

BP Statistical Review of World Energy June 2017



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66th edition

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Group chief executive's introduction



Welcome to BP's *Statistical Review of World Energy*. This is the 66th edition of the Statistical Review and the data and analysis it contains provide a window onto another fascinating year in the world of energy.

Global energy markets are in transition. Rapid growth and improving prosperity mean growth in energy demand is increasingly coming from developing economies, particularly within Asia, rather than from traditional markets in the OECD. The relentless drive to improve energy efficiency is causing global energy consumption overall to decelerate. And, of course, the energy mix is shifting towards cleaner, lower carbon fuels, driven by environmental needs and technological advances. BP will play its part in meeting this dual challenge of supplying the energy the world needs to grow and prosper, while also reducing carbon emissions.

As well as the increasing pull of this long-term transition, energy markets last year also had to respond to a series of shorter-run factors, most notably in the oil market which continued to adjust to the excess supply that has weighed on prices over the past three years. To understand this mix of short and long-run factors and what they might

imply for the future, we need timely and reliable data. That is where the Statistical Review comes in, providing accurate global data to inform discussion, debate and decision making.

Looking at the picture overall, energy consumption grew slowly again in 2016 – the third consecutive year in which demand has grown by 1% or less – much weaker than the rates of growth we had become used to over the previous 10 years or so. Moreover, the weak growth in energy demand, combined with a continuing shift towards lower carbon fuels, meant global carbon emissions from energy consumption were estimated to have been essentially flat in 2016 for a third consecutive year – a substantial improvement relative to past trends.

From a global level, much of this improvement can be traced back to the pronounced changes in the pace and pattern of economic growth and energy consumption within China. The extent to which these changes will persist as China moves to a more sustainable pattern of growth and how much will unwind as the marked weakness in some of China's most energy-intensive sectors eases is uncertain. We need to keep up our focus and efforts on reducing carbon emissions. BP supports the aims set out in the COP21 meetings in Paris and is committed to playing its part in helping to achieve them.

In terms of individual fuels, 2016 was a year of adjustment for the oil market, with low prices fuelling demand growth and weighing on production, particularly US tight oil which fell back substantially. As a result, the oil market moved broadly into balance in the second half of the year, albeit with inventories remaining at elevated levels. Towards the end of last year, OPEC together with 10 non-OPEC producers announced an agreement to cut output in order to speed up the pace at which oil stocks adjust to more normal levels. The price responsiveness of US tight oil and the actions of OPEC dominated oil markets in 2016 and look set to continue to do so over the next few years.

The weak price environment in 2016 was also felt in the natural gas market, where global production was essentially flat. This is the weakest growth in gas output for 34 years, other than in the immediate aftermath of the financial crisis. Even so, exports of liquefied natural gas (LNG) increased strongly, as a number of major LNG projects in Australia came onstream. The growth spurt in LNG supplies expected

over the next few years is likely to have a major influence on global gas markets, leading to greater integration of markets across the globe and a move towards more flexible, competitive markets.

The influence of the energy transition was particularly marked in the contrasting fortunes of coal and renewable energy. Coal consumption fell sharply for the second consecutive year, with its share within primary energy falling to its lowest level since 2004. Indeed, coal production and consumption in the UK completed an entire cycle, falling back to levels last seen almost 200 years ago around the time of the Industrial Revolution, with the UK power sector recording its first ever coal-free day in April of this year. In contrast, renewable energy globally led by wind and solar power grew strongly, helped by continuing technological advances. Although the share of renewable energy within total energy remains small, at around 4%, it accounted for almost a third of the increase in primary energy last year.

Our industry has faced some significant challenges in recent years. There are signs in last year's data that markets are adjusting and some of the near-term pressures may gradually ease. But as we know from history, one set of challenges is likely to be replaced by another, as we learn to operate in ever-changing markets and to harness the opportunities afforded by the transition to a lower carbon environment. That will require understanding and judgement, both of which rely on the kind of robust data and analysis provided by the Statistical Review. I hope you find it a useful resource for your own discussions and deliberations.

Let me conclude by thanking BP's economics team and all those who helped us prepare this Review. The Review relies on the willingness of governments around the world to contribute their official data. Thank you for your continuing co-operation and transparency.

A handwritten signature in black ink, appearing to read "Bob Dudley".

Bob Dudley
Group chief executive
June 2017

2016 at a glance

Growth in global primary energy consumption remained low in 2016; and the fuel mix shifted away from coal towards lower carbon fuels.

Energy developments

- Global primary energy consumption increased by just 1% in 2016, following growth of 0.9% in 2015 and 1% in 2014. This compares with the 10-year average of 1.8% a year.
- As was the case in 2015, growth was below average in all regions except Europe & Eurasia. All fuels except oil and nuclear power grew at below-average rates.
- Energy consumption in China grew by just 1.3% in 2016. Growth during 2015 and 2016 was the lowest over a two-year period since 1997-98. Despite this, China remained the world's largest growth market for energy for a 16th consecutive year.

Carbon emissions

- Emissions of CO₂ from energy consumption increased by only 0.1% in 2016. During 2014-16, average emissions growth has been the lowest over any three-year period since 1981-83.

Oil

- The Dated Brent oil price averaged \$43.73 per barrel in 2016, down from \$52.39 per barrel in 2015 and its lowest (nominal) annual level since 2004.
- Oil remained the world's leading fuel, accounting for a third of global energy consumption. Oil gained global market share for the second year in a row, following 15 years of declines from 1999 to 2014.
- Global oil consumption growth averaged 1.6 million barrels per day (Mb/d), or 1.6%, above its 10-year average (1.2%) for the second successive year. China (400,000 b/d) and India (330,000 b/d) provided the largest increments.
- Global oil production in contrast, rose by only 0.4 Mb/d, the slowest growth since 2013.
- Production in the Middle East rose by 1.7 Mb/d, driven by growth in Iran (700,000 b/d) Iraq (400,000 b/d) and Saudi Arabia (400,000 b/d).



Aerial view of Shanghai highway in China at night. Shanghai has an expansive grade-separated highway and expressway network consisting of 16 municipal express roads, 10 provincial-level expressways and eight national-level expressways.

- Production outside the Middle East fell by 1.3 Mb/d, with the largest declines in the US (-400,000 b/d), China (-310,000 b/d) and Nigeria (-280,000 b/d).
- Refinery throughput growth slowed from 1.8 Mb/d in 2015 to 0.6 Mb/d last year. Refining capacity grew by only 440,000 b/d, versus 10-year average growth of 1 Mb/d, causing refinery utilization to rise.

Natural gas

- World natural gas consumption grew by 63 billion cubic metres (bcm) or 1.5%, slower than the 10-year average of 2.3%.
- EU gas consumption rose sharply by 30 bcm, or 7.1% – the fastest growth since 2010. Russia saw the largest drop in consumption of any country (-12 bcm).
- Global natural gas production increased by only 21 bcm, or 0.3%. Declining production in North America (-21 bcm) partially offset strong growth from Australia (19 bcm) and Iran (13 bcm).
- Gas trade grew by 4.8%, helped by 6.2% growth in LNG imports/exports.
- Most of the net growth in LNG exports came from Australia (19 bcm out of 21). US LNG exports rose from 0.7 bcm in 2015 to 4.4 bcm in 2016.

Coal

- Global coal consumption fell by 53 million tonnes of oil equivalent (mtoe), or 1.7%, the second successive annual decline.

- The largest declines in coal consumption were seen in the US (-33 mtoe, an 8.8% fall) and China (-26 mtoe, -1.6%). Coal consumption in the UK more than halved (down 52.5%, or 12 mtoe) to its lowest level in our records.
- Coal's share of global primary energy consumption fell to 28.1%, the lowest share since 2004.
- World coal production fell by 6.2%, or 231 mtoe, the largest decline on record. China's production fell by 7.9% or 140 mtoe, also a record decline. US production fell by 19% or 85 mtoe.

Renewables, hydro & nuclear energy

- Renewable power (excluding hydro) grew by 14.1% in 2016, below the 10-year average, but the largest increment on record (53 mtoe).
- Wind provided more than half of renewables growth, while solar energy contributed almost a third despite accounting for only 18% of the total.
- Asia Pacific overtook Europe & Eurasia as the largest producing region of renewable power. China overtook the US to be the largest single renewables producer.
- Global nuclear power generation increased by 1.3% in 2016, or 9.3 mtoe. China accounted for all of the net growth, expanding by 24.5%. China's increment (9.6 mtoe) was the largest of any country since 2004.
- Hydroelectric power generation rose by 2.8% in 2016, (27.1 mtoe). China (10.9 mtoe) and the US (3.5 mtoe) provided the largest increments. Venezuela experienced the largest decline (-3.2 mtoe).

+1.0%

Growth of global primary energy consumption, well below the 10-year average of 1.8%.

Group chief economist's analysis



Energy in 2016: short-run adjustments and long-run transition.

Stability and energy markets don't go together – booms and busts; rebounds and reversals are the norm.

But the movements and volatility seen last year were particularly interesting since energy markets were buffeted by two separate forces: the continued adjustment to the short-run cyclical shocks that have rocked energy markets in recent years, particularly the oil market; and the growing gravitational pull of the longer-run energy transition that is under way.

In recent years the nature of the cyclical adjustments has been increasingly affected by the longer-run transition that is shaping global energy markets. On the demand side: the shift in the centre of gravity to fast-growing developing economies, led by China and India; together with a slowing in overall energy growth as it is used ever more efficiently. And on the supply side, the secular movement towards cleaner, lower carbon energy sources, led by renewable energy, driven by technological advances and environmental needs.

2016 was a year of both short-run adjustments and long-run transition, and this year's Statistical Review shines a light on both influences.

+1.3%

Growth of primary energy consumption in China, a quarter of its 10-year average.

Key features of 2016

Primary energy grew by just 1% (171 mtoe) in 2016, almost half the average rate seen over the previous 10 years.

Some of this weakness reflected short-run factors: global GDP grew by just 3% last year, its slowest rate since 2002 – other than at the time of the financial crisis – driven in part by a slowdown in industrial production, the most energy-intensive sector of the economy.

But the weakness is also indicative of the longer-run trend towards slower energy growth driven by gains in energy efficiency.

This is the third consecutive year in which energy consumption has grown by 1% or less, with energy intensity – the average amount of energy needed to produce a unit of GDP – falling at historically unprecedented rates.

Growth in energy consumption was again driven by the developing economies. China (1.3%, 47 mtoe) and India (5.4%, 39 mtoe) led the way, contributing almost identical increments, and together accounting for around half of the increase in global demand.

But these similar contributions disguise sharply contrasting trends. India's energy consumption grew at a similar rate to the recent past, underpinned by solid economic growth. In contrast, China's energy consumption grew at less than a quarter of the rate seen over the previous 10 years.

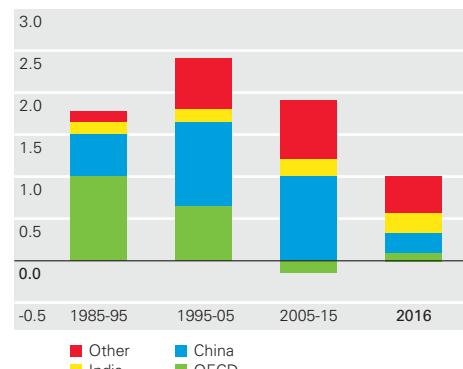
This brake in China's energy consumption partly reflects the gradual slowing in economic growth, but it has been greatly compounded by pronounced weakness in China's most energy-intensive sectors, particularly iron, steel and cement, which together account for around a quarter of China's total energy consumption.

Some of the weakness in these sectors, which drove China's rapid growth and industrialization over much of the past 15 years, reflects the structural rebalancing of the economy towards more consumer and service facing sectors.

But the scale of the slowdown – with output in iron, steel and cement below 2014 levels – suggests that some bounce-back is perhaps likely.

Energy consumption growth

Contributions to annual growth, %



Short-run adjustments and long-run transition.

The story in terms of individual fuels also reflects a mix of these two forces.

Renewable energy (including biofuels) (12%, 55 mtoe) was again the fastest growing energy source, accounting for almost a third of the increase in primary energy, despite having a share of only 4%. That said, oil (1.5%, 75 mtoe) actually provided the largest contribution to growth, with the low level of oil prices boosting demand.

Natural gas (1.5%, 57 mtoe) grew at the same rate as oil, although for gas this was considerably slower than its 10-year average.

Perhaps the most striking feature across the different fuels was the continuing rapid descent of coal, with consumption (-1.7%, -53 mtoe) falling sharply for the second consecutive year and the share of coal within primary energy declining to its lowest level since 2004.

The turnaround in the fortunes of coal over the past few years is stark: it is only four years ago that coal was the largest source of energy demand growth. There may be further ups and downs in the fortunes of coal over coming years, but the weakness in recent years does seem to signal a fairly decisive break from the past.



The Beijing central business district is the primary area of finance, media, and business services in Beijing, China.

Oil

Two years ago, 2015 was a year of thwarted adjustment for oil: strong growth in OPEC production outweighed the responses of both demand and non-OPEC production to lower prices.

In contrast, 2016 was a year of adjustment for the oil market, with oil demand again increasing robustly and production growing by less than a quarter (0.4 Mb/d) of that seen in 2015.

Global oil demand grew by 1.6 Mb/d last year. As in 2015, this strength was almost entirely due to oil importers, with both India (0.3 Mb/d) and Europe (0.3 Mb/d) posting unusually strong increases. Although, growth in China (0.4 Mb/d) and the US (0.1 Mb/d) was more subdued.

As in 2015, the strength in oil demand was most pronounced in consumer-led fuels, such as gasoline, buoyed by low prices. In contrast, diesel demand, which was more exposed to the industrial slowdown, including in the US and China, declined for the first time since 2009.

The weakness on the supply side was driven by non-OPEC production which fell by 0.8 Mb/d, its largest decline for almost 25 years. This fall was led by US tight oil, whose production fell 0.3 Mb/d, a swing of almost 1 Mb/d relative to growth in 2015. China also experienced its largest ever decline in oil production (-0.3 Mb/d).

In contrast, OPEC production recorded another year of solid growth (1.2 Mb/d), with Iran (0.7 Mb/d), Iraq (0.4 Mb/d) and Saudi Arabia (0.4 Mb/d) more than accounting for the increase. Iran's production and its share of OPEC output are now both back around pre-sanction levels.

The combination of strong demand and weak supply was sufficient to move the oil market broadly back into balance by the middle of the year.

But this was not before inventories had increased even further from their already excessive levels, such that the level of OECD inventories by the end of 2016 was around 300 Mbbls above their five-year average.

The drama and intrigue that has characterized oil markets since the price collapse in 2014 have been dominated by two principal actors: US tight oil and OPEC. What have we learnt about the behaviour of both during this cycle?

Consider first US tight oil, which didn't exist during the last oil price cycle, and so we are learning about it in real time.

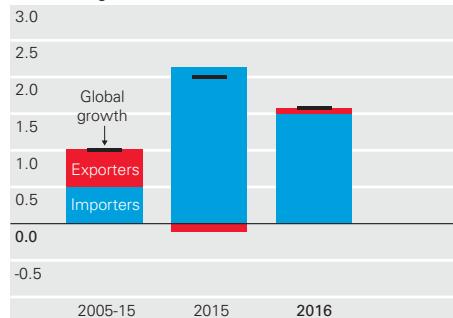
Perhaps the most important thing is that there is no such thing as the behaviour of 'US tight oil': the

-0.8 Mb/d

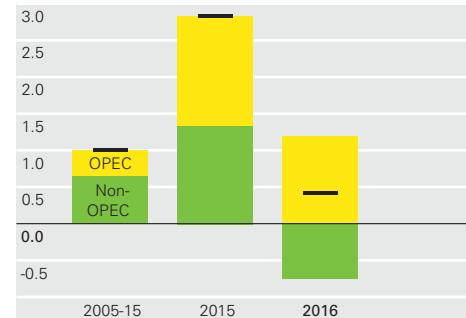
Decline in non-OPEC oil production.

Oil market in 2015 and 2016

Consumption
Annual change, Mb/d



Production



Permian is very different to Eagle Ford which is different to Bakken. So beware generalizations.

Notwithstanding that, the short-cycle nature of fracking meant activity related to US tight oil did respond far more quickly to price signals than conventional oil and, in so doing, damped price volatility. Rigs started to fall around four to six months after oil prices peaked in June 2014 and picked up even more quickly – within three or four months – once prices started to turn at the beginning of last year.

And this lower activity fed through into slower output growth. In the first half of 2015 – so less than a year after the peak in oil prices – tight oil production grew by just 0.1 Mb/d, compared with over 0.5 Mb/d in the same period a year earlier – a swing in annualized terms of 0.8 Mb/d. Similarly, US tight oil has grown solidly in the first half of this year, following the trough in prices in the spring of 2016.

The final point to note about US tight oil is that productivity continued to rise rapidly through the cycle, with new well production per rig increasing by around 40% per year in both 2015 and 2016. Despite rigs in the Permian falling by over 75%, output continued to grow. Put differently, a rig operating in the Permian today is equivalent to more than three rigs at the end of 2014.

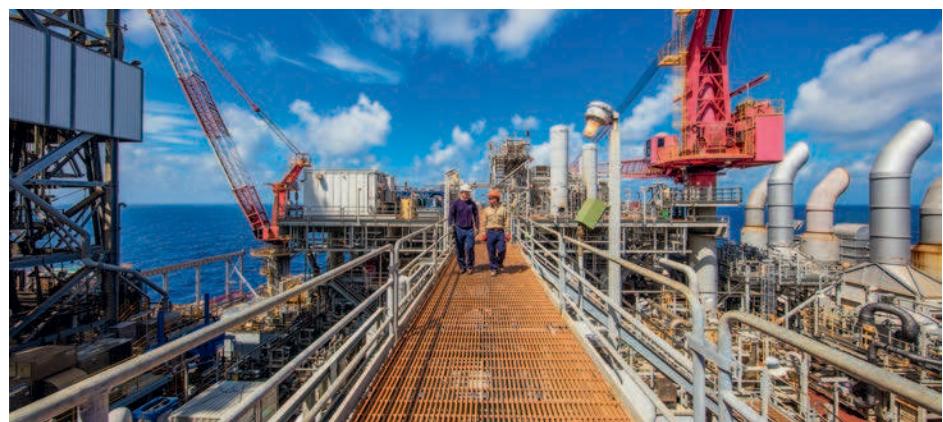
So that is the backstory on one of the principal actors, what about the other: OPEC?

As with many great characters in literature, OPEC took some decisive actions which caught many observers by surprise and dramatically changed the course of events. First, by not cutting production in November 2014, triggering a collapse in prices, and then last November agreeing, along with 10 non-OPEC producers, to a production cut totalling 1.8 Mb/d.

How should we think about these actions?

For me, the clearest explanation of these actions was given by HE Khalid Al-Falih, the Saudi Arabian minister for energy, industry and mineral resources at CERAWeek in March. To quote minister Al-Falih:

"OPEC remains an important catalyst to the stability and sustainability of the market.... but history has also demonstrated that intervention in response to structural shifts is largely ineffective... that's why Saudi Arabia does not support OPEC intervening to alleviate the impacts of long-term structural imbalances, as opposed to addressing short-term aberrations...."



On board BP's Thunder Horse platform in the Gulf of Mexico, USA.

To unpack this a bit: OPEC's power stems from its ability to shift oil production from one period to another. As such, it has the ability to smooth through the effects of temporary shocks to the oil market, lowering or raising production until the shock subsides.

But its ability to respond to permanent shocks is far more limited: shifting supply from one period to another makes little difference if the underlying shock persists. Consider, for example, the unsuccessful attempts by OPEC to support the oil market in the first half of the 1980s as new structural sources of production from the North Sea and Alaska came onstream.

The underlying source of the supply imbalance that emerged in 2014 was the growth of US tight oil. To use the Minister's words, this was not a short-term aberration; it was the emergence of a new source of intra-marginal supply.

In contrast, the focus now is on increasing the pace at which the huge overhang of oil stocks is drawn down to more normal levels. This is exactly the type of temporary adjustment in which OPEC intervention can be effective – reducing supply until stocks have adjusted.

So perhaps like all the best stories, the actions of the main characters make perfect sense when seen in the right context. OPEC remains a central force, able to manage and stabilize the oil market, but the nature of that power means it is effective for short-term aberrations, not structural shifts.

Finally for oil, what has all this meant for prices?

The persistent supply imbalance and growing inventory levels caused prices to fall towards the end of 2015 and into 2016. Prices stabilized through the middle of the year as the market moved into balance and inventories levelled off, before firming somewhat towards the end of the year in the wake of the OPEC/non-OPEC agreement. Dated Brent averaged \$44 per barrel in 2016, down from \$52 in 2015, its lowest (nominal) average since 2004. So far, this year, prices have averaged about \$53 as the OPEC cuts have started to take effect, albeit partially offset by the strong recovery in US tight oil.

Refining

Back in 2015, refiners responded to near-record high margins by increasing refinery throughput by 1.8 Mb/d, triple its 10-year average.

That led to a build-up of product inventories that dampened margins in 2016, causing refineries to reduce the growth in crude runs to just 0.6 Mb/d.

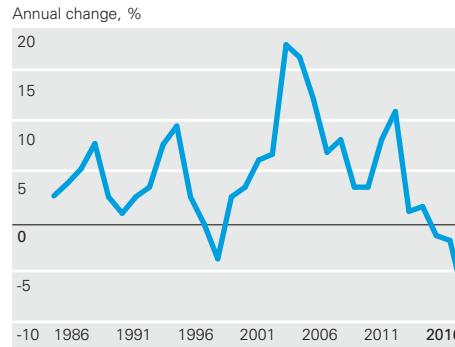
After strong growth in 2015, European refiners reduced runs by 0.2 Mb/d, while runs in Mexico, Venezuela and Brazil fell by a combined 0.4 Mb/d due to multiple refinery shutdowns.

\$44/bbl

Price of Dated Brent crude oil.

China coal production and prices

China coal production growth



China coal prices



Refining capacity expanded by just 0.4 Mb/d, less than half its 10-year average. This was the second successive year of weak growth in refining capacity, much of which can be attributed to actions by China to limit the build-up of domestic spare refining capacity.

Coal

The fortunes of coal appear to have taken a decisive break from the past. This shift largely reflects structural factors: the increasing availability and competitiveness of natural gas and renewables, combined with government and societal pressure to shift towards cleaner, lower carbon fuels.

These long-term forces in turn have given rise to near-term tensions and dynamics. This was particularly the case in China, which at the beginning of the year introduced a series of measures to reduce the scale of excess capacity in the domestic coal sector and improve the productivity and profitability of the remaining mines.

These measures were focused on reducing capacity amongst the smallest, least productive mines and encouraging greater consolidation. In addition, the government further constrained production by restricting coal mines to operate for

a maximum of 276 days, down from 330 days. The impact of these measures was dramatic: domestic coal production fell sharply and prices jumped sharply higher. For 2016 as a whole, Chinese coal production fell by 7.9% (-140 mtoe), by far the largest decline on record, and through the year the price of steam coal increased by over 60%. Coal consumption also declined (-1.6%, -26 mtoe) for the third consecutive year, although by less than production, with China resuming its position as the world's largest importer of coal.

The events in China spilled over into global coal markets, with world prices taking their cue from China. This rise in global coal prices further depressed global coal demand, particularly in power sector around the globe, with natural gas and renewable energy the main beneficiaries. Global coal consumption fell by 53 mtoe (-1.7%) and global production by a whopping 231 mtoe (-6.2%), with US production registering a second consecutive substantial fall (-19.0%, -85 mtoe).

A particularly striking example of this long-run movement away from coal was here in the UK, where the hike in global coal prices was amplified by the increase in the UK's Carbon Price Floor in 2015. As a result, the UK's relationship with coal almost completed an entire cycle: with the UK's last three underground coal mines closing,



Surface coal mine in England.

consumption falling back to where it was roughly 200 years ago around the time of the industrial revolution, and the UK power sector recording its first-ever coal-free day in April of this year.

Natural gas

Global consumption increased by 1.5% (63 bcm), quite a bit weaker than its 10-year average (2.3%); while global gas production was essentially flat (0.3%, 21 bcm), the weakest growth in gas output for 34 years, other than in the immediate aftermath of the financial crisis.

This sub-par growth went hand-in-hand with falling gas prices – Henry Hub prices were 5% lower than in 2015, European and Asian gas markers were down 20-30% as prices continued to adjust to increased LNG supplies.

Much of the lacklustre performance can be traced back to the US, particularly on the supply side where falls in gas (and oil) prices caused US gas production (-17 bcm, -2.5%) to fall for the first time since the US shale gas revolution started in earnest in the mid-2000s.

Outside of the US, on the demand side, gas consumption in Europe rose strongly (6%, 28 bcm) helped by both the increasing competitiveness of gas relative to coal and weakness in European nuclear and renewable energy.

The Middle East (3.5%, 19 bcm) and China (16 bcm, 7.7%) both also recorded strong increases aided by improving infrastructure and availability of gas. The largest falls were in Russia (-12 bcm, -3.2%) and Brazil (-5 bcm, -12.5%) both of which benefited from strong increases in hydropower.

On the supply side, Australian production (19 bcm, 25.2%) was the standout performer as several new LNG facilities came onstream.

Looking at the growing market for LNG, although China continued to provide the main source of growth, it's striking that the increasing availability of supplies has prompted a number of new countries, including Egypt, Pakistan and Poland, to enter the market in the last year or two. These new entrants were helped by the increased flexibility afforded by plentiful supplies of FSRUs (floating storage and regasification units).

2016 was the first year of the growth spurt we expect to see in LNG, with global supplies set to increase by around a further 30% by 2020. That is equivalent to a new LNG train coming onstream every two-to-three months for the next four years – quite astonishing growth.

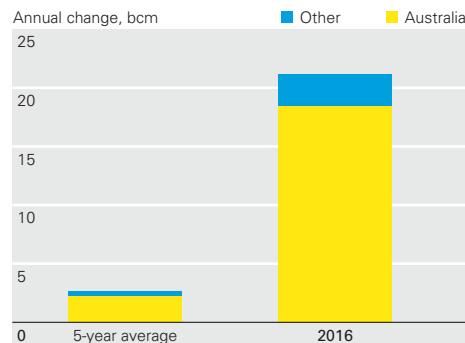
As the importance of LNG trade grows, global gas markets are likely to evolve quite materially.

25.2%

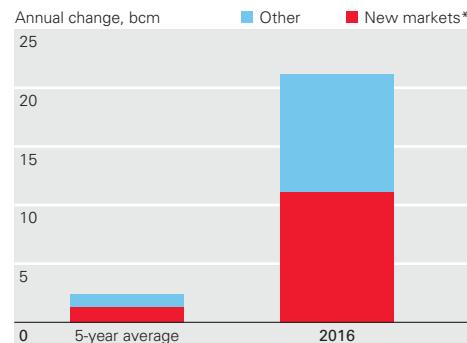
Increase in Australian natural gas production as new LNG facilities came onstream.

LNG supply and demand

Supply



Demand



*Includes Egypt, Pakistan, Poland, Jamaica, Colombia and Lithuania

Alongside increasing market integration, we are likely to see a shift towards a more flexible style of trading, supported by a deeper, more competitive market structure. Indeed, this shift is already apparent, with a move towards smaller and shorter contracts and an increase in the proportion of LNG trade which is not contracted and is freely traded.

A particularly interesting market in the context of the growing LNG supplies is Europe.

On the one hand, Europe's large and increasing need for imported gas, combined with its relatively central location amongst several major LNG suppliers, means Europe is often highlighted as a natural growth market for LNG. On the other hand, Europe's access to plentiful supplies of pipeline gas, particularly from Russia, means LNG imports are likely to face stiff competition.

In terms of this battle of competing supplies, Round 1 went to pipeline gas.

Europe's gas imports increased markedly last year, reflecting the strong increase in demand, together with weakness in the domestic production of natural gas. But virtually the entire rise in European imports was met by pipeline gas, from a combination of Algerian and Russian supplies, with imports of LNG barely increasing.

The economic incentives in this battle of competing supplies are clear: just as with OPEC's response to the emergence of US tight oil, Russia has a strong incentive to compete to maintain its market share in the face of growing competition from LNG supplies.

But this competitive process is complicated by possible concerns about Europe being overly dependent on a single source of supply and the energy security issues this might raise. The interesting question is whether the growth of global LNG trade, by fostering a more globally-integrated gas market, with the optionality of being able to turn to LNG should the need arise, might mitigate those concerns.

Europe doesn't need to consume large amounts of LNG imports in 'normal' times, but it has the option of doing so if the need arises.

Non-fossil fuels

The leading light of the energy transition is, of course, renewable power which continued to grow rapidly last year, led by wind (15.6%, 131 TWh) and solar (29.6%, 77 TWh). Although the share of renewable power within primary energy edged up only slightly to 3.2%, its strong growth meant it accounted for over 30% of the increase in primary energy.



The Trans-Anatolian Natural Gas Pipeline in Turkey, a central part of the Southern Gas Corridor pipeline system.

China continued to dominate renewables growth, contributing over 40% of global growth – more than the entire OECD – and surpassing the US to become the largest producer of renewable power.

One noticeable weak spot last year was the EU, where renewable power barely grew as load factors fell back from unusually high levels in 2015. This is a reminder of the variability that weather conditions can inject into renewable generation from year to year. For example, the decline in Denmark's wind power last year was almost 5% of its total power generation.

Although wind continued to provide the lion's share of the increase in renewable power, solar is catching up fast.

The right-hand chart considers the 67 countries that are separately tracked in the Statistical Review and records the share of those countries that, in any given year, produced a material amount of different energies. It took around 20 years for the share of countries producing a sizeable amount of wind power to increase from 15% to 75%; solar achieved the same degree of diffusion in less than half that time. In sharp contrast, nuclear energy plateaued at less than half the number of countries.

These different rates of diffusion reflect the different characteristics of the technologies: the more modular nature of solar power, together with its steeper learning curve has allowed it to spread more quickly.

Moreover, the fact that the transfer of wind and solar technology is not subject to onerous security restrictions has helped their rapid diffusion relative to nuclear power.

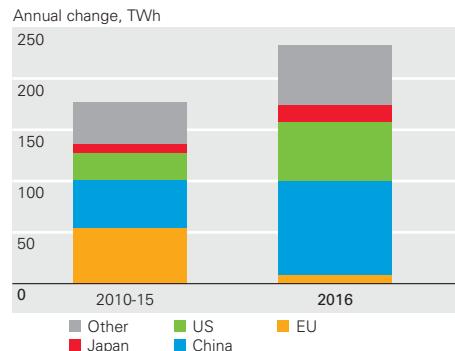
In terms of other non-fossil fuels: China provided the main source of world growth for both hydro (2.8%, 120 TWh) and nuclear (1.3%, 41 TWh) power. Growth in China's hydro power has slowed sharply in recent years from the rapid rates of expansion that characterized the first part of the 2000s. In contrast, China's nuclear programme is just beginning to ramp up: it brought on five new reactors last year – the largest ever annual increase in China's nuclear history – and has more than 20 reactors currently under construction.

Carbon emissions

Turning finally to carbon emissions. The good news is that carbon emissions were essentially flat in 2016. This is the third consecutive year in which we have seen little or no growth in carbon emissions – in sharp contrast to the 10 years before that, in which emissions grew by almost

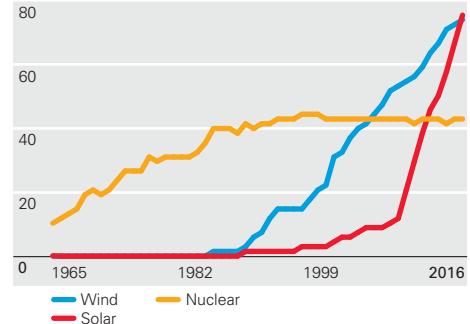
Growth and diffusion of renewables

Growth by country



Diffusion of power technologies

Share of countries*, %



*The proportion of the 67 countries that are individually listed in the Statistical Review with power generation of at least 50 GWh from the specified technology.

2.5% per year. Some of this slowdown reflects weaker GDP growth, but the majority reflects faster declines in the carbon intensity of GDP – the average amount of carbon emitted per unit of GDP – driven by accelerating improvements in both energy efficiency and the fuel mix.

The key question this raises is whether the experience of the past three years signals a decisive break from the past and a significant step towards the goals of Paris or was it largely driven by cyclical factors which are likely to unwind over time?

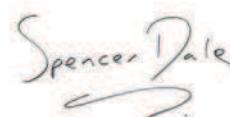
Long-run transition or short-run adjustment?

Looking at the factors driving this improvement, the key difference is China. China's carbon emissions are estimated to have actually fallen over the past two years, after growing by more than 75% in the previous 10 years.

