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# BP Statistical Review of World Energy

## June 2008

## **Introduction**

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- 1 Group chief executive's introduction
- 2 2007 in review

## **Oil**

---

- 6 Reserves
- 8 Production
- 11 Consumption
- 16 Prices
- 17 Stocks
- 18 Refining
- 20 Trade movements

## **Natural gas**

---

- 22 Reserves
- 24 Production
- 27 Consumption
- 30 Trade movements
- 31 Prices

## **Coal**

---

- 32 Reserves
- 32 Prices
- 34 Production
- 35 Consumption

## **Nuclear energy**

---

- 36 Consumption

## **Hydroelectricity**

---

- 38 Consumption

## **Primary energy**

---

- 40 Consumption
- 41 Consumption by fuel
- 43 R/P ratios

## **Appendices**

---

- 44 Approximate conversion factors
- 44 Definitions
- 45 Further information

## **Find out more online**

*BP Statistical Review of World Energy June 2008* is available online at [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview). The website contains all the tables and charts found in the latest printed edition, plus a number of extras, including:

- Historical data from 1965 for many sections.
- Additional data for natural gas, coal, hydroelectricity, nuclear energy, electricity and renewables.
- An energy charting tool, where you can view predetermined reports or chart-specific data according to energy type, region and year.
- An oil, natural gas and LNG conversion calculator.
- PDF versions and PowerPoint slide packs of the charts, maps and graphs, plus an Excel workbook of the historical data.
- A German translation of the Review.
- A Russian translation of highlights from the Review.

## **About the Review**

For 57 years, the BP Statistical Review of World Energy has provided high-quality, objective and globally consistent data on world energy markets. The Review is one of the most widely respected and authoritative publications in the field of energy economics, used for reference by the media, academia, world governments and energy companies. A new edition is published every June.

## **About BP**

BP is one of the world's largest oil and gas companies, serving millions of customers in more than 100 countries across six continents. Our business segments are Exploration and Production and Refining and Marketing. Through these business segments, we provide fuel for transportation, retail brands and energy for heat and light.

The data series for proved oil and gas reserves in *BP Statistical Review of World Energy June 2008* does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance, under UK accounting rules contained in the Statement of Recommended Practice, 'Accounting for Oil and Gas Exploration, Development, Production and Decommissioning Activities' (UK SORP) or as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country. Rather, the data series has been compiled using a combination of primary official sources and third-party data.

## Group chief executive's introduction



**Welcome** to the 2008 edition of the BP Statistical Review of World Energy. This publication's purpose has always been to provide objective data about world energy markets, and I believe it will perform a particularly important role this year.

The defining feature of global energy markets remains high and volatile prices, reflecting a tight balance of supply and demand. This has put issues such as energy security, energy trade and alternative energies at the forefront of the political agenda worldwide. At such a time, reliable data is an invaluable tool for decision makers and analysts both inside and outside the industry.

World economic growth was strong last year, despite financial market turmoil that began in August, and this continued to support global energy consumption. Although growth in consumption slowed in 2007 compared with 2006, it was still above the 10-year average for the fifth consecutive year.

The oil price has been on an upward path for more than six years now. According to our data series, which goes back to 1861, that is the longest period of rising prices on record – and we know how this has continued so far this year.

Coal – seen as affordable and locally produced in many parts of the world – was the fastest growing fossil fuel for the fifth year in a row. Globally, oil consumption rose, but at the weakest rate of all the fossil fuels, reflecting the pressure from high prices. Interestingly, oil consumption growth is now concentrated in countries that subsidize consumer prices, primarily oil-exporting nations and rapidly growing non-OECD economies such as China and India.

The ongoing growth in fossil fuel consumption suggests that global carbon dioxide emissions are still rising. However, 2007 was another year of rapid growth for alternative sources of energy, including biofuels, solar and wind power. We have published more detailed data on renewable energy at [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

Turning to production, global output of gas and coal grew last year, but oil production fell. Oil's decline was in part due to net production cuts by OPEC of 350,000 barrels per day (b/d), combined with field maturity in OECD provinces, where output declined by nearly 300,000b/d.

The data in this year's Review again shows the reserves of oil, gas and coal left in the world. It has been 100 years since BP's story began with the first oil discovery in the Middle East. The world's fossil fuel resource base remains sufficient to support growing levels of production. But the continued weakness in oil supply and increasing demand outside the OECD also highlight the challenges we all face in maintaining secure energy supplies. Maturing basins in the OECD, limited access elsewhere, constrained capacity, higher costs and rising resource nationalism challenge consumers and producers alike.

Despite high and volatile energy prices, the data shows how the world's energy markets continue to deliver reliable energy supplies. This Review highlights the interconnected nature of those markets, and how they require producers and consumers to collaborate in solving our mutual challenges. As policy-makers around the world seek to address concerns about energy security and climate change, this points to the importance of supporting a proper role of market mechanisms in energy.

I would like to thank all those around the world involved in the preparation of this 57th edition of the Review, and in particular our government contacts in many countries, who helped to compile the data.

A handwritten signature in black ink, appearing to read "Tony Hayward".

**Tony Hayward**  
Group Chief Executive  
June 2008

## 2007 in review

Global energy consumption growth remained robust in 2007, driven by above-average economic growth and despite continued high prices. OECD countries are showing the most significant reaction to continued high energy prices.

Divergent price movements, between fuels and regions, affected energy market developments in 2007. Crude oil prices rose for a sixth consecutive year – the longest unbroken period of growth in our data set. Natural gas prices increased modestly except in Europe, where spot prices fell substantially. For a second consecutive year, steam coal prices fell in North America but increased elsewhere.



### ENERGY DEVELOPMENTS

World primary energy consumption increased by 2.4% in 2007 – down from 2.7% in 2006, but still the fifth consecutive year of above-average growth. The Asia-Pacific region accounted for two-thirds of global energy consumption growth, rising by an above-average 5% even though consumption in Japan declined by 0.9%. North American consumption rebounded after a weak year in 2006, rising by 1.6% – double the 10-year average. Chinese growth of 7.7% was the weakest since 2002, although still above the 10-year average (as was China's economic growth). China again accounted for half of global energy consumption growth. Indian consumption grew by 6.8%, the third-largest volumetric increment after China and the US. EU energy consumption declined by 2.2%, with Germany registering the world's largest decline in energy consumption.

Chinese energy consumption

+7.7%

EU consumption

-2.2%

## Oil

Dated Brent crude oil averaged \$72.39 per barrel in 2007, an increase of 11%. Prices rose steadily throughout the year, from a low of just over \$50 in mid-January to above \$96 by year-end. Temporary bottlenecks caused the US benchmark West Texas Intermediate (WTI) to trade at a discount to Brent for the first time since 1979. Discounts for heavy, sour crudes remained high reflecting continued refining constraints.

Global oil consumption grew by 1.1% in 2007, or 1 million barrels per day (b/d), slightly below the 10-year average. Consumption in the oil-exporting regions of the Middle East, South and Central America and Africa accounted for two-thirds of the world's growth. The Asia-Pacific region grew by 2.3%, roughly in line with the historical average even though growth in China and Japan was below average, with strong growth in a number of emerging economies. OECD consumption fell by 0.9%, or nearly 400,000b/d. The global growth rate for light distillates matched that of middle distillates for the first time since 2002 due to strong petrochemicals demand.

Global oil production fell by 0.2%, or 130,000b/d, the first decline since 2002. OPEC production dropped by 350,000b/d due to the cumulative impact of production cuts implemented in November 2006 and February 2007. Among the 10 members participating in production cuts, crude oil output fell by 900,000b/d. Saudi Arabia's output dropped by 440,000b/d, the largest decline in the world last year. Increased output in Angola and Iraq, and growing supply of condensates/natural gas liquids (NGLs), partially offset that decline.

Oil production growth outside OPEC remained weak, rising by 230,000b/d in 2007. OECD output declines moderated, but nonetheless fell for a fifth consecutive year. Production in both Norway and Mexico declined by more than 200,000b/d. Former



Global oil consumption grew by 1.1% in 2007. Consumption growth was robust in oil-exporting countries.

Soviet Union output rose by nearly 500,000b/d, with Azerbaijan and Russia each growing by more than 200,000b/d.

International trade in crude oil and refined products rose despite OPEC production cuts and rising domestic consumption in oil-exporting countries. Much of this growth was in refined products, a reflection of imbalances and constraints in the world's refining system.

World primary energy consumption increased by 2.4% in 2007



## Natural gas

World natural gas consumption grew by an above-average 3.1% in 2007, although only North America, Asia Pacific and Africa recorded above-average regional growth. The US accounted for nearly half of the world's gas consumption growth, driven by cold winter weather and strong demand for gas in power generation. Natural gas accounted for nearly all the growth in US energy consumption. Chinese consumption grew by 19.9% and accounted for the second-largest increment to global gas consumption. EU consumption declined by 1.6% – the second consecutive decline – in the face of warm winter weather.

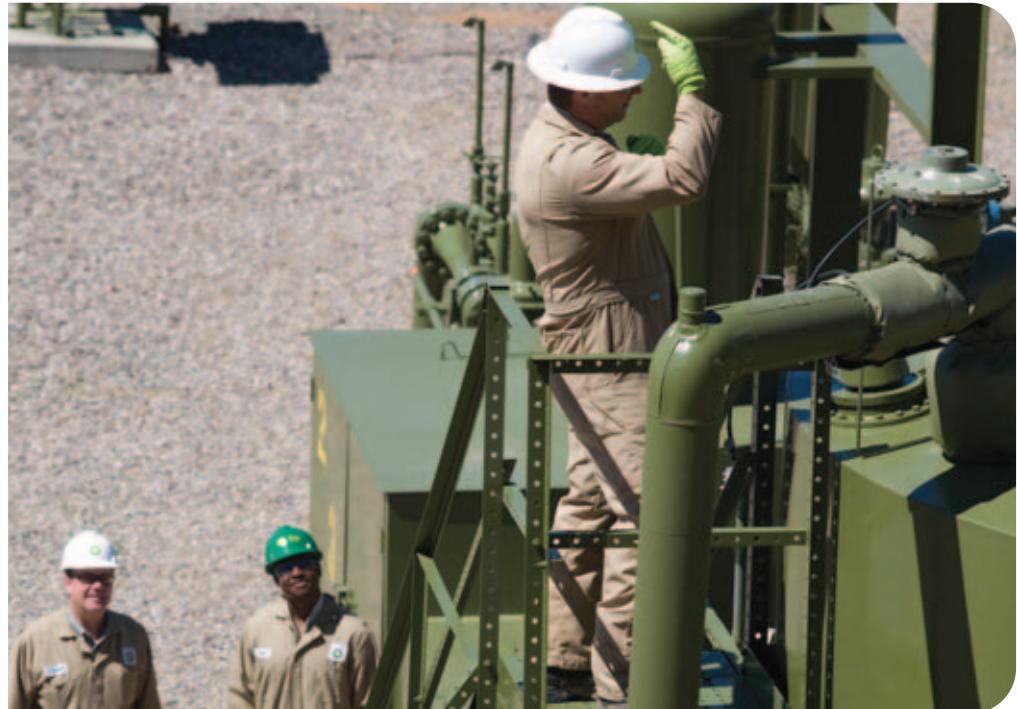
Gas production rose by 2.4% in 2007. As was the case for consumption, the US accounted for the largest increment to supply, growing by 4.3%, the strongest growth since 1984. EU production declined by 6.4%, with UK output falling by 9.5%, the world's largest volumetric decline for a second consecutive year. A small decline in Russian production was more than offset by strong growth elsewhere in the Former Soviet Union. China and Qatar recorded the second- and third-largest increments to production, increasing by 18.4% and 17.9% respectively.

International trade in natural gas was weak again in 2007, growing by 2.3%, less than half the 10-year average. Global pipeline exports stagnated once again, due to weak European consumption. Liquefied natural gas (LNG) shipments rose by 7.3%, in line with the historical average, supported by continued growth in shipments from Qatar and Nigeria. Atlantic and Pacific basin LNG trade continued to integrate. US LNG receipts rose by one-third as a large price premium to European spot markets resulted in the diversion of cargoes to the US.

US gas consumption  
increase in 2007

6.5%

Gas consumption rose by 3.1% in 2007, slightly above the 10-year average. The US accounted for the largest incremental growth in both production and consumption.



Coal has been the fastest-growing major fuel for five consecutive years.



## Other fuels

Coal was the fastest growing fuel in the world for the fifth consecutive year. Global consumption rose by 4.5%, above the 10-year average of 3.2%. Consumption growth was widespread, with growth in every region except the Middle East exceeding the 10-year average. Chinese coal consumption rose by 7.9%, the weakest growth since 2002 but still sufficient to account for more than two-thirds of global growth. Indian consumption rose by 6.6% and OECD consumption rose by 1.3%, both above-average figures.

Nuclear power output fell by 2%, the steepest decline on record. However, more than 90% of this decline was accounted for by Germany and Japan, which saw the world's largest nuclear power plant closed following an earthquake. Hydroelectric generation increased by 1.7%, slightly below the 10-year average. Increased capacity in China and Brazil, along with improved hydro availability in Canada and Northern Europe, was partially offset by drought-related declines in the US and southern Europe.

Renewable energy remains a small share of total global energy use, but most renewable sources experienced rapid growth in 2007. Ethanol output rose by 27.8%. Global capacity for wind and solar electricity generation grew

broadly in line with historical averages of 28.5% and 37%, respectively. Data on global ethanol production and wind, solar, and geothermal power generating capacity, as well as global electricity output, is available at [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).

Chinese share of world energy consumption growth in 2007

52%

## ACKNOWLEDGEMENTS

We would like to express our gratitude to the numerous contacts worldwide who provide the basic data for this publication.

**Proved reserves**

	<b>At end 1987</b> Thousand million barrels	<b>At end 1997</b> Thousand million barrels	<b>At end 2006</b> Thousand million barrels		<b>At end 2007</b> Thousand million tonnes		R/P ratio
US	35.4	30.5	29.4		<b>3.6</b>	<b>29.4</b>	2.4%
Canada	11.7	10.7	27.7		<b>4.2</b>	<b>27.7</b>	2.2%
Mexico	54.1	47.8	12.8		<b>1.7</b>	<b>12.2</b>	1.0%
<b>Total North America</b>	<b>101.2</b>	<b>89.0</b>	<b>70.0</b>		<b>9.5</b>	<b>69.3</b>	<b>5.6%</b>
Argentina	2.2	2.6	2.6		<b>0.4</b>	<b>2.6</b>	0.2%
Brazil	2.6	7.1	12.2		<b>1.7</b>	<b>12.6</b>	1.0%
Colombia	1.9	2.6	1.5		<b>0.2</b>	<b>1.5</b>	0.1%
Ecuador	1.6	3.7	4.5		<b>0.6</b>	<b>4.3</b>	0.3%
Peru	0.5	0.8	1.1		<b>0.1</b>	<b>1.1</b>	0.1%
Trinidad & Tobago	0.6	0.7	0.8		<b>0.1</b>	<b>0.8</b>	0.1%
Venezuela	58.1	74.9	87.0		<b>12.5</b>	<b>87.0</b>	7.0%
Other S. & Cent. America	0.6	1.1	1.3		<b>0.2</b>	<b>1.3</b>	0.1%
<b>Total S. &amp; Cent. America</b>	<b>68.1</b>	<b>93.4</b>	<b>111.0</b>		<b>15.9</b>	<b>111.2</b>	<b>9.0%</b>
Azerbaijan	n/a	n/a	7.0		<b>1.0</b>	<b>7.0</b>	0.6%
Denmark	0.4	0.9	1.2		<b>0.1</b>	<b>1.1</b>	0.1%
Italy	0.7	0.8	0.8		<b>0.1</b>	<b>0.8</b>	0.1%
Kazakhstan	n/a	n/a	39.8		<b>5.3</b>	<b>39.8</b>	3.2%
Norway	6.6	12.0	8.5		<b>1.0</b>	<b>8.2</b>	0.7%
Romania	1.3	0.9	0.5		<b>0.1</b>	<b>0.5</b>	♦
Russian Federation	n/a	n/a	79.3		<b>10.9</b>	<b>79.4</b>	6.4%
Turkmenistan	n/a	n/a	0.6		<b>0.1</b>	<b>0.6</b>	♦
United Kingdom	5.2	5.2	3.6		<b>0.5</b>	<b>3.6</b>	0.3%
Uzbekistan	n/a	n/a	0.6		<b>0.1</b>	<b>0.6</b>	♦
Other Europe & Eurasia	61.7	68.0	2.2		<b>0.3</b>	<b>2.1</b>	0.2%
<b>Total Europe &amp; Eurasia</b>	<b>75.8</b>	<b>88.0</b>	<b>144.1</b>		<b>19.4</b>	<b>143.7</b>	<b>11.6%</b>
Iran	92.9	92.6	138.4		<b>19.0</b>	<b>138.4</b>	11.2%
Iraq	100.0	112.5	115.0		<b>15.5</b>	<b>115.0</b>	9.3%
Kuwait	94.5	96.5	101.5		<b>14.0</b>	<b>101.5</b>	8.2%
Oman	4.1	5.4	5.6		<b>0.8</b>	<b>5.6</b>	0.5%
Qatar	4.5	12.5	27.9		<b>3.6</b>	<b>27.4</b>	2.2%
Saudi Arabia	169.6	261.5	264.3		<b>36.3</b>	<b>264.2</b>	21.3%
Syria	1.7	2.3	3.0		<b>0.3</b>	<b>2.5</b>	0.2%
United Arab Emirates	98.1	97.8	97.8		<b>13.0</b>	<b>97.8</b>	7.9%
Yemen	1.1	1.8	2.8		<b>0.4</b>	<b>2.8</b>	0.2%
Other Middle East	0.1	0.2	0.1		†	<b>0.1</b>	♦
<b>Total Middle East</b>	<b>566.6</b>	<b>683.2</b>	<b>756.3</b>		<b>102.9</b>	<b>755.3</b>	<b>61.0%</b>
Algeria	8.6	11.2	12.3		<b>1.5</b>	<b>12.3</b>	1.0%
Angola	2.0	3.9	9.0		<b>1.2</b>	<b>9.0</b>	0.7%
Chad	—	—	0.9		<b>0.1</b>	<b>0.9</b>	0.1%
Republic of Congo (Brazzaville)	0.7	1.6	1.9		<b>0.3</b>	<b>1.9</b>	0.2%
Egypt	4.7	3.7	3.7		<b>0.5</b>	<b>4.1</b>	0.3%
Equatorial Guinea	—	0.6	1.8		<b>0.2</b>	<b>1.8</b>	0.1%
Gabon	1.0	2.7	2.0		<b>0.3</b>	<b>2.0</b>	0.2%
Libya	22.8	29.5	41.5		<b>5.4</b>	<b>41.5</b>	3.3%
Nigeria	16.0	20.8	36.2		<b>4.9</b>	<b>36.2</b>	2.9%
Sudan	0.3	0.3	6.6		<b>0.9</b>	<b>6.6</b>	0.5%
Tunisia	1.7	0.3	0.6		<b>0.1</b>	<b>0.6</b>	♦
Other Africa	1.0	0.7	0.6		<b>0.1</b>	<b>0.6</b>	0.1%
<b>Total Africa</b>	<b>58.7</b>	<b>75.3</b>	<b>117.1</b>		<b>15.6</b>	<b>117.5</b>	<b>9.5%</b>
Australia	3.2	4.0	4.2		<b>0.4</b>	<b>4.2</b>	0.3%
Brunei	1.6	1.1	1.2		<b>0.2</b>	<b>1.2</b>	0.1%
China	17.4	17.0	15.6		<b>2.1</b>	<b>15.5</b>	1.3%
India	4.4	5.6	5.7		<b>0.7</b>	<b>5.5</b>	0.4%
Indonesia	9.0	4.9	4.4		<b>0.6</b>	<b>4.4</b>	0.4%
Malaysia	3.3	5.0	5.4		<b>0.7</b>	<b>5.4</b>	0.4%
Thailand	0.1	0.3	0.5		<b>0.1</b>	<b>0.5</b>	♦
Vietnam	†	1.2	3.3		<b>0.5</b>	<b>3.4</b>	0.3%
Other Asia Pacific	0.8	1.2	0.9		<b>0.1</b>	<b>0.9</b>	0.1%
<b>Total Asia Pacific</b>	<b>39.8</b>	<b>40.4</b>	<b>41.0</b>		<b>5.4</b>	<b>40.8</b>	<b>3.3%</b>
<b>TOTAL WORLD</b>	<b>910.2</b>	<b>1069.3</b>	<b>1239.5</b>		<b>168.6</b>	<b>1237.9</b>	<b>100.0%</b>
of which: European Union	9.0	8.8	6.9		<b>0.9</b>	<b>6.8</b>	0.5%
OECD	119.1	113.4	89.5		<b>11.9</b>	<b>88.3</b>	7.1%
OPEC	676.0	818.7	935.3		<b>127.6</b>	<b>934.7</b>	75.5%
Non-OPEC‡	174.7	184.1	176.2		<b>23.6</b>	<b>175.0</b>	14.1%
Former Soviet Union	59.5	66.5	128.0		<b>17.4</b>	<b>128.1</b>	10.4%
Canadian oil sands*	n/a	n/a	152.2		<b>24.7</b>	<b>152.2</b>	
<b>Proved reserves and oil sands</b>	n/a	n/a	1391.7		<b>193.4</b>	<b>1390.1</b>	

\* More than 100 years.

† Less than 0.05%.

‡ Less than 0.05%.

• Remaining established reserves', less reserves 'under active development'.

