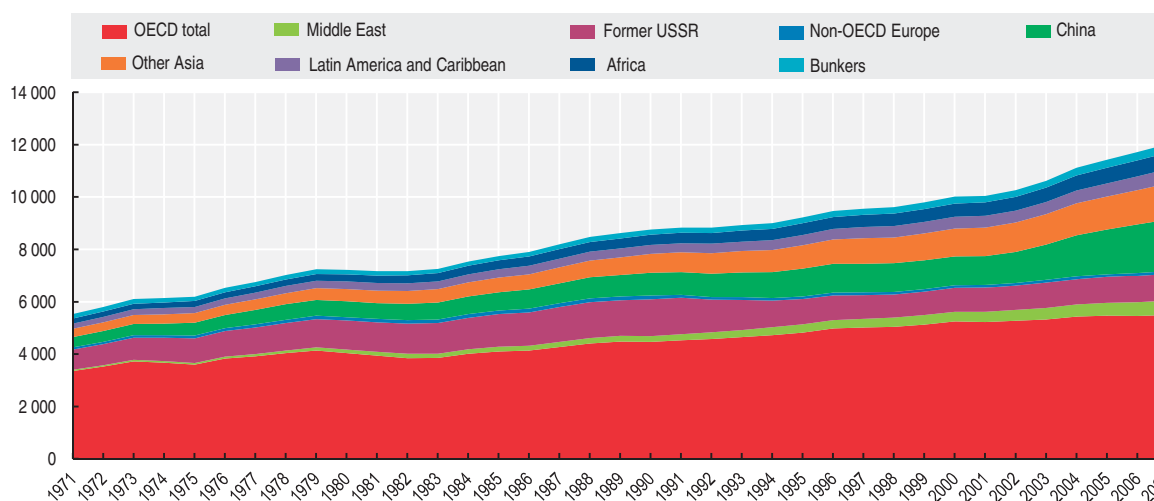
Million tonnes of oil equivalent (Mtoe)