As mentioned earlier in the context of the slowdown in China's energy consumption, there are good reasons for thinking that some of this improvement in China's carbon emissions reflects

structural factors that are likely to persist: slower economic growth; a shift in the composition of growth towards less energy-intensive sectors, and a movement away from coal. But some probably reflects cyclical factors, particularly the contractions in some of China's most energy-intensive sectors, which are unlikely to keep being repeated and may well unwind in future years.

The juxtaposition of short-run adjustments and long-run transition is likely to be a feature of energy markets for many years to come.



Spencer Dale
Group chief economist
June 2017

This is a shortened version of the presentation given at the launch of BP's Statistical Review of World Energy in London on 13 June 2017.



Aerial view of a field of solar panels in Italy.

In detail

Additional information – including historical time series for the fuels reported in this review; further detail on renewable forms of energy; oil consumption by product – together with the full version of Spencer Dale's presentation is available at bp.com/statisticalreview

Acknowledgements

We would like to express our sincere gratitude to the many contacts worldwide who provide the publicly available data for this publication, and to the researchers at the Centre for Energy Economics Research and Policy, Heriot-Watt University who assist in the data compilation.

① Primary energy

Consumption*

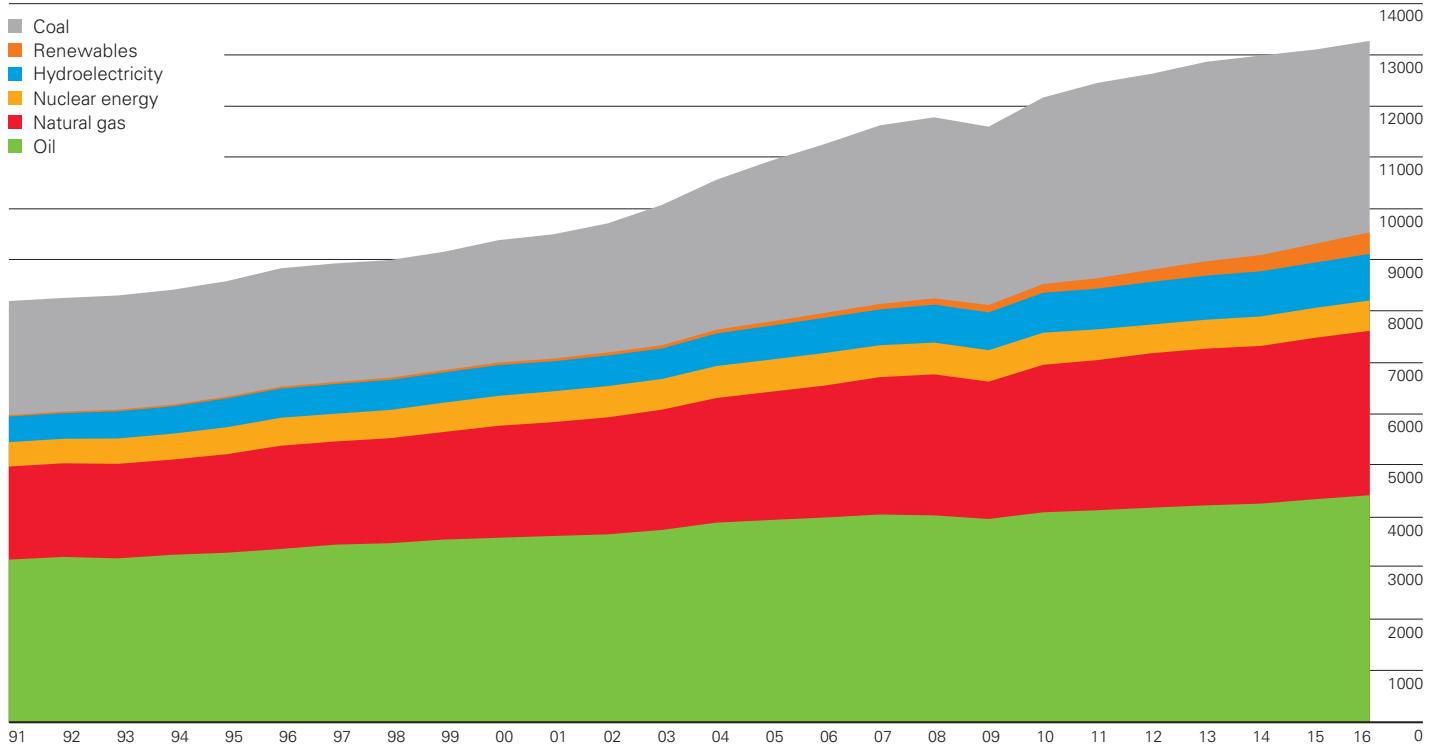
Million tonnes oil equivalent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	2331.6	2370.2	2318.8	2205.1	2284.1	2264.5	2209.3	2270.6	2296.5	2275.9	2272.7	-0.4%	-0.3%	17.1%
Canada	319.5	325.4	326.0	310.5	315.5	327.6	326.5	336.1	334.3	327.7	329.7	0.3%	0.2%	2.5%
Mexico	172.9	170.8	174.3	174.1	178.3	186.5	188.5	189.1	190.4	188.8	186.5	-1.5%	1.2%	1.4%
Total North America	2824.1	2866.5	2819.2	2689.7	2777.8	2778.6	2724.3	2795.9	2821.2	2792.4	2788.9	-0.4%	-0.2%	21.0%
Argentina	72.5	75.6	76.8	74.8	79.7	81.4	83.4	86.5	86.7	88.7	88.9	-0.1%	2.5%	0.7%
Brazil	216.8	231.8	243.9	243.0	267.6	279.7	284.8	296.8	304.9	302.6	297.8	-1.8%	3.7%	2.2%
Chile	30.6	31.5	31.2	30.9	30.4	33.7	34.1	34.4	35.4	35.9	36.8	2.0%	2.4%	0.3%
Colombia	30.7	30.8	34.0	32.0	34.2	35.7	38.4	38.2	40.3	41.0	41.1	♦	4.2%	0.3%
Ecuador	10.3	11.0	11.7	11.5	12.7	13.5	14.3	14.7	15.5	15.5	15.3	-1.3%	4.7%	0.1%
Peru	13.8	15.1	16.4	16.7	18.5	20.3	21.2	21.7	22.4	23.7	25.3	6.3%	5.7%	0.2%
Trinidad & Tobago	20.9	21.8	21.4	22.1	23.1	22.0	22.4	21.9	21.6	19.4	-10.7%	2.8%	0.1%	
Venezuela	78.5	81.2	84.4	82.9	80.7	80.3	84.1	83.3	78.1	78.8	74.6	-5.5%	1.1%	0.6%
Other S. & Cent. America	93.8	95.1	93.4	92.2	94.8	97.8	98.7	98.7	98.9	102.6	106.2	3.3%	1.2%	0.8%
Total S. & Cent. America	567.8	593.9	613.2	606.0	641.7	665.4	680.9	696.7	704.1	710.4	705.3	-1.0%	2.8%	5.3%
Austria	35.8	35.0	35.7	34.6	35.9	33.8	35.4	35.1	33.8	33.9	35.1	3.3%	-0.6%	0.3%
Azerbaijan	13.6	12.3	12.3	10.9	10.7	11.9	12.3	12.6	13.2	14.5	14.5	-0.4%	0.5%	0.1%
Belarus	26.3	25.7	25.9	24.4	25.9	25.9	27.9	24.7	25.5	22.4	23.7	5.4%	-1.0%	0.2%
Belgium	65.0	65.6	66.6	61.7	65.8	61.0	58.7	60.0	55.8	56.9	61.7	8.1%	-1.3%	0.5%
Bulgaria	20.1	19.6	19.5	17.1	17.8	19.1	18.1	16.7	17.9	19.0	18.1	-5.2%	-0.3%	0.1%
Czech Republic	45.1	44.9	43.6	41.2	43.2	42.4	41.9	41.8	40.2	40.2	39.9	-1.0%	-0.9%	0.3%
Denmark	21.6	20.5	19.8	18.5	19.5	18.4	17.1	17.9	17.4	16.9	17.1	1.1%	-1.5%	0.1%
Finland	32.2	32.2	31.1	28.9	31.6	29.1	28.1	27.7	26.7	26.7	27.1	1.4%	-1.2%	0.2%
France	261.2	257.5	259.1	245.4	253.4	244.7	244.8	247.2	237.6	239.4	235.9	-1.7%	-0.9%	1.8%
Germany	341.3	327.2	330.7	310.2	323.6	312.1	316.4	325.5	312.1	317.8	322.5	1.2%	-0.4%	2.4%
Greece	34.3	34.6	33.5	32.7	31.5	30.7	29.3	27.9	26.3	26.4	25.9	-2.2%	-2.2%	0.2%
Hungary	25.7	25.3	25.0	22.9	23.5	22.6	21.1	20.1	20.0	21.2	21.9	3.2%	-2.0%	0.2%
Ireland	16.2	16.7	16.6	15.2	15.2	14.1	14.0	13.7	13.7	14.5	15.2	4.1%	-0.9%	0.1%
Italy	184.9	181.0	179.2	167.1	172.2	168.5	162.2	155.7	146.9	149.9	151.3	0.7%	-2.1%	1.1%
Kazakhstan	47.4	52.7	55.0	49.2	53.1	58.6	59.4	60.2	66.4	62.7	63.0	0.3%	3.5%	0.5%
Lithuania	7.6	8.3	8.2	7.6	5.6	5.8	5.8	5.4	5.2	5.4	5.5	0.9%	-3.7%	♦
Netherlands	95.3	95.0	92.9	91.8	96.1	91.5	88.1	85.9	80.9	82.1	84.5	2.6%	-1.6%	0.6%
Norway	42.3	45.7	46.7	43.6	41.9	43.0	47.8	45.0	46.4	47.2	48.6	2.7%	0.3%	0.4%
Poland	94.1	93.7	95.4	92.0	98.2	98.7	95.7	96.0	92.4	93.4	96.7	3.2%	0.3%	0.7%
Portugal	25.1	25.2	24.2	24.4	25.6	24.5	22.4	24.5	24.6	24.6	26.0	5.5%	-0.3%	0.2%
Romania	39.6	38.6	39.0	33.5	33.8	34.7	34.0	31.5	32.5	32.6	33.1	1.2%	-1.8%	0.2%
Russian Federation	676.1	680.5	683.5	648.0	673.3	694.9	695.2	686.8	689.2	681.7	673.9	-1.4%	0.5%	5.1%
Slovakia	18.4	17.3	17.9	16.3	17.4	16.8	16.2	16.8	15.5	15.7	15.9	1.4%	-1.9%	0.1%
Spain	154.1	158.0	153.7	142.8	146.2	143.1	142.4	134.2	132.2	134.4	135.0	0.2%	-1.2%	1.0%
Sweden	52.0	53.1	52.8	48.1	51.8	51.3	54.5	51.3	51.4	52.9	52.2	-1.7%	-0.5%	0.4%
Switzerland	28.7	28.4	29.4	29.4	28.7	27.2	28.8	29.7	28.5	27.9	26.4	-5.5%	0.2%	0.2%
Turkey	95.8	102.8	103.3	104.3	111.0	114.9	120.1	118.5	122.6	131.9	137.9	4.2%	4.4%	1.0%
Turkmenistan	21.4	24.2	24.5	22.7	25.9	27.0	29.7	26.8	29.5	33.1	33.2	0.2%	5.4%	0.3%
Ukraine	137.7	134.4	132.9	112.9	121.0	125.7	122.6	114.7	101.2	83.9	87.0	3.4%	-4.7%	0.7%
United Kingdom	226.3	219.7	216.4	205.2	210.5	198.8	202.1	200.9	188.6	190.9	188.1	-1.7%	-1.8%	1.4%
Uzbekistan	45.7	48.4	52.0	43.3	43.8	49.7	49.2	48.7	50.5	51.7	52.7	1.5%	1.1%	0.4%
Other Europe & Eurasia	92.8	93.8	95.6	93.7	99.0	97.3	95.0	97.0	93.6	94.8	97.6	2.6%	0.6%	0.7%
Total Europe & Eurasia	3023.5	3017.7	3022.2	2839.8	2952.6	2937.9	2936.3	2900.6	2838.3	2846.6	2867.1	0.4%	-0.4%	21.6%
Iran	194.2	208.2	215.9	223.5	224.6	234.6	235.2	246.0	261.9	262.8	270.7	2.7%	4.0%	2.0%
Israel	21.7	22.8	23.3	22.3	23.8	24.3	25.2	25.2	24.5	26.0	26.4	1.5%	1.9%	0.2%
Kuwait	28.9	28.8	30.5	31.6	34.0	35.4	41.0	39.5	37.6	41.5	41.7	0.3%	3.1%	0.3%
Qatar	21.9	26.4	23.6	24.8	33.3	25.7	29.3	43.4	42.5	50.2	49.2	-2.3%	9.5%	0.4%
Saudi Arabia	164.5	171.4	186.9	196.5	216.1	222.2	235.7	237.4	252.1	260.8	266.5	1.9%	5.1%	2.0%
United Arab Emirates	66.2	73.1	84.0	82.6	86.2	91.5	95.8	97.2	99.5	108.6	113.8	4.5%	5.6%	0.9%
Other Middle East	94.8	94.8	103.5	109.0	116.2	118.7	123.6	121.9	124.7	127.8	126.8	1.4%	2.9%	1.0%
Total Middle East	592.2	625.6	667.6	690.3	734.2	750.3	780.8	812.4	840.0	874.6	895.1	2.1%	4.5%	6.7%
Algeria	33.8	35.6	37.7	39.9	38.9	41.3	45.1	47.8	51.6	55.1	55.1	-0.3%	5.4%	0.4%
Egypt	65.4	69.6	73.6	76.5	80.7	82.1	86.5	85.7	85.4	86.7	91.0	4.7%	3.4%	0.7%
South Africa	113.2	115.4	124.4	124.3	125.3	123.6	121.9	123.6	125.2	120.1	122.3	1.5%	0.8%	0.9%
Other Africa	122.3	127.4	133.8	132.7	144.1	141.1	149.3	158.3	165.6	171.7	171.8	-0.2%	3.5%	1.3%
Total Africa	334.8	347.9	369.5	373.4	388.9	388.0	402.9	415.4	427.9	433.5	440.1	1.2%	2.8%	3.3%
Australia	123.4	125.1	127.4	127.4	126.1	131.7	130.3	131.2	132.6	138.5	138.0	-0.6%	1.8%	1.0%
Bangladesh	18.0	18.8	19.9	21.9	22.9	24.3	26.5	27.0	28.2	31.3	32.4	3.2%	6.3%	0.2%
China	1974.7	2147.8	2229.0	2328.1	2491.1	2690.3	2797.4	2905.3	2970.6	3005.9	3053.0	1.3%	5.3%	23.0%
China Hong Kong SAR	24.7	26.3	24.6	26.8	27.5	28.1	27.0	27.8	27.1	27.9	28.6	2.3%	1.8%	0.2%
India	414.0	450.2	475.7	513.2	537.1	568.7	598.3	621.5	663.6	685.1	723.9	5.4%	5.7%	5.5%
Indonesia	123.9	132.9	131.3	136.0	149.3	162.8	170.5	174.2	162.9	164.8	175.0	5.9%	3.0%	1.3%
Japan	520.4	516.0	509.3	467.2	496.0	470.4	467.7	464.0	452.3	445.8	445.3	-0.4%	-1.6%	3.4%
Malaysia	69.4	72.9	76.3	73.6	72.4	79.8	83.2	89.2	91.5	93.8	99.5	5.7%	3.3%	0.7%
New Zealand	19.0	19.0	19.2	19.1	19.7	19.6	19.7	19.9	20.9	21.0	21.4	1.8%	1.1%	0.2%
Pakistan	64.9	68.7	69.2	70.1	70.5	70.6	71.4	71.7	73.5	77.1	83.2	7.6%	2.3%	0.6%
Philippines	25.6	26.7	27.6	28.0	28.8	29.5	30.5	32.5	34.4	37.7	42.1	11.3%	3.6%	0.3%
Singapore	52.3	56.1	59.8	64.3	69.0	71.7	72.0	74.						

Primary energy: Consumption by fuel*

Million tonnes oil equivalent	2015						2016							
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total
US	856.5	710.5	391.8	189.9	55.8	71.5	2275.9	863.1	716.3	358.4	191.8	59.2	83.8	2272.7
Canada	99.1	92.2	19.6	22.8	85.4	8.5	327.7	100.9	89.9	18.7	23.2	87.8	9.2	329.7
Mexico	84.4	78.4	12.7	2.6	7.0	3.7	188.8	82.8	80.6	9.8	2.4	6.8	4.1	186.5
Total North America	1040.0	881.2	424.2	215.3	148.2	83.6	2792.4	1046.9	886.8	386.9	217.4	153.9	97.1	2788.9
Argentina	32.2	43.4	1.4	1.6	9.6	0.6	88.7	31.9	44.6	1.1	1.9	8.7	0.7	88.9
Brazil	146.6	37.5	17.7	3.3	81.4	16.0	302.6	138.8	32.9	16.5	3.6	86.9	19.0	297.8
Chile	17.6	3.7	7.3	—	5.4	1.9	35.9	17.8	4.1	8.2	—	4.4	2.3	36.8
Colombia	15.6	9.6	5.3	—	10.1	0.4	41.0	15.9	9.5	4.6	—	10.6	0.5	41.1
Ecuador	11.8	0.6	—	—	3.0	0.1	15.5	11.0	0.6	—	—	3.5	0.1	15.3
Peru	10.7	6.4	0.8	—	5.4	0.4	23.7	11.4	7.1	0.8	—	5.4	0.6	25.3
Trinidad & Tobago	2.2	19.4	—	—	—	†	21.6	2.2	17.2	—	—	—	†	19.4
Venezuela	30.2	31.1	0.2	—	17.3	†	78.8	28.7	32.0	0.1	—	13.9	†	74.6
Other S. & Cent. America	67.5	6.6	3.2	—	20.8	4.5	102.6	68.5	6.7	3.4	—	22.5	5.1	106.2
Total S. & Cent. America	334.4	158.3	35.9	5.0	152.9	24.0	710.4	326.2	154.7	34.7	5.5	156.0	28.2	705.3
Austria	12.5	7.5	3.2	—	8.4	2.3	33.9	12.7	7.9	3.2	—	9.0	2.4	35.1
Azerbaijan	4.5	9.6	†	—	0.4	†	14.5	4.6	9.4	†	—	0.4	†	14.5
Belarus	7.7	14.0	0.7	—	†	†	22.4	7.5	15.3	0.8	—	†	0.1	23.7
Belgium	31.0	13.6	3.2	5.9	0.1	3.2	56.9	31.8	13.9	3.0	9.8	0.1	3.2	61.7
Bulgaria	4.4	2.6	6.6	3.5	1.3	0.7	19.0	4.5	2.7	5.7	3.6	0.9	0.7	18.1
Czech Republic	8.9	6.5	16.6	6.1	0.4	1.7	40.2	8.4	7.0	16.9	5.5	0.5	1.7	39.9
Denmark	8.0	2.8	1.7	—	†	4.3	16.9	8.0	2.9	2.1	—	†	4.1	17.1
Finland	8.7	2.0	3.8	5.3	3.8	3.1	26.7	9.0	1.8	4.1	5.3	3.6	3.4	27.1
France	76.8	35.1	8.4	99.0	12.3	7.9	239.4	76.4	38.3	8.3	91.2	13.5	8.2	235.9
Germany	110.0	66.2	78.5	20.8	4.3	38.1	317.8	113.0	72.4	75.3	19.1	4.8	37.9	322.5
Greece	14.9	2.5	5.6	—	1.4	2.0	26.4	15.4	2.6	4.7	—	1.2	2.1	25.9
Hungary	7.0	7.5	2.4	3.6	0.1	0.7	21.2	7.1	8.0	2.3	3.6	0.1	0.8	21.9
Ireland	6.8	3.8	2.2	—	0.2	1.6	14.5	7.0	4.3	2.2	—	0.2	1.5	15.2
Italy	57.6	55.3	12.3	—	10.3	14.3	149.9	58.1	58.1	10.9	—	9.3	15.0	151.3
Kazakhstan	13.2	11.6	35.8	—	2.1	†	62.7	13.2	12.0	35.6	—	2.1	0.1	63.0
Lithuania	2.8	2.1	0.2	—	0.1	0.3	5.4	3.0	1.8	0.2	—	0.1	0.4	5.5
Netherlands	38.7	28.3	11.0	0.9	—	3.1	82.1	39.9	30.2	10.3	0.9	†	3.1	84.5
Norway	10.3	4.4	0.8	—	31.1	0.6	47.2	10.4	4.4	0.8	—	32.4	0.5	48.6
Poland	24.9	14.7	48.7	—	0.4	4.7	93.4	27.2	15.6	48.8	—	0.5	4.6	96.7
Portugal	11.5	4.3	3.3	—	2.0	3.6	24.6	11.2	4.6	2.9	—	3.6	3.7	26.0
Romania	9.2	9.0	5.9	2.6	3.8	2.2	32.6	9.5	9.5	5.4	2.6	4.1	2.0	33.1
Russian Federation	144.2	362.5	92.2	44.2	38.5	0.2	681.7	148.0	351.8	87.3	44.5	42.2	0.2	673.9
Slovakia	3.7	3.9	3.3	3.4	0.9	0.5	15.7	4.0	4.0	3.1	3.3	1.0	0.5	15.9
Spain	61.2	24.6	13.7	13.0	6.3	15.6	134.4	62.5	25.2	10.4	13.3	8.1	15.5	135.0
Sweden	14.1	0.8	2.1	12.8	17.0	6.1	52.9	14.7	0.8	2.2	14.2	14.1	6.1	52.2
Switzerland	10.7	2.6	0.1	5.3	8.5	0.7	27.9	10.2	2.7	0.1	4.8	7.8	0.8	26.4
Turkey	38.9	39.2	34.7	—	15.2	3.9	131.9	41.2	37.9	38.4	—	15.2	5.2	137.9
Turkmenistan	6.6	26.5	—	—	—	†	33.1	6.7	26.6	—	—	†	33.2	—
Ukraine	9.2	25.9	27.3	19.8	1.2	0.4	83.9	9.1	26.1	31.5	18.3	1.6	0.3	87.0
United Kingdom	71.8	61.3	23.0	15.9	1.4	17.5	190.9	73.1	69.0	11.0	16.2	1.2	2.6	188.1
Uzbekistan	2.7	45.2	1.1	—	2.7	†	51.7	2.8	46.2	1.0	—	2.7	†	52.7
Other Europe & Eurasia	33.3	13.6	23.0	1.9	20.7	2.3	94.8	34.5	13.9	23.0	1.8	21.7	2.5	97.6
Total Europe & Eurasia	865.9	909.2	471.3	263.9	194.7	141.6	2846.6	884.6	926.9	451.6	258.2	201.8	144.0	2867.1
Iran	84.5	171.7	1.6	0.8	4.1	0.1	262.8	83.8	180.7	1.7	1.4	2.9	0.1	270.7
Israel	11.4	7.6	6.7	—	†	0.3	26.0	11.6	8.7	5.7	—	†	0.4	26.4
Kuwait	22.3	19.2	—	—	—	†	41.5	22.0	19.7	—	—	—	†	41.7
Qatar	10.7	39.5	—	—	—	†	50.2	11.7	37.5	—	—	—	†	49.2
Saudi Arabia	166.6	94.0	0.1	—	—	—	260.8	167.9	98.4	0.1	—	—	†	266.5
United Arab Emirates	40.9	66.4	1.3	—	—	0.1	108.6	43.5	69.0	1.3	—	—	0.1	113.8
Other Middle East	76.5	45.9	0.5	—	1.8	0.1	124.7	77.3	47.1	0.5	—	1.8	0.2	126.8
Total Middle East	412.8	444.3	10.2	0.8	5.9	0.5	874.6	417.8	461.1	9.3	1.4	4.7	0.7	895.1
Algeria	19.5	35.5	0.1	—	†	†	55.1	18.9	36.0	0.1	—	†	0.1	55.1
Egypt	39.6	43.0	0.4	—	3.2	0.4	86.7	40.6	46.1	0.4	—	3.2	0.6	91.0
South Africa	27.9	4.6	83.4	2.8	0.2	1.4	120.1	26.9	4.6	85.1	3.6	0.2	1.8	122.3
Other Africa	95.1	39.2	11.4	—	23.5	2.4	171.7	98.9	37.6	10.3	—	22.4	2.6	171.8
Total Africa	182.1	122.2	95.3	2.8	26.9	4.2	433.5	185.4	124.3	95.9	3.6	25.8	5.0	440.1
Australia	47.9	38.6	44.1	—	3.2	4.8	138.5	47.8	37.0	43.8	—	4.0	5.4	138.0
Bangladesh	6.2	24.2	0.7	—	0.2	†	31.3	6.6	24.8	0.8	—	0.2	†	32.4
China	561.8	175.3	1913.6	38.6	252.2	64.4	3005.9	578.7	189.3	1887.6	48.2	263.1	86.1	3053.0
China Hong Kong SAR	18.3	2.9	6.7	—	—	†	27.9	18.9	3.0	6.7	—	—	†	28.6
India	195.8	41.2	396.6	8.7	30.2	12.7	685.1	212.7	45.1	411.9	8.6	29.1	16.5	723.9
Indonesia	71.8	36.4	51.2	—	3.1	2.4	164.8	72.6	33.9	62.7	—	3.3	2.6	175.0
Japan	189.0	102.1	119.9	1.0	19.0	14.8	445.8	184.3	100.1	119.9	4.0	18.1	18.8	445.3
Malaysia	35.5	37.6	16.9	—	3.5	0.3	93.8	36.3	38.7	19.9	—	4.2	0.3	99.5
New Zealand	7.5	4.0	1.4	—	5.6	2.4	21.0	7.7	4.2	1.2	—	5.9	2.4	21.4
Pakistan	24.6	39.2	4.7	1.1	7.3	0.3	77.1	27.5	40.9	5.4	1.3	7.7	0.4	83.2
Philippines	18.3	3.0	11.6	—	2.0	2.8	37.7	19.9	3.4	13.5	—	2.1	3.1	42.1
Singapore	69.4	11.0	0.4	—	—	0.2	81.0	72.2	11.3	0.4	—	—	0.2	84.1
South Korea	113.8	39.3	85.5	37.3	0.5	3.9	280.2	122.1	40.9	81.6	36.7	0.6	4.3	286.2
Taiwan	46.5	16.5	37.8	8.3	1.0	1.0	111.1	46.7	17.2	38.6	7.2	1.5	1.0	112.1
Thailand	57.3	43.8	17.6	—	0.9	2.3	121.8	59.0	43.5	17.7	—	0.8	2.8	123.8
Vietnam	18.8	9.6	22.3	—	12.9	†	63.7	20.1	9.6	21.3	—	13.7	0.1	64.8
Other Asia Pacific	23.2	7.0	16.9	—	13.3	0.3	60.7	24.4	7.2	20.6	—	13.8	0.3	66.3
Total Asia Pacific	1505.8	631.6	2747.7	95.0	354.7	112.7	5447.4	1557.3	650.3	2753.6	105.9	368.1	144.5	5579.7
Total World	4341.0	3146.7	3784.7	582.7	883.2	366.7	13105.0	4418.2	3204.1	3732.0	592.1	910.3	419.6	13276.3
of which: OECD	2062.4	1464.9	972.7	446.7	309									

World consumption

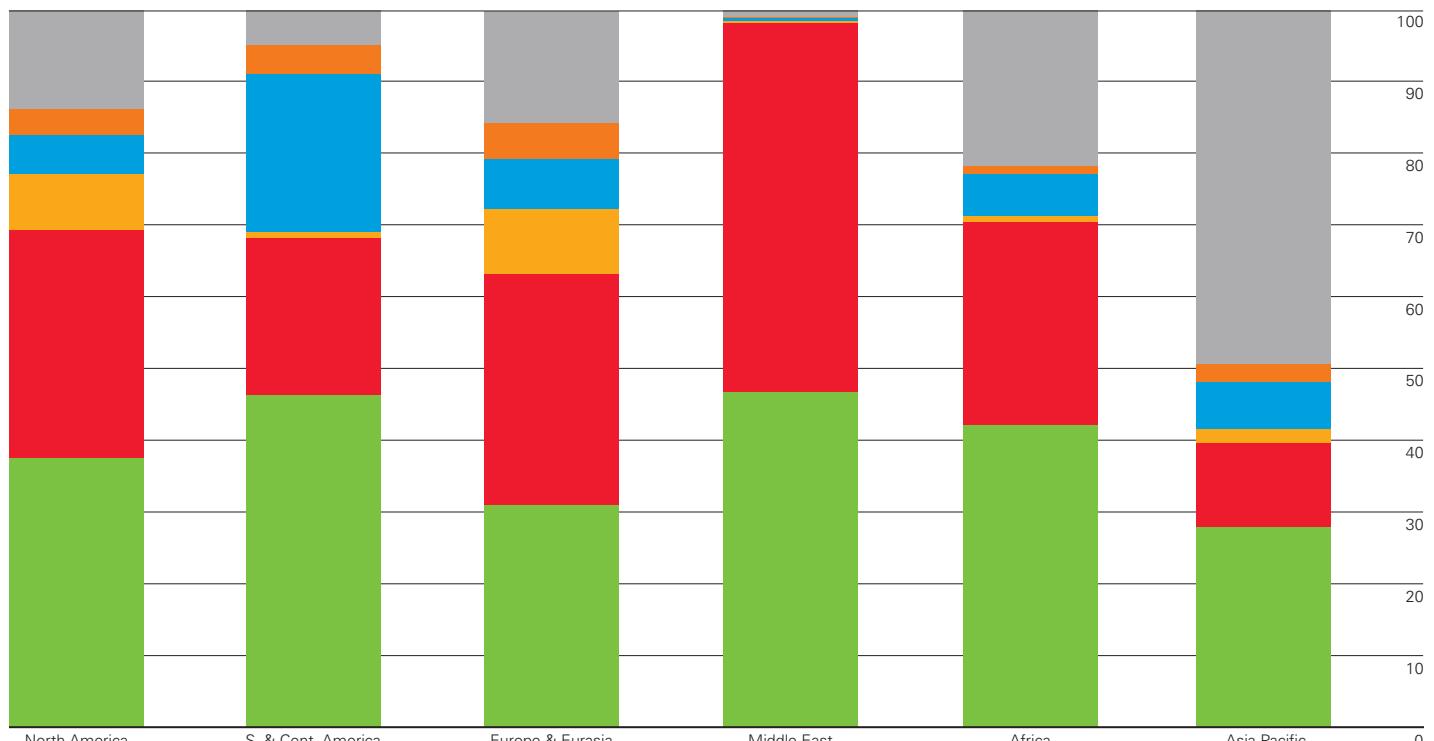
Million tonnes oil equivalent



World primary energy consumption grew by 1.0% in 2016, well below the 10-year average of 1.8% and the third consecutive year at or below 1%. As was the case in 2015, growth was below average in all regions except Europe & Eurasia. All fuels except oil and nuclear power grew at below-average rates. Oil provided the largest increment to energy consumption at 77 million tonnes of oil equivalent (mtoe), followed by natural gas (57 mtoe) and renewable power (53 mtoe).