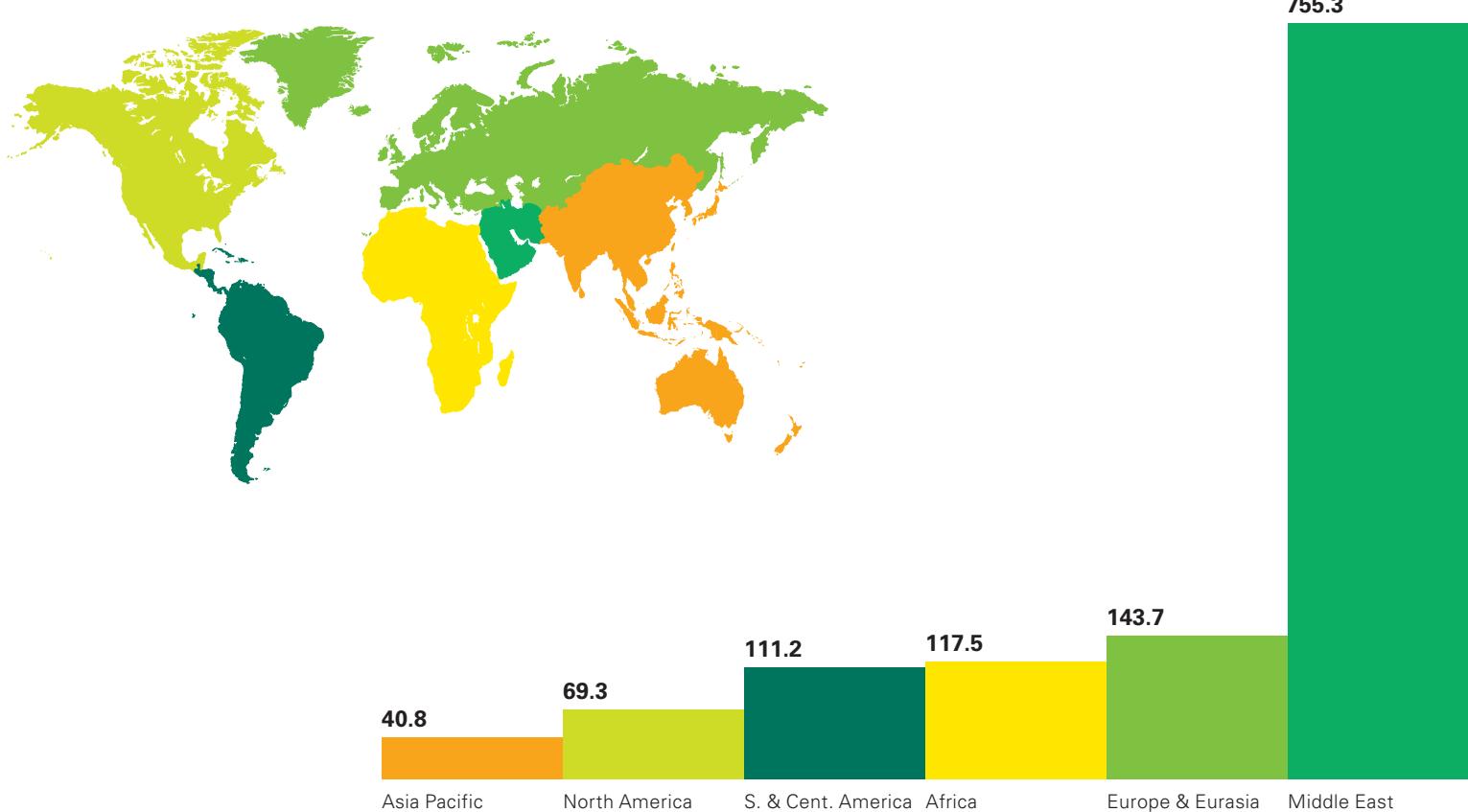
† Excludes Former Soviet Union.

n/a not available.

**Notes:** Proved reserves of oil – Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions.**Reserves-to-production (R/P) ratio** – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.**Source of data** – The estimates in this table have been compiled using a combination of primary official sources, third-party data from the OPEC Secretariat, *World Oil, Oil & Gas Journal* and an independent estimate of Russian reserves based on information in the public domain. Canadian proved reserves include an official estimate of 21.0 billion barrels for oil sands 'under active development'. Reserves include gas condensate and NGLs as well as crude oil.**Annual changes and shares of total are calculated using thousand million barrels figures.**

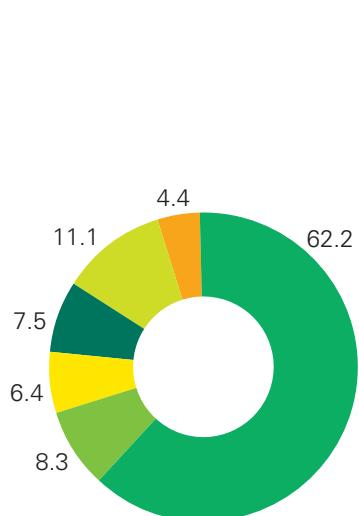
## Proved reserves at end 2007

Thousand million barrels



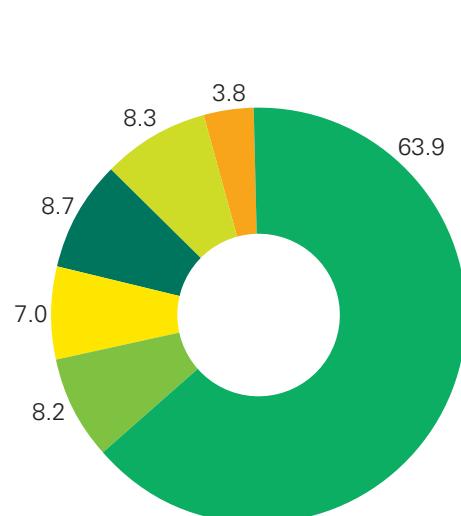
## Distribution of proved reserves in 1987, 1997 and 2007

Percentage



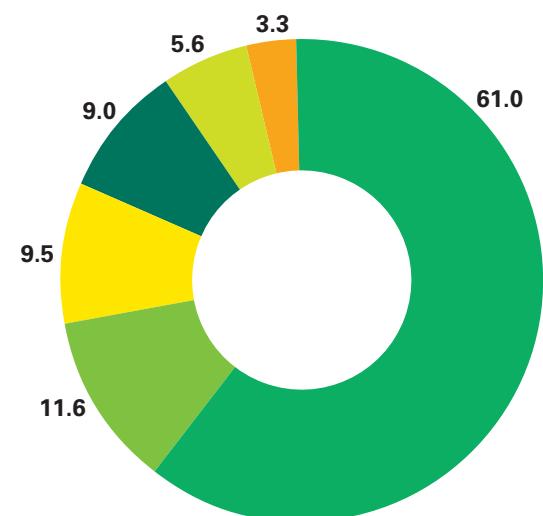
1987

Total 910.2 thousand million barrels



1997

Total 1069.3 thousand million barrels



2007

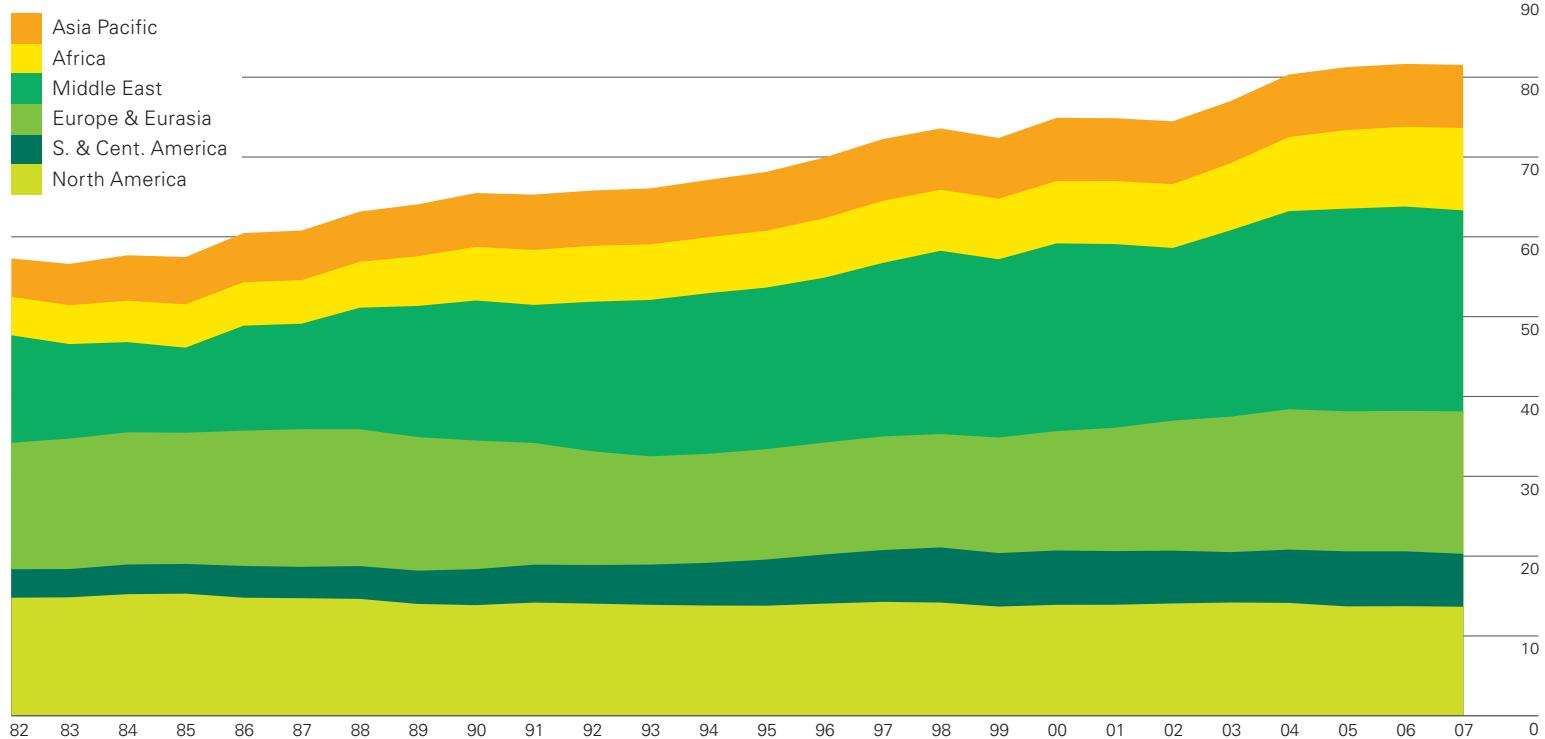
Total 1237.9 thousand million barrels





## Production by region

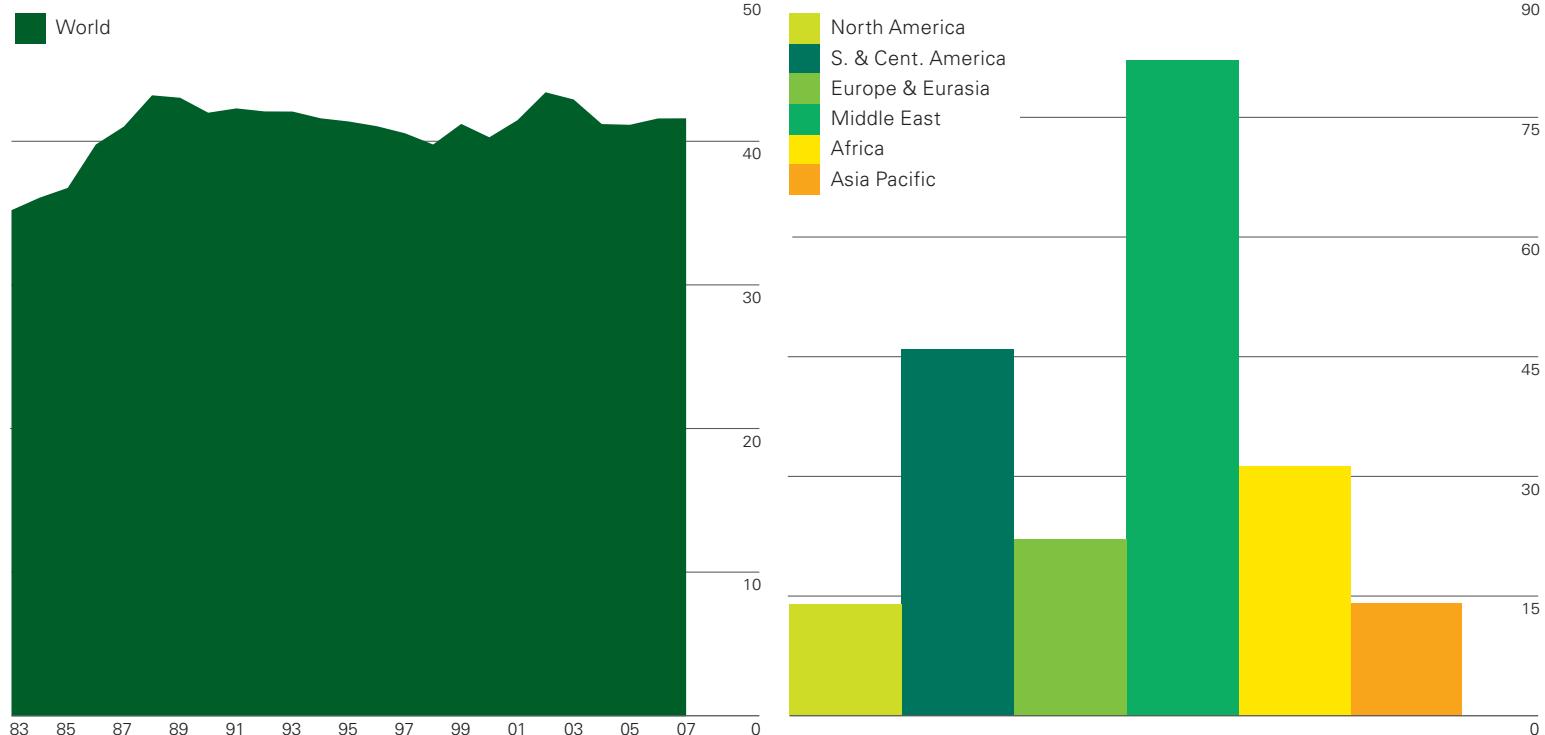
Million barrels daily



World oil production fell by 130,000b/d in 2007. OPEC production cuts led to a decline of 350,000b/d. OECD production dropped again, driven by declines in Mexico and Norway of more than 200,000b/d each. Former Soviet Union production rose by nearly 500,000b/d as both Russian and Azerbaijani output rose by at least 200,000b/d.

## Reserves-to-production (R/P) ratios

Years



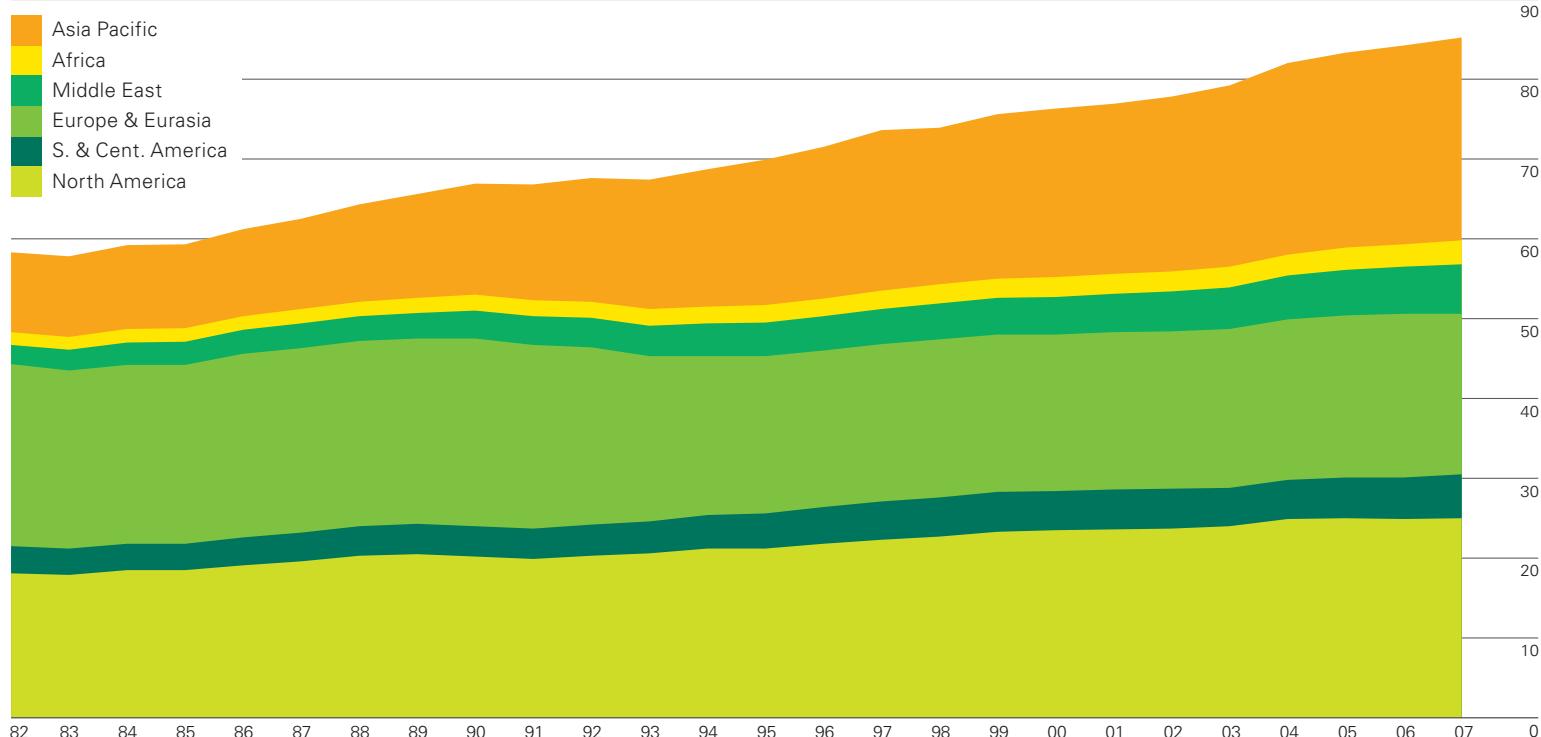
The world's proved oil reserves edged lower in 2007 and the R/P ratio of 41.6 years was unchanged in the face of declining oil production. The level of reserves fell by 1.6 billion barrels in 2007 due to declines in Mexico, Syria, Qatar and Norway, which were partly offset by increases in Brazil, Egypt and Russia.





## Consumption by region

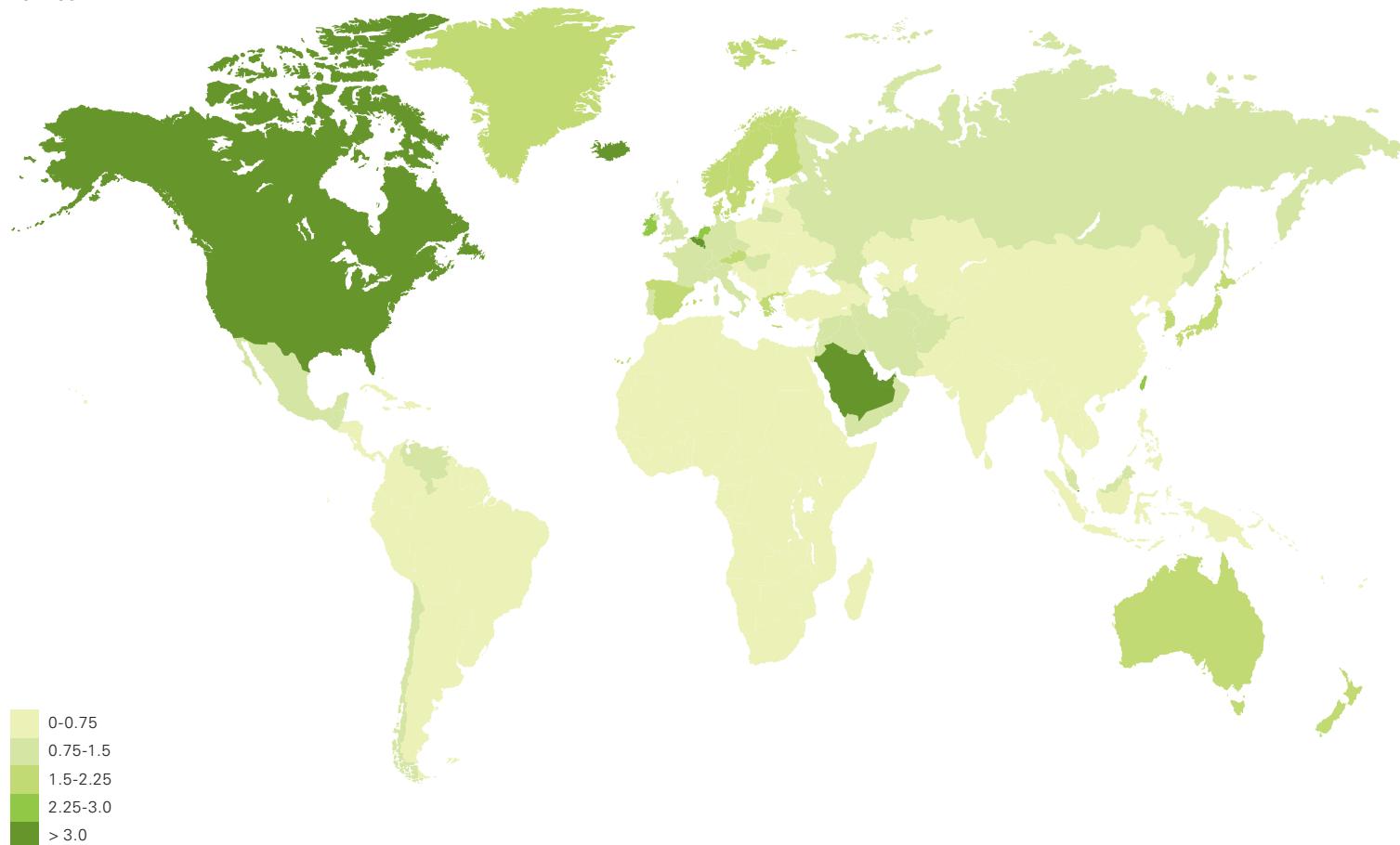
Million barrels daily



World oil consumption rose by about 1 mmb/d in 2007, just below the 10-year average. OECD consumption declined nearly 400,000b/d. China accounted for the largest increment to consumption even though the growth rate was below average. Consumption in oil exporting regions was robust.