	1971	1990	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2030
Australia	51.6	86.2	104.0	106.2	108.9	107.2	110.7	111.6	112.1	120.8	122.6	124.1	129.0	..
Austria	18.8	24.8	28.7	28.7	28.5	30.2	31.0	32.7	33.0	33.7	34.2	33.2	32.3	..
Belgium	39.7	48.2	57.7	58.2	58.5	58.3	56.4	59.2	58.9	58.7	58.1	57.0	57.8	..
Canada	141.3	208.7	237.3	244.5	251.2	248.1	248.7	261.6	268.2	271.7	269.2	269.4	267.4	..
Czech Republic	45.4	48.8	41.0	38.3	40.3	41.3	41.8	44.4	45.5	44.9	45.9	45.8	45.4	..
Denmark	18.5	17.3	20.0	19.2	18.6	19.1	19.0	20.1	19.4	18.8	20.1	19.6	19.2	..
Finland	18.2	28.4	32.6	32.5	32.1	32.8	34.5	36.6	36.8	34.0	37.0	36.5	34.8	..
France	158.6	224.5	250.8	250.6	253.2	261.2	261.9	266.7	270.7	271.4	267.7	263.7	266.9	..
Germany	305.0	351.4	343.3	335.6	337.3	347.4	339.3	342.1	343.5	338.7	341.2	331.3	334.8	..
Greece	8.7	21.4	25.6	25.7	27.1	28.0	28.3	29.1	29.7	30.2	30.2	32.2	32.6	..
Hungary	19.0	28.7	25.7	25.5	25.0	25.6	25.6	26.1	26.2	27.6	27.3	26.7	26.6	..
Iceland	0.9	2.1	2.6	3.0	3.1	3.2	3.3	3.3	3.4	3.5	4.2	4.9	4.7	..
Ireland	6.7	10.0	12.8	13.1	13.6	14.5	14.7	14.2	14.3	14.4	14.7	15.1	15.1	..
Italy	105.4	146.7	165.5	167.5	170.7	171.3	171.6	178.5	180.6	182.9	181.1	178.2	174.5	..
Japan	267.5	438.1	499.8	507.5	517.7	509.5	509.0	504.8	520.9	518.9	518.3	513.5	491.1	488
Korea	17.0	93.1	159.5	176.1	188.9	191.4	201.8	205.7	211.2	210.4	213.8	222.2	227.2	..
Luxembourg	4.1	3.4	3.0	3.1	3.3	3.4	3.6	3.8	4.2	4.3	4.3	4.2	4.1	..
Mexico	43.0	121.2	143.9	146.9	147.4	149.4	153.8	158.4	163.3	175.2	175.1	184.3	186.3	..
Netherlands	50.9	65.7	71.9	71.0	73.1	75.3	75.8	78.1	79.2	78.8	76.6	80.4	79.6	..
New Zealand	6.9	13.3	16.3	17.1	16.8	16.9	17.1	16.5	16.7	16.4	16.6	16.8	17.2	..
Norway	13.3	21.0	25.1	26.3	25.4	26.1	24.7	26.9	27.9	28.2	29.1	26.9	31.0	..
Poland	86.1	103.1	95.5	93.0	89.1	89.7	88.9	91.1	91.4	92.4	97.3	97.1	98.4	..
Portugal	6.3	16.7	22.8	24.5	24.7	24.8	25.8	25.1	25.8	26.4	24.7	25.1	24.4	..
Slovak Republic	14.3	21.3	17.6	17.7	17.7	18.6	18.7	18.6	18.4	18.8	18.6	17.8	18.2	..
Spain	42.6	90.1	110.9	116.2	121.9	125.0	128.9	133.2	139.1	141.8	141.5	144.0	137.8	..
Sweden	36.0	47.2	51.1	50.1	47.6	50.5	51.8	50.6	52.6	51.6	50.2	50.4	49.7	..
Switzerland	16.4	23.8	24.9	24.8	24.5	26.0	25.3	25.5	25.9	25.8	27.0	25.7	26.7	..
Turkey	19.5	52.8	71.7	70.4	76.3	70.4	74.2	77.8	80.9	84.4	93.0	100.0	96.5	..
United Kingdom	208.7	207.2	222.2	222.7	224.0	224.9	219.2	223.2	222.7	222.7	219.4	211.3	207.4	..
United States	1 587.5	1 913.2	2 162.8	2 220.2	2 283.3	2 239.4	2 269.3	2 264.3	2 311.0	2 323.4	2 302.8	2 339.9	2 297.0	2 396
EU27 total	..	1 636.9	1 687.1	1 673.2	1 685.7	1 725.3	1 720.1	1 760.5	1 777.9	1 778.9	1 778.9	1 758.8	..	1 781
OECD total	3 357.9	4 478.2	5 046.5	5 136.2	5 249.7	5 229.6	5 274.6	5 330.0	5 433.2	5 470.7	5 461.8	5 497.1	5 433.7	5 811
Brazil	69.6	139.5	182.2	187.0	189.2	190.3	195.9	198.9	210.0	215.7	222.9	235.6	..	..
Chile	8.7	13.8	24.7	25.8	26.2	25.6	26.6	26.9	28.9	29.6	30.5	30.8	..	..
China	391.7	863.1	1 083.9	1 083.7	1 092.2	1 087.6	1 176.5	1 339.2	1 558.2	1 689.8	1 845.4	1 955.8	..	3 827
Estonia	..	9.6	4.9	4.6	4.5	4.7	4.5	5.0	5.1	5.2	5.0	5.6	..	..
India	156.2	318.2	423.0	448.4	457.4	463.9	476.2	488.7	516.6	534.1	561.0	594.9	..	1 287
Indonesia	36.1	102.5	132.3	147.6	150.9	157.9	161.1	164.1	171.2	175.2	180.6	190.6	..	..
Israel	5.7	11.6	17.4	17.0	18.4	19.4	19.3	20.0	19.9	20.5	21.2	22.0	..	..
Russian Federation	..	870.0	577.8	599.3	610.1	617.3	613.8	635.6	637.5	651.3	670.8	672.1	..	812
Slovenia	..	5.7	6.4	6.4	6.4	6.7	6.8	6.9	7.1	7.3	7.3	7.3	..	..
South Africa	45.1	90.9	108.1	108.2	110.3	108.3	104.3	117.1	128.6	126.8	129.2	134.3	..	..
World	5 533.2	8 761.7	9 614.7	9 805.8	10 018.7	10 050.8	10 271.5	10 628.1	11 122.7	11 425.5	11 720.1	12 029.3	..	16 790

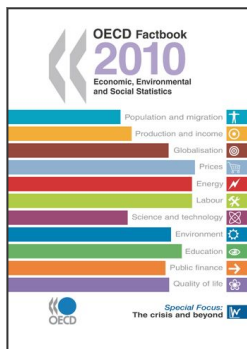
StatLink <http://dx.doi.org/10.1787/825128533540>

Total primary energy supply by region

Million tonnes of oil equivalent (Mtoe)



StatLink <http://dx.doi.org/10.1787/820073558273>



From:
OECD Factbook 2010
Economic, Environmental and Social Statistics

Access the complete publication at:
<https://doi.org/10.1787/factbook-2010-en>

Please cite this chapter as:

OECD (2010), "Energy Supply", in *OECD Factbook 2010: Economic, Environmental and Social Statistics*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/factbook-2010-36-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, as well as any data and 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. Extracts from publications may be subject to additional disclaimers, which are set out in the complete version of the publication, available at the link provided.

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at <http://www.oecd.org/termsandconditions>.