Regional consumption by fuel 2016

Percentage



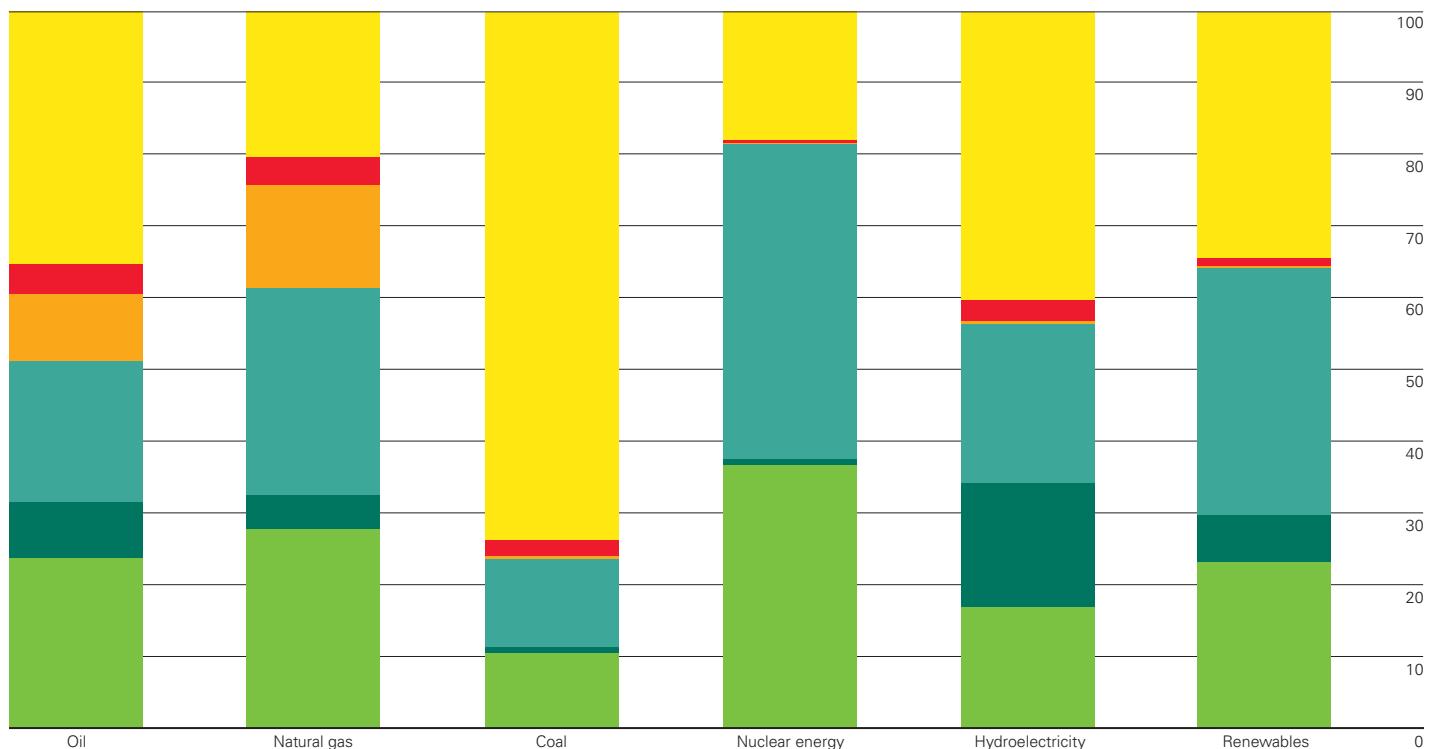
Oil remains the dominant fuel in Africa and the Americas, while natural gas dominates in Europe & Eurasia and the Middle East. Coal is the dominant fuel in the Asia Pacific region, accounting for 49% of regional energy consumption. In 2016, coal's share of primary energy fell to its lowest level in our data series in North America, Europe & Eurasia and Africa.

Fuel consumption by region 2016

Percentage

- Asia Pacific
- Africa
- Middle East

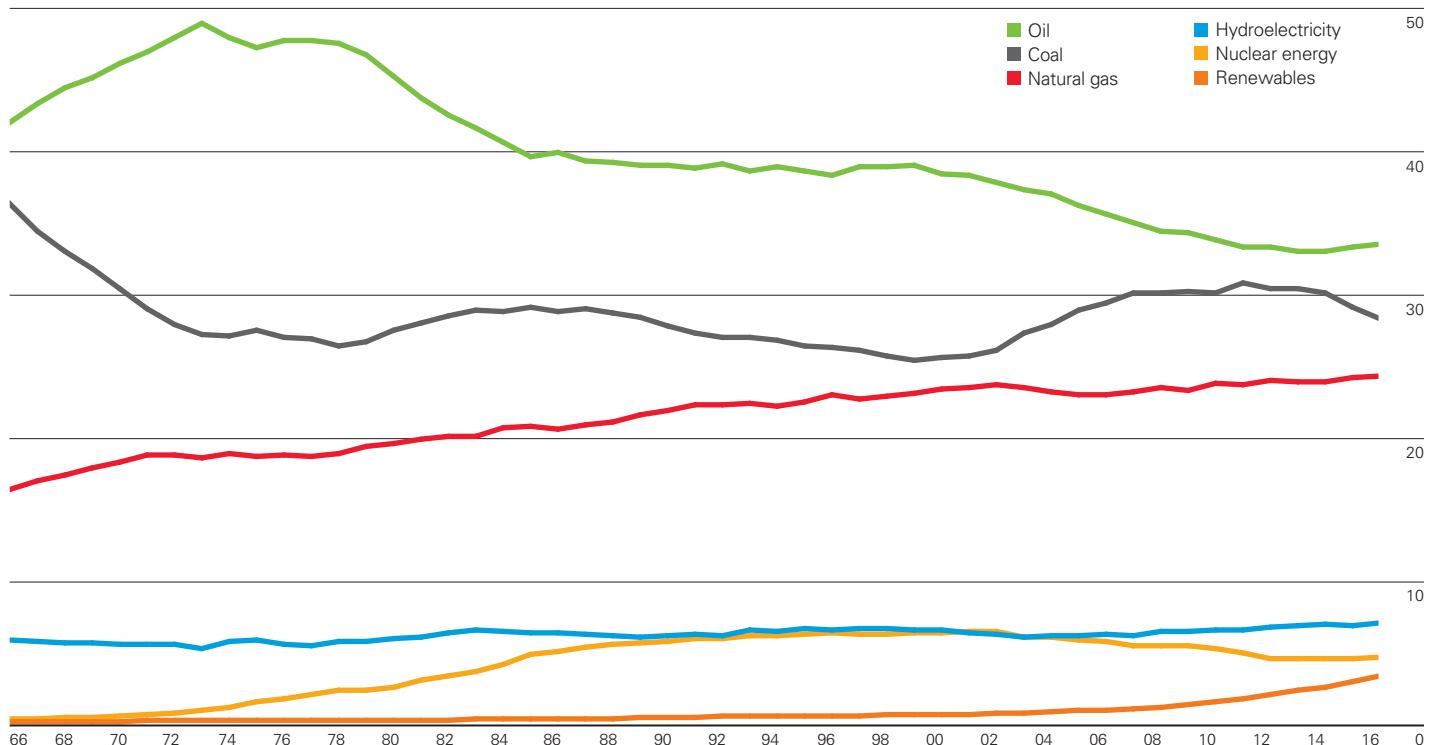
- Europe & Eurasia
- S. & Cent. America
- North America



Asia is the leading consumer of oil, coal, hydroelectricity and for the first time in 2016, the leading consumer of renewables in power generation, overtaking Europe & Eurasia. Europe & Eurasia remains the leading consumer of natural gas and nuclear power. Asia dominates global coal consumption, accounting for almost three quarters of global consumption (73.8%).

Shares of global primary energy consumption

Percentage



Oil remains the world's dominant fuel, making up roughly a third of all energy consumed. In 2016 oil gained global market share for the second year in a row, following 15 years of declines from 1999 to 2014. Coal's market share fell to 28.1%, the lowest level since 2004. Renewables in power generation accounted for a record 3.2% of global primary energy consumption.

Total proved reserves

	At end 1996 Thousand million barrels	At end 2006 Thousand million barrels	At end 2015 Thousand million barrels		At end 2016 Thousand million tonnes	Share of total	R/P ratio
US	29.8	29.4	48.0	48.0	5.8	2.8%	10.6
Canada	48.9	179.4	171.5	171.5	27.6	10.0%	105.1
Mexico	48.5	12.8	8.0	8.0	1.1	0.5%	8.9
Total North America	127.3	221.7	227.5	227.5	34.5	13.3%	32.3
Argentina	2.6	2.6	2.4	2.4	0.3	0.1%	10.6
Brazil	6.7	12.2	13.0	12.6	1.8	0.7%	13.3
Colombia	2.8	1.5	2.3	2.0	0.3	0.1%	5.9
Ecuador	3.5	4.5	8.0	8.0	1.2	0.5%	40.1
Peru	0.8	1.1	1.2	1.2	0.1	0.1%	24.0
Trinidad & Tobago	0.7	0.8	0.7	0.2	†	♦	6.9
Venezuela	72.7	87.3	300.9	300.9	47.0	17.6%	341.1
Other S. & Cent. America	1.0	0.8	0.5	0.5	0.1	♦	10.3
Total S. & Cent. America	90.7	110.8	329.0	327.9	50.8	19.2%	119.9
Azerbaijan	1.2	7.0	7.0	7.0	1.0	0.4%	23.1
Denmark	0.9	1.2	0.5	0.4	0.1	♦	8.5
Italy	0.8	0.5	0.6	0.5	0.1	♦	18.8
Kazakhstan	5.3	9.0	30.0	30.0	3.9	1.8%	49.0
Norway	11.7	8.5	8.0	7.6	0.9	0.4%	10.4
Romania	1.0	0.5	0.6	0.6	0.1	♦	20.7
Russian Federation	113.6	104.0	102.4	109.5	15.0	6.4%	26.6
Turkmenistan	0.5	0.6	0.6	0.6	0.1	♦	6.3
United Kingdom	5.0	3.6	2.5	2.5	0.3	0.1%	6.9
Uzbekistan	0.6	0.6	0.6	0.6	0.1	♦	29.3
Other Europe & Eurasia	2.4	2.2	2.1	2.1	0.3	0.1%	15.6
Total Europe & Eurasia	142.8	137.6	154.9	161.5	21.8	9.5%	24.9
Iran	92.6	138.4	158.4	158.4	21.8	9.3%	94.1
Iraq	112.0	115.0	142.5	153.0	20.6	9.0%	93.6
Kuwait	96.5	101.5	101.5	101.5	14.0	5.9%	88.0
Oman	5.3	5.6	5.3	5.4	0.7	0.3%	14.6
Qatar	3.7	27.4	25.2	25.2	2.6	1.5%	36.3
Saudi Arabia	261.4	264.3	266.6	266.5	36.6	15.6%	59.0
Syria	2.5	3.0	2.5	2.5	0.3	0.1%	273.2
United Arab Emirates	97.8	97.8	97.8	97.8	13.0	5.7%	65.6
Yemen	2.0	2.8	3.0	3.0	0.4	0.2%	*
Other Middle East	0.2	0.1	0.2	0.2	†	♦	2.6
Total Middle East	674.0	755.9	803.0	813.5	110.1	47.7%	69.9
Algeria	10.8	12.3	12.2	12.2	1.5	0.7%	21.1
Angola	3.7	9.0	11.8	11.6	1.6	0.7%	17.5
Chad	—	1.5	1.5	1.5	0.2	0.1%	56.1
Republic of Congo	1.6	1.6	1.6	1.6	0.2	0.1%	18.4
Egypt	3.8	3.7	3.5	3.5	0.5	0.2%	13.7
Equatorial Guinea	0.6	1.8	1.1	1.1	0.1	0.1%	10.7
Gabon	2.8	2.2	2.0	2.0	0.3	0.1%	24.1
Libya	29.5	41.5	48.4	48.4	6.3	2.8%	310.1
Nigeria	20.8	37.2	37.1	37.1	5.0	2.2%	49.3
South Sudan	n/a	n/a	3.5	3.5	0.5	0.2%	80.9
Sudan	0.3	5.0	1.5	1.5	0.2	0.1%	39.6
Tunisia	0.3	0.6	0.4	0.4	0.1	♦	18.4
Other Africa	0.7	0.7	3.7	3.7	0.5	0.2%	43.2
Total Africa	74.9	116.9	128.2	128.0	16.9	7.5%	44.3
Australia	3.8	3.5	4.0	4.0	0.4	0.2%	30.3
Brunei	1.1	1.2	1.1	1.1	0.1	0.1%	24.9
China	16.4	20.2	25.7	25.7	3.5	1.5%	17.5
India	5.5	5.7	4.8	4.7	0.6	0.3%	14.9
Indonesia	4.7	4.4	3.6	3.3	0.5	0.2%	10.3
Malaysia	5.0	5.4	3.6	3.6	0.5	0.2%	14.0
Thailand	0.2	0.5	0.4	0.4	†	♦	2.3
Vietnam	0.9	3.3	4.4	4.4	0.6	0.3%	36.2
Other Asia Pacific	1.3	1.4	1.3	1.3	0.2	0.1%	12.5
Total Asia Pacific	39.0	45.5	48.8	48.4	6.4	2.8%	16.5
Total World	1148.8	1388.3	1691.5	1706.7	240.7	100.0%	50.6
of which: OECD	151.0	240.2	244.5	244.0	36.6	14.3%	28.8
Non-OECD	997.8	1148.1	1447.0	1462.7	204.1	85.7%	57.9
OPEC	805.0	936.1	1210.3	1220.5	171.2	71.5%	84.7
Non-OPEC	343.8	452.2	481.1	486.2	69.6	28.5%	25.2
European Union#	8.7	6.6	5.2	5.1	0.7	0.3%	9.3
CIS	121.9	121.9	141.1	148.2	20.1	8.7%	28.6
Canadian oil sands: Total	42.1	173.1	165.3	165.3	26.9		
of which: Under active development	4.2	21.0	24.0	24.0	3.9		
Venezuela: Orinoco Belt	—	7.6	222.3	222.3	35.7		

*More than 500 years.

†Less than 0.05%.

♦Less than 0.05%.

n/a not available.

#Excludes Estonia and Latvia in 2006.

Notes: Total 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. The data series for total proved oil does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country.

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 independent estimates of Russian reserves based on official data and Chinese reserves based on information in the public domain.

Canadian oil sands 'under active development' are an official estimate. Venezuelan Orinoco Belt reserves are based on the OPEC Secretariat and government announcements.

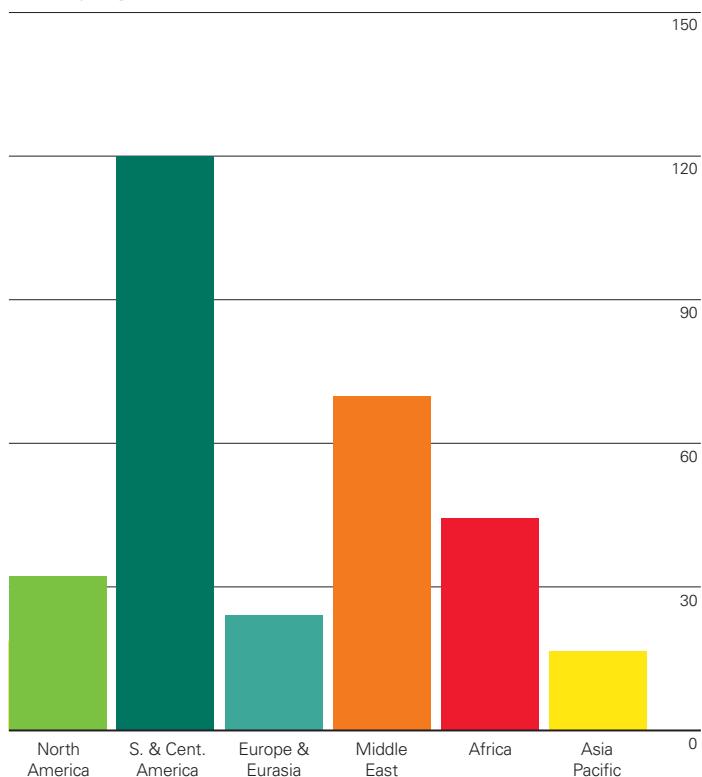
Reserves include gas condensate and natural gas liquids (NGLs) as well as crude oil.

Shares of total and R/P ratios are calculated using thousand million barrels figures.

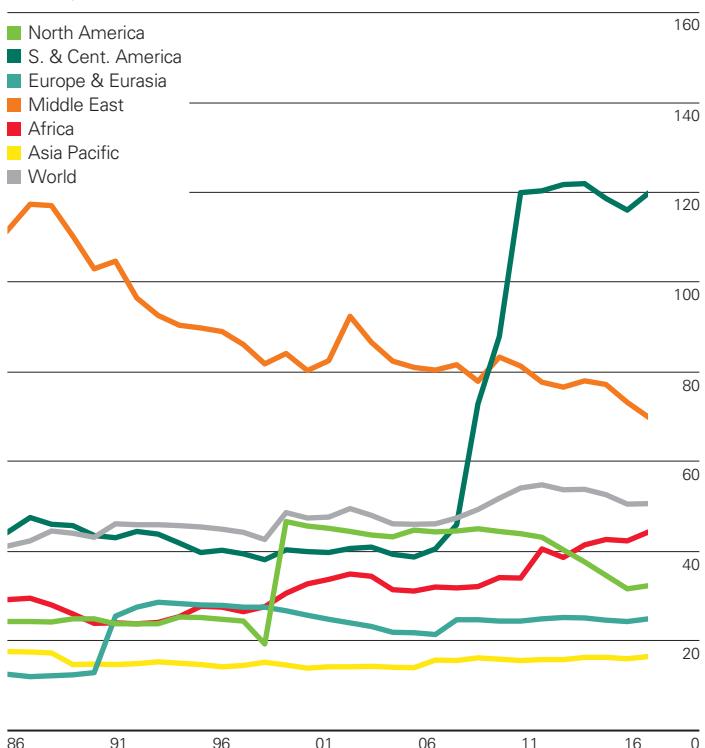
Reserves-to-production (R/P) ratios

Years

2016 by region



History



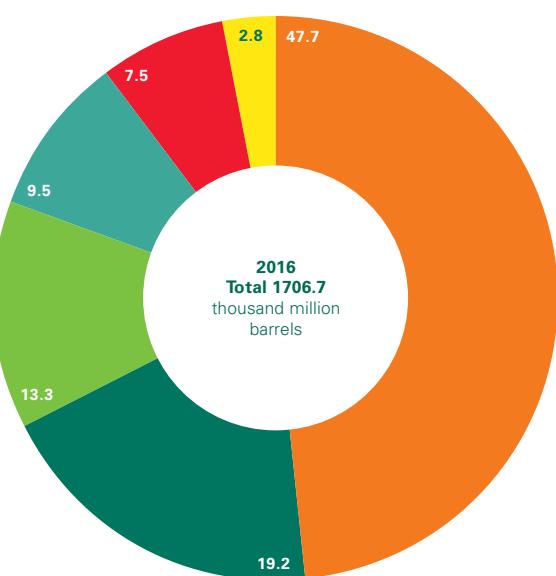
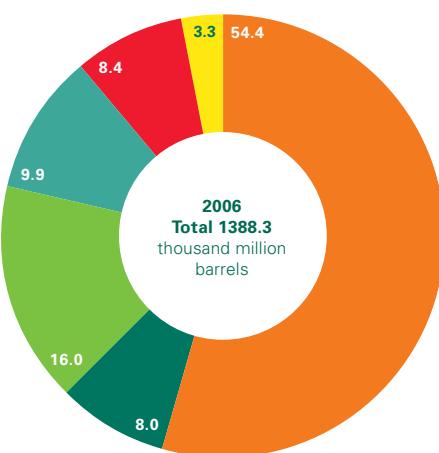
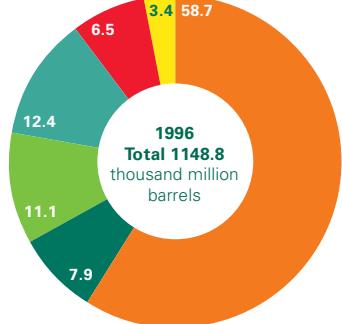
Global proved oil reserves in 2016 rose by 15 billion barrels (0.9%) to 1707 billion barrels, which would be sufficient to meet 50.6 years of global production at 2016 levels. The increase came largely from Iraq (10 billion barrels) and Russia (7 billion barrels), with small declines (<1 billion barrels) spread across a number of countries and regions. OPEC countries currently hold 71.5% of global proved reserves.

N.B. lags in reporting official data mean that 2016 figures for many countries are not yet available.

Distribution of proved reserves in 1996, 2006 and 2016

Percentage

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



Oil: Production in thousands of barrels per day*

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	6825	6860	6784	7263	7549	7862	8894	10073	11779	12757	12354	-3.2%	6.3%	13.4%
Canada	3208	3290	3207	3202	3332	3515	3740	4000	4271	4389	4460	1.6%	3.7%	4.8%
Mexico	3689	3479	3165	2978	2959	2940	2911	2875	2784	2587	2456	-5.1%	-3.7%	2.7%
Total North America	13722	13628	13156	13444	13841	14317	15545	16948	18833	19733	19270	-2.3%	3.7%	20.9%
Argentina	852	815	803	729	715	660	664	655	641	641	619	-3.3%	-2.7%	0.7%
Brazil	1806	1831	1897	2029	2137	2179	2145	2110	2341	2525	2605	3.2%	4.0%	2.8%
Colombia	529	531	588	671	786	915	944	1004	990	1006	924	-8.1%	6.7%	1.0%
Ecuador	538	513	507	488	488	501	505	527	557	543	545	0.4%	0.2%	0.6%
Peru	118	117	122	147	158	153	154	167	169	145	135	-6.6%	2.6%	0.1%
Trinidad & Tobago	177	154	152	151	145	137	117	115	114	109	96	-11.2%	-4.4%	0.1%
Venezuela	3340	3233	3222	3042	2842	2755	2704	2680	2692	2644	2410	-8.9%	-2.2%	2.6%
Other S. & Cent. America	138	139	138	129	134	137	143	148	154	149	138	-7.5%	0.3%	0.2%
Total S. & Cent. America	7498	7334	7430	7384	7404	7436	7376	7407	7659	7761	7474	-3.7%	0.6%	8.1%
Azerbaijan	646	856	895	1014	1023	919	872	877	849	840	826	-1.6%	6.6%	0.9%
Denmark	346	311	287	265	249	225	204	178	167	158	142	-10.2%	-8.4%	0.2%
Italy	120	122	108	95	106	110	112	116	121	115	79	-31.3%	-1.0%	0.1%
Kazakhstan	1370	1415	1485	1609	1676	1684	1664	1737	1710	1695	1672	-1.4%	2.7%	1.8%
Norway	2772	2551	2466	2349	2136	2040	1917	1838	1889	1948	1995	2.4%	-4.1%	2.2%
Romania	105	100	99	94	90	89	83	86	84	83	79	-5.0%	-3.1%	0.1%
Russian Federation	9819	10044	9951	10140	10367	10519	10642	10780	10838	10981	11227	2.2%	1.4%	12.2%
Turkmenistan	187	199	211	214	220	220	229	240	249	261	261	♦	3.1%	0.3%
United Kingdom	1659	1651	1549	1469	1356	1112	946	864	852	963	1013	5.1%	-6.2%	1.1%
Uzbekistan	114	104	102	95	78	77	68	61	59	57	55	-3.1%	-6.7%	0.1%
Other Europe & Eurasia	445	442	420	409	394	394	390	397	388	379	367	-3.0%	-1.8%	0.4%
Total Europe & Eurasia	17582	17795	17574	17754	17694	17387	17127	17174	17206	17479	17716	1.4%	♦	19.2%
Iran	4293	4359	4421	4292	4417	4465	3819	3615	3725	3897	4600	18.0%	-0.8%	5.0%
Iraq	1999	2143	2428	2452	2490	2801	3116	3141	3285	4031	4465	10.8%	8.2%	4.8%
Kuwait	2735	2660	2784	2498	2560	2913	3169	3129	3101	3068	3151	2.7%	1.4%	3.4%
Oman	738	710	757	813	865	885	918	942	943	981	1004	2.4%	2.4%	1.1%
Qatar	1241	1267	1438	1421	1638	1834	1931	1906	1886	1890	1899	0.5%	5.1%	2.1%
Saudi Arabia	10671	10268	10663	9663	10075	11144	11635	11393	11505	11986	12349	3.0%	0.9%	13.4%
Syria	421	404	406	401	385	353	171	59	33	27	25	-7.4%	-24.5%	♦
United Arab Emirates	3098	3002	3027	2725	2895	3320	3401	3627	3674	3928	4073	3.7%	3.0%	4.4%
Yemen	387	341	315	307	306	219	174	193	147	44	16	-62.7%	-20.3%	♦
Other Middle East	182	194	193	192	201	184	209	214	213	213	205	-3.8%	1.4%	0.2%
Total Middle East	25765	25348	26430	24765	25822	28136	28518	28213	28515	30065	31789	5.7%	1.6%	34.5%
Algeria	1979	1992	1969	1775	1689	1642	1537	1485	1589	1558	1579	1.4%	-2.4%	1.7%
Angola	1432	1699	1916	1804	1863	1726	1784	1799	1712	1826	1807	-1.1%	3.6%	2.0%
Chad	153	144	127	118	122	114	101	83	82	73	73	0.6%	-8.3%	0.1%
Republic of Congo	278	224	237	276	314	301	281	250	266	257	238	-7.6%	0.4%	0.3%
Egypt	679	698	715	730	725	714	715	710	714	726	691	-4.8%	0.8%	0.8%
Equatorial Guinea	342	350	347	307	274	252	272	267	281	289	280	-3.1%	-2.1%	0.3%
Gabon	242	246	240	241	249	251	253	232	232	230	227	-1.1%	-1.6%	0.2%
Libya	1815	1820	1820	1651	1658	479	1510	988	498	432	426	-1.4%	-13.0%	0.5%
Nigeria	2433	2314	2109	2185	2471	2408	2370	2270	2347	2329	2053	-11.9%	-0.8%	2.2%
South Sudan	n/a	n/a	n/a	n/a	n/a	31	100	155	148	118	118	-20.0%	n/a	0.1%
Sudan	356	483	457	475	462	291	103	118	120	109	104	-5.0%	-9.4%	0.1%
Tunisia	77	106	98	93	85	78	84	78	73	65	63	-3.3%	-2.0%	0.1%
Other Africa	227	191	184	181	152	209	205	231	236	255	233	-8.7%	3.7%	0.3%
Total Africa	10014	10268	10218	9838	10065	8464	9247	8612	8307	8297	7892	-4.9%	-1.7%	8.6%
Australia	532	549	538	507	548	483	479	407	436	393	359	-8.7%	-3.6%	0.4%
Brunei	221	194	175	168	172	165	159	135	126	127	121	-4.6%	-4.7%	0.1%
China	3711	3742	3814	3805	4077	4074	4155	4216	4246	4309	3999	-7.2%	1.7%	4.3%
India	760	768	803	816	882	916	906	906	887	876	856	-2.3%	1.7%	0.9%
Indonesia	1018	972	1006	994	1003	952	918	882	852	841	881	4.8%	-2.6%	1.0%
Malaysia	713	742	741	701	717	650	654	621	645	699	705	0.9%	-0.8%	0.8%
Thailand	326	343	360	374	389	419	458	452	450	468	479	2.5%	4.5%	0.5%
Vietnam	354	334	309	341	322	326	357	361	373	362	333	-8.1%	-0.7%	0.4%
Other Asia Pacific	304	319	340	330	315	299	287	272	291	295	278	-5.9%	0.4%	0.3%
Total Asia Pacific	7938	7962	8086	8038	8426	8285	8372	8252	8307	8369	8010	-4.3%	0.5%	8.7%
Total World	82519	82334	82894	81222	83251	84026	86183	86606	88826	91704	92150	0.5%	1.1%	100.0%
of which:														
OECD	19447	19131	18425	18432	18527	18574	19482	20635	22588	23596	23122	-2.0%	1.7%	25.1%
Non-OECD	63072	63203	64469	62790	64724	65452	66701	65971	66238	68108	69028	1.4%	0.9%	74.9%
OPEC	35574	35269	36303	33997	35086	35988	37480	36561	36573	38133	39358	3.2%	0.8%	42.7%
Non-OPEC	46945	47065	46591	47225	48166	48038	48703	50045	52254	53572	52792	-1.5%	1.4%	57.3%
European Union	2464	2418	2258	2119	1981	1720	1526	1434	1412	1506	1488	-1.2%	-5.7%	1.6%
CIS	12281	12761	12783	13215	13496	13544	13597	13810	13810	13932	14141	1.5%	1.7%	15.3%

*Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids – the liquid content of natural gas where this is recovered separately). Excludes liquid fuels from other sources such as biomass and derivatives of coal and natural gas.

♦Less than 0.05%.

n/a not available.

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

Oil: Consumption in thousands of barrels per day*

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	20687	20680	19490	18771	19180	18882	18490	18961	19106	19531	19631	0.5%	-0.6%	20.3%
Canada	2275	2342	2295	2173	2305	2380	2340	2383	2372	2299	2343	1.9%	0.1%	2.4%
Mexico	2019	2067	2054	1996	2014	2043	2063	2020	1943	1923	1869	-2.8%	-0.5%	1.9%
Total North America	24982	25089	23840	22940	23499	23305	22894	23364	23421	23753	23843	0.4%	-0.6%	24.7%
Argentina	474	528	540	532	594	609	636	683	674	692	687	-0.7%	4.4%	0.7%
Brazil	2155	2313	2485	2502	2721	2839	2901	3110	3239	3170	3018	-4.8%	4.1%	3.1%
Chile	293	377	390	383	343	371	376	362	371	376	378	0.6%	3.5%	0.4%
Colombia	237	234	251	232	258	277	297	298	316	333	340	2.3%	3.5%	0.4%
Ecuador	180	183	188	191	220	226	233	247	260	254	239	-5.9%	4.2%	0.2%
Peru	147	153	172	178	189	208	213	227	225	240	256	6.9%	4.7%	0.3%
Trinidad & Tobago	38	43	45	44	45	42	40	45	42	45	44	-3.9%	2.8%	♦
Venezuela	668	640	716	726	725	737	792	782	719	648	611	-5.7%	0.7%	0.6%
Other S. & Cent. America	1363	1361	1313	1306	1330	1357	1339	1319	1324	1381	1402	1.5%	0.3%	1.5%
Total S. & Cent. America	5554	5831	6100	6094	6424	6666	6826	7073	7171	7139	6976	-2.3%	2.9%	7.2%
Austria	291	276	274	264	276	262	259	264	259	259	263	1.5%	-1.0%	0.3%
Azerbaijan	96	91	74	73	71	89	92	101	99	99	99	-0.2%	-0.7%	0.1%
Belarus	176	162	159	182	150	175	211	145	165	156	152	-2.2%	0.3%	0.2%
Belgium	685	700	731	654	678	637	622	636	635	666	675	1.4%	-0.3%	0.7%
Bulgaria	105	103	102	91	81	79	82	76	82	92	96	4.0%	-1.1%	0.1%
Czech Republic	207	205	209	204	195	193	192	184	195	189	178	-6.0%	-1.0%	0.2%
Denmark	190	191	188	169	171	168	158	158	160	164	164	0.5%	-1.3%	0.2%
Finland	223	226	223	212	222	204	193	191	183	184	189	2.6%	-2.2%	0.2%
France	1942	1911	1889	1822	1763	1730	1676	1664	1616	1616	1602	-0.9%	-1.8%	1.7%
Germany	2609	2380	2502	2409	2445	2369	2356	2408	2348	2340	2394	2.3%	-1.0%	2.5%
Greece	434	435	414	398	369	348	312	295	294	306	313	2.5%	-2.9%	0.3%
Hungary	168	168	164	154	146	139	129	129	144	153	154	0.9%	-0.3%	0.2%
Ireland	191	195	187	166	158	143	135	137	136	142	147	2.9%	-2.9%	0.2%
Italy	1791	1740	1661	1563	1532	1475	1346	1260	1184	1222	1232	0.9%	-3.8%	1.3%
Kazakhstan	221	242	241	199	211	244	245	260	265	289	287	-0.6%	4.1%	0.3%
Lithuania	58	58	63	54	55	53	55	53	53	57	61	6.5%	♦	0.1%
Netherlands	1047	1065	991	971	977	971	926	898	866	835	851	1.9%	-2.2%	0.9%
Norway	229	237	228	237	235	239	235	243	232	238	242	1.7%	0.6%	0.3%
Poland	512	531	549	549	576	574	553	520	521	541	589	8.8%	1.1%	0.6%
Portugal	302	307	291	273	271	255	230	239	238	245	236	-3.5%	-3.1%	0.2%
Romania	214	218	216	195	184	191	174	174	187	191	197	3.2%	-1.3%	0.2%
Russian Federation	2762	2780	2861	2775	2878	3074	3119	3135	3299	3137	3203	2.1%	1.7%	3.3%
Slovakia	72	76	82	79	82	81	74	75	71	77	83	8.5%	-0.4%	0.1%
Spain	1592	1613	1558	1473	1446	1378	1291	1195	1191	1237	1268	2.5%	-2.5%	1.3%
Sweden	358	357	350	323	336	312	309	306	308	300	313	4.3%	-1.7%	0.3%
Switzerland	266	241	256	260	242	235	238	249	224	228	216	-5.2%	-1.3%	0.2%
Turkey	681	695	686	709	694	673	680	718	741	839	886	5.7%	2.5%	0.9%
Turkmenistan	105	111	114	106	118	125	129	137	143	147	148	0.8%	3.0%	0.2%
Ukraine	308	308	299	282	267	278	267	257	222	198	195	-1.1%	-3.9%	0.2%
United Kingdom	1813	1752	1720	1646	1623	1590	1533	1518	1511	1565	1597	2.1%	-1.5%	1.7%
Uzbekistan	103	94	93	89	76	71	63	60	57	57	58	0.8%	-5.7%	0.1%
Other Europe & Eurasia	699	730	737	720	714	710	692	683	660	683	705	3.2%	-0.1%	0.7%
Total Europe & Eurasia	20452	20202	20110	19300	19244	19064	18594	18370	18287	18450	18793	1.9%	-0.9%	19.5%
Iran	1851	1879	1954	1950	1817	1844	1854	2014	1961	1850	1848	-0.1%	0.9%	1.9%
Israel	248	262	254	232	241	254	295	247	231	247	251	1.9%	-0.4%	0.3%
Kuwait	378	383	406	455	470	464	541	512	480	506	499	-1.3%	2.1%	0.5%
Qatar	137	148	177	173	191	246	257	287	293	316	339	7.5%	11.2%	0.4%
Saudi Arabia	2274	2407	2622	2914	3218	3295	3462	3470	3726	3868	3906	1.0%	5.8%	4.0%
United Arab Emirates	539	576	603	595	643	721	765	774	860	926	987	6.7%	6.3%	1.0%
Other Middle East	1299	1294	1402	1461	1522	1558	1646	1631	1588	1600	1600	0.7%	1.8%	1.7%
Total Middle East	6726	6949	7418	7779	8102	8382	8760	8950	9180	9300	9431	1.4%	3.6%	9.8%
Algeria	258	286	309	327	327	350	370	387	390	425	412	-3.1%	5.5%	0.4%
Egypt	601	642	686	725	766	720	747	756	806	830	853	2.8%	3.0%	0.9%
South Africa	528	539	511	507	539	542	554	569	564	583	560	-3.9%	1.2%	0.6%
Other Africa	1526	1575	1697	1758	1852	1781	1900	2007	2012	2028	2111	4.1%	2.9%	2.2%
Total Africa	2912	3042	3203	3316	3483	3393	3571	3720	3771	3866	3937	1.8%	2.9%	4.1%
Australia	936	935	944	950	957	1006	1036	1046	1045	1039	1036	-0.3%	1.8%	1.1%
Bangladesh	81	76	77	72	80	104	110	107	116	124	131	5.6%	4.5%	0.1%
China	7432	7808	7941	8278	9436	9796	10230	10734	11209	11986	12381	3.3%	5.7%	12.8%
China Hong Kong SAR	309	329	298	339	359	361	344	352	336	368	380	3.4%	2.5%	0.4%
India	2737	2941	3077	3237	3319	3488	3685	3727	3849	4164	4489	7.8%	4.8%	4.6%
Indonesia	1244	1318	1287	1317	1411	1589	1625	1639	1663	1592	1615	1.4%	2.0%	1.7%
Japan	5174	5013	4846	4387	4442	4442	4702	4516	4303	4139	4037	-2.5%	-2.5%	4.2%
Malaysia	660	701	672	679	690	726	760	803	802	814	829	1.9%	2.5%	0.9%
New Zealand	152	154	154	148	150	150	148	151	154	160	164	2.3%	0.6%	0.2%
Pakistan	354	384	389	415	411	414	402	442	458	505	566	12.0%	5.0%	0.6%
Philippines	283	295	283	300	313	298	309	322	347	398	434	9.0%	2.4%	0.4%
Singapore	848	921	973	1049	1157	1208	1202	1225	1268	1336	1382	3.4%	5.3%	1.4%
South Korea	2320	2399	2308	2339	2370	2394	2458	2455	2454	2577	2763	7.2%	1.1%	2.9%
Taiwan	1051	1110	1005	1020	1045	983	983	1010	1032	1040	1046	0.6%	-0.1%	1.1%
Thailand	996	1030	1018	1065	1122	1185	1250	1298	1311	1355	1382	2.0%	2.9%	1.4%
Vietnam	254	283	300	313	337	366	369	371	389	407	431	6.0%	4.7%	0.4%
Other Asia Pacific	322	350	333	355	369	409	416	435	458	491	512	4.3%	4.6%	0.5%
Total Asia Pacific	25152	26047	25907	26262	27969	28920	30031	30636	31195	<				