## Consumption per capita 2007

Tonnes

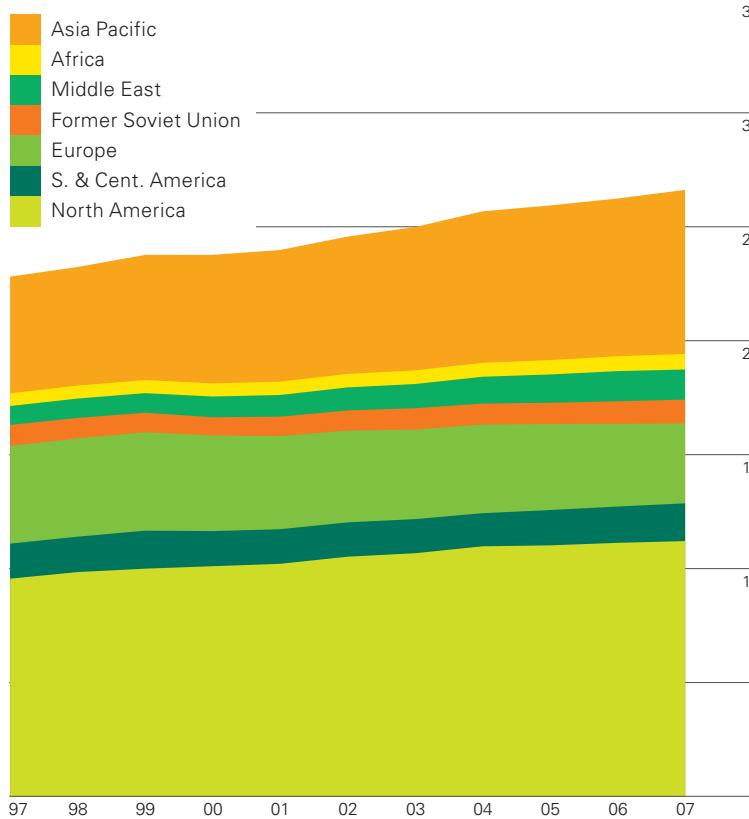




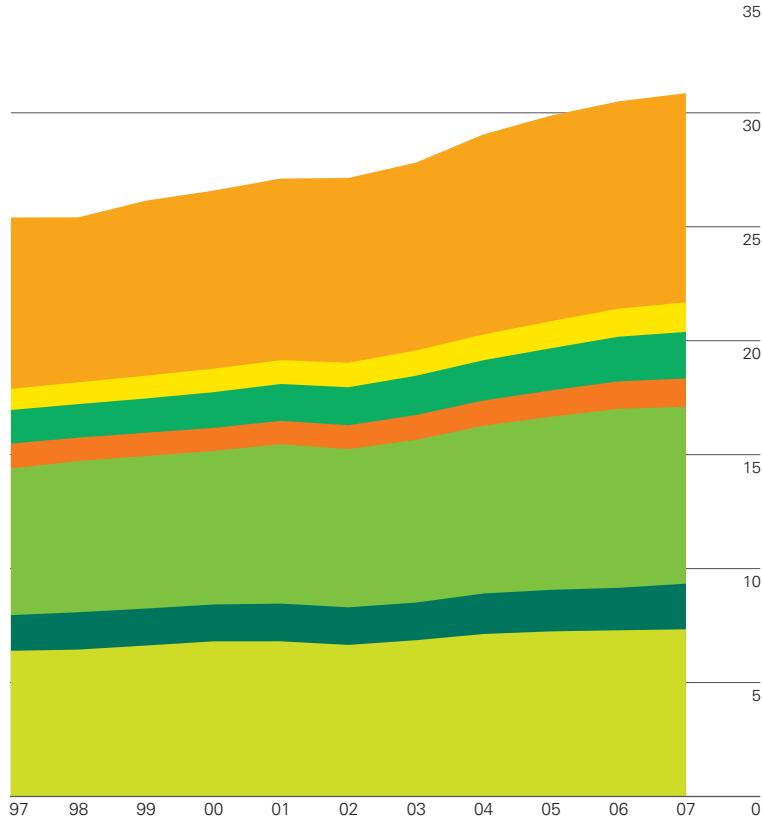
## Product consumption by region

Million barrels daily

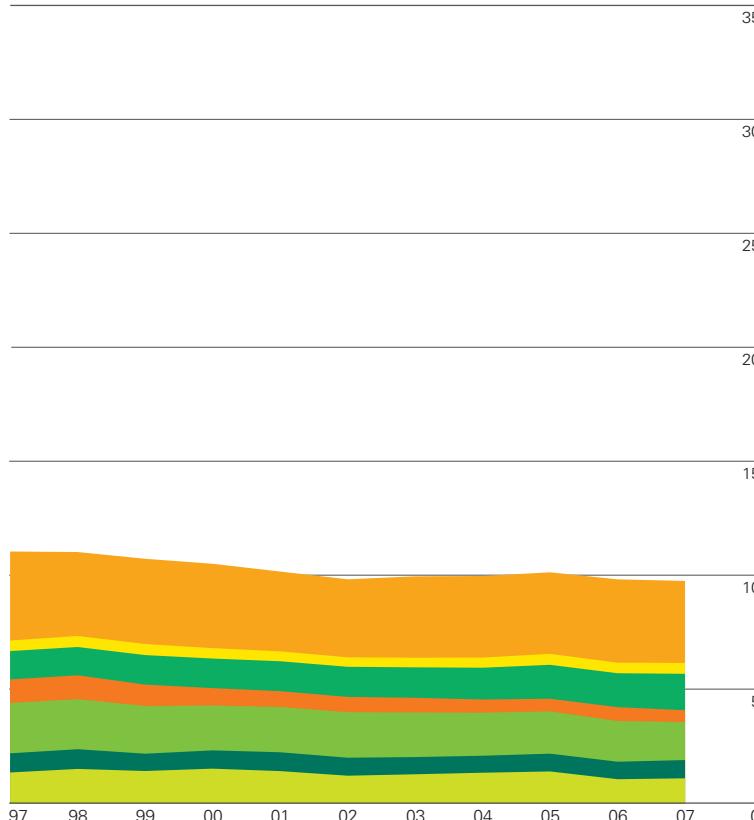
Light distillates



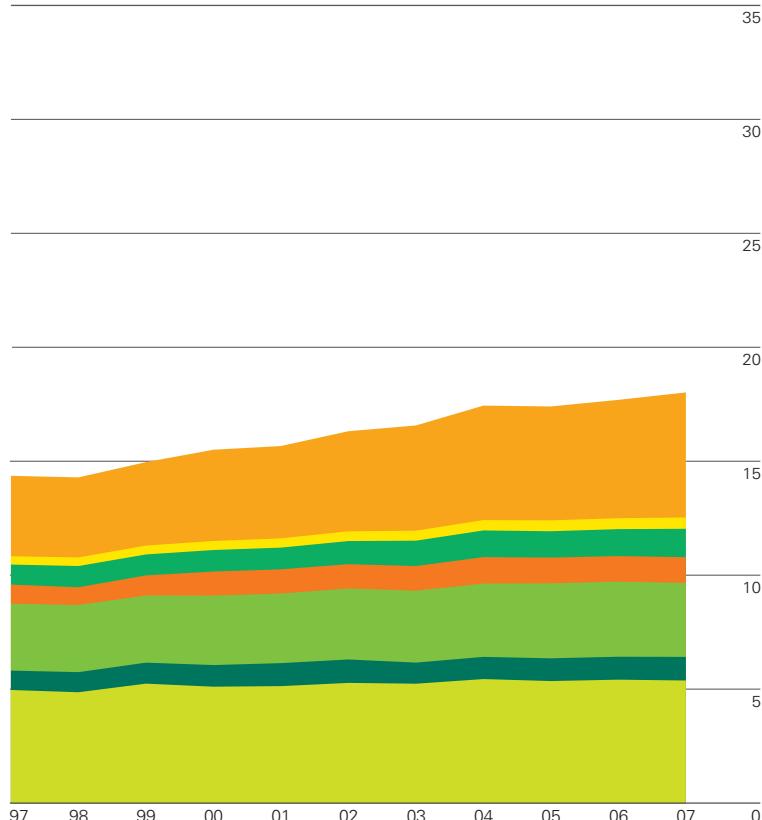
Middle distillates



Fuel oil



Others



Consumption growth was above average for the oil-exporting regions: the Middle East, South and Central America and Africa. Consumption growth was below average for all fuel groups in the EU and, with the exception of fuel oil, the US.



## Spot crude prices

US dollars per barrel

	Dubai \$/bbl*	Brent \$/bbl†	Nigerian Forcados \$/bbl	West Texas Intermediate \$/bbl‡
1972	1.90	—	—	—
1973	2.83	—	—	—
1974	10.41	—	—	—
1975	10.70	—	—	—
1976	11.63	12.80	12.87	12.23
1977	12.38	13.92	14.21	14.22
1978	13.03	14.02	13.65	14.55
1979	29.75	31.61	29.25	25.08
1980	35.69	36.83	36.98	37.96
1981	34.32	35.93	36.18	36.08
1982	31.80	32.97	33.29	33.65
1983	28.78	29.55	29.54	30.30
1984	28.06	28.78	28.14	29.39
1985	27.53	27.56	27.75	27.98
1986	13.10	14.43	14.46	15.10
1987	16.95	18.44	18.39	19.18
1988	13.27	14.92	15.00	15.97
1989	15.62	18.23	18.30	19.68
1990	20.45	23.73	23.85	24.50
1991	16.63	20.00	20.11	21.54
1992	17.17	19.32	19.61	20.57
1993	14.93	16.97	17.41	18.45
1994	14.74	15.82	16.25	17.21
1995	16.10	17.02	17.26	18.42
1996	18.52	20.67	21.16	22.16
1997	18.23	19.09	19.33	20.61
1998	12.21	12.72	12.62	14.39
1999	17.25	17.97	18.00	19.31
2000	26.20	28.50	28.42	30.37
2001	22.81	24.44	24.23	25.93
2002	23.74	25.02	25.04	26.16
2003	26.78	28.83	28.66	31.07
2004	33.64	38.27	38.13	41.49
2005	49.35	54.52	55.69	56.59
2006	61.50	65.14	67.07	66.02
2007	68.19	72.39	74.48	72.20

\*1972-1985 Arabian Light, 1986-2007 Dubai dated.

†1976-1983 Forties, 1984-2007 Brent dated.

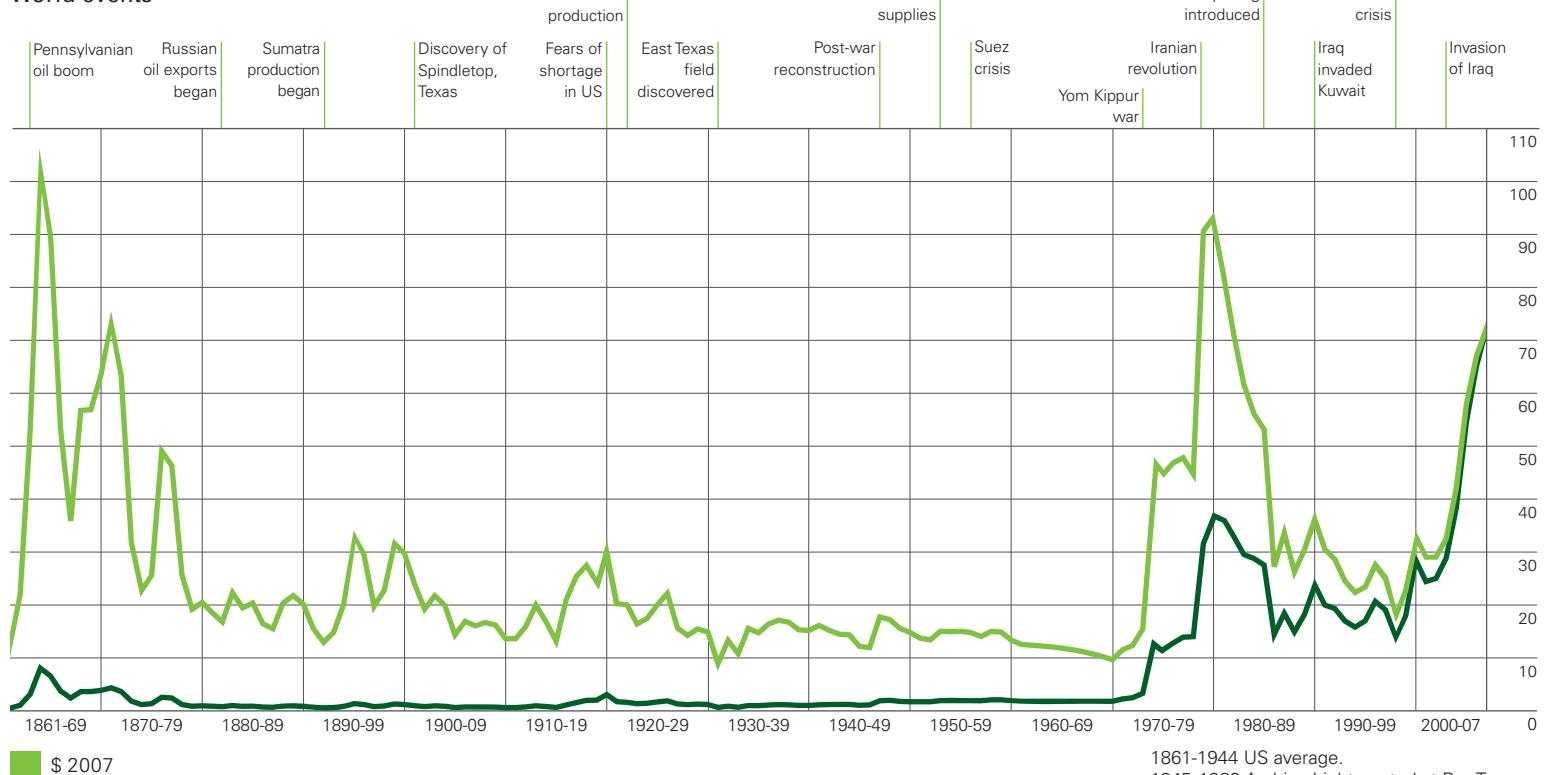
‡1976-1983 Posted WTI prices, 1984-2007 Spot WTI (Cushing) prices.

Source: Platts.

## Crude oil prices 1861-2007

US dollars per barrel

World events

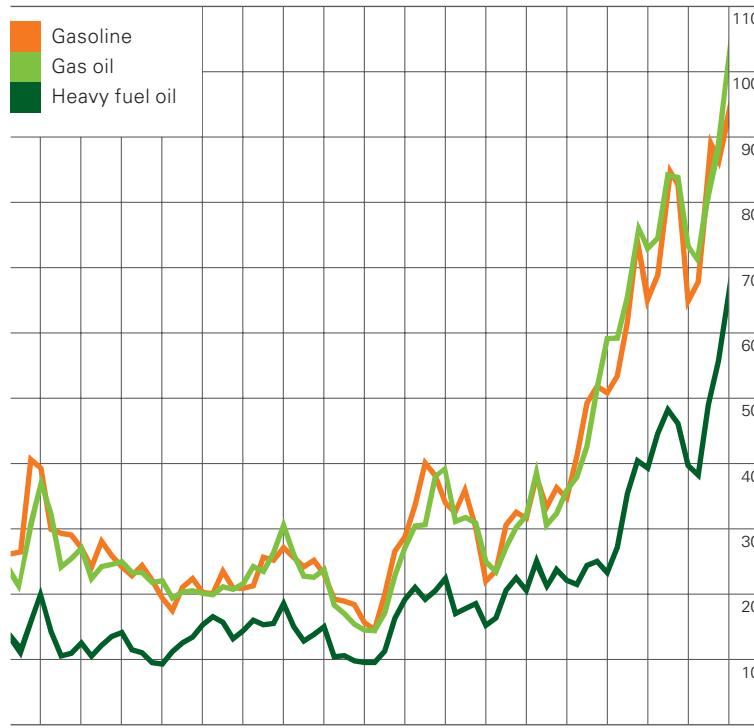


1861-1944 US average.

1945-1983 Arabian Light posted at Ras Tanura.  
1984-2007 Brent dated.

### Rotterdam product prices

US dollars per barrel

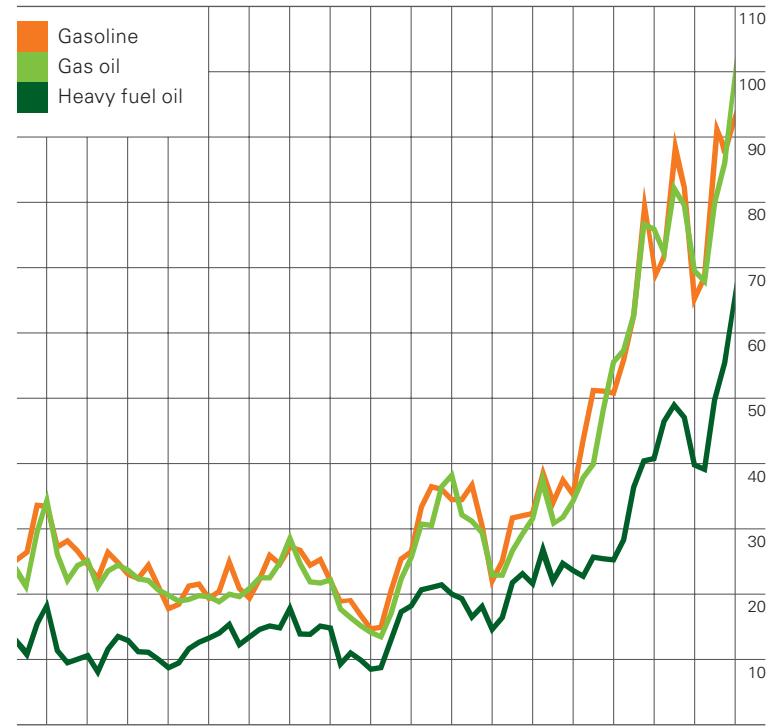


1990 to first quarter 1992: leaded gasoline.

From second quarter 1992: unleaded gasoline.

### US Gulf Coast product prices

US dollars per barrel

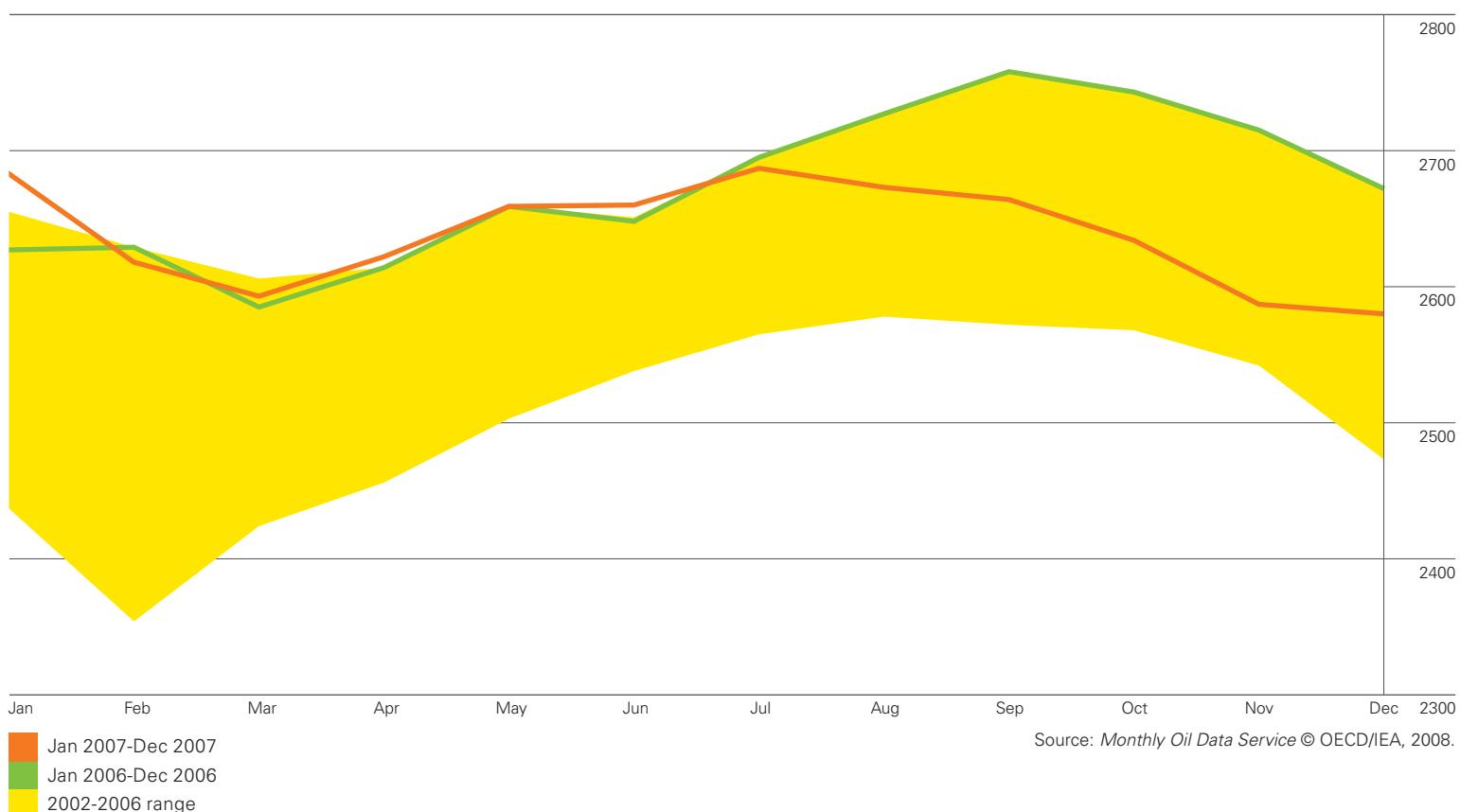


Source: Platts.

Source: Platts.

### OECD total commercial oil stocks

Million barrels

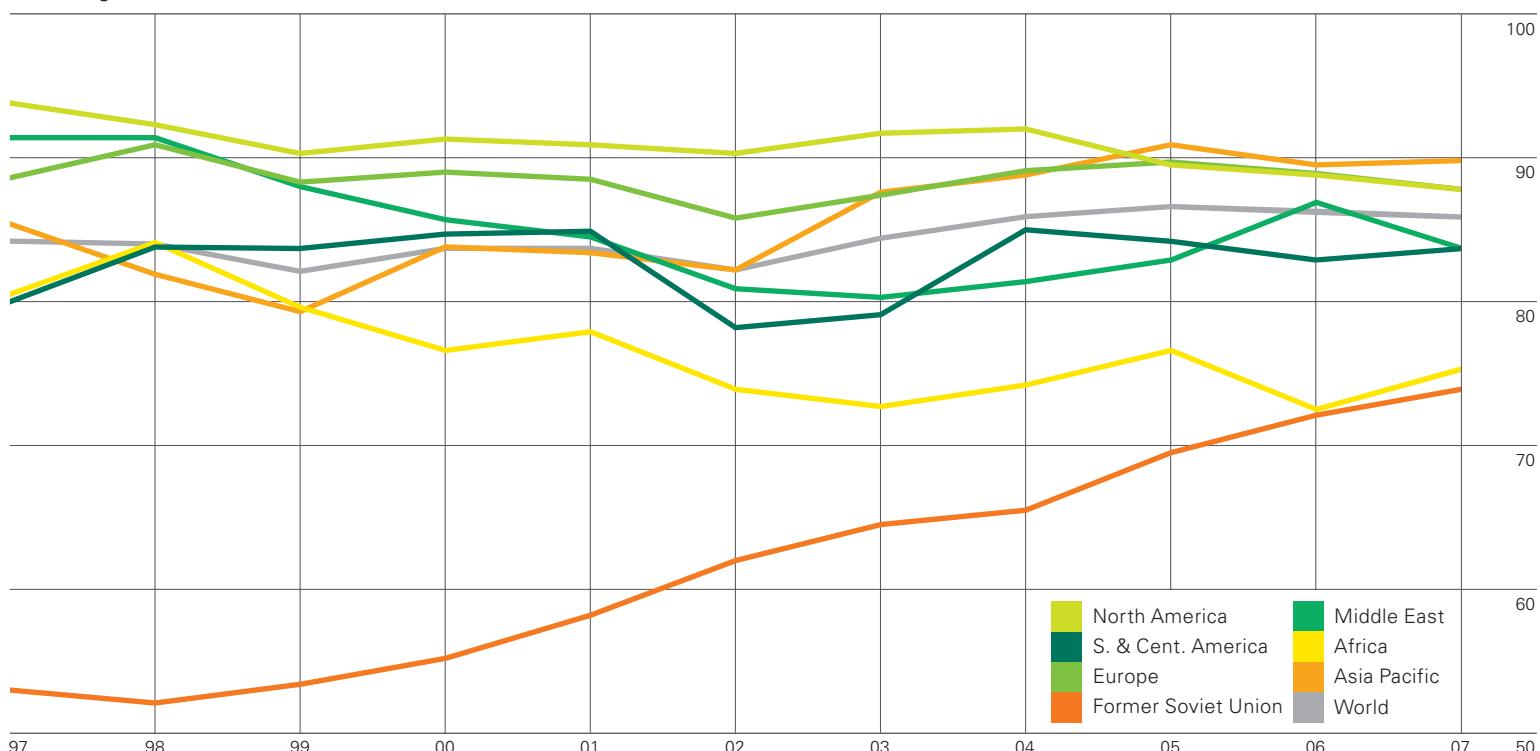


Source: *Monthly Oil Data Service* © OECD/IEA, 2008.



## Refinery utilization

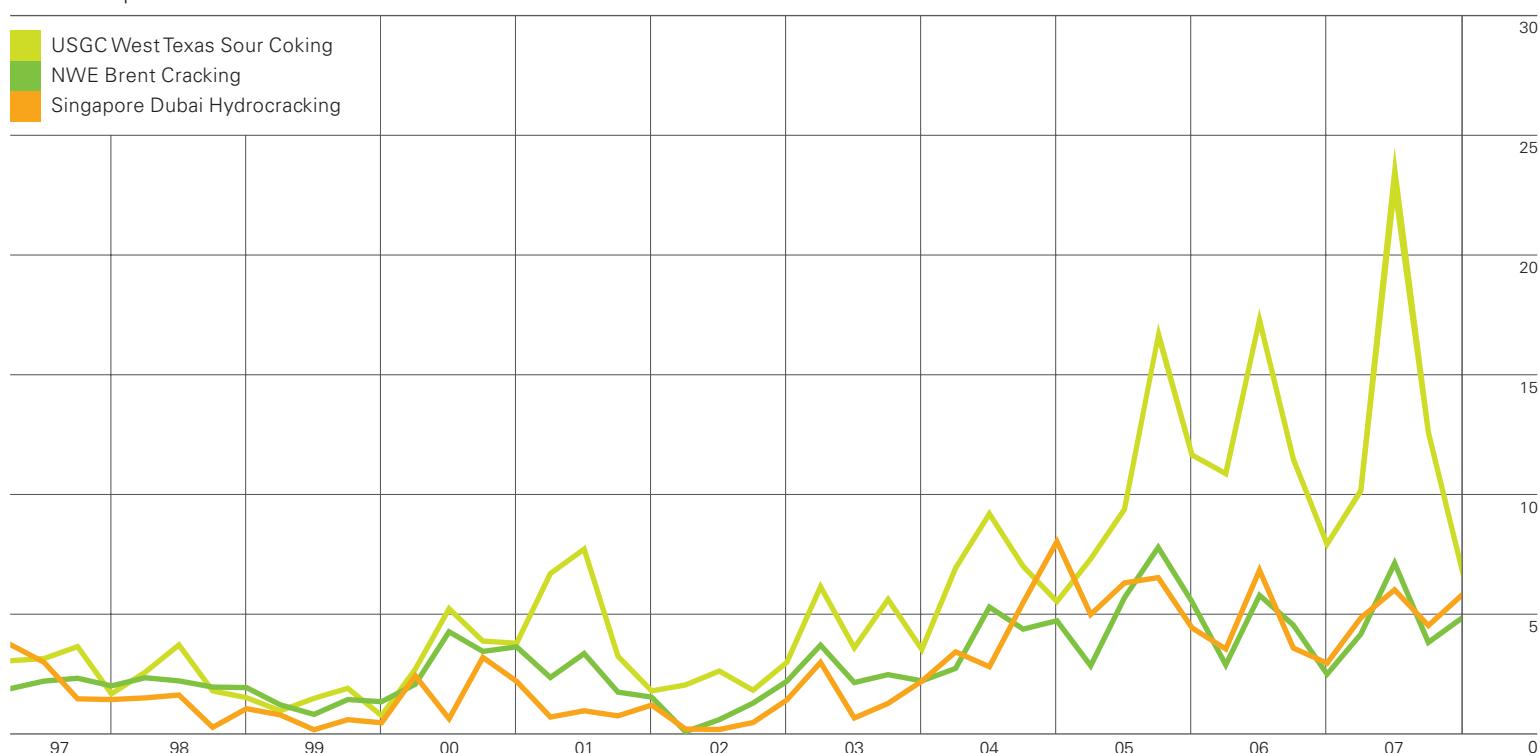
Percentage



Global refining capacity additions exceeded demand growth in 2007 for the second year in a row. As a result, global average refinery utilization fell to 85.9% versus a revised 86.2% in 2006. Even so, crude runs grew rapidly in Asia Pacific in support of strong domestic demand. Throughputs also rose in S. & Cent. America, Africa and the Former Soviet Union regions.

## Regional refining margins

US dollars per barrel



Note: The refining margins presented are benchmark margins for three major global refining centres: US Gulf Coast (USGC), North West Europe (NWE – Rotterdam) and Singapore. In each case, they are based on a single crude oil appropriate for that region and have optimized product yields based on a generic refinery configuration (cracking, hydrocracking or coking), again appropriate for that region. The margins are on a semi-variable basis, i.e. the margin after all variable costs and fixed energy costs.



## Trade movements

Thousand barrels daily	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Change 2007 over 2006	2007 share of total
<b>Imports</b>													
US	9907	10382	10550	11092	11618	11357	12254	12898	13525	13612	<b>13632</b>	0.1%	24.9%
Europe	10421	11017	10670	11070	11531	11895	11993	12538	13261	13461	<b>13953</b>	3.6%	25.4%
Japan	5735	5259	5346	5329	5202	5070	5314	5203	5225	5201	<b>5032</b>	-3.2%	9.2%
Rest of World*	14827	14438	15050	15880	16436	16291	17191	18651	19172	20287	<b>22207</b>	9.5%	40.5%
<b>TOTAL WORLD</b>	<b>40890</b>	<b>41096</b>	<b>41616</b>	<b>43371</b>	<b>44787</b>	<b>44613</b>	<b>46752</b>	<b>49290</b>	<b>51182</b>	<b>52561</b>	<b>54824</b>	<b>4.3%</b>	<b>100.0%</b>
<b>Exports</b>													
US	976	1011	956	890	910	904	921	991	1129	1317	<b>1439</b>	9.3%	2.6%
Canada	1492	1603	1520	1703	1804	1959	2096	2148	2201	2330	<b>2457</b>	5.5%	4.5%
Mexico	1767	1770	1739	1814	1882	1966	2115	2070	2065	2102	<b>1975</b>	-6.0%	3.6%
S. & Cent. America	3219	3240	3145	3079	3143	2965	2942	3233	3528	3681	<b>3570</b>	-3.0%	6.5%
Europe	1463	1344	1851	1967	1947	2234	2066	1993	2149	2173	<b>2273</b>	4.6%	4.1%
Former Soviet Union	3413	3569	4019	4273	4679	5370	6003	6440	7076	7155	<b>8334</b>	16.5%	15.2%
Middle East	18184	18702	18341	18944	19098	18062	18943	19630	19821	20204	<b>19680</b>	-2.6%	35.9%
North Africa	2743	2712	2726	2732	2724	2620	2715	2917	3070	3225	<b>3336</b>	3.4%	6.1%
West Africa	3102	3094	2985	3293	3182	3134	3612	4048	4358	4704	<b>4830</b>	2.7%	8.8%
Asia Pacific†	3841	3496	3543	3736	3914	3848	3978	4189	4243	4312	<b>5274</b>	22.3%	9.6%
Rest of World*	690	556	791	940	1506	1551	1361	1631	1542	1359	<b>1656</b>	21.8%	3.0%
<b>TOTAL WORLD</b>	<b>40890</b>	<b>41097</b>	<b>41616</b>	<b>43371</b>	<b>44789</b>	<b>44613</b>	<b>46752</b>	<b>49290</b>	<b>51182</b>	<b>52561</b>	<b>54824</b>	<b>4.3%</b>	<b>100.0%</b>

\*Includes unidentified trade.

†Excludes Japan.

Note: Annual changes and shares of total are calculated using thousand barrels daily figures.

## Inter-area movements 2007

Million tonnes From	To												Total
	US	Canada	Mexico	S. & Cent. America	Europe	Africa	Australasia	China	Japan	Singapore	Other Asia Pacific	Rest of World	
US	-	10.9	11.1	21.6	15.8	1.4	0.4	0.3	4.2	0.7	1.1	1.6	<b>69.1</b>
Canada	119.7	-	0.1	†	0.5	-	-	0.5	0.4	0.1	†	-	<b>121.2</b>
Mexico	76.1	1.3	-	9.6	8.8	-	-	-	-	0.2	1.9	0.2	<b>98.1</b>
S. & Cent. America	127.4	5.3	2.9	-	23.0	2.0	†	13.7	0.4	0.1	0.3	0.1	<b>175.3</b>
Europe	50.0	20.2	5.1	7.5	-	14.4	0.2	0.5	0.7	0.4	1.6	9.4	<b>109.9</b>
Former Soviet Union	22.6	2.1	-	1.7	332.1	0.2	†	26.3	8.2	0.2	10.9	6.8	<b>411.1</b>
Middle East	110.4	7.0	0.8	4.5	146.6	38.1	7.7	78.8	199.9	42.0	336.6	3.0	<b>975.3</b>
North Africa	39.1	9.1	0.2	5.6	95.2	4.3	-	4.6	0.3	0.1	6.4	-	<b>164.9</b>
West Africa	96.1	4.0	0.1	21.1	38.8	3.8	0.1	35.8	2.2	0.2	37.7	-	<b>240.2</b>
East & Southern Africa	-	-	-	†	0.1	-	-	12.7	5.1	0.9	1.4	-	<b>20.2</b>
Australasia	0.2	-	-	†	†	-	-	1.4	3.3	9.2	12.5	†	<b>26.6</b>
China	0.6	†	0.1	2.4	0.9	0.2	0.2	-	1.2	3.7	9.7	0.2	<b>19.2</b>
Japan	2.6	0.4	0.7	†	0.9	†	1.5	3.1	-	1.1	1.2	†	<b>11.5</b>
Singapore	0.7	†	0.2	0.3	1.2	1.0	9.2	3.3	1.3	-	51.2	0.5	<b>68.9</b>
Other Asia Pacific	11.4	0.2	0.5	4.8	4.1	0.6	20.3	22.1	21.5	54.4	-	0.3	<b>140.1</b>
Unidentified*	14.9	6.2	-	†	20.8	-	1.2	†	-	-	5.8	†	<b>49.0</b>
<b>TOTAL IMPORTS</b>	<b>671.9</b>	<b>66.7</b>	<b>21.6</b>	<b>79.2</b>	<b>688.8</b>	<b>66.1</b>	<b>40.8</b>	<b>203.1</b>	<b>248.8</b>	<b>113.4</b>	<b>478.3</b>	<b>22.1</b>	<b>2700.6</b>

## Thousand barrels daily

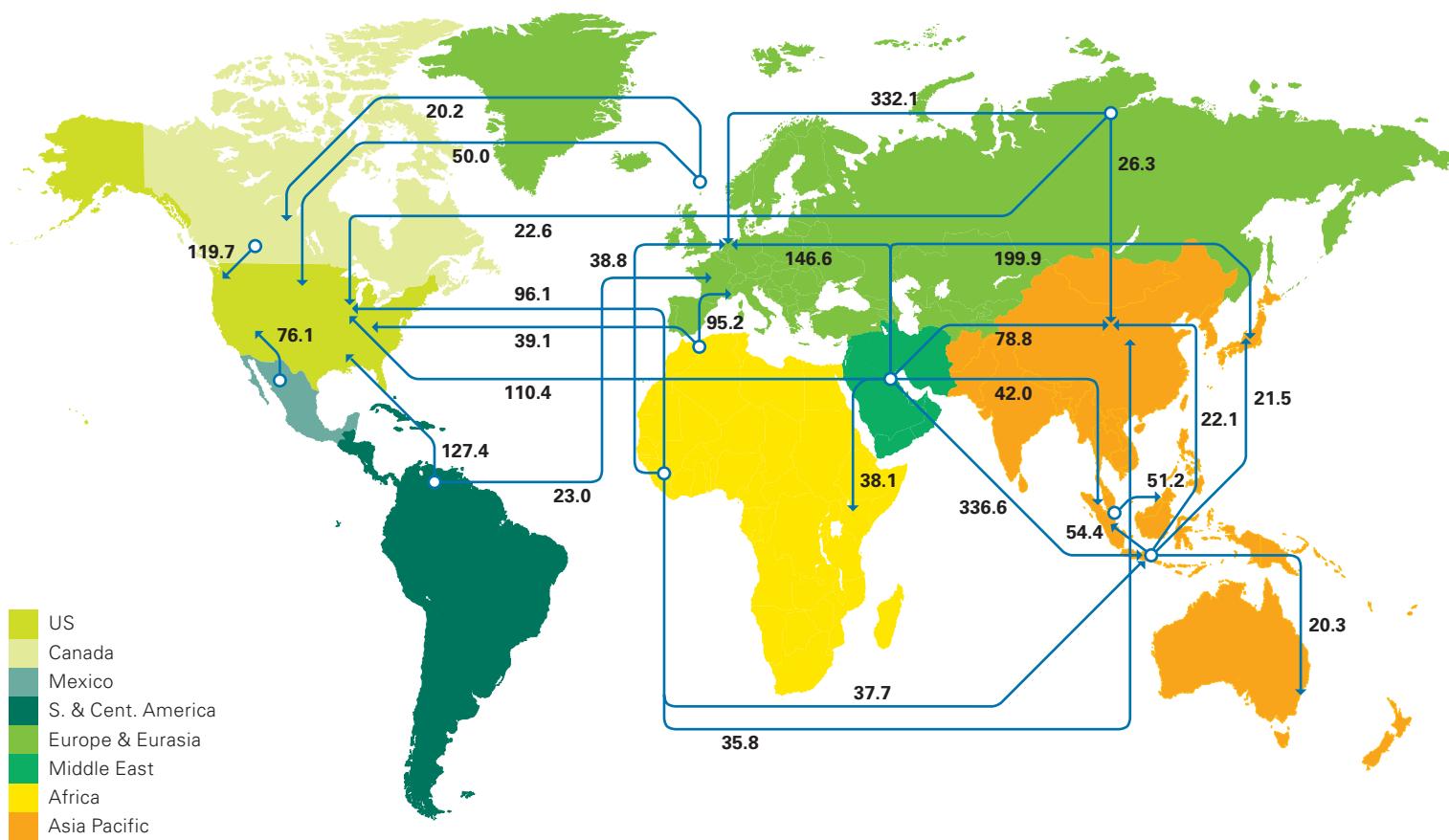
From	US	Canada	Mexico	S. & Cent. America	Europe	Africa	Australasia	China	Japan	Singapore	Other Asia Pacific	Rest of World	Total
US	-	226	231	450	329	30	9	6	88	15	22	33	<b>1439</b>
Canada	2426	-	1	†	10	-	-	9	7	3	†	-	<b>2457</b>
Mexico	1533	26	-	194	176	-	-	-	-	4	38	4	<b>1975</b>
S. & Cent. America	2592	109	60	-	469	41	†	278	9	3	7	3	<b>3570</b>
Europe	1038	408	106	156	-	300	3	9	14	8	34	195	<b>2273</b>
Former Soviet Union	467	42	-	35	6726	4	†	532	166	4	220	137	<b>8334</b>
Middle East	2218	140	16	91	2957	772	154	1587	4032	844	6806	63	<b>19680</b>
North Africa	795	182	3	113	1923	87	-	93	6	3	129	-	<b>3336</b>
West Africa	1933	81	3	425	781	77	2	719	45	4	758	-	<b>4830</b>
East & Southern Africa	-	-	-	†	3	-	-	255	103	19	27	-	<b>407</b>
Australasia	4	-	-	†	†	-	-	29	67	191	252	†	<b>543</b>
China	13	1	1	50	18	3	3	-	26	77	202	5	<b>399</b>
Japan	54	8	14	†	19	1	32	64	-	22	26	1	<b>241</b>
Singapore	15	†	4	6	25	21	192	69	27	-	1069	11	<b>1440</b>
Other Asia Pacific	235	5	11	99	85	12	408	458	441	1132	-	5	<b>2892</b>
Unidentified*	308	125	-	†	432	-	26	†	-	-	117	†	<b>1008</b>
<b>TOTAL IMPORTS</b>	<b>13632</b>	<b>1354</b>	<b>451</b>	<b>1620</b>	<b>13953</b>	<b>1350</b>	<b>830</b>	<b>4111</b>	<b>5032</b>	<b>2329</b>	<b>9705</b>	<b>457</b>	<b>54824</b>

\*Includes changes in the quantity of oil in transit, movements not otherwise shown, unidentified military use, etc.

†Less than 0.05.

## Major trade movements 2007

Trade flows worldwide (million tonnes)



## Imports and exports 2007

	Million tonnes				Thousand barrels daily			
	Crude imports	Product imports	Crude exports	Product exports	Crude imports	Product imports	Crude exports	Product exports
US	501.6	170.3	6.1	63.0	10073	3560	123	1316
Canada	48.8	17.9	93.6	27.7	979	375	1879	579
Mexico	0.5	21.1	91.0	7.1	10	441	1828	148
S. & Cent. America	42.2	37.0	115.2	60.2	847	773	2313	1258
Europe	542.2	146.5	29.1	80.8	10890	3063	585	1688
Former Soviet Union	0.1	6.3	316.7	94.4	2	132	6360	1974
Middle East	5.8	9.9	859.5	115.7	117	206	17262	2419
North Africa	8.9	8.5	135.5	29.4	179	178	2721	615
West Africa	3.4	11.2	234.3	5.9	68	234	4706	123
East & Southern Africa	25.6	8.4	19.2	1.1	514	176	385	22
Australasia	27.3	13.5	15.4	11.2	548	282	310	233
China	163.2	39.9	3.6	15.6	3277	834	73	326
Japan	205.1	43.7	†	11.5	4118	914	†	240
Singapore	51.2	62.2	0.8	68.1	1028	1301	16	1424
Other Asia Pacific	357.9	120.5	44.1	96.0	7187	2518	885	2007
Unidentified*	—	—	19.5	29.5	—	—	392	616
<b>TOTAL WORLD</b>	<b>1983.6</b>	<b>717.0</b>	<b>1983.6</b>	<b>717.0</b>	<b>39836</b>	<b>14988</b>	<b>39836</b>	<b>14988</b>

\*Includes changes in the quantity of oil in transit, movements not otherwise shown, unidentified military use, etc.