Oil: Production in million tonnes*

Million tonnes	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	304.5	305.1	302.3	322.4	332.7	344.9	393.2	446.9	522.7	565.1	543.0	-4.2%	6.2%	12.4%
Canada	150.6	155.3	152.9	152.8	160.3	169.8	182.6	195.1	209.4	215.6	218.2	0.9%	4.2%	5.0%
Mexico	182.5	172.2	156.9	146.7	145.6	144.5	143.9	141.8	137.1	127.5	121.4	-5.1%	-3.7%	2.8%
Total North America	637.6	632.6	612.0	621.9	638.6	659.2	719.6	783.8	869.2	908.3	882.6	-3.1%	3.6%	20.1%
Argentina	39.5	38.3	37.8	34.0	33.3	30.9	31.1	30.5	29.9	29.8	28.8	-3.7%	-2.8%	0.7%
Brazil	94.0	95.4	99.1	106.0	111.6	114.0	112.4	110.2	122.5	132.2	136.7	3.1%	4.0%	3.1%
Colombia	27.9	28.0	31.1	35.3	41.4	48.2	49.9	52.9	52.2	53.0	48.8	-8.1%	6.7%	1.1%
Ecuador	28.8	27.5	27.2	26.1	26.1	26.8	27.1	28.2	29.8	29.1	29.3	0.4%	0.2%	0.7%
Peru	5.5	5.5	5.7	6.5	7.0	6.7	6.7	7.1	7.3	6.2	5.6	-10.4%	1.6%	0.1%
Trinidad & Tobago	8.3	7.1	7.0	6.8	6.2	5.9	5.2	5.1	5.1	4.8	4.3	-10.5%	-5.0%	0.1%
Venezuela	171.2	165.5	165.6	156.0	145.8	141.5	139.3	137.8	138.5	135.9	124.1	-9.0%	-2.2%	2.8%
Other S. & Cent. America	7.0	7.1	7.1	6.6	6.9	7.0	7.3	7.5	7.7	7.5	7.0	-7.5%	0.2%	0.2%
Total S. & Cent. America	382.2	374.3	380.5	377.3	378.4	381.1	378.9	379.2	392.9	398.6	384.5	-3.8%	0.6%	8.8%
Azerbaijan	32.3	42.6	44.5	50.4	50.8	45.6	43.4	43.5	42.1	41.6	41.0	-1.7%	6.5%	0.9%
Denmark	16.8	15.2	14.0	12.9	12.2	10.9	10.0	8.7	8.1	7.7	6.9	-10.2%	-8.4%	0.2%
Italy	5.8	5.9	5.2	4.6	5.1	5.3	5.4	5.6	5.8	5.5	3.8	-31.4%	-1.0%	0.1%
Kazakhstan	65.1	67.2	70.7	76.5	79.7	80.1	79.3	82.3	81.1	80.2	79.3	-1.4%	2.7%	1.8%
Norway	129.0	118.6	114.8	108.7	98.8	93.8	87.3	83.2	85.3	88.0	90.4	2.4%	-4.4%	2.1%
Romania	5.0	4.7	4.7	4.5	4.3	4.2	4.0	4.1	4.1	4.0	3.8	-5.3%	-3.0%	0.1%
Russian Federation	485.6	496.8	493.7	500.8	511.8	518.8	526.2	531.1	534.1	540.7	554.3	2.2%	1.3%	12.6%
Turkmenistan	9.2	9.8	10.4	10.5	10.8	10.8	11.2	11.7	12.1	12.7	12.7	-0.4%	3.0%	0.3%
United Kingdom	76.9	76.9	72.0	68.3	63.2	52.1	44.7	40.7	40.0	45.4	47.5	4.4%	-6.1%	1.1%
Uzbekistan	5.4	4.9	4.8	4.5	3.6	3.6	3.2	2.9	2.8	2.7	2.6	-3.3%	-6.9%	0.1%
Other Europe & Eurasia	21.7	21.6	20.6	19.9	19.2	19.2	19.2	19.6	19.2	18.8	18.2	-3.3%	-1.6%	0.4%
Total Europe & Eurasia	852.9	864.2	855.4	861.6	859.5	844.5	833.6	833.3	834.7	847.3	860.6	1.3%	♦	19.6%
Iran	210.7	213.3	215.6	207.4	211.7	212.7	180.7	169.8	174.2	181.6	216.4	18.9%	-1.3%	4.9%
Iraq	98.0	105.1	119.3	119.9	121.5	136.7	152.5	153.2	160.3	197.0	218.9	10.8%	8.2%	5.0%
Kuwait	133.7	129.9	136.1	120.9	123.3	140.8	153.9	151.3	150.1	148.2	152.7	2.8%	1.3%	3.5%
Oman	36.2	34.8	37.1	39.7	42.2	43.2	45.0	46.1	46.2	48.0	49.3	2.4%	2.4%	1.1%
Qatar	56.8	57.6	64.7	62.6	71.1	78.0	82.2	80.3	79.4	79.1	79.4	0.1%	4.2%	1.8%
Saudi Arabia	508.9	488.9	509.9	456.7	473.8	525.9	549.8	538.4	543.4	567.8	585.7	2.9%	0.9%	13.4%
Syria	20.3	19.5	19.6	19.3	18.5	16.9	8.1	2.7	1.5	1.2	1.1	-8.3%	-25.1%	♦
United Arab Emirates	144.3	139.6	141.4	126.2	133.3	151.3	154.8	165.1	166.2	176.2	182.4	3.2%	2.6%	4.2%
Yemen	18.1	15.9	14.8	14.3	14.3	10.1	8.0	8.9	6.7	2.0	0.8	-60.8%	-20.5%	♦
Other Middle East	8.9	9.5	9.5	9.4	9.4	9.9	9.0	10.3	10.5	10.5	10.1	-3.9%	1.5%	0.2%
Total Middle East	1236.0	1214.1	1267.8	1176.6	1219.2	1325.6	1344.0	1326.1	1338.7	1411.6	1496.9	5.8%	1.4%	34.2%
Algeria	86.2	86.5	85.6	77.2	73.8	71.7	67.2	64.8	68.8	67.2	68.5	1.6%	-2.5%	1.6%
Angola	69.6	82.5	93.5	87.6	90.5	83.8	86.9	87.3	83.0	88.7	87.9	-1.2%	3.5%	2.0%
Chad	8.0	7.5	6.7	6.2	6.4	6.0	5.3	4.4	4.3	3.8	3.8	0.6%	-8.3%	0.1%
Republic of Congo	14.2	11.5	12.2	14.1	16.0	15.3	14.3	12.6	13.4	12.9	11.9	-7.8%	0.3%	0.3%
Egypt	33.2	33.8	34.7	35.3	35.0	34.6	34.7	34.4	35.1	35.4	33.8	-4.8%	0.7%	0.8%
Equatorial Guinea	15.6	15.9	16.1	14.2	12.6	11.6	12.7	12.4	13.1	13.5	13.1	-3.3%	-1.9%	0.3%
Gabon	12.1	12.3	12.0	12.0	12.4	12.5	12.7	11.6	11.6	11.5	11.4	-1.1%	-1.6%	0.3%
Libya	85.3	85.4	85.6	77.4	77.8	22.5	71.2	46.5	23.4	20.3	20.0	-1.5%	-13.0%	0.5%
Nigeria	118.5	112.4	102.6	105.3	119.1	115.9	114.4	109.2	112.8	112.0	98.8	-12.1%	-1.0%	2.3%
South Sudan	n/a	n/a	n/a	n/a	n/a	n/a	1.5	4.9	7.7	7.3	5.8	-20.0%	n/a	0.1%
Sudan	17.5	23.8	22.6	23.4	22.8	14.3	5.1	5.8	5.9	5.4	5.1	-5.0%	-9.4%	0.1%
Tunisia	3.6	5.0	4.6	4.3	4.0	3.7	3.9	3.6	3.4	3.0	2.9	-3.8%	-2.1%	0.1%
Other Africa	11.4	9.6	9.2	9.1	7.6	10.3	10.2	11.5	11.7	12.6	11.6	-8.6%	3.7%	0.3%
Total Africa	475.1	486.1	485.3	466.1	478.2	402.3	440.1	408.9	394.2	393.7	374.8	-5.1%	-1.7%	8.6%
Australia	23.5	24.5	24.1	22.4	24.5	21.5	21.4	17.8	19.1	17.4	15.5	-11.1%	-3.7%	0.4%
Brunei	10.8	9.5	8.6	8.3	8.5	8.1	7.8	6.6	6.2	6.2	5.9	-4.7%	-4.8%	0.1%
China	184.8	186.3	190.4	189.5	203.0	202.9	207.5	210.0	211.4	214.6	199.7	-7.2%	1.7%	4.6%
India	36.0	36.4	37.8	38.0	41.3	42.9	42.5	42.5	41.6	41.2	40.2	-2.6%	1.7%	0.9%
Indonesia	50.2	47.8	49.4	48.4	48.6	46.3	44.6	42.7	41.2	40.7	43.0	5.2%	-2.7%	1.0%
Malaysia	32.7	33.8	34.0	32.2	32.6	29.4	29.8	28.5	29.7	32.3	32.7	0.9%	-0.7%	0.7%
Thailand	12.6	13.2	14.0	14.5	14.9	15.4	16.6	16.5	16.2	17.0	17.6	3.2%	4.0%	0.4%
Vietnam	17.2	16.3	15.2	16.7	15.6	15.8	17.3	17.4	18.1	17.4	16.0	-8.5%	-0.8%	0.4%
Other Asia Pacific	13.1	13.9	14.9	14.4	13.8	13.0	12.6	12.0	13.0	13.2	12.4	-6.2%	0.7%	0.3%
Total Asia Pacific	381.0	381.8	388.4	384.3	402.7	395.2	400.2	393.9	396.5	400.0	383.0	-4.5%	0.4%	8.7%
Total World	3964.8	3953.2	3989.6	3887.8	3976.5	4007.9	4116.4	4125.3	4226.2	4359.5	4382.4	0.3%	1.0%	100.0%
of which:														
OECD	904.3	889.3	857.9	853.7	856.7	857.0	902.1	953.8	1041.9	1086.4	1060.0	-2.7%	1.6%	24.2%
Non-OECD	3060.5	3064.0	3131.7	3034.2	3119.9	3150.9	3214.4	3171.5	3184.3	3273.0	3322.4	1.2%	0.8%	75.8%
OPEC	1711.9	1694.1	1747.0	1623.6	1668.0	1707.6	1780.0	1732.0	1730.1	1803.2	1864.2	3.1%	0.6%	42.5%
Non-OPEC	2252.9	2259.1	2242.6	2264.3	2308.6	2300.3	2336.4	2393.3	2496.1	2556.2	2518.2	-1.8%	1.3%	57.5%
European Union	116.1	114.2	106.6	100.0	93.6	81.7	73.0	68.5	67.3	71.9	70.8	-1.8%	-5.5%	1.6%
CIS	604.4	628.0	630.6	649.2	662.8	664.7	668.8	676.8	677.1	682.5	694.5	1.5%	1.6%	15.8%

*Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids – the liquid content of natural gas where this is recovered separately). Excludes liquid fuels from other sources such as biomass and derivatives of coal and natural gas.

♦Less than 0.05%.

n/a not available.

Notes: Annual changes and shares of total are calculated using million tonnes figures.

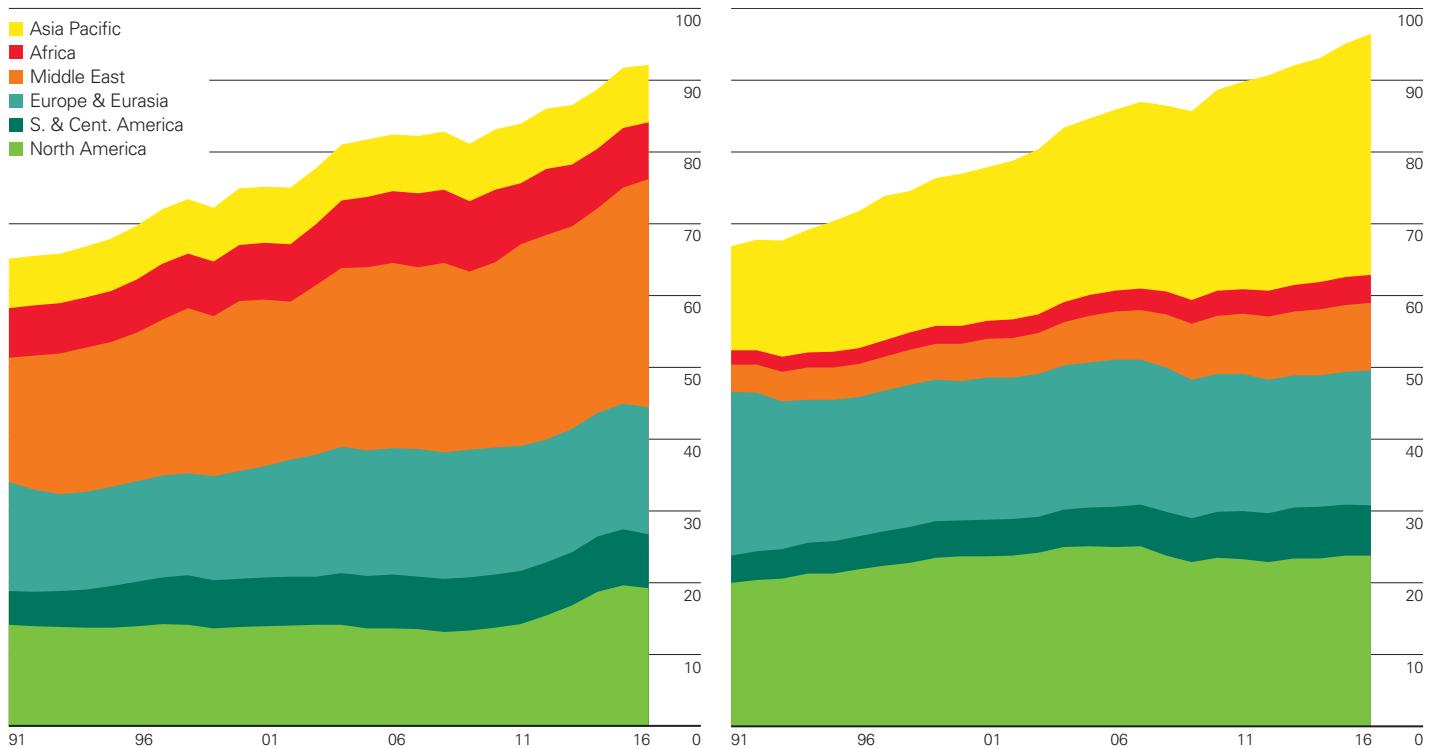
Growth rates are adjusted for leap years.

Oil: Consumption in million tonnes*

Million tonnes	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	930.7	928.8	875.4	833.2	850.1	834.9	817.0	832.1	838.1	856.5	863.1	0.5%	-0.9%	19.5%
Canada	98.7	101.7	100.6	94.4	101.0	104.2	102.3	103.5	103.1	99.1	100.9	1.5%	♦	2.3%
Mexico	89.7	92.0	91.6	88.5	88.6	90.3	92.3	89.8	85.4	84.4	82.8	-2.1%	-0.7%	1.9%
Total North America	1119.1	1122.5	1067.6	1016.1	1039.7	1029.5	1011.6	1025.4	1026.6	1040.0	1046.9	0.4%	-0.8%	23.7%
Argentina	21.8	24.2	24.9	24.3	28.1	28.3	29.6	31.9	31.3	32.2	31.9	-1.1%	4.5%	0.7%
Brazil	100.0	107.5	116.2	117.0	126.8	131.9	134.3	144.2	150.6	146.6	138.8	-5.6%	4.0%	3.1%
Chile	13.9	17.9	18.6	18.2	16.0	17.6	17.5	16.8	17.4	17.6	17.8	0.4%	3.5%	0.4%
Colombia	10.9	10.7	11.7	10.7	11.9	12.8	13.9	13.9	14.8	15.6	15.9	2.0%	3.7%	0.4%
Ecuador	8.3	8.5	8.7	8.9	10.3	10.5	10.9	11.6	12.2	11.8	11.0	-6.6%	4.1%	0.2%
Peru	6.9	7.1	8.0	8.2	8.6	9.5	9.6	10.1	10.0	10.7	11.4	6.8%	4.1%	0.3%
Trinidad & Tobago	1.8	2.1	2.2	2.1	2.2	2.1	2.0	2.3	2.1	2.2	2.2	-4.3%	2.9%	♦
Venezuela	31.5	29.7	33.8	34.2	34.1	34.6	37.2	36.7	33.6	30.2	28.7	-5.3%	0.7%	0.6%
Other S. & Cent. America	68.1	67.8	65.5	64.5	65.5	66.9	66.1	64.5	64.7	67.5	68.5	1.2%	0.1%	1.6%
Total S. & Cent. America	263.2	275.4	289.6	288.1	303.6	314.0	321.0	332.0	336.5	334.4	326.2	-2.7%	2.8%	7.4%
Austria	14.2	13.4	13.4	12.8	13.4	12.7	12.5	12.7	12.5	12.5	12.7	1.3%	-1.2%	0.3%
Azerbaijan	4.8	4.5	3.6	3.3	3.2	4.0	4.2	4.5	4.4	4.5	4.6	1.5%	-1.7%	0.1%
Belarus	8.8	8.0	7.9	9.3	7.5	8.6	10.4	7.1	8.1	7.7	7.5	-2.5%	0.2%	0.2%
Belgium	33.8	34.6	36.0	31.5	32.7	30.5	29.6	30.1	29.7	31.0	31.8	2.3%	-0.8%	0.7%
Bulgaria	5.0	4.8	4.8	4.3	3.9	3.8	3.9	3.6	3.9	4.4	4.5	2.9%	-1.0%	0.1%
Czech Republic	9.8	9.7	9.9	9.7	9.2	9.0	9.0	8.5	9.1	8.9	8.4	-6.2%	-1.1%	0.2%
Denmark	9.4	9.4	9.3	8.3	8.4	8.3	7.8	7.7	7.8	8.0	8.0	0.3%	-1.4%	0.2%
Finland	10.7	10.8	10.7	10.1	10.6	9.7	9.1	9.0	8.6	8.7	9.0	2.6%	-2.4%	0.2%
France	93.0	91.4	90.8	87.5	84.5	83.0	80.3	79.3	76.9	76.8	76.4	-0.8%	-1.9%	1.7%
Germany	123.6	112.5	118.9	113.9	115.4	112.0	111.4	113.4	110.4	110.0	113.0	2.4%	-1.1%	2.6%
Greece	21.3	21.4	20.4	19.5	18.1	17.0	15.3	14.5	14.4	14.9	15.4	2.8%	-3.0%	0.3%
Hungary	7.8	7.7	7.5	7.1	6.7	6.4	5.9	5.9	6.6	7.0	7.1	1.3%	-0.5%	0.2%
Ireland	9.3	9.4	9.0	8.0	7.6	6.8	6.5	6.5	6.5	6.8	7.0	3.0%	-3.1%	0.2%
Italy	86.7	84.0	80.4	75.1	73.1	70.5	64.2	59.4	55.8	57.6	58.1	0.5%	-4.0%	1.3%
Kazakhstan	10.7	11.6	11.5	9.3	9.9	11.5	11.5	12.1	12.3	13.2	13.2	-0.2%	3.5%	0.3%
Lithuania	2.8	2.8	3.1	2.6	2.7	2.6	2.7	2.6	2.6	2.8	3.0	6.7%	0.1%	0.1%
Netherlands	50.8	50.7	47.3	45.9	45.9	46.1	43.7	41.4	39.6	38.7	39.9	2.8%	-2.5%	0.9%
Norway	10.5	10.7	10.4	10.7	10.8	10.6	10.5	10.8	10.2	10.3	10.4	0.7%	0.2%	0.2%
Poland	23.3	24.2	25.3	25.3	26.7	26.6	25.7	23.8	23.9	24.9	27.2	8.8%	1.1%	0.6%
Portugal	14.6	14.7	14.1	13.2	13.0	12.1	11.0	11.3	11.1	11.5	11.2	-3.2%	-3.5%	0.3%
Romania	10.3	10.3	10.4	9.2	8.8	9.1	9.2	8.4	9.0	9.2	9.5	3.4%	-1.4%	0.2%
Russian Federation	130.4	130.0	133.6	128.2	133.3	142.2	144.6	144.3	152.3	144.2	148.0	2.4%	1.4%	3.3%
Slovakia	3.4	3.6	3.9	3.7	3.9	3.6	3.6	3.4	3.7	4.0	4.0	8.6%	-0.4%	0.1%
Spain	79.3	80.3	78.0	73.5	72.1	68.8	64.7	59.3	59.0	61.2	62.5	1.8%	-2.6%	1.4%
Sweden	17.3	16.9	16.7	15.5	16.2	14.8	14.6	14.4	14.5	14.1	14.7	3.7%	-1.9%	0.3%
Switzerland	12.6	11.3	12.1	12.3	11.4	11.0	11.2	11.8	10.6	10.7	10.2	-5.4%	-1.3%	0.2%
Turkey	32.1	32.6	32.1	32.6	31.8	31.1	31.6	33.5	34.3	38.9	41.2	5.6%	2.4%	0.9%
Turkmenistan	4.8	5.1	5.2	5.0	5.5	5.8	6.0	6.2	6.5	6.6	6.7	0.8%	2.9%	0.2%
Ukraine	14.2	14.4	14.2	13.5	12.6	13.1	12.5	11.9	10.3	9.2	9.1	-0.9%	-3.9%	0.2%
United Kingdom	83.2	80.7	79.5	75.8	74.9	73.6	71.4	70.3	69.8	71.8	73.1	1.7%	-1.5%	1.7%
Uzbekistan	5.1	4.7	4.6	4.3	3.6	3.4	3.0	2.9	2.7	2.7	2.8	0.7%	-6.1%	0.1%
Other Europe & Eurasia	34.7	36.2	36.5	35.6	35.3	35.0	34.1	33.4	32.2	33.3	34.5	3.2%	-0.2%	0.8%
Total Europe & Eurasia	978.0	962.6	960.8	916.5	912.3	903.7	882.1	864.3	858.8	865.9	884.6	1.9%	-1.1%	20.0%
Iran	87.7	89.6	93.1	92.2	83.6	84.7	85.7	93.6	90.4	84.5	83.8	-1.1%	0.5%	1.9%
Israel	11.7	12.3	12.0	10.8	11.2	11.8	13.9	11.5	10.6	11.4	11.6	1.9%	-0.7%	0.3%
Kuwait	17.7	17.9	19.0	20.4	20.9	20.4	24.4	22.7	21.0	22.3	22.0	-1.5%	1.3%	0.5%
Qatar	4.6	5.2	6.3	6.0	6.5	8.0	8.2	9.3	9.7	10.7	11.7	9.2%	11.6%	0.3%
Saudi Arabia	98.4	104.4	114.4	125.9	137.1	139.1	146.2	147.3	159.8	166.6	167.9	0.5%	5.9%	3.8%
United Arab Emirates	26.9	28.7	30.2	28.9	30.7	33.2	35.0	35.5	38.6	40.9	43.5	6.1%	5.0%	1.0%
Other Middle East	62.0	61.6	67.2	70.1	73.1	74.4	76.0	78.8	78.2	76.5	77.3	0.8%	1.9%	1.7%
Total Middle East	309.1	319.8	342.1	354.4	363.1	371.7	389.5	398.6	408.4	412.8	417.8	0.9%	3.3%	9.5%
Algeria	11.5	12.9	14.0	14.9	14.8	15.8	16.8	17.6	17.7	19.5	18.9	-3.2%	5.8%	0.4%
Egypt	28.7	30.6	32.6	34.4	36.3	33.7	35.3	35.8	38.3	39.6	40.6	2.3%	2.9%	0.9%
South Africa	25.3	25.8	24.4	24.1	25.6	25.7	26.5	27.3	27.0	27.9	26.9	-3.6%	1.2%	0.6%
Other Africa	72.7	74.8	80.6	83.2	87.7	84.2	90.0	94.8	95.1	95.1	98.9	3.7%	2.8%	2.2%
Total Africa	138.1	144.1	151.7	156.6	164.5	159.4	168.6	175.4	177.5	182.1	185.4	1.5%	2.8%	4.2%
Australia	42.9	42.5	43.2	43.5	43.7	46.3	47.9	48.2	48.1	47.9	47.8	-0.3%	1.9%	1.1%
Bangladesh	3.9	3.7	3.8	3.5	3.9	5.1	5.4	5.3	5.8	6.2	6.6	6.0%	4.8%	0.1%
China	353.1	370.7	378.1	392.8	448.5	465.1	487.1	508.1	528.0	561.8	578.7	2.7%	5.5%	13.1%
China Hong Kong SAR	15.2	16.4	14.8	16.9	17.8	18.0	17.2	17.6	16.6	18.3	18.9	3.2%	2.7%	0.4%
India	128.3	138.1	144.7	152.6	155.4	163.0	173.6	175.3	180.8	195.8	212.7	8.3%	4.9%	4.8%
Indonesia	58.5	61.8	60.1	60.8	64.7	73.1	74.4	74.5	75.3	71.8	72.6	0.8%	1.6%	1.6%
Japan	238.0	230.9	224.8	200.3	202.7	203.7	217.7	207.4	197.0	189.0	184.3	-2.8%	-2.6%	4.2%
Malaysia	28.9	30.8	29.5	29.2	29.3	31.5	32.9	34.9	34.9	35.5	36.3	1.8%	2.4%	0.8%
New Zealand	7.1	7.1	7.2	6.9	7.0	7.0	7.0	7.1	7.2	7.5	7.7	1.8%	0.7%	0.2%
Pakistan	17.6	19.1	19.4	20.7	20.5	20.7	20.0	21.9	22.6	24.6	27.5	11.4%	4.9%	0.6%
Philippines	13.3	13.8	13.3	14.0	14.6	13.8	14.4	14.9	16.1	18.3	19.9	8.5%	2.1%	0.5%
Singapore	44.5	48.3	51.4	55.5	60.9	63.7	63.4	64.2	65.8	69.4	72.2	3.7%	5.3%	1.6%
South Korea	104.7	107.6	103.1	103.7	105.0	105.8	108.8	108.3	107.9	113.8	122.1	7.1%	0.8%	2.8%
Taiwan	49.1	51.1	45.9	46.1	47.2	44.5	44.6	45.1	46.1	46.5	46.7	0.1%	-0.6%	1.1%
Thailand	44.2	45.5												

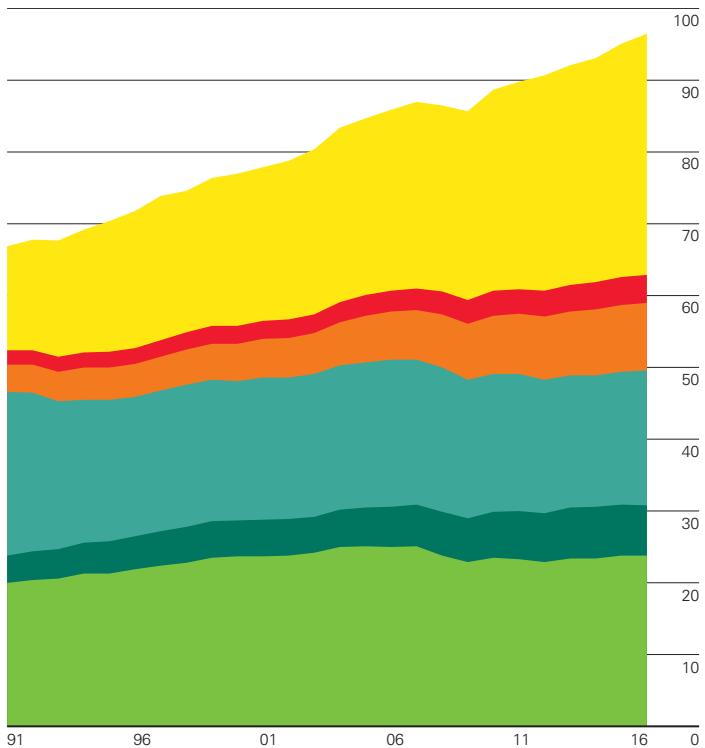
Oil: Production by region

Million barrels daily



Oil: Consumption by region

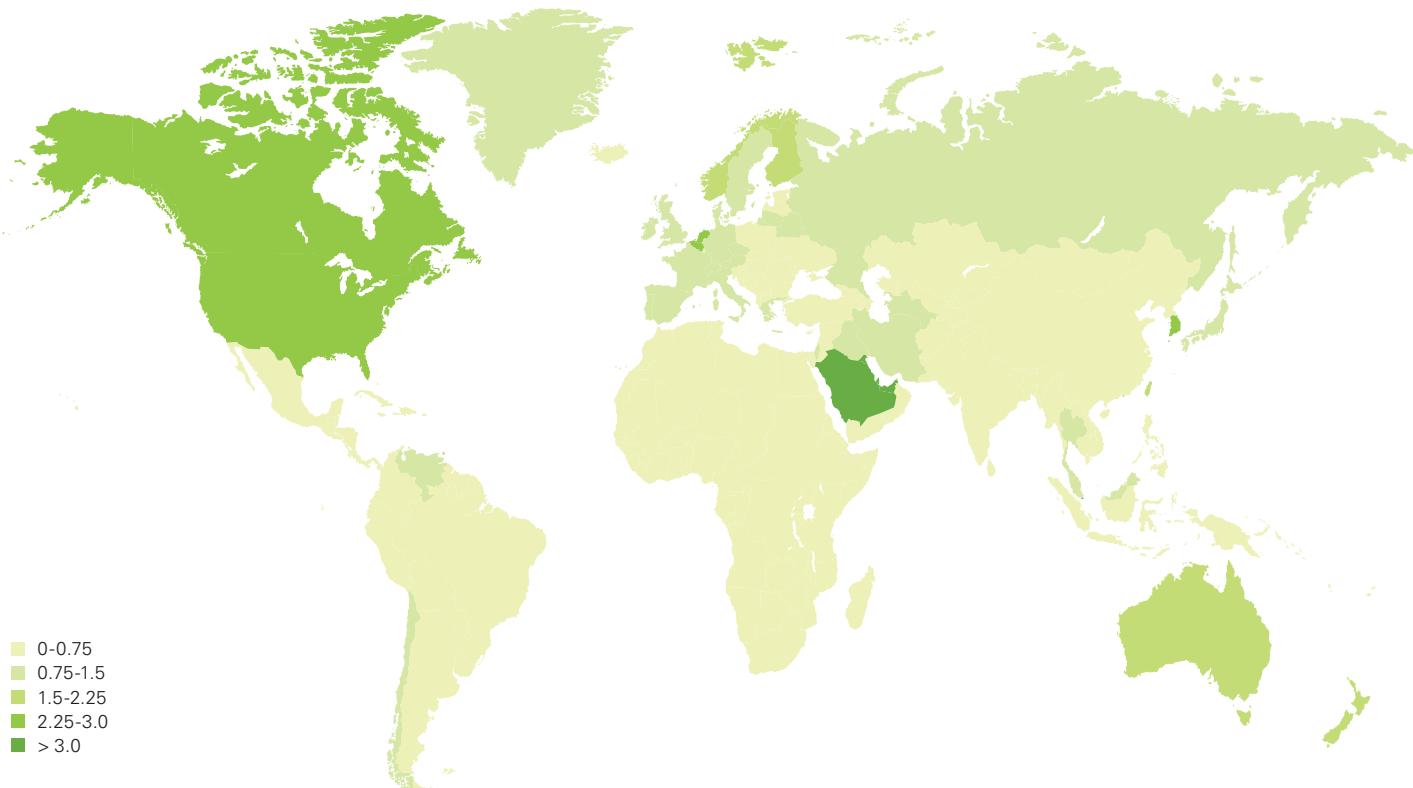
Million barrels daily



World oil production grew by only 0.4 million b/d in 2016, the slowest growth since 2013. Production in the Middle East rose by 1.7 million b/d, driven by Iran, Iraq and Saudi Arabia, but this was largely offset by declines in North America, Africa, Asia Pacific and South & Central America. Global oil consumption growth averaged 1.6 million b/d, above the 10-year average of 1 million b/d for the second successive year as a result of stronger than usual growth in the OECD. However, China (400,000 b/d) and India (330,000 b/d) still provided the largest contributions to growth.