†Less than 0.05.

**Note:** Bunkers are not included as exports. Intra-area movements (for example, between countries in Europe) are excluded.

# Natural gas



Proved reserves	At end 1987	At end 1997	At end 2006	Trillion cubic feet	At end 2007	Share of total	R/P ratio
	Trillion cubic metres	Trillion cubic metres	Trillion cubic metres		Trillion cubic metres		
US	5.30	4.74	5.98	<b>211.08</b>	<b>5.98</b>	3.4%	10.9
Canada	2.69	1.81	1.62	<b>57.55</b>	<b>1.63</b>	0.9%	8.9
Mexico	2.12	1.80	0.39	<b>13.01</b>	<b>0.37</b>	0.2%	8.0
<b>Total North America</b>	<b>10.11</b>	<b>8.34</b>	<b>7.99</b>	<b>281.65</b>	<b>7.98</b>	<b>4.5%</b>	<b>10.3</b>
Argentina	0.69	0.68	0.45	<b>15.54</b>	<b>0.44</b>	0.2%	9.8
Bolivia	0.14	0.12	0.74	<b>26.13</b>	<b>0.74</b>	0.4%	54.7
Brazil	0.11	0.23	0.35	<b>12.89</b>	<b>0.36</b>	0.2%	32.3
Colombia	0.10	0.20	0.12	<b>4.41</b>	<b>0.13</b>	0.1%	16.2
Peru	0.34	0.20	0.33	<b>12.54</b>	<b>0.36</b>	0.2%	*
Trinidad & Tobago	0.30	0.52	0.48	<b>16.95</b>	<b>0.48</b>	0.3%	12.3
Venezuela	2.84	4.12	5.10	<b>181.87</b>	<b>5.15</b>	2.9%	*
Other S. & Cent. America	0.15	0.15	0.07	<b>2.51</b>	<b>0.07</b>	♦	21.0
<b>Total S. &amp; Cent. America</b>	<b>4.67</b>	<b>6.21</b>	<b>7.64</b>	<b>272.84</b>	<b>7.73</b>	<b>4.4%</b>	<b>51.2</b>
Azerbaijan	n/a	0.84	1.26	<b>45.13</b>	<b>1.28</b>	0.7%	*
Denmark	0.07	0.11	0.12	<b>4.10</b>	<b>0.12</b>	0.1%	12.6
Germany	0.38	0.26	0.16	<b>4.84</b>	<b>0.14</b>	0.1%	9.6
Italy	0.30	0.27	0.09	<b>3.14</b>	<b>0.09</b>	0.1%	10.0
Kazakhstan	n/a	1.87	1.90	<b>67.20</b>	<b>1.90</b>	1.1%	69.8
Netherlands	1.77	1.79	1.32	<b>44.07</b>	<b>1.25</b>	0.7%	19.4
Norway	2.29	3.65	2.89	<b>104.57</b>	<b>2.96</b>	1.7%	33.0
Poland	0.16	0.16	0.11	<b>3.99</b>	<b>0.11</b>	0.1%	26.4
Romania	0.20	0.37	0.63	<b>22.18</b>	<b>0.63</b>	0.4%	54.4
Russian Federation	n/a	45.17	44.60	<b>1576.75</b>	<b>44.65</b>	25.2%	73.5
Turkmenistan	n/a	2.71	2.67	<b>94.22</b>	<b>2.67</b>	1.5%	39.6
Ukraine	n/a	0.98	1.03	<b>36.24</b>	<b>1.03</b>	0.6%	54.0
United Kingdom	0.64	0.77	0.41	<b>14.55</b>	<b>0.41</b>	0.2%	5.7
Uzbekistan	n/a	1.63	1.74	<b>61.60</b>	<b>1.74</b>	1.0%	29.8
Other Europe & Eurasia	39.25	0.45	0.44	<b>15.31</b>	<b>0.43</b>	0.2%	39.4
<b>Total Europe &amp; Eurasia</b>	<b>45.06</b>	<b>61.02</b>	<b>59.37</b>	<b>2097.89</b>	<b>59.41</b>	<b>33.5%</b>	<b>55.2</b>
Bahrain	0.20	0.14	0.09	<b>3.00</b>	<b>0.09</b>	♦	7.4
Iran	13.92	23.00	27.58	<b>981.75</b>	<b>27.80</b>	15.7%	*
Iraq	1.00	3.19	3.17	<b>111.95</b>	<b>3.17</b>	1.8%	*
Kuwait	1.21	1.49	1.78	<b>63.00</b>	<b>1.78</b>	1.0%	*
Oman	0.27	0.54	0.69	<b>24.37</b>	<b>0.69</b>	0.4%	28.6
Qatar	4.44	8.50	25.64	<b>904.06</b>	<b>25.60</b>	14.4%	*
Saudi Arabia	4.19	5.88	7.07	<b>253.03</b>	<b>7.17</b>	4.0%	94.4
Syria	0.13	0.24	0.29	<b>10.17</b>	<b>0.29</b>	0.2%	54.7
United Arab Emirates	5.68	6.06	6.11	<b>215.07</b>	<b>6.09</b>	3.4%	*
Yemen	0.11	0.48	0.49	<b>17.23</b>	<b>0.49</b>	0.3%	*
Other Middle East	†	†	0.05	<b>1.73</b>	<b>0.05</b>	♦	18.5
<b>Total Middle East</b>	<b>31.18</b>	<b>49.53</b>	<b>72.95</b>	<b>2585.35</b>	<b>73.21</b>	<b>41.3%</b>	*
Algeria	3.16	4.08	4.50	<b>159.45</b>	<b>4.52</b>	2.5%	54.4
Egypt	0.31	0.93	2.05	<b>72.85</b>	<b>2.06</b>	1.2%	44.3
Libya	0.73	1.31	1.49	<b>52.80</b>	<b>1.50</b>	0.8%	98.4
Nigeria	2.41	3.48	5.22	<b>186.99</b>	<b>5.30</b>	3.0%	*
Other Africa	0.79	0.82	1.20	<b>42.84</b>	<b>1.21</b>	0.7%	*
<b>Total Africa</b>	<b>7.39</b>	<b>10.62</b>	<b>14.46</b>	<b>514.92</b>	<b>14.58</b>	<b>8.2%</b>	<b>76.6</b>
Australia	1.07	1.48	2.49	<b>88.64</b>	<b>2.51</b>	1.4%	62.8
Bangladesh	0.35	0.30	0.39	<b>13.77</b>	<b>0.39</b>	0.2%	24.0
Brunei	0.33	0.39	0.33	<b>12.11</b>	<b>0.34</b>	0.2%	28.0
China	0.89	1.16	1.68	<b>66.54</b>	<b>1.88</b>	1.1%	27.2
India	0.55	0.69	1.08	<b>37.26</b>	<b>1.06</b>	0.6%	35.0
Indonesia	2.37	2.15	2.63	<b>105.94</b>	<b>3.00</b>	1.7%	45.0
Malaysia	1.49	2.46	2.48	<b>87.40</b>	<b>2.48</b>	1.4%	40.9
Myanmar	0.27	0.28	0.54	<b>21.19</b>	<b>0.60</b>	0.3%	40.8
Pakistan	0.63	0.60	0.85	<b>30.02</b>	<b>0.85</b>	0.5%	27.6
Papua New Guinea	0.09	0.43	0.44	<b>15.36</b>	<b>0.44</b>	0.2%	*
Thailand	0.18	0.21	0.33	<b>11.65</b>	<b>0.33</b>	0.2%	12.7
Vietnam	†	0.17	0.22	<b>7.77</b>	<b>0.22</b>	0.1%	28.5
Other Asia Pacific	0.23	0.41	0.37	<b>13.02</b>	<b>0.37</b>	0.2%	21.9
<b>Total Asia Pacific</b>	<b>8.45</b>	<b>10.73</b>	<b>13.82</b>	<b>510.69</b>	<b>14.46</b>	<b>8.2%</b>	<b>36.9</b>
<b>TOTAL WORLD</b>	<b>106.86</b>	<b>146.46</b>	<b>176.22</b>	<b>6263.34</b>	<b>177.36</b>	<b>100.0%</b>	<b>60.3</b>
of which: European Union	3.75	3.85	2.94	<b>100.26</b>	<b>2.84</b>	1.6%	14.8
OECD	17.19	17.05	15.79	<b>556.89</b>	<b>15.77</b>	8.9%	14.4
Former Soviet Union	38.90	53.44	53.46	<b>1890.24</b>	<b>53.53</b>	30.2%	67.7

\*More than 100 years.

†Less than 0.05.

♦Less than 0.05%.

n/a not available.

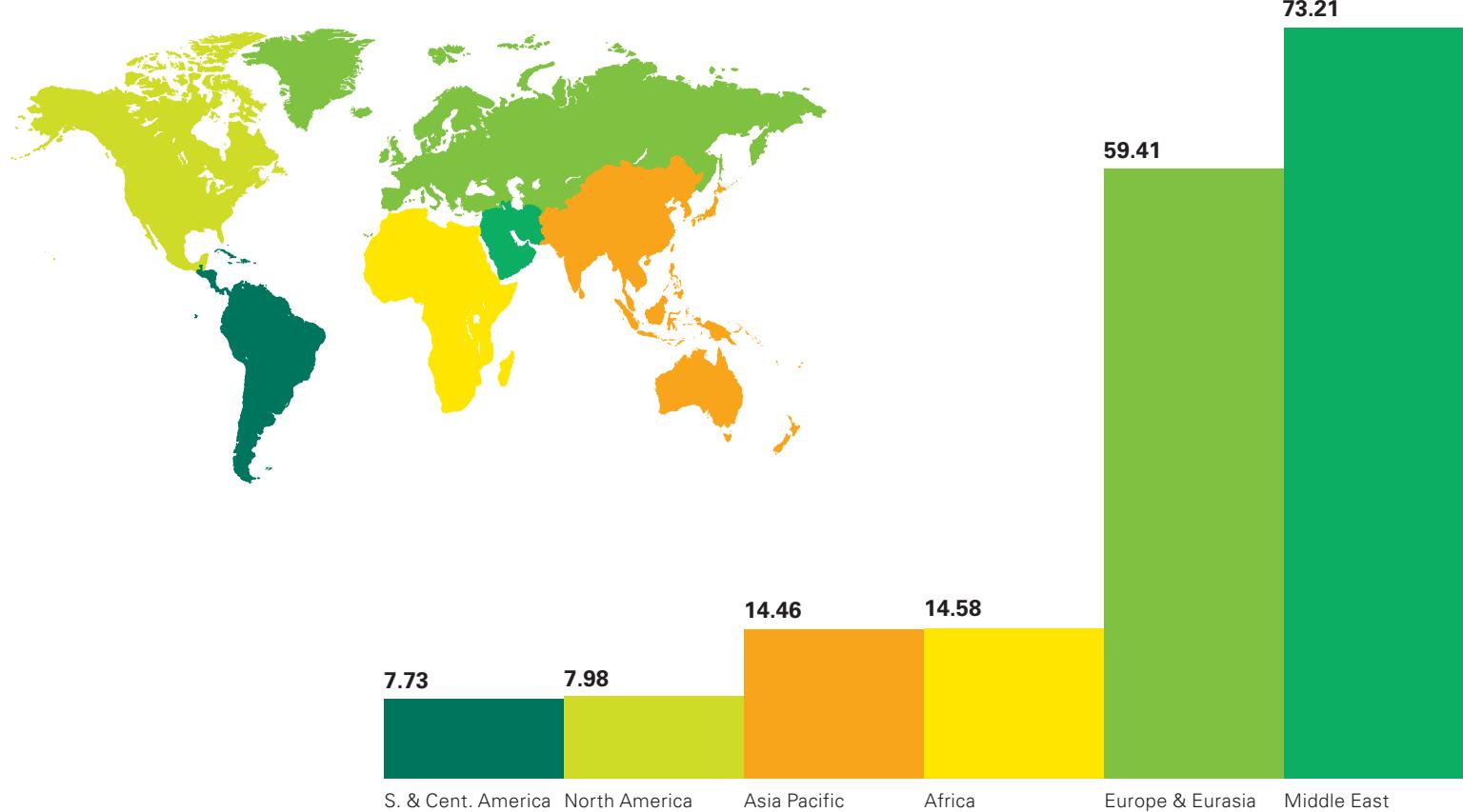
**Notes:** Proved reserves of natural gas – Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions.

Reserves-to-production (R/P) ratio – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.

Source of data – The estimates in this table have been compiled using a combination of primary official sources and third-party data from Ceditaz.

## Proved reserves at end 2007

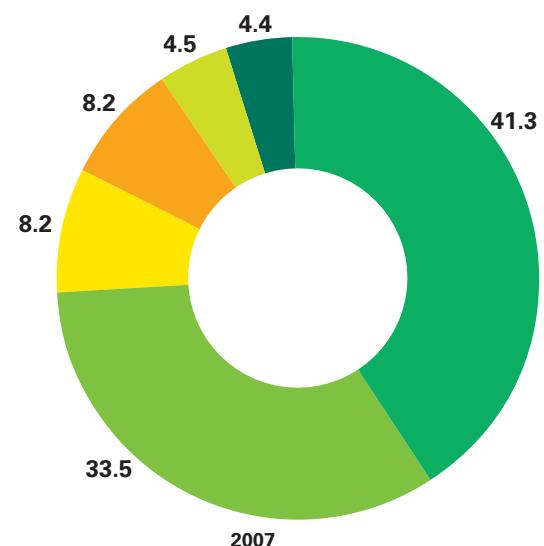
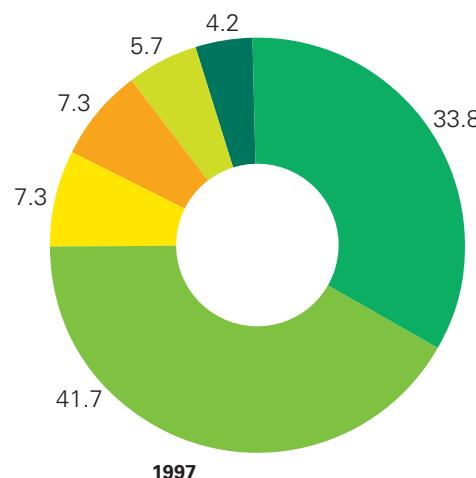
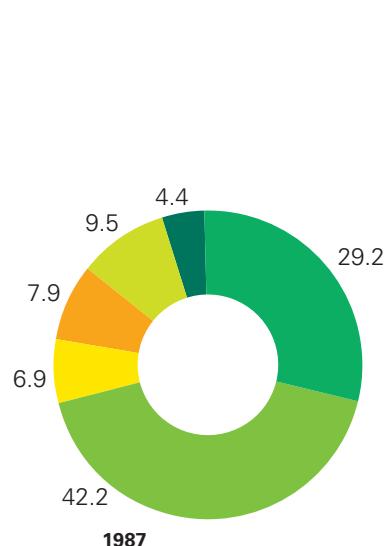
Trillion cubic metres



## Distribution of proved reserves in 1987, 1997 and 2007

Percentage

- █ Middle East
- █ Europe & Eurasia
- █ Africa
- █ Asia Pacific
- █ North America
- █ S. & Cent. America

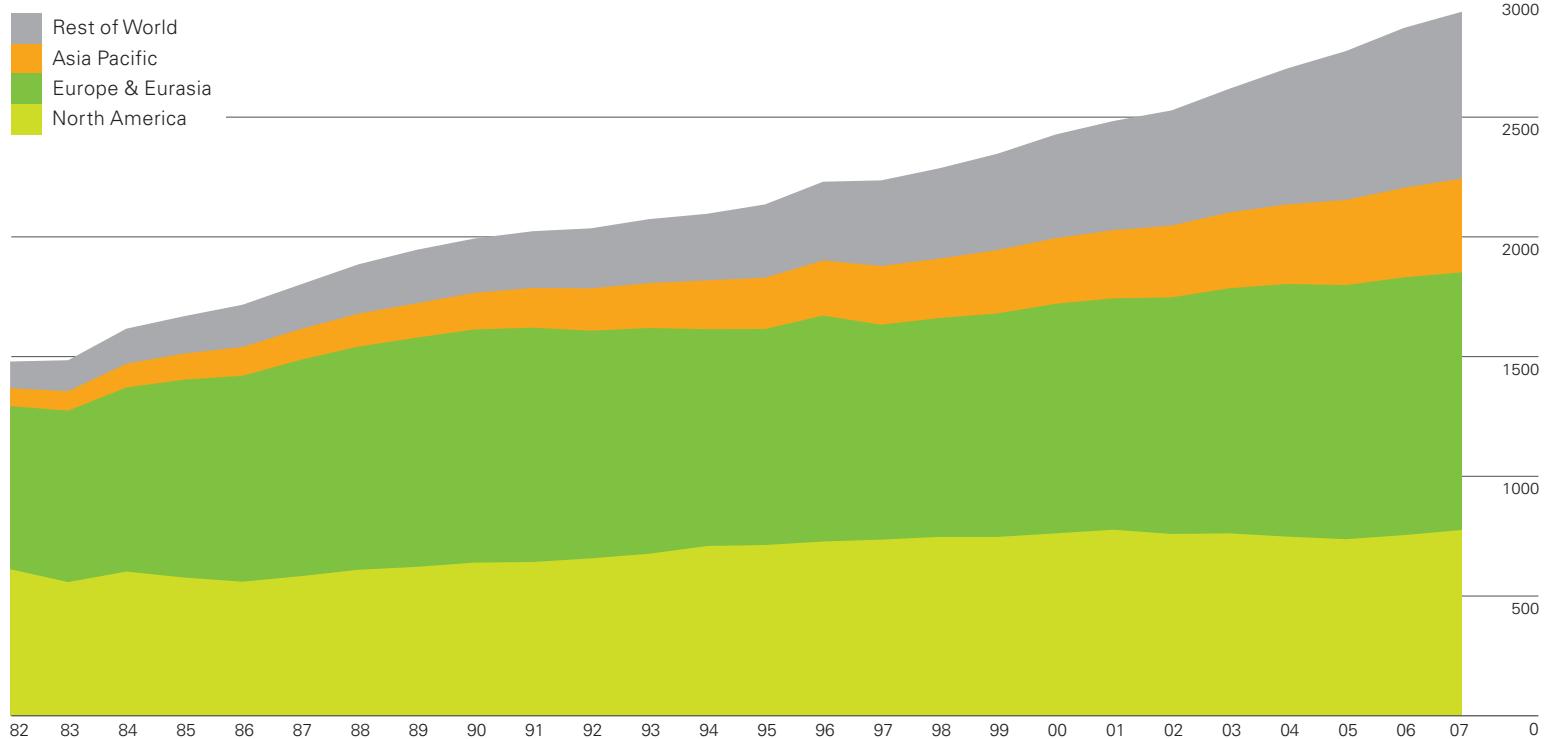






## Production by region

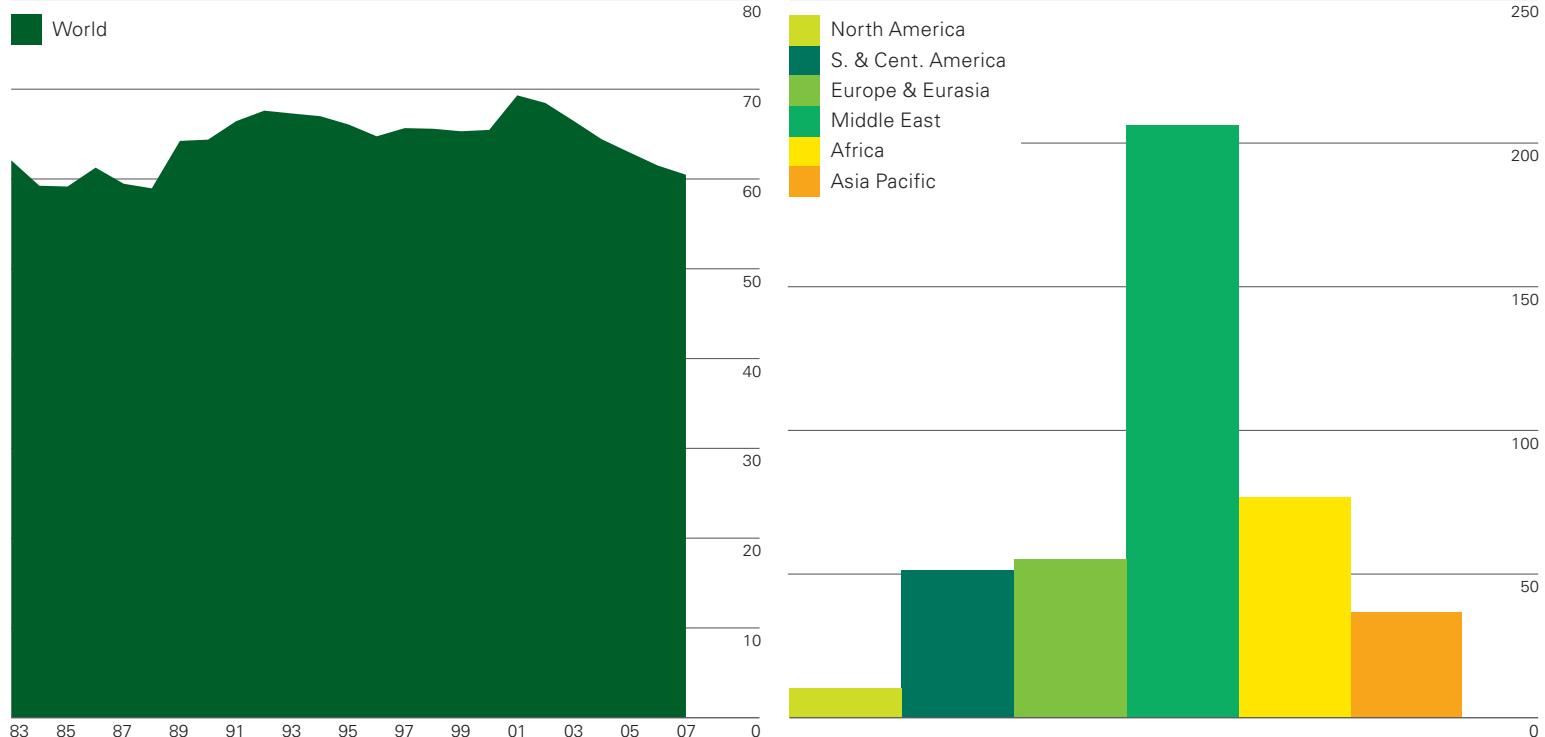
Billion cubic metres



World natural gas production grew by 2.4% in 2007, slightly below the 10-year average. North American production was very strong, especially in the US (+4.3%, the strongest since 1984). All other regions except Asia saw below-average growth. EU output declined by 6.4%.

## Reserves-to-production (R/P) ratios

Years



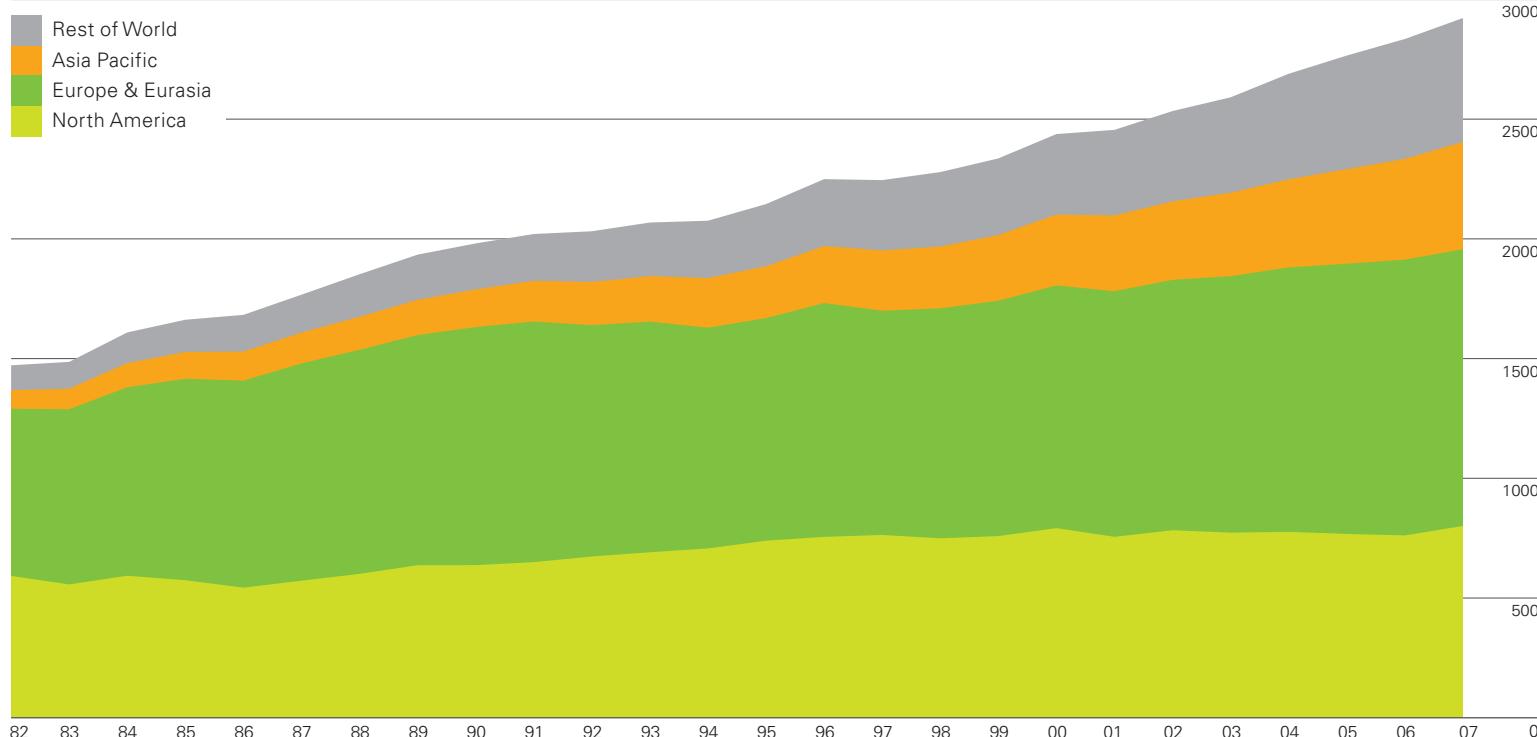
The world's natural gas R/P ratio declined to 60.3 years in 2007, even though reserves increased by more than 1 trillion cubic metres. Increases in Indonesia, Iran and China accounted for most of the growth.





## Consumption by region

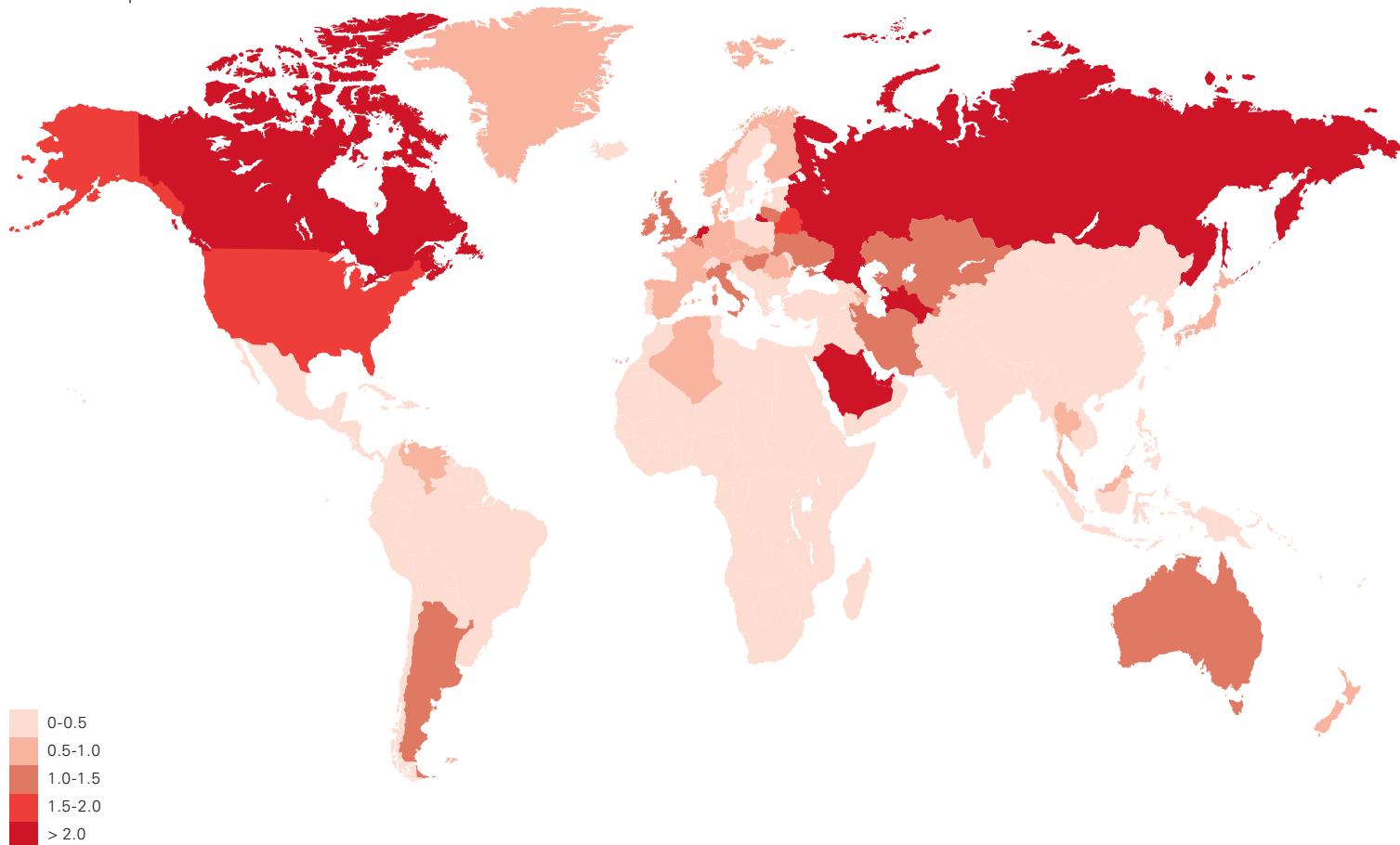
Billion cubic metres



World natural gas consumption rose by 3.1% in 2007, slightly above the 10-year average. The US accounted for the largest increment to growth, rising by 6.5%. In addition to North America, only Africa and Asia Pacific recorded above-average regional growth. Chinese consumption rose by 19.9%, while EU consumption fell by 1.6%.

## Consumption per capita 2007

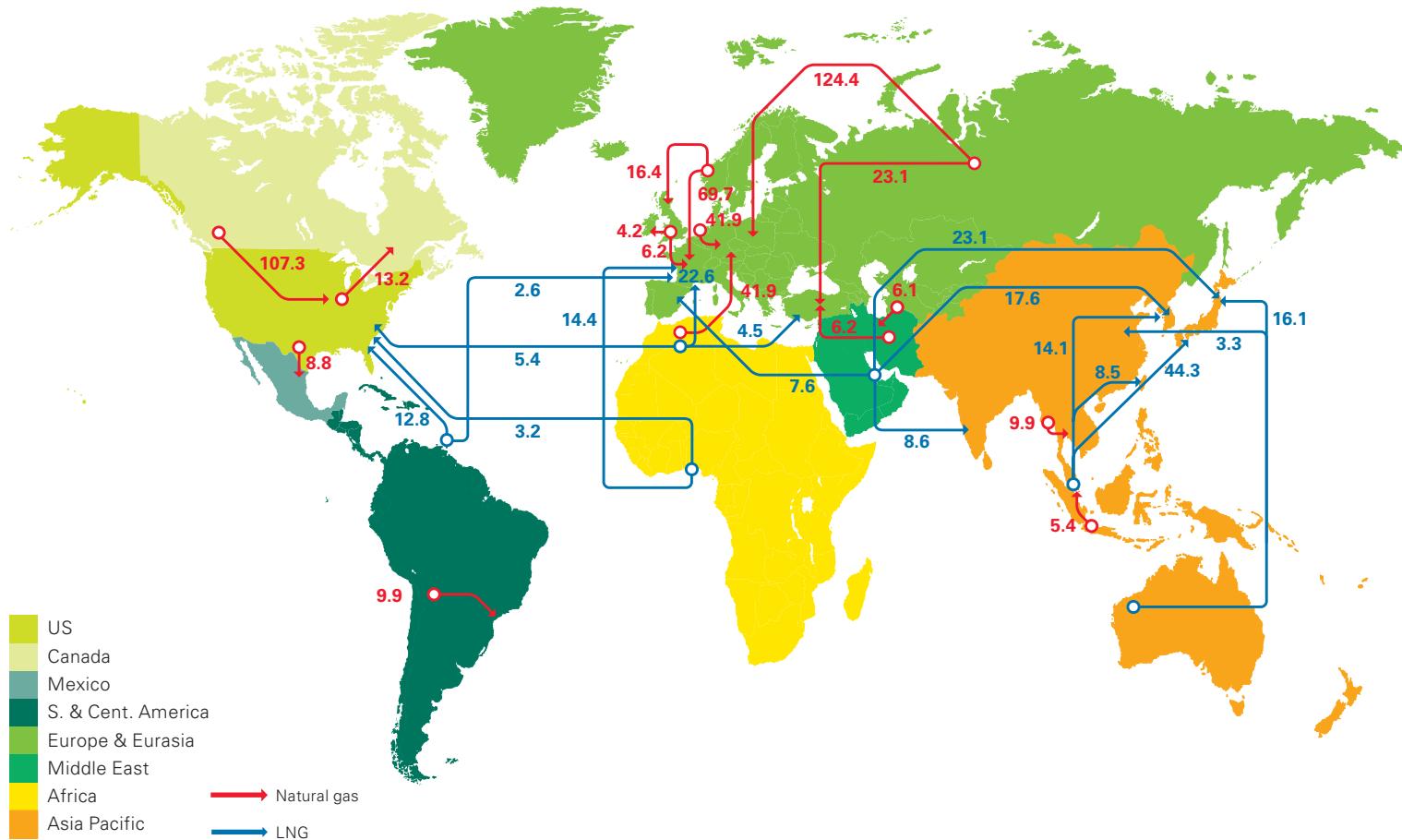
Tonnes oil equivalent





## Major trade movements

Trade flows worldwide (billion cubic metres)



## Prices

US dollars per million Btu

	LNG Japan cif	European Union cif	Natural gas UK Heren NBP Index†	US Henry Hub‡	Canada Alberta‡	Crude oil OECD countries cif
1985	5.23	3.83	—	—	—	4.75
1986	4.10	3.65	—	—	—	2.57
1987	3.35	2.59	—	—	—	3.09
1988	3.34	2.36	—	—	—	2.56
1989	3.28	2.09	—	1.70	—	3.01
1990	3.64	2.82	—	1.64	1.05	3.82
1991	3.99	3.18	—	1.49	0.89	3.33
1992	3.62	2.76	—	1.77	0.98	3.19
1993	3.52	2.53	—	2.12	1.69	2.82
1994	3.18	2.24	—	1.92	1.45	2.70
1995	3.46	2.37	—	1.69	0.89	2.96
1996	3.66	2.43	1.87	2.76	1.12	3.54
1997	3.91	2.65	1.96	2.53	1.36	3.29
1998	3.05	2.26	1.86	2.08	1.42	2.16
1999	3.14	1.80	1.58	2.27	2.00	2.98
2000	4.72	3.25	2.71	4.23	3.75	4.83
2001	4.64	4.15	3.17	4.07	3.61	4.08
2002	4.27	3.46	2.37	3.33	2.57	4.17
2003	4.77	4.40	3.33	5.63	4.83	4.89
2004	5.18	4.56	4.46	5.85	5.03	6.27
2005	6.05	5.95	7.38	8.79	7.25	8.74
2006	7.14	8.69	7.87	6.76	5.83	10.66
2007	7.73	8.93	6.01	6.95	6.17	11.95

†Price is for NBP Day-Ahead Index. Source: Heren Energy Ltd.

‡Source: *Natural Gas Week*.

**Note:** Btu = British thermal units; cif = cost+insurance+freight (average prices).

# Coal



## Proved reserves at end 2007

	Million tonnes	Anthracite and bituminous	Sub-bituminous and lignite	Total	Share of total	R/P ratio
US	112261	130460	<b>242721</b>	28.6%	234	
Canada	3471	3107	<b>6578</b>	0.8%	95	
Mexico	860	351	<b>1211</b>	0.1%	99	
<b>Total North America</b>	<b>116592</b>	<b>133918</b>	<b>250510</b>	<b>29.6%</b>	<b>224</b>	
Brazil	—	7068	<b>7068</b>	0.8%	*	
Colombia	6578	381	<b>6959</b>	0.8%	97	
Venezuela	479	—	<b>479</b>	0.1%	60	
Other S. & Cent. America	172	1598	<b>1770</b>	0.2%	*	
<b>Total S. &amp; Cent. America</b>	<b>7229</b>	<b>9047</b>	<b>16276</b>	<b>1.9%</b>	<b>188</b>	
Bulgaria	5	1991	<b>1996</b>	0.2%	66	
Czech Republic	1673	2828	<b>4501</b>	0.5%	72	
Germany	152	6556	<b>6708</b>	0.8%	33	
Greece	—	3900	<b>3900</b>	0.5%	62	
Hungary	199	3103	<b>3302</b>	0.4%	336	
Kazakhstan	28170	3130	<b>31300</b>	3.7%	332	
Poland	6012	1490	<b>7502</b>	0.9%	51	
Romania	12	410	<b>422</b>	♦	12	
Russian Federation	49088	107922	<b>157010</b>	18.5%	500	
Spain	200	330	<b>530</b>	0.1%	29	
Turkey	—	1814	<b>1814</b>	0.2%	24	
Ukraine	15351	18522	<b>33873</b>	4.0%	444	
United Kingdom	155	—	<b>155</b>	♦	9	
Other Europe & Eurasia	1025	18208	<b>19233</b>	2.3%	278	
<b>Total Europe &amp; Eurasia</b>	<b>102042</b>	<b>170204</b>	<b>272246</b>	<b>32.1%</b>	<b>224</b>	
South Africa	48000	—	<b>48000</b>	5.7%	178	
Zimbabwe	502	—	<b>502</b>	0.1%	237	
Other Africa	929	174	<b>1103</b>	0.1%	*	
Middle East	1386	—	<b>1386</b>	0.2%	*	
<b>Total Middle East &amp; Africa</b>	<b>50817</b>	<b>174</b>	<b>50991</b>	<b>6.0%</b>	<b>186</b>	
Australia	37100	39500	<b>76600</b>	9.0%	194	
China	62200	52300	<b>114500</b>	13.5%	45	
India	52240	4258	<b>56498</b>	6.7%	118	
Indonesia	1721	2607	<b>4328</b>	0.5%	25	
Japan	355	—	<b>355</b>	♦	249	
New Zealand	33	538	<b>571</b>	0.1%	124	
North Korea	300	300	<b>600</b>	0.1%	20	
Pakistan	1	1981	<b>1982</b>	0.2%	*	
South Korea	—	135	<b>135</b>	♦	47	
Thailand	—	1354	<b>1354</b>	0.2%	74	
Vietnam	150	—	<b>150</b>	♦	4	
Other Asia Pacific	115	276	<b>391</b>	♦	29	
<b>Total Asia Pacific</b>	<b>154216</b>	<b>103249</b>	<b>257465</b>	<b>30.4%</b>	<b>70</b>	
<b>TOTAL WORLD</b>	<b>430896</b>	<b>416592</b>	<b>847488</b>	<b>100.0%</b>	<b>133</b>	
of which: European Union	8427	21143	<b>29570</b>	3.5%	50	
OECD	162490	194420	<b>356910</b>	42.1%	168	
Former Soviet Union	93609	132386	<b>225995</b>	26.7%	463	
Other EMEs	174797	89786	<b>264583</b>	31.2%	70	

\*More than 500 years.

Source of reserves data: Survey of Energy Resources 2007, World Energy Council.

♦Less than 0.05%.

**Notes:** Proved reserves of coal – Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known deposits under existing economic and operating conditions.

**Reserves-to-production (R/P) ratio** – If the reserves remaining at the end of the year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.



## Prices

US dollars per tonne	Northwest Europe marker price†	US Central Appalachian coal spot price index‡	Japan coking coal import cif price	Japan steam coal import cif price
1991	42.80	29.01	60.45	50.30
1992	38.53	28.53	57.82	48.45
1993	33.68	29.85	55.26	45.71
1994	37.18	31.72	51.77	43.66
1995	44.50	27.01	54.47	47.58
1996	41.25	29.86	56.68	49.54
1997	38.92	29.76	55.51	45.53
1998	32.00	31.00	50.76	40.51
1999	28.79	31.29	42.83	35.74
2000	35.99	29.90	39.69	34.58
2001	39.29	49.74	41.33	37.96
2002	31.65	32.95	42.01	36.90
2003	42.52	38.48	41.57	34.74
2004	71.90	64.33	60.96	51.34
2005	61.07	70.14	89.33	62.91
2006	63.67	62.98	93.46	63.04
2007	86.60	51.12	88.24	69.86

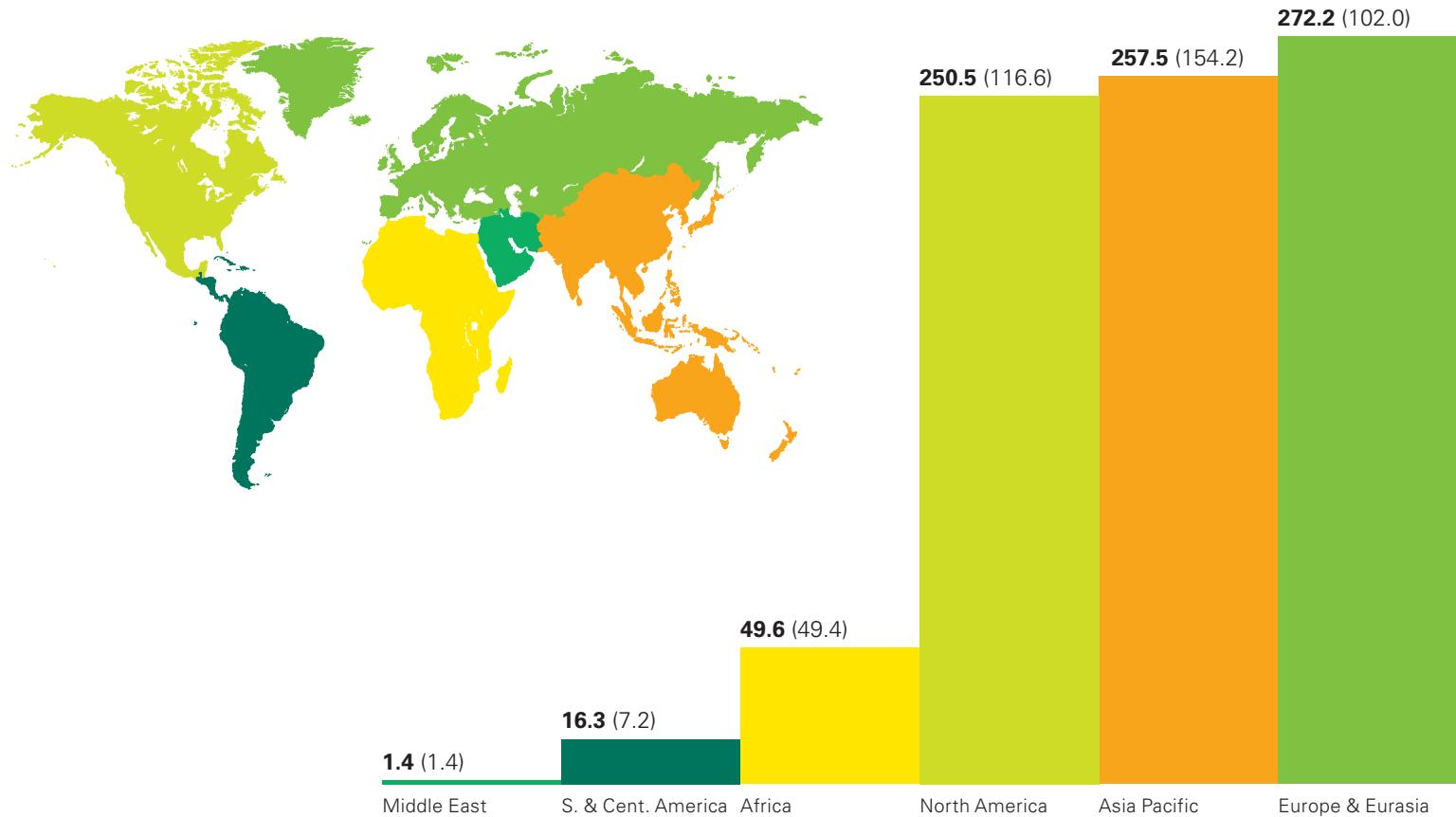
†Source: McCloskey Coal Information Service.