Oil: Consumption per capita 2016

Tonnes



Oil: Regional consumption – by product group

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
North America														
Light distillates	11131	11200	10859	10839	10950	10697	10572	10778	10841	11088	11312	2.0%	0.1%	47.4%
Middle distillates	7297	7318	6934	6281	6567	6694	6409	6519	6801	6812	6750	-0.9%	-0.6%	28.3%
Fuel oil	1055	1081	941	801	810	745	662	576	447	419	505	20.5%	-11.3%	2.1%
Others	5499	5490	5106	5019	5172	5169	5251	5492	5332	5435	5276	-2.9%	♦	22.1%
Total North America	24982	25089	23840	22940	23499	23305	22894	23364	23421	23753	23843	0.4%	-0.6%	100.0%
of which: US														
Light distillates	9599	9597	9253	9257	9263	9022	8932	9125	9164	9413	9556	1.5%	-0.1%	48.7%
Middle distillates	6226	6199	5801	5241	5464	5518	5278	5371	5632	5657	5594	-1.1%	-0.9%	28.5%
Fuel oil	683	718	609	508	532	459	367	317	256	258	356	37.8%	-11.9%	1.8%
Others	4178	4166	3827	3766	3921	3883	3913	4147	4054	4203	4125	-1.8%	0.1%	21.0%
Total US	20687	20680	19490	18771	19180	18882	18490	18961	19106	19531	19631	0.5%	-0.6%	100.0%
S. & Cent. America														
Light distillates	1512	1613	1690	1795	1890	1969	2019	2118	2178	2231	2214	-0.7%	4.1%	31.7%
Middle distillates	1946	2144	2196	2168	2392	2513	2635	2760	2774	2749	2696	-2.0%	3.7%	38.6%
Fuel oil	813	813	831	789	763	741	740	715	734	730	663	-9.2%	-0.7%	9.5%
Others	1284	1262	1384	1341	1379	1443	1432	1481	1484	1429	1403	-1.8%	1.9%	20.1%
Total S. & Cent. America	5554	5831	6100	6094	6424	6666	6826	7073	7171	7139	6976	-2.3%	2.9%	100.0%
Europe & Eurasia														
Light distillates	4922	4936	4763	4658	4661	4448	4325	4272	4208	4143	4144	♦	-1.9%	22.1%
Middle distillates	8920	8898	9165	8768	8970	8954	8839	8859	8787	9071	9269	2.2%	0.5%	49.3%
Fuel oil	2304	2062	1973	1794	1655	1631	1499	1387	1369	1235	1306	5.7%	-6.0%	7.0%
Others	4306	4306	4209	4079	3958	4031	3932	3852	3924	4000	4074	1.8%	-0.6%	21.7%
Total Europe & Eurasia	20452	20202	20110	19300	19244	19064	18594	18370	18287	18450	18793	1.9%	-0.9%	100.0%
of which: CIS														
Light distillates	1106	1172	1233	1211	1267	1273	1300	1338	1329	1327	1314	-1.0%	2.3%	31.1%
Middle distillates	1151	1219	1286	1168	1273	1387	1395	1379	1343	1278	1303	1.9%	1.6%	30.8%
Fuel oil	558	424	397	379	350	373	361	369	435	347	370	6.8%	-3.6%	8.8%
Others	1004	1031	985	1011	944	1087	1149	1090	1219	1209	1236	2.3%	1.9%	29.3%
Total CIS	3819	3845	3901	3770	3835	4120	4205	4177	4326	4161	4223	1.5%	1.3%	100.0%
of which: European Union														
Light distillates	3551	3516	3300	3190	3153	2952	2812	2719	2674	2602	2608	0.2%	-3.4%	20.2%
Middle distillates	7112	6990	7153	6883	6983	6840	6696	6674	6618	6875	7020	2.1%	-0.1%	54.2%
Fuel oil	1564	1473	1428	1276	1193	1148	1028	909	839	797	848	6.4%	-6.6%	6.5%
Others	2938	2898	2856	2674	2612	2559	2419	2400	2370	2432	2466	1.4%	-1.8%	19.1%
Total European Union	15165	14878	14737	14023	13942	13499	12955	12702	12500	12707	12942	1.8%	-1.7%	100.0%
Middle East														
Light distillates	1485	1479	1592	1633	1681	1758	1839	1908	1944	2009	2053	2.2%	3.6%	21.8%
Middle distillates	2114	2272	2315	2403	2412	2537	2656	2753	2749	2672	2661	-0.4%	2.9%	28.2%
Fuel oil	1534	1581	1746	1901	1939	1972	2042	2080	2211	2235	2192	-1.9%	3.9%	23.2%
Others	1592	1617	1765	1841	2070	2115	2223	2209	2276	2384	2525	5.9%	4.2%	26.8%
Total Middle East	6726	6949	7418	7779	8102	8382	8760	8950	9180	9300	9431	1.4%	3.6%	100.0%
Africa														
Light distillates	686	703	760	799	835	815	867	883	902	954	1038	8.9%	3.1%	26.4%
Middle distillates	1297	1379	1461	1507	1613	1615	1680	1805	1846	1872	1843	-1.6%	4.2%	46.8%
Fuel oil	423	425	436	446	460	394	440	438	437	431	421	-2.3%	-0.5%	10.7%
Others	506	535	546	563	576	568	583	595	586	609	634	4.1%	1.9%	16.1%
Total Africa	2912	3042	3203	3316	3483	3393	3571	3720	3771	3866	3937	1.8%	2.9%	100.0%
Asia Pacific														
Light distillates	7021	7401	7453	7685	8320	8526	8944	9449	9759	10519	10955	4.2%	4.5%	32.6%
Middle distillates	9110	9304	9389	9390	9917	10345	10788	10991	11085	11368	11414	0.4%	2.3%	34.0%
Fuel oil	3528	3583	3361	3046	3045	3112	3216	2987	2828	2808	2898	3.2%	-2.0%	8.6%
Others	5493	5760	5704	6141	6688	6937	7083	7209	7523	7799	8310	6.5%	3.9%	24.7%
Total Asia Pacific	25152	26047	25907	26262	27969	28920	30031	30636	31195	32494	33577	3.3%	2.8%	100.0%
of which: China														
Light distillates	1713	1846	1975	2046	2406	2593	2776	3105	3324	3768	4035	7.1%	9.5%	32.6%
Middle distillates	2682	2859	3078	3127	3452	3667	3963	4068	4114	4220	4046	-4.1%	5.3%	32.7%
Fuel oil	954	906	724	662	666	588	560	564	592	591	617	4.4%	-4.1%	5.0%
Others	2083	2198	2164	2443	2912	2948	2932	2998	3179	3408	3683	8.1%	5.6%	29.7%
Total China	7432	7808	7941	8278	9436	9796	10230	10734	11209	11986	12381	3.3%	5.7%	100.0%
of which: Japan														
Light distillates	1758	1731	1614	1634	1696	1635	1614	1631	1575	1610	1560	-3.1%	-1.0%	38.6%
Middle distillates	1760	1621	1502	1381	1391	1343	1361	1345	1319	1281	1291	0.8%	-3.8%	32.0%
Fuel oil	657	657	707	450	442	577	824	646	532	433	368	-14.9%	-4.4%	9.1%
Others	999	1005	1024	922	913	887	903	895	876	816	817	0.2%	-2.2%	20.3%
Total Japan	5174	5013	4846	4387	4442	4442	4702	4516	4303	4139	4037	-2.5%	-2.5%	100.0%
World														
Light distillates	26756	27331	27116	27409	28337	28213	28565	29408	29831	30943	31718	2.5%	1.6%	32.8%
Middle distillates	30684	31315	31460	30519	31871	32658	33007	33686	34041	34545	34632	0.3%	1.4%	35.9%
Fuel oil	9658	9545	9289	8778	8672	8595	8598	8182	8027	7858	7986	1.6%	-2.3%	8.3%
Others	18679	18971	18713	18985	19842	20264	20505	20837	21125	21656	22223	2.6%	1.7%	23.0%
Total World	85777	87161	86578	85691	88722	89729	90675	92114	93025	95003	96558	1.6%	1.2%	100.0%
OECD														
Light distillates	18000	18102	17381	17354	17528	17062	16864	16998	16988	17264	17506	1.4%	-0.4%	37.9%
Middle distillates	17771	17631	17310	16231	16654	16651	16323	16466	16685	17067	17223	0.9%	-0.3%	37.3%
Fuel oil	3785	3697	3492	2894	2767	2772	2822	2424	2071	1905	2005	5.2%	-7.6%	4.3%
Others	10318	10267	9876	9590	9646	9569	9502	9696	9441	9548	9484	-0.7%	-0.6%	20.5%
Total OECD	49874	49697	48059	46068	46596	46054	45512	45583	45184	45785	46217	0.9%	-0.9%	100.0%
Non-OECD														
Light distillates	8756	9228	9736	10056	10809	11150	11701	12411	12843	13679	14212	3.9%	5.0%	28.2%
Middle distillates	12913	13684	14150	14288	15216	16007	16684	17220	17356	17478	17409			

Spot crude prices

US dollars per barrel	Dubai \$/bbl*	Brent \$/bbl†	Nigerian Forcados \$/bbl	West Texas Intermediate \$/bbl‡
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
2008	94.34	97.26	101.43	100.06
2009	61.39	61.67	63.35	61.92
2010	78.06	79.50	81.05	79.45
2011	106.18	111.26	113.65	95.04
2012	109.08	111.67	114.21	94.13
2013	105.47	108.66	111.95	97.99
2014	97.07	98.95	101.35	93.28
2015	51.20	52.39	54.41	48.71
2016	41.19	43.73	44.54	43.34

*1981-1985 Arabian Light, 1986-2016 Dubai dated.

†1981-1983 Forties, 1984-2016 Brent dated.

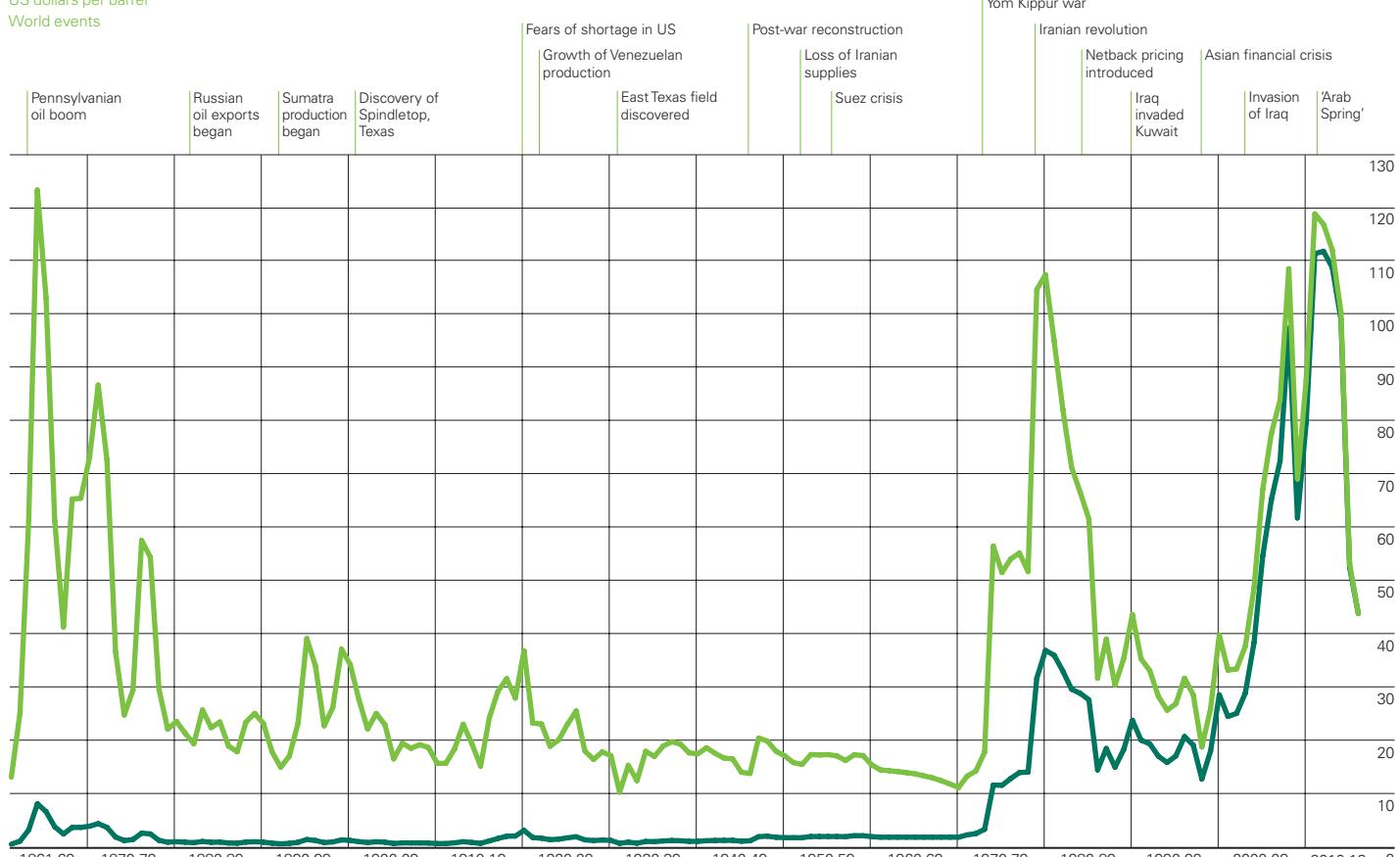
‡1981-1983 Posted WTI prices, 1984-2016 Spot WTI (Cushing) prices.

Source: Platts.

Crude oil prices 1861-2016

US dollars per barrel

World events

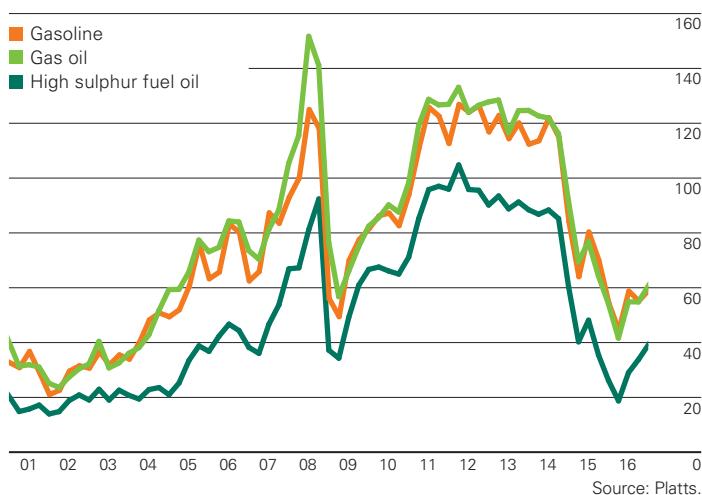


■ \$ 2016 (deflated using the Consumer Price Index for the US)
■ \$ money of the day

1861-1944 US average.
1945-1983 Arabian Light posted at Ras Tanura.
1984-2016 Brent dated.

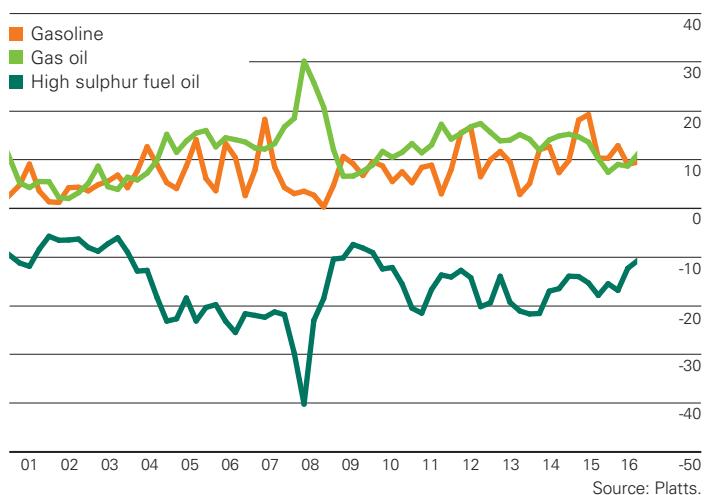
Oil product prices (Rotterdam)

US dollars per barrel



Product differentials to crude (Rotterdam products minus Dated Brent)

US dollars per barrel



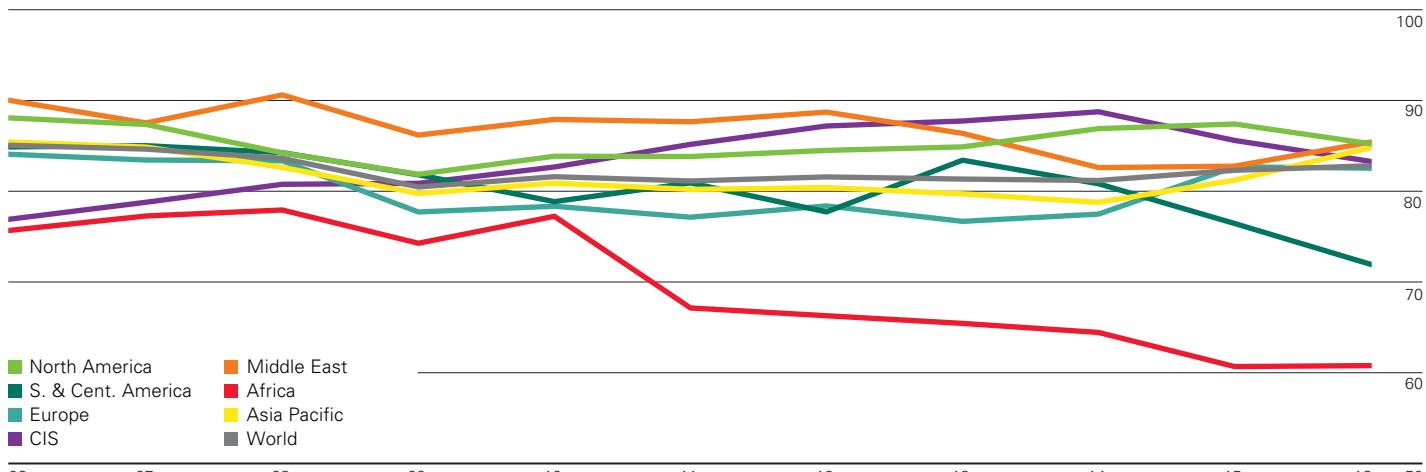
Regional refining margins

US dollars per barrel



Refinery utilization

Percentage (based on average annual capacity)



Oil: Refinery throughput

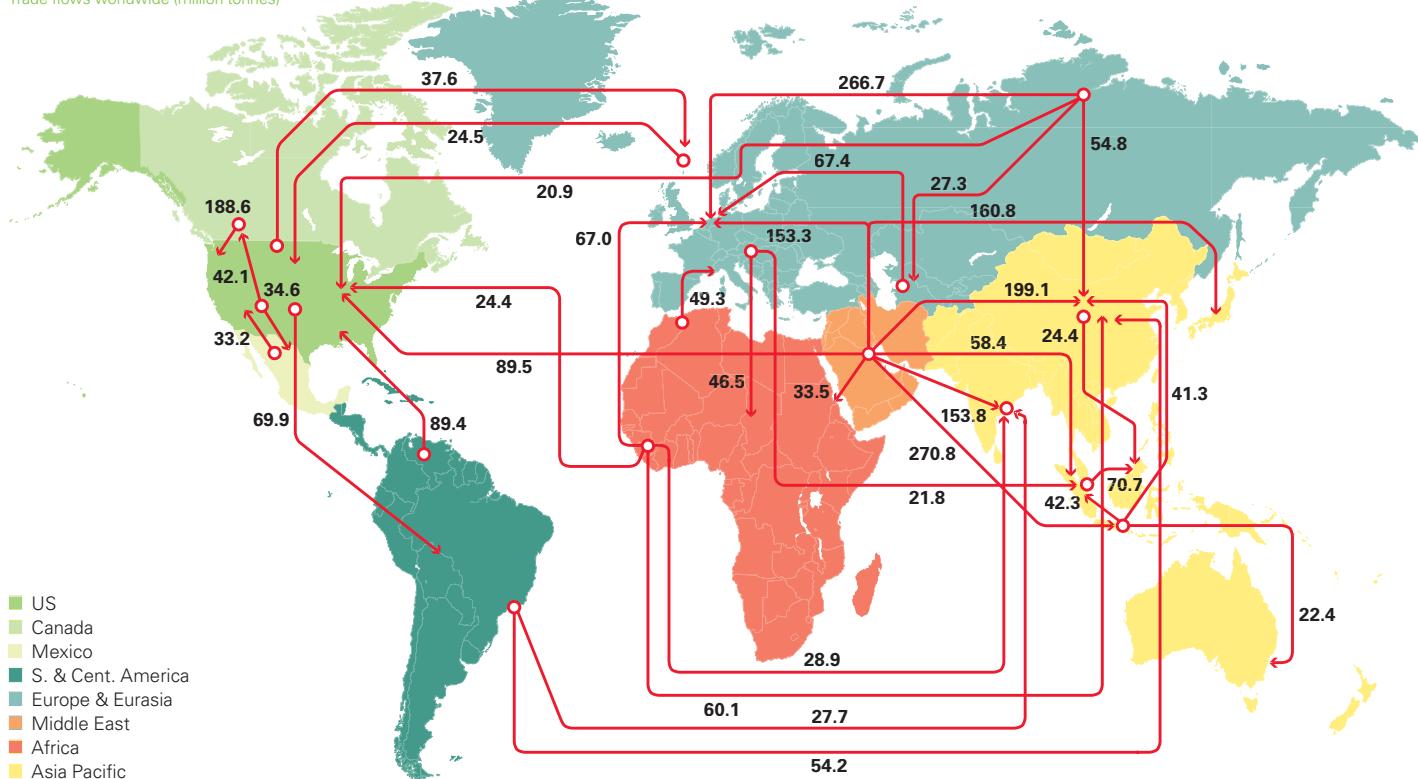
Thousand barrels daily*											Growth rate per annum			Share 2016
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016	2005-15	
US	15242	15156	14648	14336	14724	14806	14999	15312	15848	16188	16202	0.1%	0.6%	20.1%
Canada	1788	1849	1781	1731	1774	1680	1751	1719	1640	1635	1594	-2.5%	-1.2%	2.0%
Mexico	1270	1261	1295	1184	1166	1199	1224	1155	1064	1064	933	-12.3%	-1.9%	1.2%
Total North America	18300	18266	17724	17251	17682	17652	17949	18255	18643	18887	18729	-0.8%	0.3%	23.3%
Argentina	568	600	578	532	531	516	530	527	526	536	511	-4.7%	♦	0.6%
Brazil	1708	1741	1760	1781	1787	1813	1889	2035	2085	1972	1831	-7.2%	1.5%	2.3%
Chile	217	201	204	192	159	173	164	174	174	165	163	-1.0%	-2.3%	0.2%
Colombia	315	313	313	302	300	306	305	284	247	244	339	39.0%	-2.0%	0.4%
Curacao	205	209	197	183	64	164	165	170	189	178	173	-2.6%	-1.9%	0.2%
Ecuador	152	150	155	156	137	156	152	141	125	121	150	24.5%	-2.2%	0.2%
Peru	172	177	177	192	195	189	189	183	185	182	185	1.6%	0.1%	0.2%
Trinidad & Tobago	152	154	150	152	126	137	107	132	105	125	148	18.2%	-2.7%	0.2%
Venezuela	1022	1004	1010	961	969	991	936	952	920	863	698	-19.2%	-1.6%	0.9%
Other S. & Cent. America	957	972	967	809	709	720	335	301	295	316	291	-7.7%	-10.9%	0.4%
Total S. & Cent. America	5468	5522	5511	5258	4977	5165	4771	4899	4851	4702	4490	-4.5%	-1.5%	5.6%
Austria	172	174	176	169	158	168	170	174	173	179	164	-8.3%	0.1%	0.2%
Azerbaijan	150	150	147	121	124	127	124	132	135	130	117	-9.8%	-1.3%	0.1%
Belarus	427	429	427	434	330	411	434	425	448	462	392	-15.1%	1.5%	0.5%
Belgium	631	662	675	629	668	598	634	555	645	644	640	-0.5%	♦	0.8%
Bulgaria	143	143	143	125	110	102	118	113	104	121	125	3.4%	-0.2%	0.2%
Czech Republic	158	149	165	148	159	143	145	134	151	145	109	-25.1%	-0.7%	0.1%
Denmark	159	157	156	157	146	137	153	144	139	147	140	-4.9%	-0.5%	0.2%
Finland	208	218	222	220	211	225	215	227	225	197	226	14.6%	-0.2%	0.3%
France	1655	1654	1676	1449	1314	1313	1138	1117	1096	1152	1111	-3.5%	-3.9%	1.4%
Germany	2245	2193	2151	2026	1915	1876	1901	1857	1833	1875	1887	0.6%	-2.0%	2.3%
Greece	379	385	360	346	393	331	410	399	416	436	464	6.6%	1.5%	0.6%
Hungary	139	142	140	127	128	132	122	120	131	130	133	2.3%	-0.8%	0.2%
Ireland	63	67	62	55	60	59	61	57	55	68	64	-4.9%	0.2%	0.1%
Italy	1847	1863	1741	1614	1673	1570	1475	1259	1198	1347	1300	-3.5%	-3.3%	1.6%
Kazakhstan	225	229	236	235	257	326	331	341	361	342	339	-1.1%	4.6%	0.4%
Lithuania	168	118	195	174	190	189	181	192	160	170	185	8.4%	-0.9%	0.2%
Netherlands	1226	1204	1160	1143	1189	1144	1144	1044	1067	1138	1147	0.8%	-1.0%	1.4%
Norway	307	305	279	278	259	289	287	292	274	293	230	-21.6%	0.2%	0.3%
Poland	396	402	417	408	458	482	505	488	486	532	517	-2.9%	3.5%	0.6%
Portugal	265	247	241	209	227	206	221	239	217	278	273	-1.8%	0.5%	0.3%
Romania	266	280	282	247	217	194	182	189	194	208	228	9.9%	-2.9%	0.3%
Russian Federation	4423	4597	4742	4765	5018	5185	5438	5636	5926	5773	5709	-1.1%	3.3%	7.1%
Slovakia	113	120	117	114	110	120	108	116	105	119	116	-2.9%	0.9%	0.1%
Spain	1210	1159	1174	1057	1060	1051	1186	1168	1185	1304	1303	♦	0.9%	1.6%
Sweden	415	369	413	394	406	374	417	332	380	401	395	-1.6%	-0.3%	0.5%
Switzerland	109	94	101	95	90	87	68	97	98	56	59	4.3%	-5.2%	0.1%
Turkey	530	518	490	375	392	394	398	421	406	526	532	1.3%	0.1%	0.7%
Turkmenistan	137	144	149	152	170	165	157	160	163	157	153	-2.8%	1.1%	0.2%
Ukraine	289	279	243	255	249	206	108	85	69	64	65	0.9%	-16.1%	0.1%
United Kingdom	1533	1528	1533	1440	1395	1433	1348	1197	1125	1118	1069	-4.3%	-3.6%	1.3%
Uzbekistan	105	95	93	88	73	69	62	58	62	63	70	11.5%	-5.0%	0.1%
Other Europe & Eurasia	189	199	184	201	186	160	134	140	132	148	158	6.6%	-3.2%	0.2%
Total Europe & Eurasia	20284	20273	20291	19250	19335	19269	19376	18908	19158	19724	19420	-1.5%	-0.3%	24.1%
Iran	1674	1719	1779	1826	1829	1873	1932	1999	1932	1867	1891	1.3%	1.4%	2.3%
Iraq	468	447	476	417	520	543	579	598	487	409	440	7.6%	-1.4%	0.5%
Israel	202	189	215	220	226	218	219	238	245	250	232	-7.4%	2.3%	0.3%
Kuwait	898	923	906	869	892	852	916	873	879	913	830	-9.2%	0.6%	1.0%
Qatar	130	149	145	158	294	278	292	270	261	253	280	10.8%	8.2%	0.3%
Saudi Arabia	1992	1936	2018	1928	1922	1884	1953	1876	2201	2479	2750	11.0%	2.2%	3.4%
United Arab Emirates	592	529	493	492	571	635	638	650	659	929	1000	7.6%	4.4%	1.2%
Other Middle East	743	721	868	840	809	805	719	685	671	629	605	-3.8%	-2.1%	0.8%
Total Middle East	6699	6615	6900	6750	7063	7087	7248	7189	7335	7728	8028	3.9%	1.5%	10.0%
Algeria	382	391	429	475	548	520	478	492	615	591	584	-1.1%	5.2%	0.7%
Egypt	631	653	617	598	580	523	534	525	525	535	508	-5.0%	-1.7%	0.6%
South Africa	385	388	408	388	384	384	401	411	461	441	477	8.1%	-0.3%	0.6%
Other Africa	948	915	944	842	910	726	797	827	625	532	533	0.3%	-6.6%	0.7%
Total Africa	2345	2348	2398	2303	2422	2154	2210	2254	2226	2099	2102	0.2%	-1.7%	2.6%
Australia	597	614	570	577	606	627	600	588	538	427	433	1.5%	-3.4%	0.5%
Bangladesh	26	25	25	18	26	27	24	27	24	25	23	-10.1%	1.1%	♦
China	6235	6594	6828	7452	8408	8686	9199	9599	10155	10684	11023	3.2%	6.2%	13.7%
India	2860	3107	3213	3641	3899	4085	4302	4462	4475	4561	4931	8.1%	5.9%	6.1%
Indonesia	913	904	910	900	853	880	820	822	848	836	885	5.8%	-1.6%	1.1%
Japan	4026	3995	3946	3627	3619	3410	3400	3453	3289	3258	3280	0.7%	-2.4%	4.1%
Malaysia	522	557	560	554	470	516	575	558	553	508	537	5.6%	♦	0.7%
New Zealand	97	91	99	95	99	108	109	105	101	109	108	-1.4%	1.3%	0.1%
Pakistan	222	238	226	209	190	193	192	223	232	257	242	-5.7%	1.1%	0.3%
Philippines	211	206	184	147	181	190	170	158	168	212	216	1.7%	0.3%	0.3%
Singapore	1155	1163	1161	844	979	1035	1020	936	871	897	965	7.6%	-2.7%	1.2%
South Korea	2407	2417	2365	2297	2390	2533	2582	2484	2516	2784	2928	5.2%	1.8%	3.6%
Taiwan	1000	992	900	956	876	809	897	847	850	838	861	2.7%	-2.2%	1.1%
Thailand	926	922	927	938	963	937	978	1078	1029	1132	1096	-3.2%	2.2%	1.4%
Vietnam	9	10	10	43	123	124	142	145	125	145	148	2.5%	32.0%	0.2%
Other Asia Pacific	104	94	94	98	97	100	89	97	96	92	107	16.8%	-0.9%	0.1%
Total Asia Pacific	21310	21930	22017	22396	23778	24258	25098	25581	25869	26765	27781	3.8%	2.6%	34.5%
Total World	74406	<b												