‡Price is for CAPP 12,500Btu, 1.2 SO<sub>2</sub> coal, fob. Source: Platts.

**Note:** CAPP = Central Appalachian; cif = cost+insurance+freight (average prices); fob = free on board.

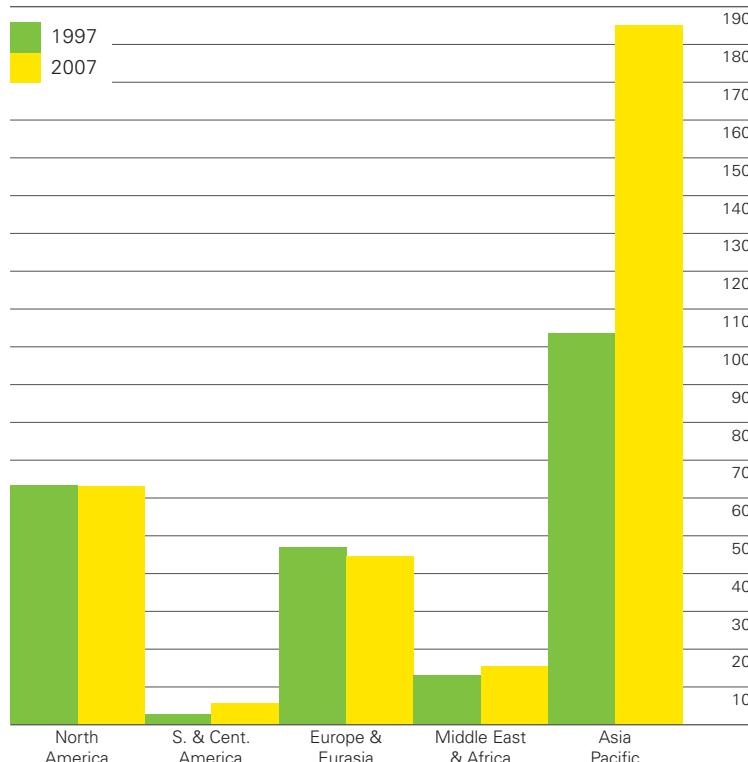
## Proved reserves at end 2007

Thousand million tonnes (anthracite and bituminous coal shown in brackets)



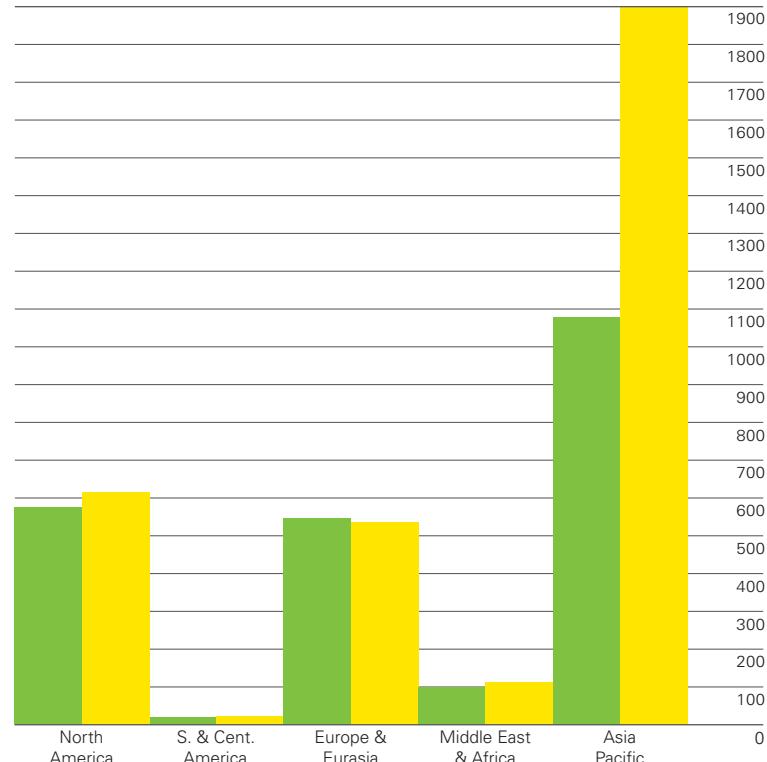
## Production

Million tonnes oil equivalent



## Consumption

Million tonnes oil equivalent



World coal consumption grew by 4.5%, well above the 10-year average. Coal was the world's fastest-growing fuel for the fifth consecutive year. Growth was above average in all regions except the Middle East. Chinese consumption growth accounted for more than two-thirds of global growth.



## Production\*

Million tonnes oil equivalent	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	<b>2007</b>	Change 2007 over 2006	2007 share of total
US	584.9	603.2	584.3	570.1	590.3	570.1	553.6	572.4	580.2	595.1	<b>587.2</b>	-1.3%	18.7%
Canada	43.0	40.8	39.2	37.1	37.6	34.9	32.2	34.7	35.6	34.5	<b>36.9</b>	6.7%	1.2%
Mexico	4.5	4.8	4.9	5.4	5.3	5.3	4.6	4.7	5.2	5.5	<b>5.9</b>	6.5%	0.2%
<b>Total North America</b>	<b>632.5</b>	<b>648.8</b>	<b>628.3</b>	<b>612.6</b>	<b>633.2</b>	<b>610.2</b>	<b>590.4</b>	<b>611.8</b>	<b>620.9</b>	<b>635.2</b>	<b>629.9</b>	<b>-0.8%</b>	<b>20.1%</b>
Brazil	2.1	2.0	2.1	2.9	2.1	1.9	1.8	2.0	2.4	2.2	<b>2.2</b>	0.3%	0.1%
Colombia	21.0	21.9	21.3	24.9	28.5	25.7	32.5	34.9	39.4	43.7	<b>46.6</b>	6.6%	1.5%
Venezuela	3.9	4.7	4.8	5.8	5.6	5.9	5.1	5.9	5.3	5.4	<b>5.9</b>	7.7%	0.2%
Other S. & Cent. America	0.9	0.8	0.5	0.4	0.5	0.4	0.5	0.2	0.3	0.8	<b>0.6</b>	-20.1%	♦
<b>Total S. &amp; Cent. America</b>	<b>27.9</b>	<b>29.5</b>	<b>28.7</b>	<b>33.9</b>	<b>36.8</b>	<b>33.9</b>	<b>39.9</b>	<b>43.0</b>	<b>47.3</b>	<b>52.2</b>	<b>55.3</b>	<b>6.0%</b>	<b>1.8%</b>
Bulgaria	4.9	5.0	4.2	4.4	4.4	4.4	4.6	4.5	4.4	4.6	<b>5.1</b>	10.0%	0.2%
Czech Republic	27.9	26.0	23.1	25.0	25.4	24.3	24.2	23.5	23.5	23.7	<b>23.6</b>	-0.5%	0.8%
France	4.3	3.6	3.3	2.3	1.5	1.1	1.3	0.4	0.2	0.2	<b>0.1</b>	-40.0%	♦
Germany	66.9	61.3	59.4	56.5	54.1	55.0	54.1	54.7	53.2	50.3	<b>51.5</b>	2.5%	1.6%
Greece	7.7	8.1	8.0	8.2	8.5	9.1	9.5	9.6	9.4	8.6	<b>8.2</b>	-3.6%	0.3%
Hungary	3.3	3.0	3.1	2.9	2.9	2.7	2.8	2.4	2.0	2.1	<b>2.0</b>	-1.4%	0.1%
Kazakhstan	37.3	36.0	30.0	38.5	40.7	37.8	43.3	44.4	44.2	49.1	<b>48.3</b>	-1.7%	1.5%
Poland	92.1	79.6	77.0	71.3	71.7	71.3	71.4	70.5	68.7	67.0	<b>62.3</b>	-7.0%	2.0%
Romania	7.4	5.7	5.1	6.4	7.1	6.6	7.0	6.7	6.6	7.3	<b>7.4</b>	1.3%	0.2%
Russian Federation	109.3	103.9	112.1	116.0	122.6	117.3	127.1	131.7	139.2	145.1	<b>148.2</b>	2.1%	4.7%
Spain	9.8	9.3	8.6	8.0	7.6	7.2	6.8	6.7	6.4	6.2	<b>6.0</b>	-4.0%	0.2%
Turkey	13.1	13.9	13.3	13.9	14.2	11.5	10.5	10.5	12.8	13.4	<b>15.8</b>	17.7%	0.5%
Ukraine	39.8	39.9	42.3	42.0	43.5	42.8	41.7	42.2	40.9	41.7	<b>39.6</b>	-4.9%	1.3%
United Kingdom	29.4	25.0	22.5	19.0	19.4	18.2	17.2	15.3	12.5	11.3	<b>10.4</b>	-8.1%	0.3%
Other Europe & Eurasia	15.9	16.7	13.4	14.0	14.4	15.3	15.8	15.6	14.7	15.6	<b>16.9</b>	8.3%	0.5%
<b>Total Europe &amp; Eurasia</b>	<b>469.2</b>	<b>437.0</b>	<b>425.3</b>	<b>428.6</b>	<b>438.2</b>	<b>424.6</b>	<b>437.2</b>	<b>438.7</b>	<b>438.7</b>	<b>446.1</b>	<b>445.4</b>	<b>-0.2%</b>	<b>14.2%</b>
<b>Total Middle East</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>	<b>0.6</b>	<b>0.5</b>	<b>0.4</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.5</b>	<b>0.5</b>	-	♦
South Africa	124.6	127.1	125.6	126.6	126.1	124.1	134.1	137.2	137.7	144.7	<b>151.8</b>	4.9%	4.8%
Zimbabwe	3.4	3.5	3.2	2.8	2.9	2.5	1.8	2.4	1.9	1.4	<b>1.4</b>	0.5%	♦
Other Africa	1.2	1.4	1.3	1.2	1.2	1.3	1.2	1.2	1.1	1.1	<b>1.1</b>	-	♦
<b>Total Africa</b>	<b>129.2</b>	<b>132.0</b>	<b>130.1</b>	<b>130.7</b>	<b>130.2</b>	<b>128.0</b>	<b>137.1</b>	<b>140.9</b>	<b>140.7</b>	<b>147.1</b>	<b>154.2</b>	<b>4.8%</b>	<b>4.9%</b>
Australia	148.3	149.8	160.8	166.3	179.9	184.5	190.1	198.8	206.5	211.0	<b>215.4</b>	2.1%	6.9%
China	690.0	628.7	645.9	656.7	697.6	733.7	868.4	1012.1	1119.8	1205.1	<b>1289.6</b>	7.0%	41.1%
India	126.3	126.5	124.4	132.2	133.6	138.5	144.4	155.7	162.1	170.2	<b>181.0</b>	6.3%	5.8%
Indonesia	33.7	38.3	45.3	47.4	56.5	63.6	69.5	79.4	93.9	111.4	<b>107.5</b>	-3.4%	3.4%
Japan	2.4	2.0	2.2	1.7	1.8	0.8	0.7	0.7	0.6	0.7	<b>0.8</b>	4.7%	♦
New Zealand	2.0	2.0	2.1	2.2	2.4	2.7	3.2	3.2	3.2	3.5	<b>2.8</b>	-20.9%	0.1%
Pakistan	1.4	1.5	1.5	1.4	1.5	1.6	1.5	1.5	1.6	1.7	<b>1.6</b>	-7.2%	0.1%
South Korea	2.0	2.0	1.9	1.9	1.7	1.5	1.5	1.4	1.3	1.3	<b>1.3</b>	2.3%	♦
Thailand	6.9	6.1	5.7	5.1	5.6	5.7	5.3	5.6	5.8	5.3	<b>5.1</b>	-3.9%	0.2%
Vietnam	6.4	6.4	4.9	6.5	7.5	9.2	10.8	14.7	18.3	21.8	<b>23.1</b>	5.9%	0.7%
Other Asia Pacific	17.2	15.7	18.0	19.3	19.7	19.0	19.6	20.8	22.1	21.4	<b>22.1</b>	3.3%	0.7%
<b>Total Asia Pacific</b>	<b>1036.5</b>	<b>978.9</b>	<b>1012.8</b>	<b>1040.8</b>	<b>1107.8</b>	<b>1160.7</b>	<b>1315.0</b>	<b>1494.0</b>	<b>1635.2</b>	<b>1753.4</b>	<b>1850.2</b>	<b>5.5%</b>	<b>59.0%</b>
<b>TOTAL WORLD</b>	<b>2295.8</b>	<b>2226.8</b>	<b>2225.9</b>	<b>2247.1</b>	<b>2346.7</b>	<b>2357.8</b>	<b>2520.2</b>	<b>2729.0</b>	<b>2883.5</b>	<b>3034.5</b>	<b>3135.6</b>	<b>3.3%</b>	<b>100.0%</b>
of which: European Union	256.4	229.2	216.7	206.6	205.1	202.5	201.2	196.3	188.7	182.9	<b>178.3</b>	-2.5%	5.7%
OECD	1043.5	1036.0	1015.2	993.7	1026.9	1003.1	986.9	1012.4	1022.9	1036.6	<b>1033.4</b>	-0.3%	33.0%
Former Soviet Union	187.5	180.8	185.5	197.4	207.8	198.9	212.8	219.4	225.5	237.0	<b>237.2</b>	0.1%	7.6%
Other EMEs	1064.8	1010.0	1025.3	1056.0	1112.1	1155.9	1320.5	1497.2	1635.1	1760.9	<b>1864.9</b>	5.9%	59.5%

\*Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal.

♦Less than 0.05%.

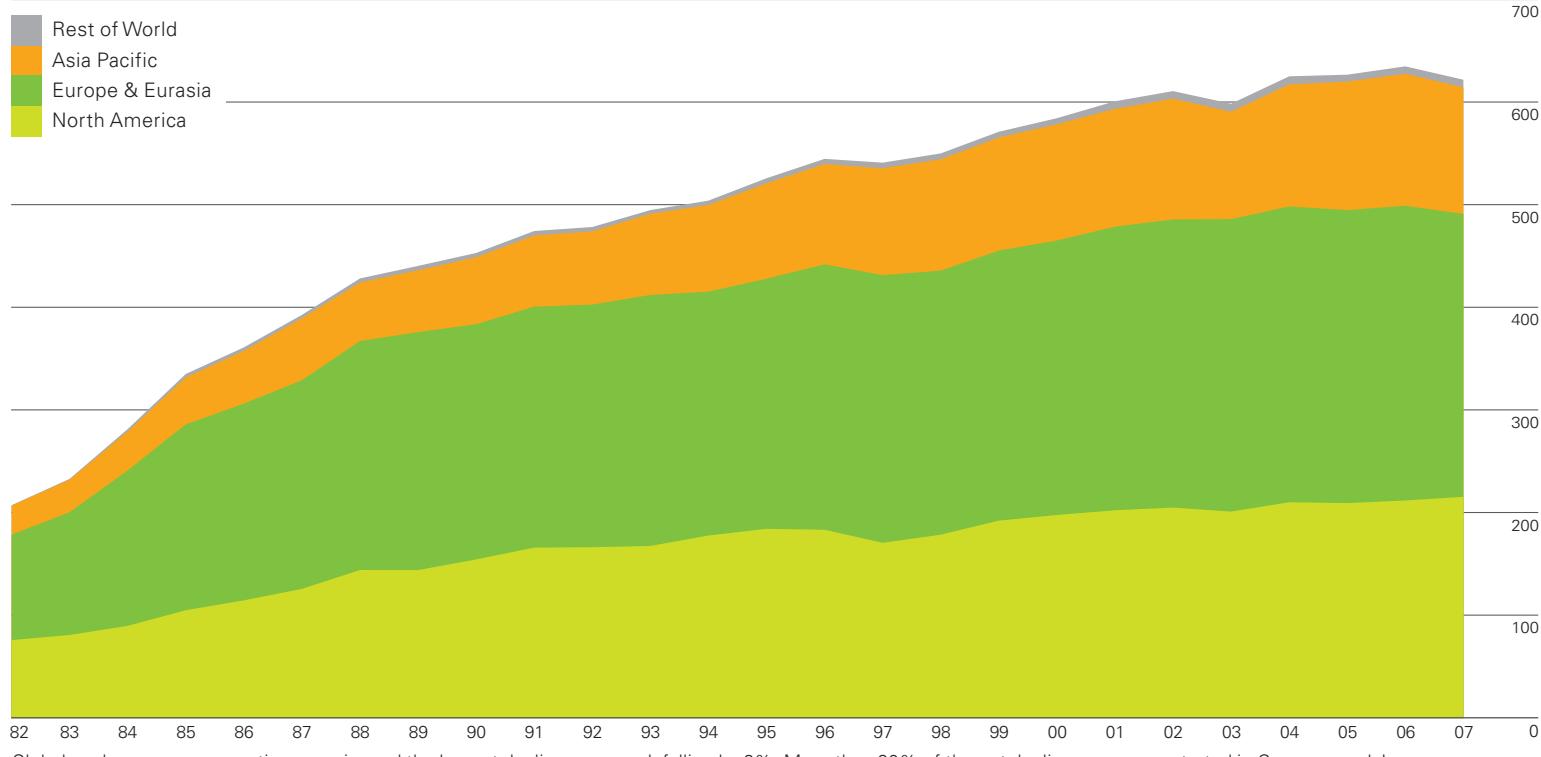
Note: Coal production data expressed in million tonnes is available at [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview).





## Consumption by region

Million tonnes oil equivalent

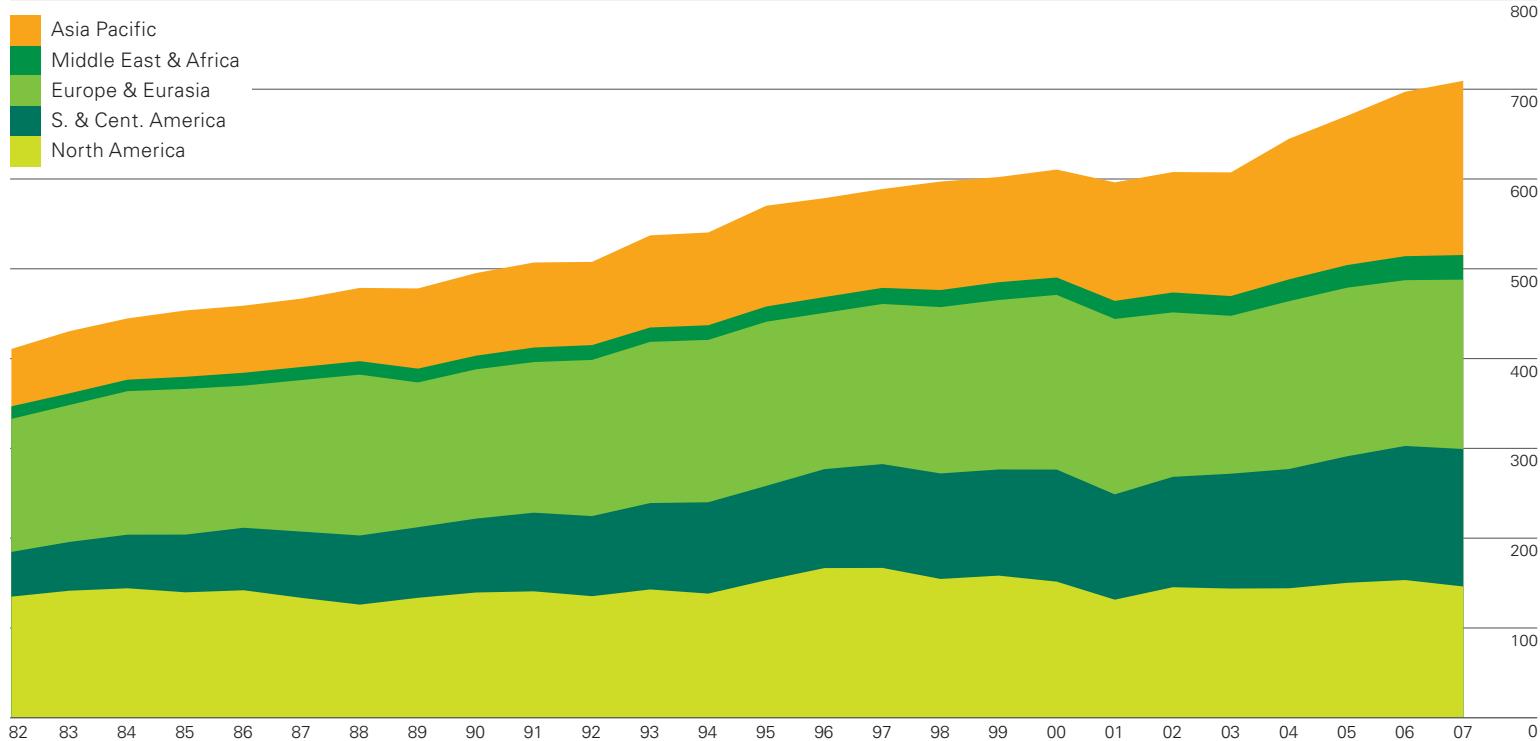


Global nuclear power generation experienced the largest decline on record, falling by 2%. More than 90% of the net decline was concentrated in Germany and Japan.