Oil: Refinery capacities

Thousand barrels daily*	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	17443	17594	17672	17584	17736	17322	17824	17925	17889	18315	18621	1.7%	0.5%	19.1%
Canada	1914	1907	1951	1976	1913	2040	2050	1965	1965	1966	1967	♦	0.4%	2.0%
Mexico	1463	1463	1463	1463	1463	1606	1606	1606	1606	1522	1522	—	0.4%	1.6%
Total North America	20821	20964	21086	21023	21113	20967	21479	21495	21375	21803	22110	1.4%	0.5%	22.7%
Argentina	617	628	628	625	625	625	657	657	657	657	657	—	0.7%	0.7%
Brazil	1942	1961	1973	1988	1988	2010	2001	2093	2235	2278	2289	0.5%	1.6%	2.3%
Chile	234	242	242	242	242	250	254	254	258	258	258	—	0.8%	0.3%
Colombia	324	324	326	336	336	336	336	336	336	421	421	—	3.1%	0.4%
Curacao	320	320	320	320	320	320	320	320	320	320	320	—	—	0.3%
Ecuador	177	175	175	175	175	175	175	175	175	175	210	19.7%	-0.1%	0.2%
Peru	223	223	230	252	252	252	253	253	253	253	253	—	1.3%	0.3%
Trinidad & Tobago	165	165	165	165	165	165	165	165	165	165	165	—	—	0.2%
Venezuela	1294	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303	—	0.1%	1.3%
Other S. & Cent. America	1150	1192	1176	900	901	1013	356	361	376	384	384	—	-10.3%	0.4%
Total S. & Cent. America	6446	6533	6538	6306	6307	6449	5819	5917	6078	6214	6259	0.7%	-0.3%	6.4%
Austria	201	201	201	201	193	193	193	193	193	193	193	—	-0.4%	0.2%
Azerbaijan	205	205	205	205	205	205	205	205	205	205	205	—	—	0.2%
Belarus	460	460	460	460	460	460	460	460	460	460	460	—	—	0.5%
Belgium	766	781	786	786	787	788	753	776	776	776	776	—	0.3%	0.8%
Bulgaria	205	175	175	180	195	195	195	195	195	195	195	—	-0.5%	0.2%
Czech Republic	193	193	193	193	193	193	178	178	178	178	178	—	-0.8%	0.2%
Denmark	189	189	189	189	189	181	181	181	180	180	180	—	-0.5%	0.2%
Finland	261	261	261	261	261	261	261	261	261	261	261	—	—	0.3%
France	1959	1962	1971	1842	1702	1610	1513	1375	1375	1375	1224	-11.0%	-3.6%	1.3%
Germany	2390	2390	2366	2362	2091	2077	2097	2061	2077	2049	2024	-1.2%	-1.2%	2.1%
Greece	425	425	425	425	490	495	498	498	498	498	498	—	1.8%	0.5%
Hungary	165	165	165	165	165	165	165	165	165	165	165	—	—	0.2%
Ireland	75	75	75	75	75	75	75	75	75	75	75	—	—	0.1%
Italy	2526	2377	2396	2396	2396	2276	2113	1876	1915	1915	1915	—	-2.7%	2.0%
Kazakhstan	330	330	330	330	330	330	330	350	350	350	350	—	0.6%	0.4%
Lithuania	241	241	241	241	241	241	241	241	241	241	241	—	—	0.2%
Netherlands	1274	1236	1280	1280	1274	1276	1274	1274	1274	1293	1293	—	0.1%	1.3%
Norway	316	316	316	316	316	316	316	316	316	316	316	—	—	0.3%
Poland	498	493	492	491	560	580	582	582	582	581	581	—	1.4%	0.6%
Portugal	306	306	306	306	306	306	306	306	306	306	306	—	—	0.3%
Romania	389	389	358	283	247	229	214	235	228	239	256	7.1%	-4.8%	0.3%
Russian Federation	5524	5481	5397	5435	5573	5731	5826	6245	6347	6408	6418	0.2%	1.7%	6.6%
Slovakia	122	122	122	122	122	122	122	122	122	122	122	—	—	0.1%
Spain	1362	1362	1362	1362	1421	1542	1546	1546	1546	1562	1562	—	1.3%	1.6%
Sweden	436	436	436	436	436	436	436	436	436	436	436	—	—	0.4%
Switzerland	140	140	140	140	140	140	106	140	140	68	68	—	-7.0%	0.1%
Turkey	613	613	613	613	613	613	613	613	613	613	613	—	—	0.6%
Turkmenistan	251	251	251	251	251	251	251	251	251	271	271	—	0.8%	0.3%
Ukraine	525	526	566	582	474	474	248	262	248	248	248	—	-7.2%	0.3%
United Kingdom	1836	1819	1827	1757	1757	1787	1526	1498	1337	1337	1227	-8.3%	-3.0%	1.3%
Uzbekistan	232	232	232	232	232	232	232	232	232	232	232	—	—	0.2%
Other Europe & Eurasia	411	411	408	430	434	414	436	387	404	413	413	—	-0.4%	0.4%
Total Europe & Eurasia	24826	24565	24546	24347	24139	24195	23492	23536	23528	23563	23304	-1.1%	-0.5%	23.9%
Iran	1772	1772	1805	1860	1860	1860	1952	1985	1985	1985	1985	—	1.6%	2.0%
Iraq	743	738	738	853	914	935	971	823	931	903	919	1.8%	2.2%	0.9%
Israel	270	272	275	275	280	292	292	294	301	301	301	—	1.1%	0.3%
Kuwait	936	936	936	936	936	936	936	936	936	936	936	—	—	1.0%
Qatar	137	137	137	283	283	283	283	283	283	283	429	51.6%	7.5%	0.4%
Saudi Arabia	2107	2107	2109	2109	2109	2107	2107	2507	2899	2899	2899	—	3.2%	3.0%
United Arab Emirates	620	625	680	700	700	705	710	710	1143	1143	1143	—	6.3%	1.2%
Other Middle East	957	972	978	978	978	978	864	864	864	864	864	—	0.3%	0.9%
Total Middle East	7542	7559	7656	7994	8060	8096	8229	8402	9342	9314	9476	1.7%	2.4%	9.7%
Algeria	443	443	444	554	554	652	652	647	651	651	651	—	3.9%	0.7%
Egypt	810	810	810	810	810	810	810	810	810	810	810	—	—	0.8%
South Africa	520	520	520	520	520	520	520	520	520	520	520	—	—	0.5%
Other Africa	1262	1264	1339	1199	1301	1247	1453	1473	1476	1476	1476	—	0.6%	1.5%
Total Africa	3035	3037	3113	3083	3185	3229	3435	3449	3457	3457	3457	—	0.9%	3.5%
Australia	694	733	734	734	740	742	663	662	536	443	452	2.0%	-4.7%	0.5%
Bangladesh	36	36	36	39	39	39	40	43	43	43	43	—	1.8%	♦
China	8508	8737	9670	10616	11604	12296	12962	13594	14534	14306	14177	-0.9%	6.3%	14.6%
India	2872	2983	2992	3574	3703	3795	4279	4319	4319	4307	4620	7.3%	5.3%	4.7%
Indonesia	1157	1147	1135	1135	1141	1141	1141	1152	1155	1155	1155	—	0.9%	1.2%
Japan	4588	4650	4650	4630	4291	4274	4254	4123	3749	3721	3600	-3.2%	-2.0%	3.7%
Malaysia	528	534	568	572	582	601	606	612	612	612	612	—	1.6%	0.6%
New Zealand	102	103	103	136	136	136	136	136	136	136	136	—	2.9%	0.1%
Pakistan	271	271	274	273	277	277	275	390	390	392	392	—	3.9%	0.4%
Philippines	276	270	270	267	264	261	261	270	271	271	271	—	-0.3%	0.3%
Singapore	1422	1427	1427	1427	1427	1427	1422	1414	1514	1514	1514	—	0.6%	1.6%
South Korea	2633	2679	2712	2746	2774	2864	2878	2878	3110	3110	3234	4.0%	1.8%	3.3%
Taiwan	1140	1197	1197	1197	1197	1197	1197	1197	1197	988	988	—	-1.6%	1.0%
Thailand	1100	1100	1165	1236	1230	1230	1230	1237	1252	1252	1235	-1.4%	1.5%	1.3%
Vietnam	11	11	11	159	159	159	159	159	159	159	163	2.5%	30.6%	0.2%
Other Asia Pacific	212	212	214	219	219	220	220	226	233	233	233	—	1.0%	0.2%
Total Asia Pacific	25550	26090	27158	28958	29782	30659	31723	3241						

Major trade movements 2016

Trade flows worldwide (million tonnes)



Oil trade in 2015 and 2016

Million tonnes	2015				2016			
	Crude imports	Product imports	Crude exports	Product exports	Crude imports	Product imports	Crude exports	Product exports
US	366.7	99.8	25.3	191.9	393.3	104.5	24.4	203.1
Canada	32.3	29.4	159.3	30.7	29.2	31.6	164.4	29.4
Mexico	†	35.2	57.6	8.1	†	38.2	60.8	8.8
S. & Cent. America	27.0	88.9	173.4	30.4	24.6	90.5	177.4	29.6
Europe	499.9	187.6	11.8	131.7	499.4	200.8	17.6	132.2
Russia	2.9	2.0	261.9	152.9	0.8	1.7	274.0	151.0
Other CIS	23.1	12.8	88.5	11.8	18.3	12.2	81.7	8.7
Iraq	—	1.7	161.2	0.8	†	1.2	177.5	1.5
Kuwait	0.1	0.7	96.6	26.4	†	0.8	103.3	25.0
Saudi Arabia	†	7.3	359.2	38.4	†	7.3	375.3	48.4
United Arab Emirates	0.4	16.4	125.4	54.2	1.2	24.4	123.2	60.8
Other Middle East	26.2	19.3	157.5	42.4	23.9	21.4	203.2	48.6
North Africa	8.4	35.2	60.6	23.9	4.4	34.4	58.2	24.8
West Africa	0.8	31.3	236.7	7.3	0.7	32.9	216.5	7.3
East & S. Africa	20.0	31.3	8.8	2.7	21.2	25.1	6.9	2.3
Australasia	24.8	24.4	10.5	3.9	20.4	27.6	9.4	3.9
China	336.2	75.7	1.8	36.2	382.6	74.5	2.9	46.0
India	193.3	22.8	0.2	56.6	212.3	30.0	†	61.9
Japan	168.9	44.9	0.3	14.7	168.0	39.1	†	14.7
Singapore	45.9	125.8	0.1	87.7	48.1	121.4	0.1	93.7
Other Asia Pacific	259.1	164.2	39.1	104.0	269.5	185.8	41.0	103.5
Total World	2035.9	1056.7	2035.9	1056.7	2117.8	1105.2	2117.8	1105.2
Thousand barrels daily								
US	7365	2086	509	4012	7877	2179	489	4234
Canada	649	614	3200	641	586	659	3293	613
Mexico	†	735	1157	169	†	796	1217	184
S. & Cent. America	542	1858	3482	636	493	1887	3554	617
Europe	10039	3921	237	2753	10001	4187	353	2756
Russia	58	42	5259	3195	15	35	5487	3147
Other CIS	464	268	1777	247	366	254	1636	180
Iraq	—	35	3238	17	†	24	3554	30
Kuwait	2	15	1939	551	†	17	2069	521
Saudi Arabia	†	153	7214	803	†	152	7517	1009
United Arab Emirates	8	343	2518	1133	23	509	2468	1268
Other Middle East	526	404	3163	887	480	446	4069	1013
North Africa	168	737	1218	499	88	717	1165	518
West Africa	17	655	4753	153	14	686	4335	151
East & S. Africa	401	653	177	56	425	524	138	49
Australasia	497	509	211	81	408	575	189	81
China	6751	1582	36	757	7663	1553	58	959
India	3881	476	3	1184	4252	625	†	1291
Japan	3392	939	6	306	3364	815	†	307
Singapore	921	2630	2	1834	963	2531	2	1954
Other Asia Pacific	5204	3433	786	2174	5397	3872	822	2159
Total World	40885	22089	40885	22089	42413	23041	42413	23041

*Less than 0.05.

†Less than 0.5.

Notes: Bunkers are not included as exports. Intra-area movements (for example, between countries in Europe) are excluded. Crude imports and exports include condensates.

Total proved reserves

	At end 1996 Trillion cubic metres	At end 2006 Trillion cubic metres	At end 2015 Trillion cubic metres		At end 2016 Trillion cubic metres	Trillion cubic feet	Share of total	R/P ratio
US	4.7	6.0	8.7		8.7	307.7	4.7%	11.6
Canada	1.9	1.6	2.2		2.2	76.7	1.2%	14.3
Mexico	1.8	0.4	0.2		0.2	8.6	0.1%	5.2
Total North America	8.5	8.0	11.1		11.1	393.0	6.0%	11.7
Argentina	0.6	0.4	0.4		0.4	12.4	0.2%	9.2
Bolivia	0.1	0.7	0.3		0.3	9.9	0.2%	14.2
Brazil	0.2	0.3	0.4		0.4	13.1	0.2%	15.8
Colombia	0.2	0.1	0.1		0.1	4.4	0.1%	11.9
Peru	0.2	0.3	0.4		0.4	14.1	0.2%	28.5
Trinidad & Tobago	0.5	0.5	0.3		0.3	10.6	0.2%	8.7
Venezuela	4.1	4.7	5.7		5.7	201.3	3.1%	166.3
Other S. & Cent. America	0.1	0.1	0.1		0.1	2.2	♦	26.7
Total S. & Cent. America	6.0	7.2	7.7		7.6	268.0	4.1%	42.9
Azerbaijan	n/a	0.9	1.1		1.1	40.6	0.6%	65.8
Denmark	0.1	0.1	†		†	0.5	♦	2.9
Germany	0.2	0.1	†		†	1.2	♦	5.3
Italy	0.3	0.1	†		†	1.2	♦	6.6
Kazakhstan	n/a	1.3	1.0		1.0	34.0	0.5%	48.3
Netherlands	1.6	1.2	0.7		0.7	24.6	0.4%	17.4
Norway	1.5	2.3	1.9		1.8	62.3	0.9%	15.1
Poland	0.1	0.1	0.1		0.1	3.2	♦	23.0
Romania	0.4	0.6	0.1		0.1	3.9	0.1%	12.0
Russian Federation	30.9	31.2	32.3		32.3	1139.6	17.3%	55.7
Turkmenistan	n/a	2.3	17.5		17.5	617.3	9.4%	261.7
Ukraine	n/a	0.7	0.6		0.6	20.9	0.3%	33.2
United Kingdom	0.8	0.4	0.2		0.2	7.3	0.1%	5.0
Uzbekistan	n/a	1.2	1.1		1.1	38.3	0.6%	17.3
Other Europe & Eurasia	0.2	0.2	0.2		0.2	7.2	0.1%	23.2
Total Europe & Eurasia	39.8	42.8	56.8		56.7	2002.0	30.4%	56.3
Bahrain	0.1	0.1	0.2		0.2	5.8	0.1%	10.5
Iran	23.0	26.9	33.5		33.5	1183.0	18.0%	165.5
Iraq	3.4	3.2	3.7		3.7	130.5	2.0%	*
Israel	†	†	0.2		0.2	5.5	0.1%	16.8
Kuwait	1.5	1.8	1.8		1.8	63.0	1.0%	104.2
Oman	0.6	1.0	0.7		0.7	24.9	0.4%	19.9
Qatar	8.5	25.5	24.3		24.3	858.1	13.0%	134.1
Saudi Arabia	5.7	7.1	8.4		8.4	297.6	4.5%	77.0
Syria	0.2	0.3	0.3		0.3	10.1	0.2%	79.1
United Arab Emirates	5.8	6.4	6.1		6.1	215.1	3.3%	98.5
Yemen	0.3	0.3	0.3		0.3	9.4	0.1%	365.8
Other Middle East	†	†	†		†	0.2	♦	52.6
Total Middle East	49.2	72.6	79.4		79.4	2803.2	42.5%	124.5
Algeria	3.7	4.5	4.5		4.5	159.1	2.4%	49.3
Egypt	0.8	2.0	1.8		1.8	65.2	1.0%	44.1
Libya	1.3	1.4	1.5		1.5	53.1	0.8%	149.2
Nigeria	3.5	5.2	5.3		5.3	186.6	2.8%	117.7
Other Africa	0.8	1.2	1.1		1.1	39.3	0.6%	54.9
Total Africa	10.2	14.4	14.2		14.3	503.3	7.6%	68.4
Australia	1.3	2.3	3.5		3.5	122.6	1.9%	38.1
Bangladesh	0.3	0.4	0.2		0.2	7.3	0.1%	7.5
Brunei	0.4	0.3	0.3		0.3	9.7	0.1%	24.6
China	1.2	1.7	4.8		5.4	189.5	2.9%	38.8
India	0.6	1.1	1.3		1.2	43.3	0.7%	44.4
Indonesia	2.0	2.6	2.8		2.9	101.2	1.5%	41.1
Malaysia	2.4	2.5	1.2		1.2	41.3	0.6%	15.8
Myanmar	0.3	0.5	0.5		1.2	42.0	0.6%	63.0
Pakistan	0.6	0.8	0.5		0.5	16.0	0.2%	10.9
Papua New Guinea	†	†	0.1		0.2	7.4	0.1%	20.1
Thailand	0.2	0.3	0.2		0.2	7.3	0.1%	5.4
Vietnam	0.2	0.2	0.6		0.6	21.8	0.3%	57.6
Other Asia Pacific	0.4	0.4	0.3		0.3	9.8	0.1%	13.7
Total Asia Pacific	9.9	13.2	16.2		17.5	619.3	9.4%	30.2
Total World	123.5	158.2	185.4		186.6	6588.8	100.0%	52.5
of which: OECD	14.7	14.9	17.9		17.8	629.1	9.5%	13.9
Non-OECD	108.9	143.3	167.5		168.8	5959.7	90.5%	74.3
European Union	3.6	2.8	1.3		1.3	45.3	0.7%	10.8
CIS	30.9	37.6	53.6		53.6	1891.8	28.7%	70.1

*More than 500 years.

†Less than 0.05.

♦Less than 0.05%.

n/a not available.

Notes: Total 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. The data series for total proved natural gas reserves does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at a company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country.

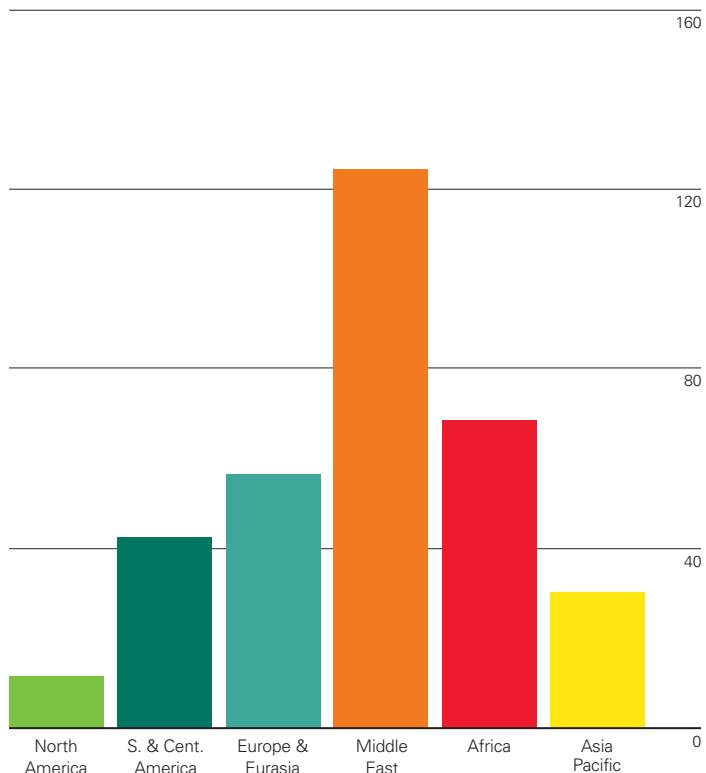
Reserves-to-production (R/P) ratio – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.

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

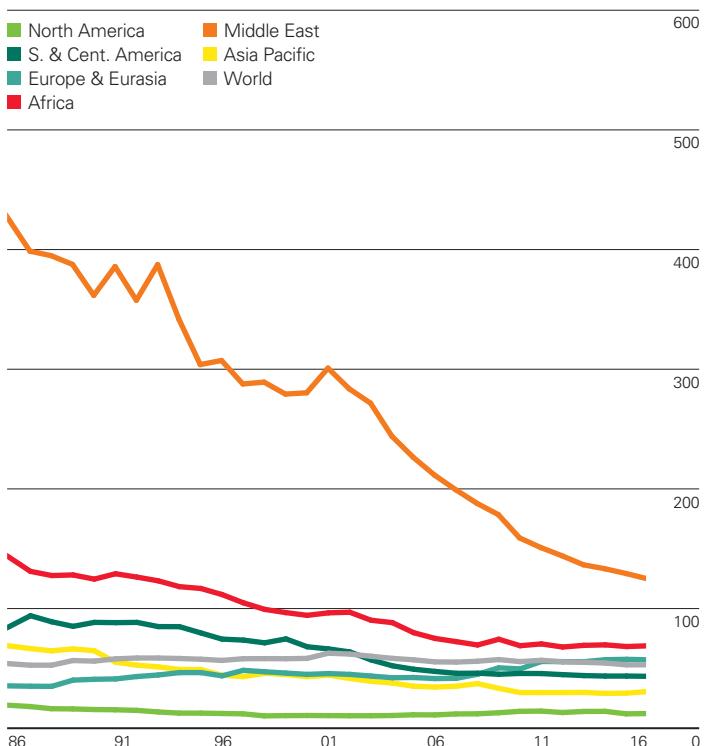
Reserves-to-production (R/P) ratios

Years

2016 by region



History



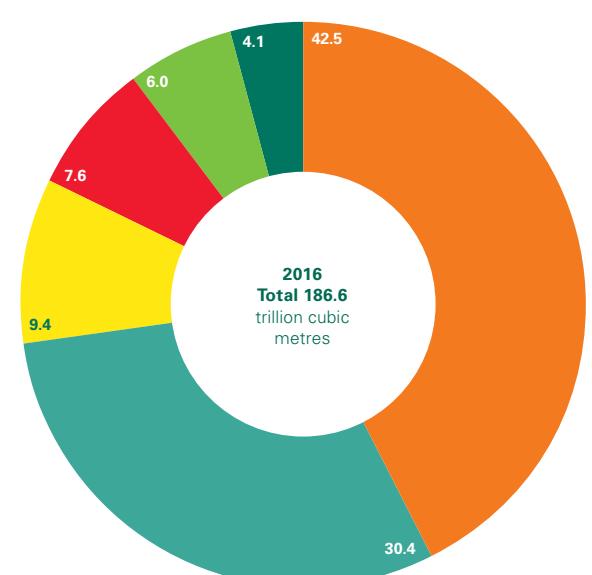
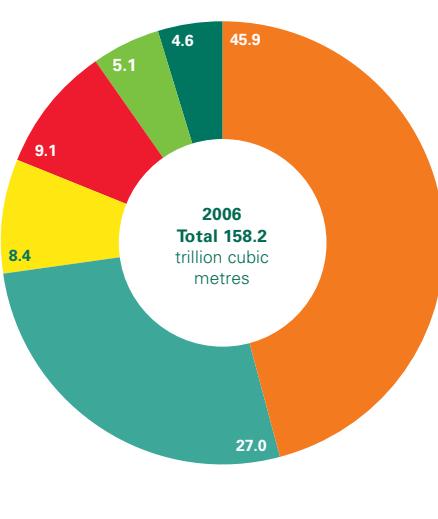
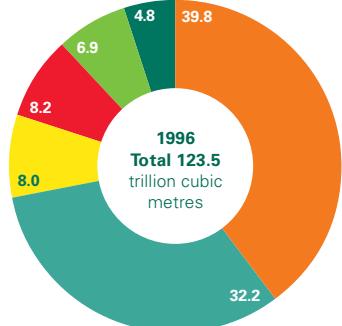
Global proved gas reserves in 2016 rose slightly by 1.2 trillion cubic metres (tcm) or 0.6% to 186.6 tcm. As with oil, this is sufficient to meet more than 50 years of current production (52.5 years). Myanmar (+0.7 tcm) and China (+0.6 tcm) were the main contributors to growth. By region, the Middle East holds the largest proved reserves (79.4 tcm, 42.5% of the global total), while by country, Iran is the largest reserve holder (33.5 tcm, 18% of total).

N.B. Lags in reporting official data mean that 2016 figures for many countries are not yet available.

Distribution of proved reserves in 1996, 2006 and 2016

Percentage

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



Natural gas: Production in billion cubic metres*

Billion cubic metres	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	524.0	545.6	570.8	584.0	603.6	648.5	680.5	685.4	733.1	766.2	749.2	-2.5%	4.1%	21.1%
Canada	171.7	165.5	159.3	147.6	144.5	144.4	141.1	141.4	147.2	149.1	152.0	1.7%	-1.3%	4.3%
Mexico	57.3	53.6	53.4	59.3	57.6	58.3	57.2	58.2	57.1	54.1	47.2	-13.0%	0.3%	1.3%
Total North America	753.0	764.6	783.5	790.9	805.7	851.2	878.9	885.0	937.3	969.4	948.4	-2.4%	2.8%	26.7%
Argentina	46.1	44.8	44.1	41.4	40.1	38.8	37.7	35.5	35.5	36.5	38.3	4.6%	-2.2%	1.1%
Bolivia	12.9	13.8	14.3	12.3	14.2	15.6	17.8	20.3	21.0	20.3	19.7	-3.0%	5.3%	0.6%
Brazil	11.2	11.2	14.0	11.9	14.6	16.7	19.3	21.3	22.7	23.1	23.5	1.2%	7.8%	0.7%
Colombia	7.0	7.5	9.1	10.5	11.3	11.0	12.0	12.6	11.8	11.1	10.4	-6.6%	5.2%	0.3%
Peru	1.8	2.7	3.5	3.5	7.2	11.4	11.9	12.2	12.9	12.5	14.0	11.7%	23.5%	0.4%
Trinidad & Tobago	40.1	42.2	42.0	43.6	44.8	43.1	42.7	42.8	42.1	39.6	34.5	-13.2%	1.8%	1.0%
Venezuela	31.5	36.2	32.8	31.0	30.6	27.6	29.5	28.4	28.6	32.4	34.3	5.5%	1.7%	1.0%
Other S. & Cent. America	3.6	3.6	3.5	3.4	3.4	2.8	2.7	2.4	2.3	2.5	2.4	-4.6%	-2.7%	0.1%
Total S. & Cent. America	154.1	162.1	163.0	157.8	166.2	166.9	173.4	175.6	176.9	178.0	177.0	-0.8%	2.4%	5.0%
Azerbaijan	6.1	9.8	14.8	14.8	15.1	14.8	15.6	16.2	17.6	17.9	17.5	-3.0%	13.2%	0.5%
Denmark	10.4	9.2	10.0	8.4	8.2	6.6	5.7	4.8	4.6	4.6	4.5	-2.2%	-7.9%	0.1%
Germany	15.6	14.3	13.0	12.2	10.6	10.0	9.0	8.2	7.7	7.2	6.6	-8.2%	-7.6%	0.2%
Italy	10.1	8.8	8.4	7.3	7.6	7.7	7.8	7.0	6.5	6.2	5.3	-14.8%	-5.7%	0.1%
Kazakhstan	13.4	13.8	16.1	16.5	17.6	17.3	17.2	18.4	18.7	19.0	19.9	4.5%	4.0%	0.6%
Netherlands	61.5	60.5	66.5	62.7	70.5	64.1	63.8	68.6	57.9	43.3	40.2	-7.6%	-3.6%	1.1%
Norway	88.7	90.3	100.1	104.4	107.3	101.3	114.7	108.7	108.8	117.2	116.6	-0.7%	3.2%	3.3%
Poland	4.3	4.3	4.1	4.1	4.3	4.3	4.2	4.1	4.1	4.1	3.9	-3.8%	-0.5%	0.1%
Romania	10.6	10.3	10.0	9.9	9.6	9.6	10.0	9.6	9.7	9.8	9.2	-6.5%	-1.0%	0.3%
Russian Federation	595.2	592.0	601.7	527.7	588.9	607.0	592.3	604.7	581.7	575.1	579.4	0.5%	-0.1%	16.3%
Turkmenistan	60.4	65.4	66.1	36.4	42.4	59.5	62.3	62.3	67.1	69.6	66.8	-4.3%	2.0%	1.9%
Ukraine	18.7	18.7	19.0	19.3	18.5	18.7	18.6	19.3	18.2	17.9	17.8	-1.1%	-0.3%	0.5%
United Kingdom	80.0	72.1	69.6	59.7	57.1	45.2	38.9	36.5	36.8	39.6	41.0	3.3%	-7.7%	1.2%
Uzbekistan	56.6	58.2	57.8	55.6	54.4	57.0	56.9	56.9	57.3	57.7	62.8	8.4%	0.7%	1.8%
Other Europe & Eurasia	10.7	10.0	9.4	9.2	9.3	9.2	8.3	7.2	6.4	6.2	8.7	40.3%	-4.8%	0.2%
Total Europe & Eurasia	1042.2	1037.8	1066.7	947.9	1021.1	1032.5	1025.5	1032.7	1003.2	995.4	1000.1	0.2%	-0.3%	28.2%
Bahrain	11.3	11.8	12.7	12.8	13.1	13.3	13.7	14.7	15.5	15.5	15.5	-0.8%	3.8%	0.4%
Iran	111.5	124.9	130.8	143.7	152.4	159.9	166.2	166.8	185.8	189.4	202.4	6.6%	6.4%	5.7%
Iraq	1.5	1.5	1.9	1.1	1.3	0.9	0.6	1.2	0.9	1.0	1.1	12.6%	-3.6%	♦
Kuwait	12.4	11.3	12.7	11.5	11.7	13.5	15.5	16.3	15.0	16.9	17.1	1.0%	3.2%	0.5%
Oman	25.8	26.1	26.0	27.0	29.3	30.9	32.2	34.8	33.3	34.7	35.4	1.7%	4.6%	1.0%
Qatar	50.7	63.2	77.0	89.3	131.2	145.3	157.0	177.6	174.1	178.5	181.2	1.3%	14.6%	5.1%
Saudi Arabia	73.5	74.4	80.4	78.5	87.7	92.3	99.3	100.0	102.4	104.5	109.4	4.4%	3.9%	3.1%
Syria	5.6	5.4	5.3	5.9	8.1	7.1	5.8	4.8	4.4	4.1	3.6	-11.6%	-3.0%	0.1%
United Arab Emirates	48.8	50.3	50.2	48.8	51.3	52.3	54.3	54.6	54.2	60.2	61.9	2.5%	2.3%	1.7%
Yemen	—	—	—	0.7	6.0	9.0	7.3	9.9	9.3	2.7	0.7	-73.4%	—	♦
Other Middle East	2.6	3.0	3.6	2.9	3.4	4.4	2.7	6.5	7.7	8.4	9.4	11.9%	16.0%	0.3%
Total Middle East	343.6	371.9	400.7	422.9	495.4	528.8	554.7	587.2	602.6	615.9	637.8	3.3%	6.7%	18.0%
Algeria	84.5	84.8	85.8	79.6	80.4	82.7	81.5	82.4	83.3	84.6	91.3	7.6%	-0.4%	2.6%
Egypt	54.7	55.7	59.0	62.7	61.3	61.4	60.9	56.1	48.8	44.3	41.8	-5.7%	0.4%	1.2%
Libya	13.2	15.3	15.9	15.9	16.8	7.9	11.1	11.6	11.3	11.8	10.1	-14.7%	0.4%	0.3%
Nigeria	29.6	36.9	36.2	26.0	37.3	40.6	43.3	36.2	45.0	50.1	44.9	-10.6%	7.2%	1.3%
Other Africa	10.6	10.7	15.1	15.5	17.4	16.8	17.6	20.0	18.6	19.3	20.2	4.5%	6.9%	0.6%
Total Africa	192.6	203.4	212.0	199.7	213.2	209.4	214.4	206.3	207.1	210.0	208.3	-1.1%	1.7%	5.9%
Australia	39.2	41.2	40.4	45.9	50.4	53.2	56.9	59.0	63.6	72.6	91.2	25.2%	7.0%	2.6%
Bangladesh	14.9	15.9	17.0	19.5	20.0	20.3	22.2	22.8	23.9	26.9	27.5	2.2%	6.9%	0.8%
Brunei	12.6	12.3	12.2	11.4	12.3	12.8	12.6	12.2	11.9	11.6	11.2	-3.8%	-0.3%	0.3%
China	60.6	71.6	83.1	88.2	99.1	109.0	111.8	122.2	131.6	136.1	138.4	1.4%	10.3%	3.9%
India	29.3	30.1	30.5	37.6	49.3	44.5	38.9	32.1	30.5	29.3	27.6	-6.0%	-0.1%	0.8%
Indonesia	74.3	71.5	73.7	76.9	85.7	81.5	77.1	76.5	75.3	75.0	69.7	-7.4%	♦	2.0%
Malaysia	62.7	61.5	63.8	61.1	56.2	62.2	61.5	67.3	68.4	71.2	73.8	3.4%	1.1%	2.1%
Myanmar	12.6	13.5	12.4	11.6	12.4	12.8	12.7	13.1	16.8	19.6	18.9	-3.9%	4.8%	0.5%
Pakistan	39.9	40.5	41.4	41.6	42.3	42.3	43.8	42.6	41.9	42.0	41.5	-1.3%	0.7%	1.2%
Thailand	24.0	25.7	28.5	30.6	35.8	36.6	41.0	41.3	41.6	39.3	38.6	-2.2%	5.3%	1.1%
Vietnam	7.0	7.1	7.5	8.0	9.4	8.5	9.4	9.8	10.2	10.7	10.7	0.2%	5.2%	0.3%
Other Asia Pacific	14.2	16.8	17.8	18.1	17.6	17.8	17.5	18.1	23.1	27.6	30.8	11.3%	9.6%	0.9%
Total Asia Pacific	391.3	407.8	428.3	450.3	490.6	501.4	505.4	517.0	538.8	561.9	579.9	2.9%	4.1%	16.3%
Total World	2876.7	2947.5	3054.2	2968.8	3192.2	3290.2	3352.3	3403.9	3465.9	3530.6	3551.6	0.3%	2.4%	100.0%
of which: OECD	1081.3	1084.3	1115.1	1114.1	1140.9	1162.8	1197.2	1202.0	1247.6	1284.5	1281.6	-0.5%	1.9%	36.1%
Non-OECD	1795.5	1863.2	1939.1	1854.8	2051.3	2127.4	2155.1	2201.9	2218.3	2246.1	2270.0	0.8%	2.8%	63.9%
European Union	201.9	188.1	189.8	172.2	175.8	155.3	146.6	144.8	132.5	119.8	118.2	-1.6%	-5.5%	3.3%
CIS	750.6	758.2	775.6	670.4	737.1	774.7	763.0	778.1	760.9	757.6	764.3	0.6%	0.4%	21.5%

*Excludes gas flared or recycled. Includes natural gas produced for Gas-to-Liquids transformation.