## Consumption by region

Million tonnes oil equivalent



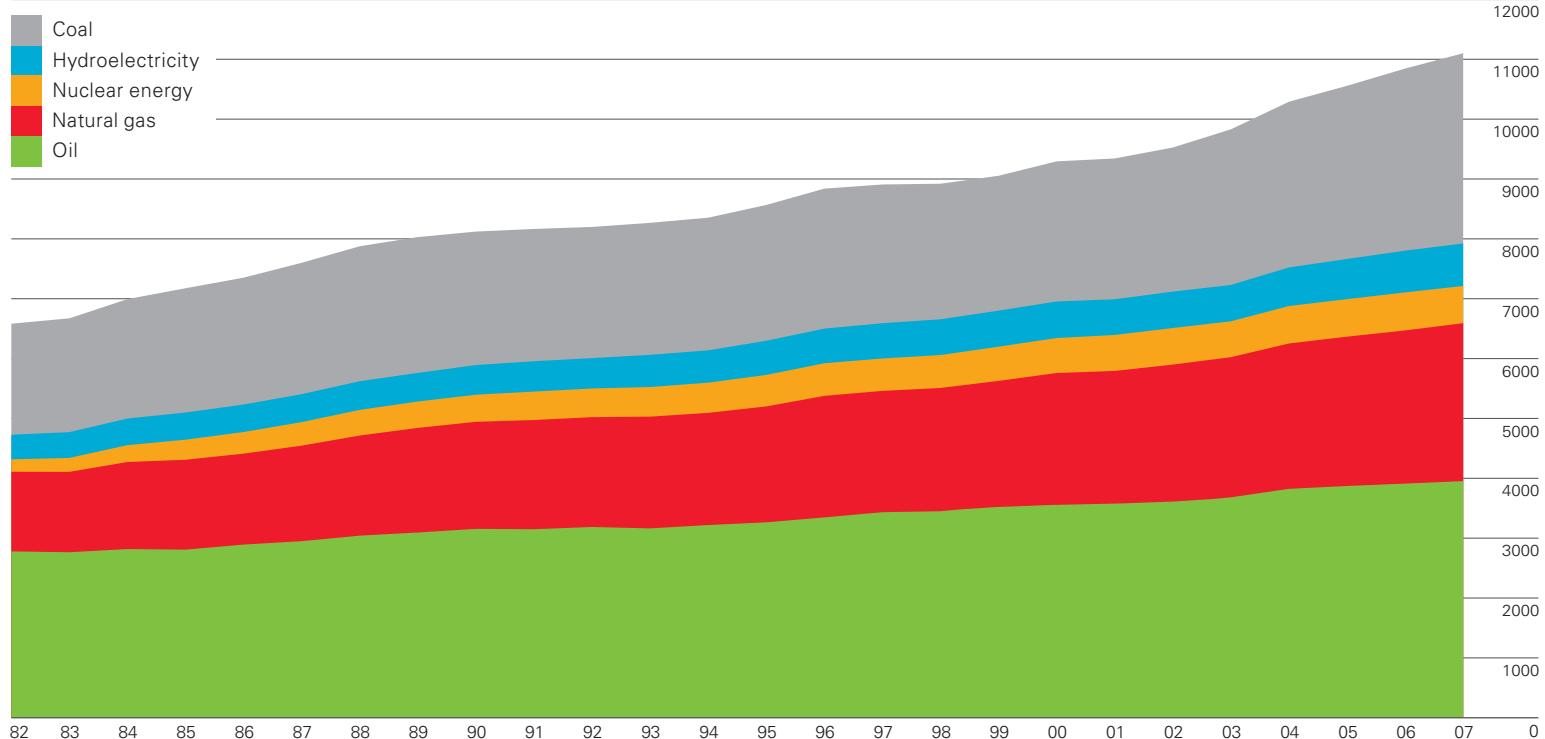
Growth in global hydroelectric power generation was 1.7%, slightly below the historical average. New capacity in China and Brazil and improved rainfall in Canada and northern Europe offset drought conditions in the US and southern Europe.





## World consumption

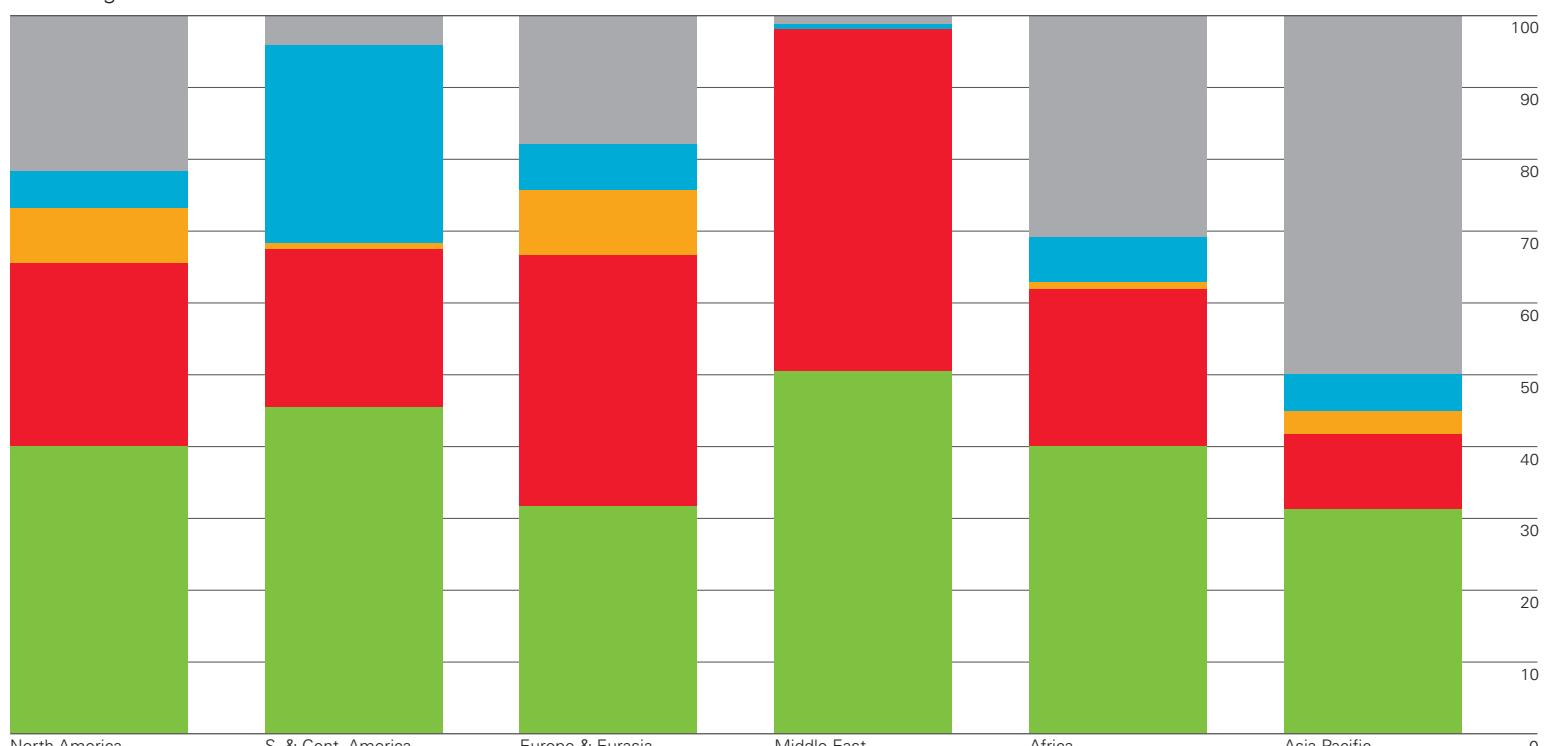
Million tonnes oil equivalent



World primary energy consumption slowed in 2007, but growth of 2.4% was still above the 10-year average. Coal remained the fastest-growing fuel, but oil consumption grew slowly. Oil is still the world's leading fuel, but has lost global market share for six consecutive years, while coal has gained market share for six years.

## Regional consumption pattern 2007

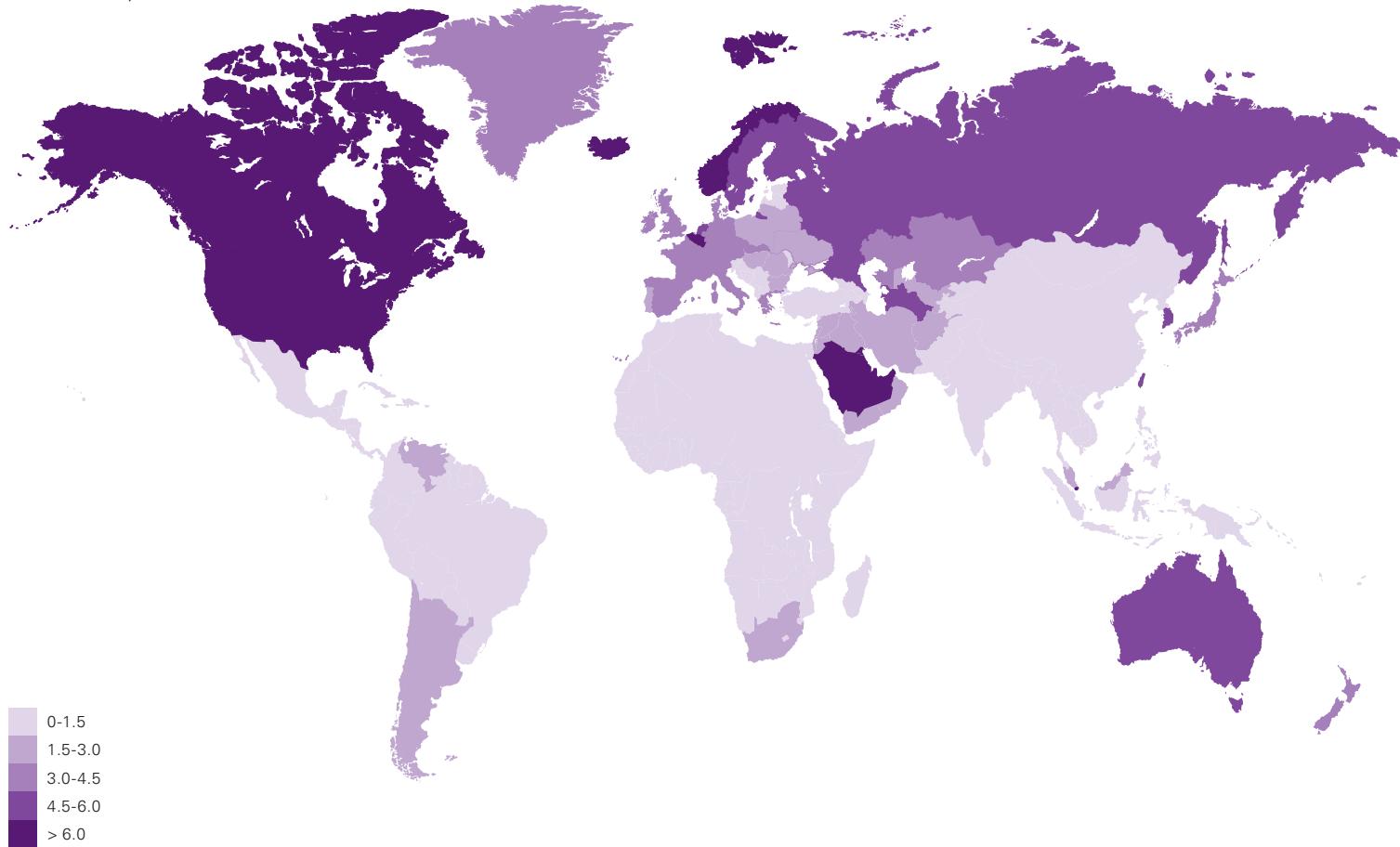
Percentage



Oil remains the dominant fuel in all regions except Europe and Eurasia and Asia Pacific. Coal dominates in Asia Pacific, primarily because it meets 70% of China's energy needs. Gas remains the dominant fuel in Europe and Eurasia even though gas consumption in the region was weak in 2007.

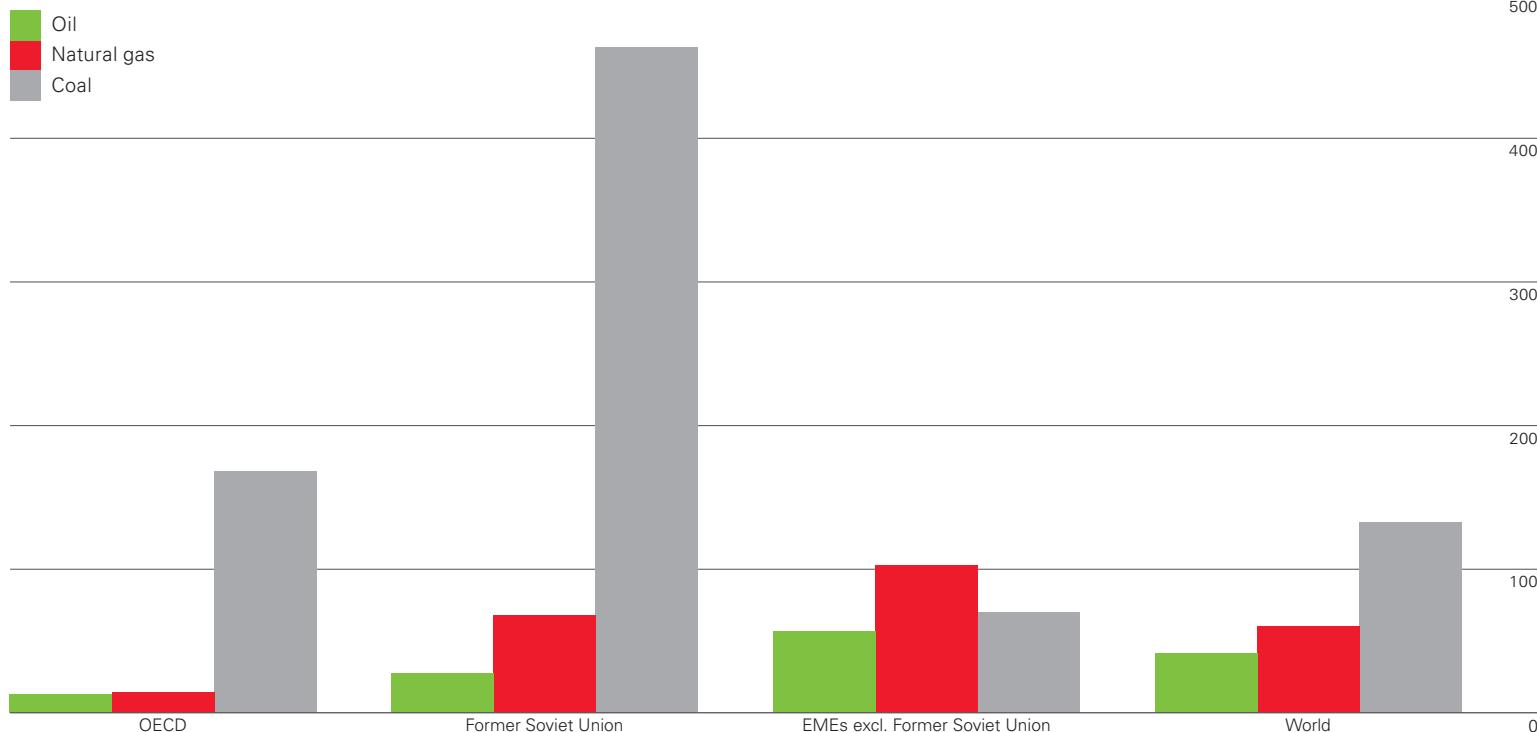
### Consumption per capita 2007

Tonnes oil equivalent



### Fossil fuel reserves-to-production (R/P) ratios at end 2007

Years



Coal remains the world's most abundant fossil fuel, with an R/P ratio of more than 130 years. In addition to being cost-competitive, coal has emerged as the world's fastest-growing fuel in part because reserves are located in key consuming countries.

# Appendices

## Approximate conversion factors

Crude oil*	To	tonnes (metric)	kilolitres	barrels	US gallons	tonnes per year
	Multiply by					
From						
Tonnes (metric)	1	1.165	7.33	307.86	—	
Kilolitres	0.8581	1	6.2898	264.17	—	
Barrels	0.1364	0.159	1	42	—	
US gallons	0.00325	0.0038	0.0238	1	—	
Barrels per day	—	—	—	—	49.8	

Products	To convert	tonnes to tonnes	tonnes to barrels	kilolitres to tonnes	tonnes to kilolitres	Multiply by
	barrels to tonnes					
Liquefied petroleum gas (LPG)	0.086	11.6	0.542	1.844		
Gasoline	0.118	8.5	0.740	1.351		
Kerosene	0.128	7.8	0.806	1.240		
Gas oil/diesel	0.133	7.5	0.839	1.192		
Fuel oil	0.149	6.7	0.939	1.065		

Natural gas (NG) and liquefied natural gas (LNG)	To	billion cubic metres NG	billion cubic feet NG	million tonnes oil equivalent	million tonnes LNG	trillion British thermal units	million barrels oil equivalent	Multiply by
	tonnes							
From								
1 billion cubic metres NG	1	35.3	0.90	0.73	36	6.29		
1 billion cubic feet NG	0.028	1	0.026	0.021	1.03	0.18		
1 million tonnes oil equivalent	1.111	39.2	1	0.805	40.4	7.33		
1 million tonnes LNG	1.38	48.7	1.23	1	52.0	8.68		
1 trillion British thermal units	0.028	0.98	0.025	0.02	1	0.17		
1 million barrels oil equivalent	0.16	5.61	0.14	0.12	5.8	1		

## Definitions

Statistics published in this Review are taken from government sources and published data. No use is made of confidential information obtained by BP in the course of its business.

Country groupings are made purely for statistical purposes and are not intended to imply any judgement about political or economic standings.

### North America

US (excluding Puerto Rico), Canada and Mexico.

### South and Central America

Caribbean (including Puerto Rico), Central and South America.

### Europe

European members of the OECD plus Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Former Yugoslav Republic of Macedonia, Gibraltar, Malta, Romania, Serbia and Montenegro, Slovenia.

### Former Soviet Union

Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

### Europe and Eurasia

All countries listed above under the headings Europe and Former Soviet Union.

### Middle East

Arabian Peninsula, Iran, Iraq, Israel, Jordan, Lebanon, Syria.

### North Africa

Territories on the north coast of Africa from Egypt to western Sahara.

### West Africa

Territories on the west coast of Africa from Mauritania to Angola, including Cape Verde, Chad.

### East and Southern Africa

Territories on the east coast of Africa from Sudan to Republic of South Africa. Also Botswana, Madagascar, Malawi, Namibia, Uganda, Zambia, Zimbabwe.

### Asia Pacific

Brunei, Cambodia, China, China Hong Kong SAR\*, Indonesia, Japan, Laos, Malaysia, Mongolia, North Korea, Philippines, Singapore, South Asia (Afghanistan, Bangladesh, India, Myanmar, Nepal, Pakistan, Sri Lanka), South Korea, Taiwan, Thailand, Vietnam, Australia, New Zealand, Papua New Guinea, Oceania.

\*Special Administrative Region.

## Units

1 metric tonne = 2204.62lb  
= 1.1023 short tons  
1 kilolitre = 6.2898 barrels = 1 cubic metre  
1 kilocalorie (kcal) = 4.187kJ = 3.968Btu  
1 kilojoule (kJ) = 0.239kcal = 0.948Btu  
1 British thermal unit (Btu) = 0.252kcal  
= 1.055kJ  
1 kilowatt-hour (kWh) = 860kcal  
= 3600kJ = 3412Btu

## Calorific equivalents

One tonne of oil equivalent equals approximately:

Heat units	10 million kilocalories 42 gigajoules 40 million British thermal units
Solid fuels	1.5 tonnes of hard coal 3 tonnes of lignite
Gaseous fuels	See Natural gas and liquefied natural gas table
Electricity	12 megawatt-hours
One million tonnes of oil or oil equivalent	produces about 4400 gigawatt-hours (= 4.4 terawatt-hours) of electricity in a modern power station.

## Australasia

Australia, New Zealand.

## OECD members

Europe: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, UK.

Other member countries: Australia, Canada, Japan, Mexico, New Zealand, South Korea, US.

## OPEC members

Middle East: Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates.

North Africa: Algeria, Libya. West Africa: Angola, Nigeria. Asia Pacific: Indonesia.

South America: Venezuela.

## European Union members

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Republic of Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK.

## Other EMEs (Emerging Market Economies)

South and Central America, Africa, Middle East, non-OECD Asia, non-OECD Europe.

## Methodology

The primary energy values of both nuclear and hydroelectric power generation have been derived by calculating the equivalent amount of fossil fuel required to generate the same volume of electricity in a thermal power station, assuming a conversion efficiency of 38% (the average for OECD thermal power generation).

## Percentages

Calculated before rounding of actuals. All annual changes and shares of totals are on a weight basis except on pages 6, 14, 18, 20 and 22.

## Rounding differences

Because of rounding, some totals may not agree exactly with the sum of their component parts.

## Tonnes

Metric equivalent of tons.

## Further information

### Questions on data

BP regrets it is unable to deal with enquiries about the data in *BP Statistical Review of World Energy June 2008*.

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