♦Less than 0.05%.

Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from tonnes of oil equivalent using an average conversion factor, they do not necessarily equate with gas volumes expressed in specific national terms.

Annual changes and shares of total are calculated using billion cubic metres figures.

Growth rates are adjusted for leap years.

Natural gas production data expressed in billion cubic feet per day is available at bp.com/statisticalreview

Source: Includes data from Cedigaz.

Natural gas: Production in million tonnes oil equivalent*

Million tonnes oil equivalent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	479.3	498.6	521.7	532.7	549.5	589.8	620.2	626.4	673.3	707.1	690.8	-2.6%	4.2%	21.5%
Canada	154.5	148.9	143.4	132.8	130.1	130.0	127.0	127.3	132.4	134.2	136.8	1.7%	-1.3%	4.3%
Mexico	51.6	48.2	48.0	53.3	51.8	52.4	51.5	52.4	51.4	48.7	42.5	-13.0%	0.3%	1.3%
Total North America	685.4	695.7	713.2	718.9	731.4	772.2	798.7	806.1	857.1	890.0	870.1	-2.5%	2.9%	27.1%
Argentina	41.5	40.3	39.7	37.3	36.1	34.9	34.0	32.0	31.9	32.8	34.4	4.6%	-2.2%	1.1%
Bolivia	11.6	12.4	12.9	11.1	12.8	14.0	16.0	18.3	18.9	18.2	17.8	-3.0%	5.3%	0.6%
Brazil	10.0	10.1	12.6	10.7	13.1	15.1	17.3	19.2	20.4	20.8	21.1	1.2%	7.8%	0.7%
Colombia	6.3	6.8	8.2	9.5	10.1	9.9	10.8	11.4	10.6	10.0	9.4	-6.6%	5.2%	0.3%
Peru	1.6	2.4	3.1	3.2	6.5	10.2	10.7	11.0	11.6	11.2	12.6	11.7%	23.5%	0.4%
Trinidad & Tobago	36.1	38.0	37.8	39.3	40.3	38.8	38.4	38.6	37.9	35.7	31.0	-13.2%	1.8%	1.0%
Venezuela	28.3	32.6	29.5	27.9	27.6	24.8	26.5	25.6	25.8	29.2	30.9	5.5%	1.7%	1.0%
Other S. & Cent. America	3.2	3.3	3.1	3.1	3.1	2.5	2.4	2.2	2.1	2.2	2.1	-4.6%	-2.7%	0.1%
Total S. & Cent. America	138.7	145.9	146.7	142.0	149.6	150.2	156.1	158.1	159.2	160.2	159.3	-0.8%	2.4%	5.0%
Azerbaijan	5.5	8.8	13.3	13.3	13.6	13.3	14.0	14.6	15.8	16.2	15.7	-3.0%	13.2%	0.5%
Denmark	9.3	8.3	9.0	7.5	7.3	5.9	5.2	4.3	4.1	4.1	4.0	-2.2%	-7.9%	0.1%
Germany	14.1	12.9	11.7	11.0	9.6	9.0	8.1	7.4	7.0	6.5	6.0	-8.2%	-7.6%	0.2%
Italy	9.1	7.9	7.6	6.6	6.9	6.9	7.0	6.3	5.9	5.5	4.7	-14.8%	-5.7%	0.1%
Kazakhstan	12.0	12.4	14.4	14.9	15.8	15.6	15.5	16.6	16.9	17.1	17.9	4.5%	4.0%	0.6%
Netherlands	55.4	54.4	59.9	56.4	63.4	57.7	57.4	61.8	52.1	39.0	36.1	-7.6%	-3.6%	1.1%
Norway	79.8	81.3	90.1	93.9	96.5	91.1	103.3	97.9	97.9	105.4	105.0	-0.7%	3.2%	3.3%
Poland	3.9	3.9	3.7	3.7	3.7	3.8	3.9	3.8	3.7	3.7	3.6	-3.8%	-0.5%	0.1%
Romania	9.6	9.2	9.0	8.9	8.6	8.7	9.0	8.6	8.8	8.8	8.2	-6.5%	-1.0%	0.3%
Russian Federation	535.6	532.8	541.5	474.9	530.0	546.3	533.0	544.2	523.6	517.6	521.5	0.5%	-0.1%	16.2%
Turkmenistan	54.3	58.9	59.5	32.7	38.1	53.6	56.1	56.1	60.4	62.6	60.1	-4.3%	2.0%	1.9%
Ukraine	16.9	16.9	17.1	17.3	16.7	16.9	16.7	17.3	16.4	16.1	16.0	-1.1%	-0.3%	0.5%
United Kingdom	72.0	64.9	62.7	53.7	51.4	40.7	35.0	32.8	33.1	35.6	36.9	3.3%	-7.7%	1.1%
Uzbekistan	51.0	52.4	52.0	50.0	49.0	51.3	51.2	51.2	51.6	52.0	56.5	8.4%	0.7%	1.8%
Other Europe & Eurasia	9.7	9.0	8.5	8.2	8.4	8.3	7.5	6.5	5.7	5.6	7.9	40.3%	-4.8%	0.2%
Total Europe & Eurasia	938.0	934.0	960.0	853.1	919.0	929.2	923.0	929.4	902.9	895.9	900.1	0.2%	-0.3%	28.0%
Bahrain	10.2	10.6	11.4	11.5	11.8	12.0	12.4	13.2	13.9	14.0	13.9	-0.8%	3.8%	0.4%
Iran	100.3	112.5	117.7	129.3	137.1	143.9	149.5	150.1	167.3	170.4	182.2	6.6%	6.4%	5.7%
Iraq	1.3	1.3	1.7	1.0	1.2	0.8	0.6	1.1	0.8	0.9	1.0	12.6%	-3.6%	♦
Kuwait	11.2	10.1	11.4	10.3	10.6	12.2	14.0	14.7	13.5	15.2	15.4	1.0%	3.2%	0.5%
Oman	23.2	23.5	23.4	24.3	26.4	27.8	29.0	31.3	30.0	31.3	31.9	1.7%	4.6%	1.0%
Qatar	45.6	56.9	69.3	80.4	118.0	130.7	141.3	159.8	156.7	160.6	163.1	1.3%	14.6%	5.1%
Saudi Arabia	66.1	67.0	72.4	70.6	78.9	83.0	89.4	90.0	92.1	94.0	98.4	4.4%	3.9%	3.1%
Syria	5.1	4.9	4.8	5.3	7.2	6.4	5.2	4.3	4.0	3.7	3.2	-11.6%	-3.0%	0.1%
United Arab Emirates	43.9	45.3	45.2	44.0	46.2	47.1	48.9	49.1	48.8	54.2	55.7	2.5%	2.3%	1.7%
Yemen	—	—	—	0.7	5.4	8.1	6.5	8.9	8.4	2.5	0.7	-73.4%	—	♦
Other Middle East	2.3	2.7	3.3	2.6	3.1	4.0	2.4	5.9	6.9	7.6	8.5	11.9%	16.0%	0.3%
Total Middle East	309.2	334.7	360.6	380.0	445.8	475.9	499.2	528.5	542.4	554.3	574.0	3.3%	6.7%	17.9%
Algeria	76.0	76.3	77.2	71.6	72.4	74.4	73.4	74.2	75.0	76.1	82.2	7.6%	-0.4%	2.6%
Egypt	49.2	50.1	53.1	56.4	55.2	55.3	54.8	50.5	43.9	39.8	37.6	-5.7%	0.4%	1.2%
Libya	11.9	13.8	14.3	14.3	15.1	7.1	10.0	10.5	10.2	10.6	9.1	-14.7%	0.4%	0.3%
Nigeria	26.6	33.2	32.5	23.4	33.6	36.5	39.0	32.6	40.5	45.1	40.4	-10.6%	7.2%	1.3%
Other Africa	9.6	9.7	13.6	14.0	15.6	15.1	15.9	18.0	16.8	17.4	18.2	4.5%	6.9%	0.6%
Total Africa	173.3	183.1	190.8	179.7	191.9	188.4	192.9	185.7	186.3	189.0	187.5	-1.1%	1.7%	5.8%
Australia	35.3	37.1	36.4	41.3	45.4	47.9	51.2	53.1	57.3	65.4	82.0	25.2%	7.0%	2.6%
Bangladesh	13.4	14.3	15.3	17.5	18.0	18.3	20.0	20.5	21.5	24.2	24.8	2.2%	6.9%	0.8%
Brunei	11.3	11.0	10.9	10.3	11.1	11.5	11.3	11.0	10.7	10.5	10.1	-3.8%	-0.3%	0.3%
China	54.5	64.5	74.8	79.4	89.2	98.1	100.7	110.0	118.4	122.5	124.6	1.4%	10.3%	3.9%
India	26.4	27.1	27.5	33.8	44.3	40.1	35.0	29.9	27.5	26.4	24.9	-6.0%	-0.1%	0.8%
Indonesia	66.9	64.4	66.4	69.2	77.1	73.3	69.4	68.8	67.7	67.5	62.7	-7.4%	♦	2.0%
Malaysia	56.4	55.4	57.4	55.0	50.6	56.0	55.4	60.5	61.5	64.1	66.5	3.4%	1.1%	2.1%
Myanmar	11.3	12.2	11.2	10.4	11.2	11.5	11.5	11.8	15.2	17.6	17.0	-3.9%	4.8%	0.5%
Pakistan	35.9	36.4	37.3	37.4	38.1	38.1	39.4	38.4	37.7	37.8	37.4	-1.3%	0.7%	1.2%
Thailand	21.6	23.1	25.6	27.5	32.2	32.9	36.9	37.2	37.5	35.4	34.7	-2.2%	5.3%	1.1%
Vietnam	6.3	6.4	6.7	7.2	8.5	7.6	8.4	8.8	9.2	9.6	9.6	0.2%	5.2%	0.3%
Other Asia Pacific	12.8	15.1	16.0	16.3	15.9	16.0	15.8	16.3	20.8	24.8	27.7	11.3%	9.6%	0.9%
Total Asia Pacific	352.2	367.0	385.5	405.3	441.5	451.2	454.9	465.3	484.9	505.7	521.9	2.9%	4.1%	16.2%
Total World	2596.8	2660.3	2756.7	2679.1	2879.2	2967.3	3024.7	3073.1	3132.8	3195.0	3212.9	0.3%	2.5%	100.0%
of which: OECD	980.9	983.5	1011.5	1009.8	1033.1	1052.7	1085.1	1091.3	1136.3	1173.5	1169.9	-0.6%	1.9%	36.4%
Non-OECD	1615.9	1676.9	1745.2	1669.3	1846.2	1914.7	1939.6	1981.8	1996.5	2021.5	2043.0	0.8%	2.8%	63.6%
European Union	181.7	169.3	170.8	155.0	158.2	139.8	132.0	130.4	119.3	107.8	106.4	-1.6%	-5.5%	3.3%
CIS	675.5	682.4	698.0	603.4	663.4	697.2	686.7	700.3	684.8	681.8	687.9	0.6%	0.4%	21.4%

*Excludes gas flared or recycled. Includes natural gas produced for Gas-to-Liquids transformation.

♦Less than 0.05%.

Notes: Annual changes and shares of total are calculated using million tonnes oil equivalent figures.

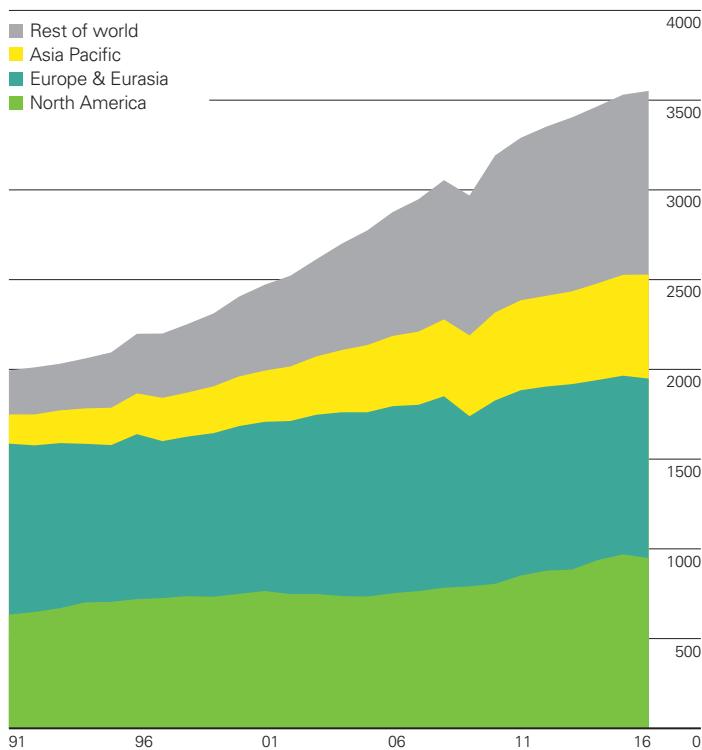
Growth rates are adjusted for leap years.

Source: Includes data from Cedigaz.

Natural gas: Production by region

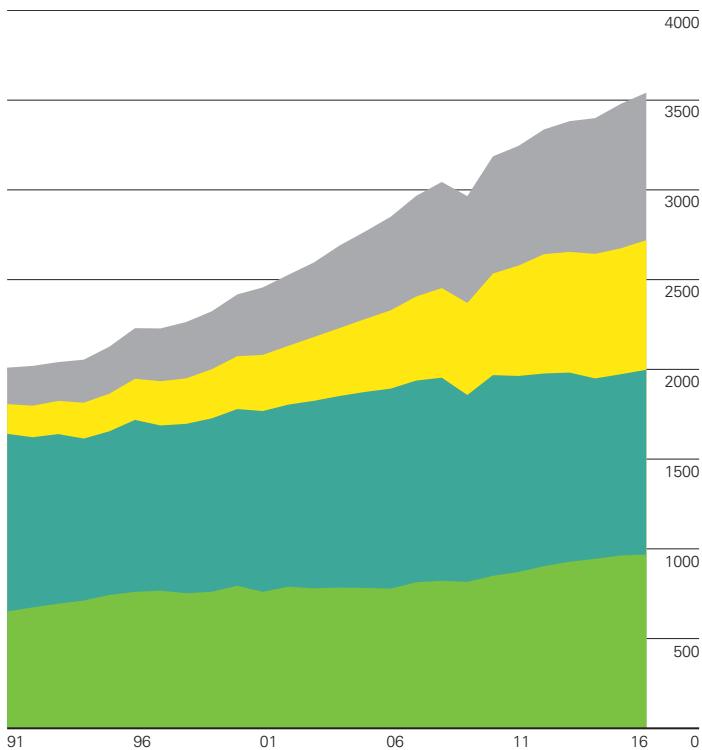
Billion cubic metres

- Rest of world
- Asia Pacific
- Europe & Eurasia
- North America



Natural gas: Consumption by region

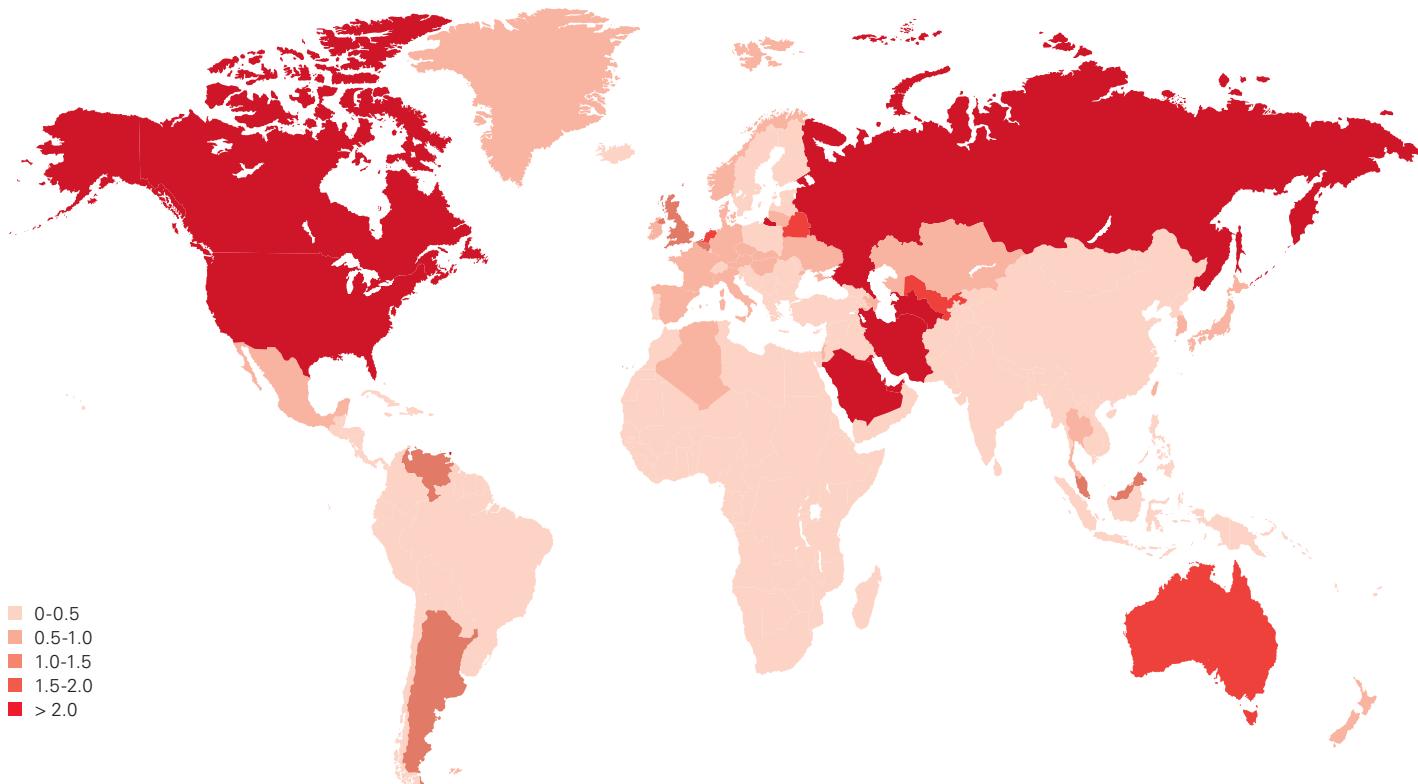
Billion cubic metres



Global natural gas production increased by only 0.3%, or 21 billion cubic metres (bcm) to 3552 bcm. Declining production in North America (-21 bcm) partially offset strong growth from Australia (19 bcm) and Iran (13 bcm). Gas consumption increased by 63 bcm or 1.5% – slower than the 10 year average (2.3%). EU gas consumption rose sharply by 30 bcm, or 7.1% – the fastest growth since 2010. Russia saw the largest drop in consumption of any country (-12 bcm).

Natural gas: Consumption per capita 2016

Tonnes oil equivalent



Prices

US dollars per million Btu	LNG Japan cif	Natural gas				Crude oil OECD countries cif
		Average German Import Price*	UK (Heren NBP Index)†	US Henry Hub‡	Canada (Alberta)‡	
1986	4.10	3.93	—	—	—	2.57
1987	3.35	2.55	—	—	—	3.09
1988	3.34	2.22	—	—	—	2.56
1989	3.28	2.00	—	1.70	—	3.01
1990	3.64	2.78	—	1.64	1.05	3.82
1991	3.99	3.23	—	1.49	0.89	3.33
1992	3.62	2.70	—	1.77	0.98	3.19
1993	3.52	2.51	—	2.12	1.69	2.82
1994	3.18	2.35	—	1.92	1.45	2.70
1995	3.46	2.43	—	1.69	0.89	2.96
1996	3.66	2.50	1.87	2.76	1.12	3.54
1997	3.91	2.66	1.96	2.53	1.36	3.29
1998	3.05	2.33	1.86	2.08	1.42	2.16
1999	3.14	1.86	1.58	2.27	2.00	2.98
2000	4.72	2.91	2.71	4.23	3.75	4.83
2001	4.64	3.67	3.17	4.07	3.61	4.08
2002	4.27	3.21	2.37	3.33	2.57	4.17
2003	4.77	4.06	3.33	5.63	4.83	4.89
2004	5.18	4.30	4.46	5.85	5.03	6.27
2005	6.05	5.83	7.38	8.79	7.25	8.74
2006	7.14	7.87	7.87	6.76	5.83	10.66
2007	7.73	7.99	6.01	6.95	6.17	11.95
2008	12.55	11.60	10.79	8.85	7.99	16.76
2009	9.06	8.53	4.85	3.89	3.38	10.41
2010	10.91	8.03	6.56	4.39	3.69	13.47
2011	14.73	10.49	9.04	4.01	3.47	18.56
2012	16.75	10.93	9.46	2.76	2.27	18.82
2013	16.17	10.73	10.64	3.71	2.93	18.25
2014	16.33	9.11	8.25	4.35	3.87	16.80
2015	10.31	6.72	6.53	2.60	2.01	8.77
2016	6.94	4.93	4.69	2.46	1.55	7.04

*Source: 1986-1990 German Federal Statistical Office, 1991-2016 German Federal Office of Economics and Export Control (BAFA).

†Source: ICIS Heren Energy Ltd.

‡Source: Energy Intelligence Group, *Natural Gas Week*.

Note: cif = cost+insurance+freight (average prices).

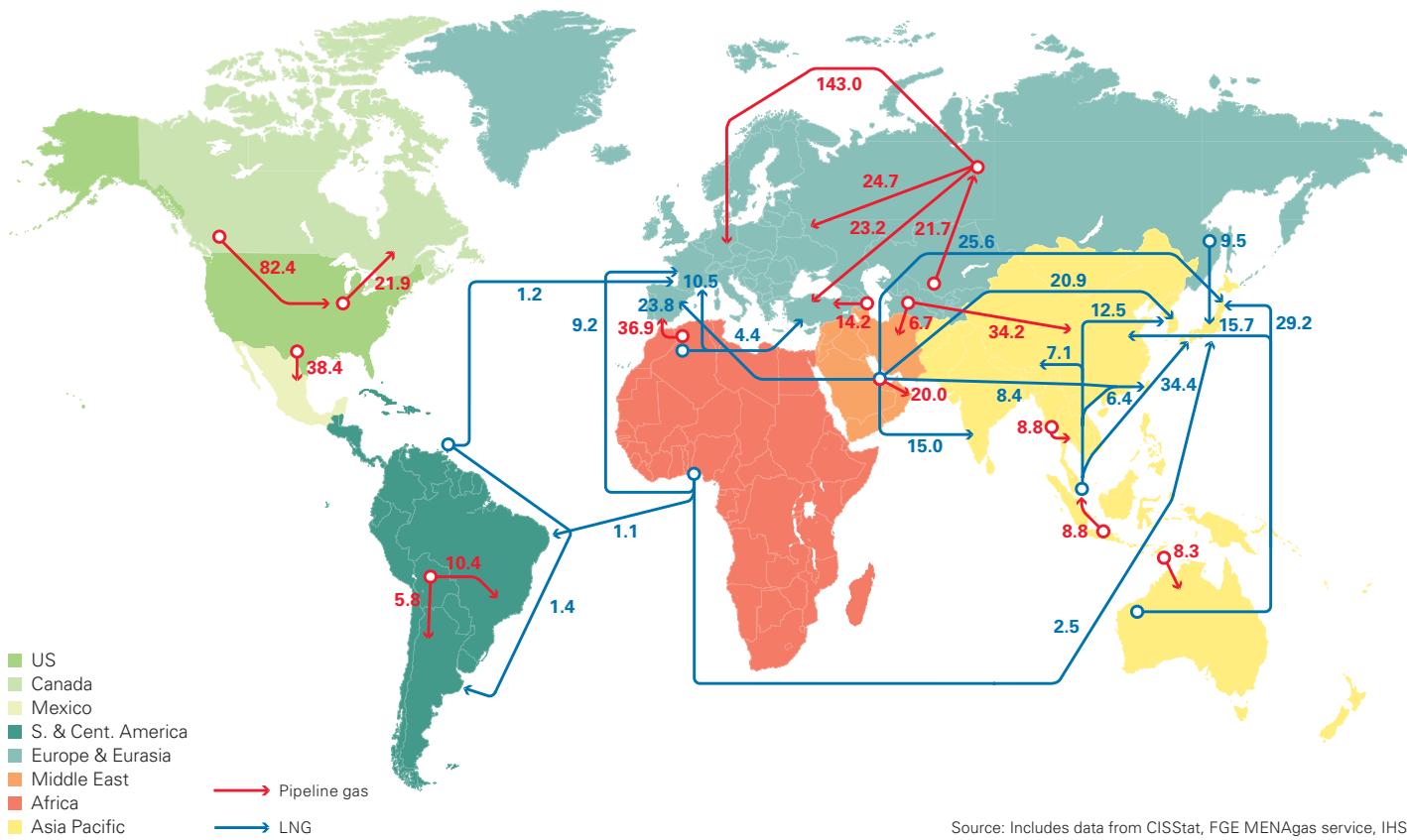
Prices

\$/mmBtu



Major trade movements 2016

Trade flows worldwide (billion cubic metres)



Gas trade in 2015 and 2016 in billion cubic metres

Billion cubic metres	2015				2016			
	Pipeline imports	LNG imports	Pipeline exports	LNG exports	Pipeline imports	LNG imports	Pipeline exports	LNG exports
US	74.4	2.6	49.1	0.7	82.5	2.5	60.3	4.4
Canada	19.2	0.6	74.3	†	21.9	0.3	82.4	†
Mexico	29.9	7.3	†	—	38.4	5.9	†	—
Trinidad and Tobago	—	—	—	16.9	—	—	—	14.3
Other S. & Cent. America	19.9	19.8	19.9	5.1	16.8	15.5	16.8	6.1
France	31.8	6.8	—	0.6	32.3	9.7	—	1.5
Germany	102.3	—	32.7	—	99.3	—	19.3	—
Italy	55.7	5.4	0.2	—	59.4	5.7	—	—
Netherlands	33.6	2.1	47.1	1.3	38.0	1.5	52.3	0.7
Norway	†	—	109.6	5.9	†	—	109.8	6.3
Spain	15.2	13.1	0.5	1.8	15.0	13.2	0.6	0.2
Turkey	38.4	7.7	0.6	—	37.4	7.7	0.6	—
United Kingdom	29.0	13.1	13.4	0.3	34.1	10.5	10.0	0.5
Other Europe	94.7	6.9	13.8	1.5	100.2	8.2	15.0	1.3
Russian Federation	21.8	—	179.1	14.0	21.7	—	190.8	14.0
Ukraine	17.3	—	—	—	11.1	—	—	—
Other CIS	27.0	—	72.3	—	27.9	—	74.0	—
Qatar	—	—	20.0	101.8	—	—	20.0	104.4
Other Middle East	29.6	10.2	8.4	18.8	26.9	14.2	8.4	18.1
Algeria	—	—	26.3	16.6	—	—	37.1	15.9
Other Africa	9.0	3.7	11.0	30.0	8.8	10.2	8.5	29.6
Australia	6.4	—	—	38.1	8.3	0.1	—	56.8
China	33.6	25.8	—	—	38.0	34.3	—	—
Japan	—	110.7	—	—	—	108.5	—	—
Indonesia	—	—	9.3	20.7	—	—	8.8	21.2
South Korea	—	43.8	—	0.2	—	43.9	—	0.1
Other Asia Pacific	20.3	46.0	21.4	51.4	19.3	54.8	22.7	51.1
Total World	709.0	325.5	709.0	325.5	737.5	346.6	737.5	346.6

†Less than 0.05.

Source: Includes data from CISStat, FGE MENAgas service, IHS.

Total proved reserves at end 2016

Million tonnes	Anthracite and bituminous	Sub- bituminous and lignite	Total	Share of total	R/P ratio
US	221400	30182	251582	22.1%	381
Canada	4346	2236	6582	0.6%	109
Mexico	1160	51	1211	0.1%	151
Total North America	226906	32469	259375	22.8%	356
Brazil	1547	5049	6596	0.6%	*
Colombia	4881	—	4881	0.4%	54
Venezuela	731	—	731	0.1%	*
Other S. & Cent. America	1784	24	1808	0.2%	*
Total S. & Cent. America	8943	5073	14016	1.2%	138
Bulgaria	192	2174	2366	0.2%	75
Czech Republic	1103	2573	3676	0.3%	80
Germany	12	36200	36212	3.2%	206
Greece	—	2876	2876	0.3%	87
Hungary	276	2633	2909	0.3%	311
Kazakhstan	25605	—	25605	2.2%	250
Poland	18700	5461	24161	2.1%	184
Romania	11	280	291	♦	13
Russian Federation	69634	90730	160364	14.1%	417
Serbia	402	7112	7514	0.7%	196
Spain	868	319	1187	0.1%	*
Turkey	378	10975	11353	1.0%	163
Ukraine	32039	2336	34375	3.0%	*
United Kingdom	70	—	70	♦	17
Uzbekistan	1375	—	1375	0.1%	355
Other Europe & Eurasia	2618	5172	7790	0.7%	201
Total Europe & Eurasia	153283	168841	322124	28.3%	284
South Africa	9893	—	9893	0.9%	39
Zimbabwe	502	—	502	♦	186
Other Africa	2756	66	2822	0.2%	276
Middle East	1203	—	1203	0.1%	*
Total Middle East & Africa	14354	66	14420	1.3%	54
Australia	68310	76508	144818	12.7%	294
China	230004	14006	244010	21.4%	72
India	89782	4987	94769	8.3%	137
Indonesia	17326	8247	25573	2.2%	59
Japan	340	10	350	♦	261
Mongolia	1170	1350	2520	0.2%	66
New Zealand	825	6750	7575	0.7%	*
Pakistan	207	2857	3064	0.3%	*
South Korea	326	—	326	♦	189
Thailand	—	1063	1063	0.1%	63
Vietnam	3116	244	3360	0.3%	85
Other Asia Pacific	1322	646	1968	0.2%	29
Total Asia Pacific	412728	116668	529396	46.5%	102
Total World	816214	323117	1139331	100.0%	153
of which: OECD	319878	177264	497142	43.6%	291
Non-OECD	496336	145853	642189	56.4%	112
European Union	21813	53006	74819	6.6%	162
CIS	130162	93066	223228	19.6%	417

*More than 500 years.

♦Less than 0.05%.

Notes: Total 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 reservoirs under existing economic and operating conditions. The data series for total proved coal reserves does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country. 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.

Reserves-to-production (R/P) ratios are calculated excluding other solid fuels in reserves and production.

Shares of total and R/P ratios are calculated using million tonnes figures.

Source: Includes data from Federal Institute for Geosciences and Natural Resources (BGR) Energy Study 2016.

US dollars per tonne	Northwest Europe marker price†	US Central Appalachian coal spot price index‡	Japan steam spot cif price†	China Qinhuangdao spot price†
1996	41.25	29.86	—	—
1997	38.92	29.76	—	—
1998	32.00	31.00	—	—
1999	28.79	31.29	—	—
2000	35.99	29.90	—	27.52
2001	39.03	50.15	37.69	31.78
2002	31.65	33.20	31.47	33.19
2003	43.60	38.52	39.61	31.74
2004	72.08	64.90	74.22	42.76
2005	60.54	70.12	64.62	51.34
2006	64.11	62.96	65.22	53.53
2007	88.79	51.16	95.59	61.23
2008	147.67	118.79	157.88	104.97
2009	70.66	68.08	83.59	87.86
2010	92.50	71.63	108.47	110.08
2011	121.52	87.38	126.13	127.27
2012	92.50	72.06	100.30	111.89
2013	81.69	71.39	90.07	95.42
2014	75.38	69.00	76.13	84.12
2015	56.79	53.59	60.10	67.53
2016	59.87	53.56	71.66	71.35

†Source: IHS. Northwest Europe prices for 1996-2000 based on monthly data, 2001-2016 on weekly data. China prices for 2000-2005 based on monthly data, 2006-2016 on weekly data. China basis 5,500 kilocalories per kg NAR CFR. Japan basis = 6,000 kilocalories per kg NAR CIF.

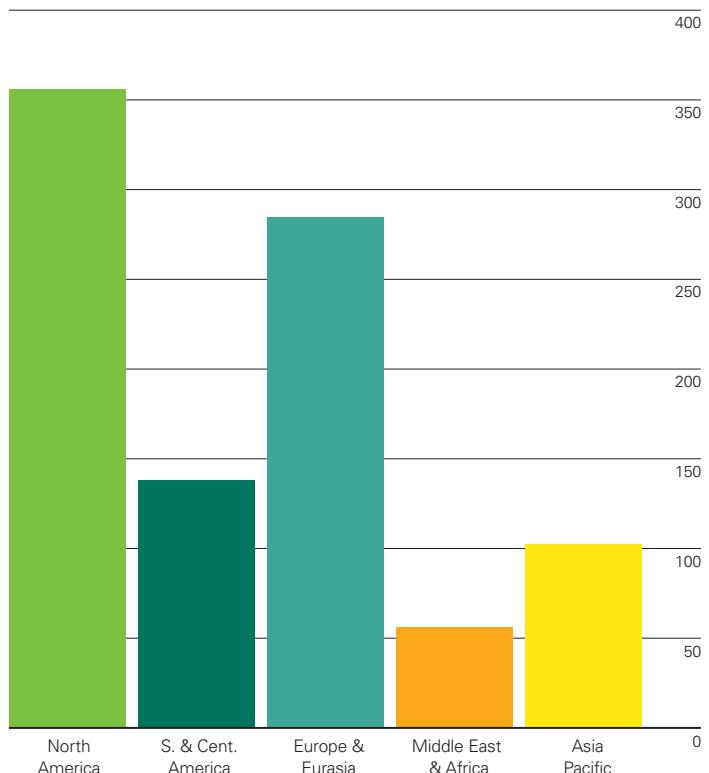
‡Source: Platts. Prices are for Central Appalachian 12,500 BTU, 1.2 SO2 coal, fob. Prices for 1996-2000 are by coal price publication date, 2001-2016 by coal price assessment date.

Note: cif = cost+insurance+freight (average prices); cfr = cost and freight; fob = free on board.

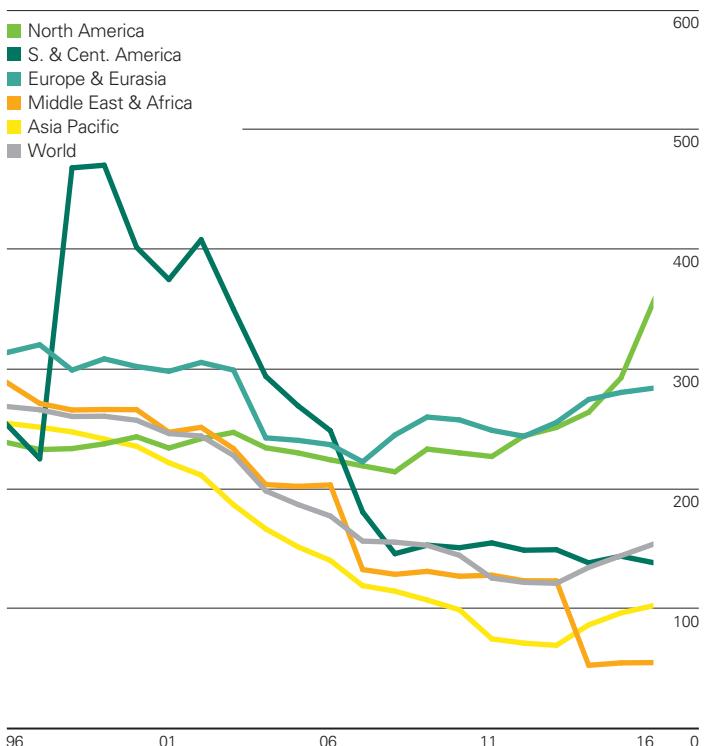
Reserves-to-production (R/P) ratios

Years

2016 by region



History

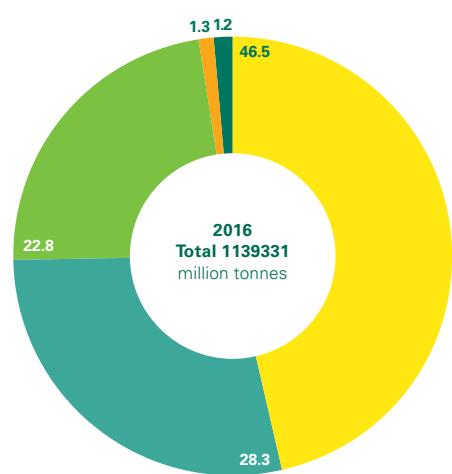
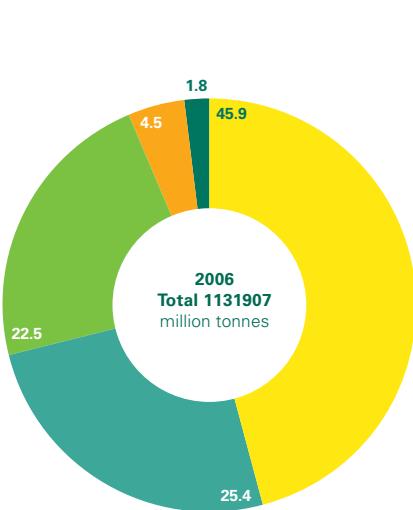
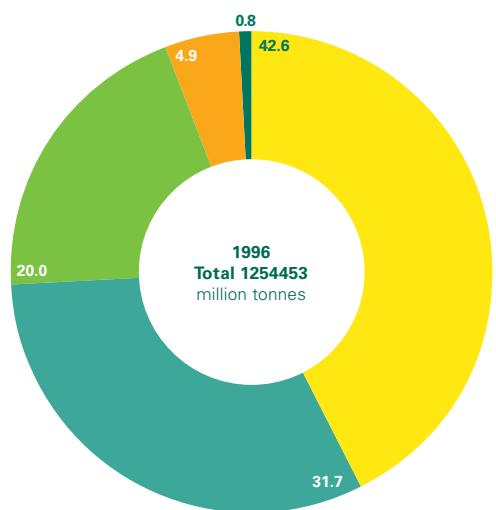


World proved coal reserves are currently sufficient to meet 153 years of global production, roughly three times the R/P ratio for oil and gas. By region, Asia Pacific holds the most proved reserves (46.5% of total), with China accounting for 21.4% of the global total. The US remains the largest reserve holder (22.1% of total).

Distribution of proved reserves in 1996, 2006 and 2016

Percentage

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



Coal: Production*

Million tonnes oil equivalent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	595.1	587.7	596.7	540.8	551.2	556.1	517.8	500.9	507.7	449.3	364.8	-19.0%	-2.5%	10.0%
Canada	34.8	35.7	35.6	33.1	35.4	35.5	35.6	36.4	35.6	31.9	31.4	-1.8%	-1.0%	0.9%
Mexico	6.8	7.3	6.9	6.1	7.3	9.4	7.4	7.2	7.3	6.9	4.5	-34.8%	1.2%	0.1%
Total North America	636.7	630.7	639.2	580.0	594.0	600.9	560.9	544.5	550.5	488.1	400.7	-18.1%	-2.4%	11.0%
Brazil	2.6	2.7	2.9	2.3	2.3	2.4	2.9	3.7	3.4	3.5	3.5	—	2.3%	0.1%
Colombia	45.7	48.2	50.7	50.2	51.3	59.2	61.5	59.0	61.1	59.0	62.5	5.5%	3.7%	1.7%
Venezuela	5.2	5.0	3.7	2.4	1.9	1.9	1.4	0.9	0.6	0.6	0.2	-66.4%	-19.7%	♦
Other S. & Cent. America	0.4	0.3	0.4	0.4	0.4	0.4	0.5	1.7	2.4	1.9	1.5	-18.3%	16.3%	♦
Total S. & Cent. America	53.9	56.2	57.7	55.3	55.9	63.9	66.3	65.3	67.5	64.9	67.6	3.9%	2.7%	1.8%
Bulgaria	4.3	4.7	4.8	4.6	4.9	6.2	5.6	4.8	5.1	5.8	5.1	-12.5%	3.4%	0.1%
Czech Republic	23.9	23.8	22.8	20.9	20.7	20.9	20.1	17.7	16.8	16.8	16.3	-3.4%	-3.3%	0.4%
Germany	53.3	54.4	50.1	46.4	45.9	46.7	47.8	45.1	44.1	42.9	39.9	-7.2%	-2.7%	1.1%
Greece	8.2	8.4	8.1	8.2	7.3	7.5	8.0	6.7	6.4	5.7	4.1	-28.7%	-4.0%	0.1%
Hungary	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	0.6%	-1.4%	♦
Kazakhstan	41.4	42.2	47.9	43.4	47.5	49.8	51.6	51.4	48.9	46.2	44.1	-4.9%	2.2%	1.2%
Poland	68.0	62.5	60.9	56.4	55.4	55.7	57.8	57.2	54.0	53.0	52.3	-1.5%	-2.7%	1.4%
Romania	6.5	6.9	7.0	6.6	5.9	6.7	6.3	4.7	4.4	4.7	4.3	-9.2%	-2.0%	0.1%
Russian Federation	141.0	143.5	149.0	141.7	151.0	157.6	168.3	173.1	176.6	186.4	192.8	3.1%	3.2%	5.3%
Serbia	n/a	7.2	7.5	7.4	7.2	7.8	7.3	7.7	5.7	7.2	7.4	1.4%	—	0.2%
Spain	6.2	5.9	4.4	3.8	3.3	2.6	2.5	1.8	1.6	1.2	0.7	-43.3%	-15.7%	♦
Turkey	13.2	14.8	16.7	17.4	17.5	17.9	17.0	15.5	16.4	12.8	15.2	18.7%	1.3%	0.4%
Ukraine	35.7	34.0	34.4	31.8	31.8	36.3	38.0	36.6	25.9	16.4	17.1	4.3%	-7.3%	0.5%
United Kingdom	11.4	10.7	11.3	11.0	11.4	11.5	10.6	8.0	7.3	5.4	2.6	-51.5%	-8.2%	0.1%
Uzbekistan	0.8	1.0	0.9	1.0	1.0	1.1	1.2	1.1	1.2	1.1	1.1	-1.8%	2.3%	♦
Other Europe & Eurasia	24.8	16.3	16.5	16.6	16.9	17.1	15.6	18.0	17.0	15.3	14.9	-3.1%	-4.0%	0.4%
Total Europe & Eurasia	440.4	438.0	443.9	418.8	429.3	446.9	459.4	450.9	433.2	422.5	419.4	-1.0%	-0.2%	11.5%
Total Middle East	1.0	1.1	1.0	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	—	-3.3%	♦
South Africa	138.3	138.4	141.0	139.7	144.1	143.2	146.6	145.3	148.2	142.9	142.4	-0.6%	0.3%	3.9%
Zimbabwe	1.4	1.3	1.0	1.1	1.7	1.7	1.0	2.0	3.7	2.8	1.7	-37.9%	2.6%	♦
Other Africa	0.9	0.8	0.8	0.7	0.9	1.1	4.4	5.1	5.5	6.0	6.3	5.5%	20.6%	0.2%
Total Africa	140.5	140.5	142.7	141.5	146.8	146.0	152.0	152.3	157.5	151.7	150.5	-1.0%	0.7%	4.1%
Australia	220.4	227.0	234.2	242.5	250.6	245.1	265.9	285.8	305.7	305.8	299.3	-2.4%	3.6%	8.2%
China	1328.4	1439.3	1491.8	1537.9	1665.3	1851.7	1873.5	1894.6	1864.2	1825.6	1685.7	-7.9%	3.9%	46.1%
India	198.2	210.3	227.5	246.0	252.4	250.8	255.0	255.7	269.5	280.9	288.5	2.4%	4.0%	7.9%
Indonesia	114.2	127.8	141.6	151.0	162.1	208.2	227.4	279.7	269.9	272.0	255.7	-6.2%	11.7%	7.0%
Japan	0.7	0.8	0.7	0.7	0.5	0.7	0.7	0.7	0.7	0.6	0.7	14.2%	0.5%	♦
Mongolia	4.1	4.8	5.2	8.2	15.2	19.9	18.1	18.0	14.8	14.5	22.8	57.0%	14.8%	0.6%
New Zealand	3.6	3.0	3.0	2.8	3.3	3.1	3.0	2.8	2.5	2.0	1.7	-15.4%	-4.8%	♦
Pakistan	1.8	1.7	1.8	1.6	1.5	1.4	1.4	1.3	1.5	1.5	1.8	19.5%	-0.5%	♦
South Korea	1.3	1.3	1.3	1.2	1.0	1.0	1.0	0.8	0.8	0.8	0.8	-2.4%	-4.4%	♦
Thailand	5.4	5.0	5.0	4.8	5.0	6.0	4.8	4.9	4.8	3.9	4.3	10.6%	-4.5%	0.1%
Vietnam	21.7	23.8	22.3	24.7	25.1	26.1	23.6	23.0	23.0	23.2	22.0	-5.4%	2.0%	0.6%
Other Asia Pacific	22.4	20.6	22.0	23.5	24.7	24.9	25.3	25.1	25.7	28.6	33.9	18.3%	2.6%	0.9%
Total Asia Pacific	1922.2	2065.5	2156.2	2244.8	2406.7	2638.8	2699.7	2792.5	2783.1	2759.4	2617.4	-5.4%	4.4%	71.6%
Total World	3194.7	3331.9	3440.8	3441.1	3633.3	3897.3	3938.9	4006.1	3992.4	3887.3	3656.4	-6.2%	2.5%	100.0%
of which: OECD	1060.1	1055.8	1064.6	1003.4	1023.4	1025.5	1005.7	1000.7	1020.9	946.6	844.8	-11.0%	-1.0%	23.1%
Non-OECD	2134.6	2276.0	2376.3	2437.7	2609.9	2871.8	2933.1	3005.5	2971.4	2940.7	2811.6	-4.7%	3.9%	76.9%
European Union	193.2	187.0	178.9	167.9	165.7	168.5	168.1	157.3	150.6	144.6	133.6	-7.9%	-3.1%	3.7%
CIS	219.5	221.5	233.0	218.8	232.0	245.7	260.3	263.5	254.0	251.5	256.8	1.8%	1.9%	7.0%

*Commercial solid fuels only, i.e. bituminous coal and anthracite (hard coal), lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Includes coal produced for Coal-to-Liquids and Coal-to-Gas transformations.

♦Less than 0.05%.

n/a not available.

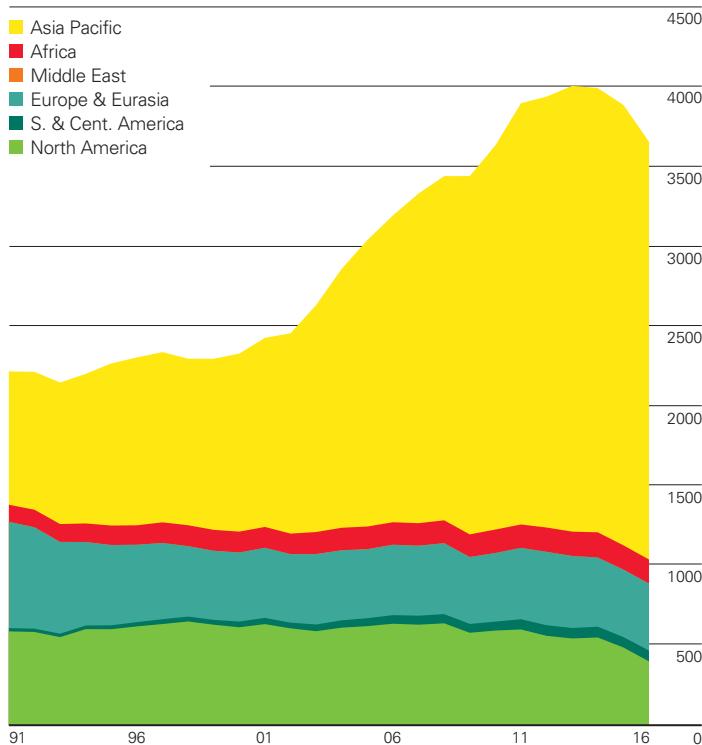
Notes: Annual changes and shares of total are calculated using million tonnes oil equivalent figures.

Growth rates are adjusted for leap years.

Coal production data expressed in million tonnes is available at bp.com/statisticalreview

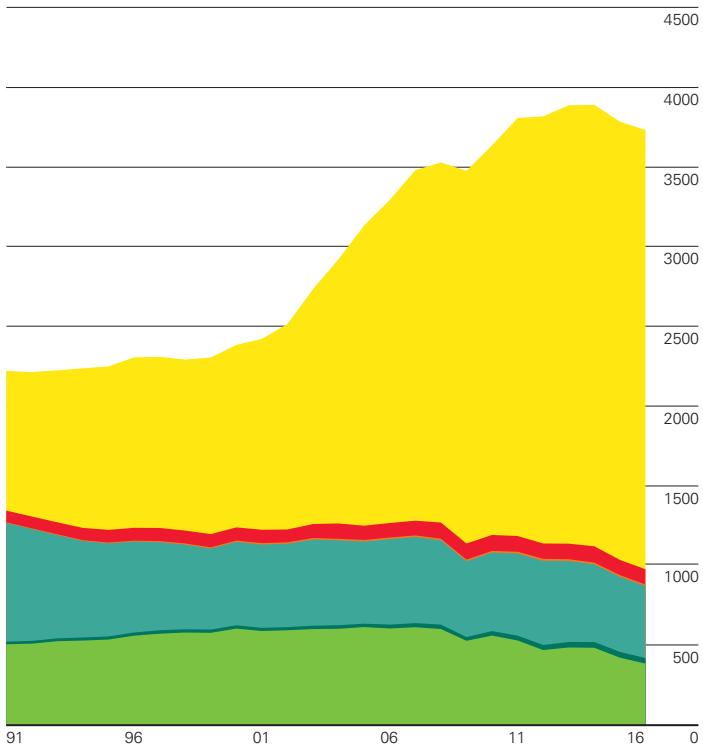
Coal: Production by region

Million tonnes oil equivalent



Coal: Consumption by region

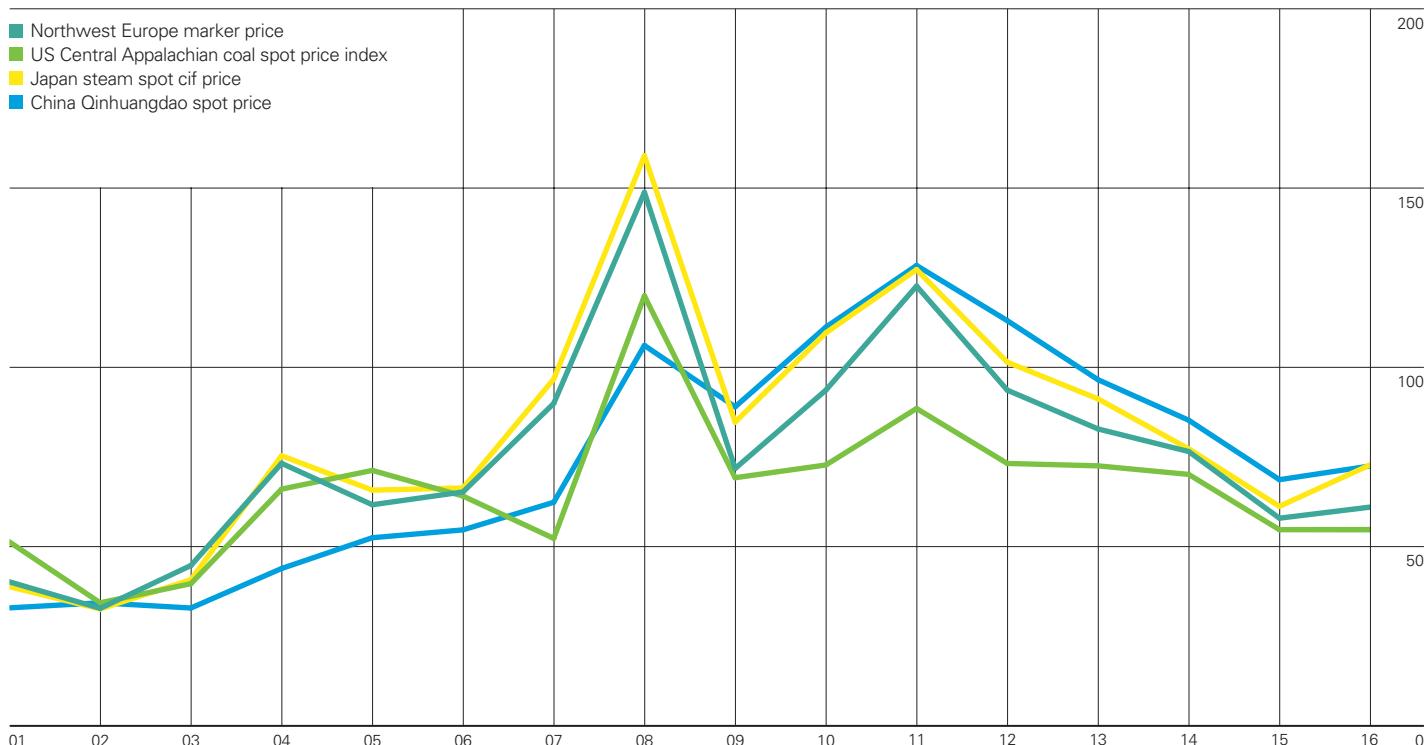
Million tonnes oil equivalent



World coal production fell by 6.2%, or 231 million tonnes of oil equivalent (mtoe) in 2016, the largest decline on record. China's production fell by 7.9% or 140 mtoe – also a record decline – while US production fell by 19% or 85 mtoe. Global coal consumption fell by 1.7%, the second successive decline. The largest decreases were seen in the US (-33 mtoe, an 8.8% fall), China (-26 mtoe, -1.6%) and the United Kingdom (-12 mtoe, -52.5%).

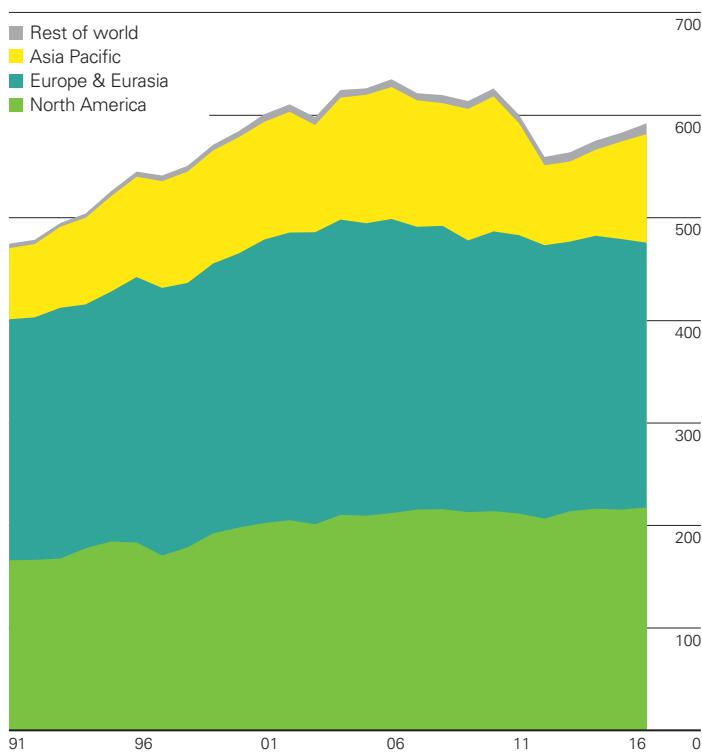
Coal prices

US dollars per tonne



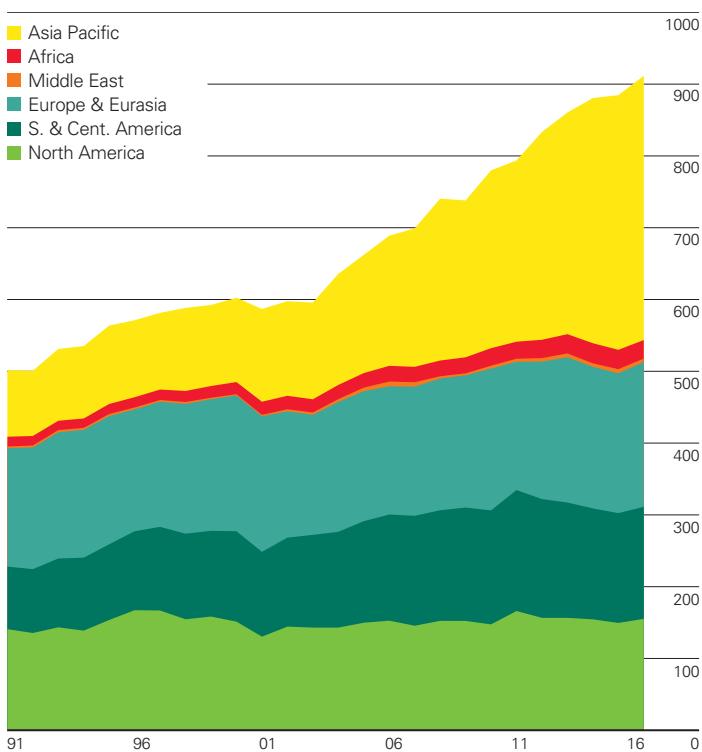
Nuclear energy consumption by region

Million tonnes oil equivalent



Hydroelectricity consumption by region

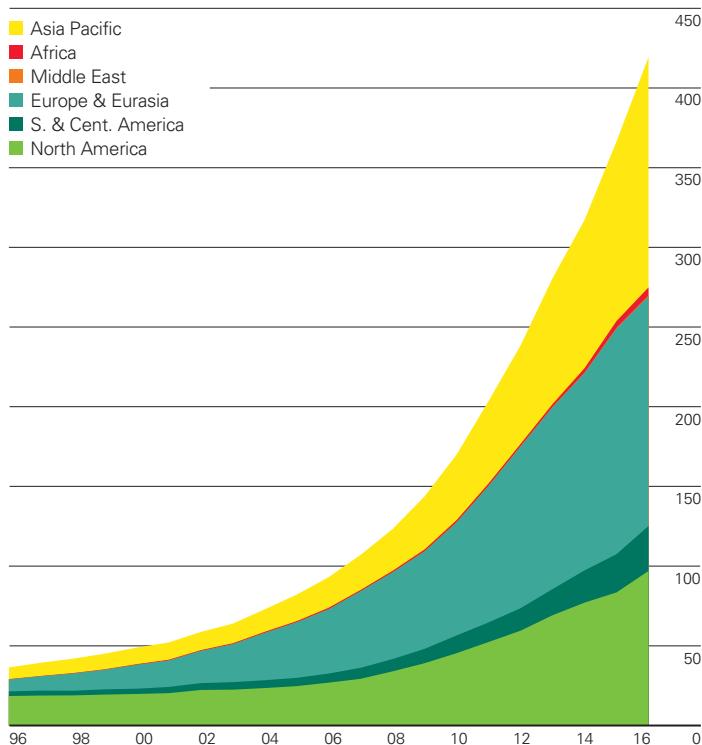
Million tonnes oil equivalent



Global nuclear power generation increased by 1.3% in 2016, or 9.3 million tonnes of oil equivalent (mtoe). China accounted for all of the net growth, expanding by 24.5% (9.6 mtoe). Generation in Japan and Belgium also grew strongly, while France saw a sharp decline (-8.1%, -7.7 mtoe). Hydroelectric power generation rose by 2.8% (27.1 mtoe), slightly below the 10-year average of 2.9%. China (4%, 10.9 mtoe) and Brazil (6.5%, 5.5 mtoe) were the largest contributors to growth.

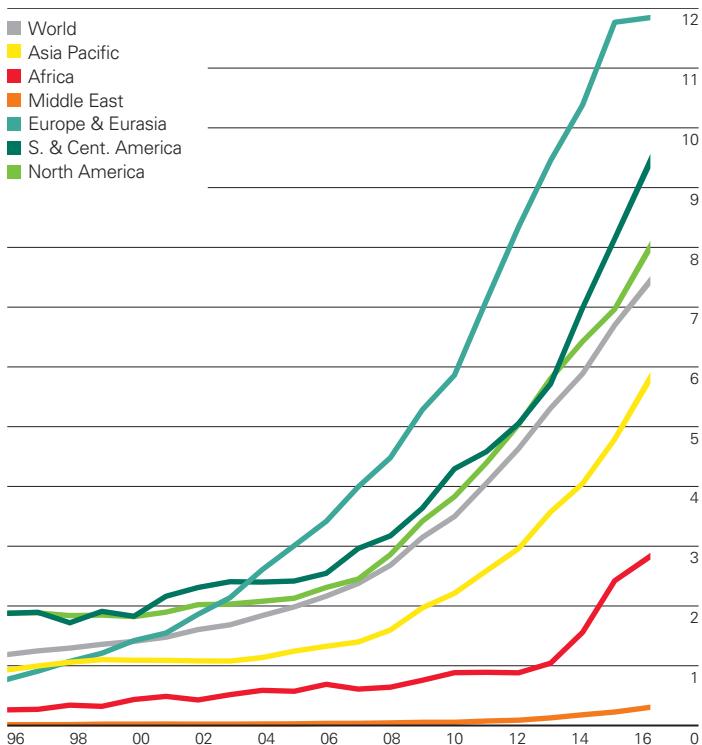
Other renewables consumption by region

Million tonnes oil equivalent



Other renewables share of power generation by region

Percentage



Renewable energy in power generation (not including hydro) grew by 14.1% in 2016, slightly below the 10-year average, but the largest increment on record (52.9 mtoe). Wind provided more than half of the growth, while solar energy contributed almost a third despite accounting for only 18% of the total. Asia Pacific contributed 60% of growth, with China overtaking the United States to become the world's largest renewable power producer. Renewable energy accounted for 7.5% of power generation, up from 6.7% in 2015. Europe & Eurasia has the highest share of power from renewables at 11.8%, but its share rose by the smallest increment on record in 2016.

Other renewables consumption*

Million tonnes oil equivalent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	22.8	24.8	29.7	33.9	39.3	45.7	51.7	60.2	67.2	71.5	83.8	16.9%	13.2%	20.0%
Canada	2.5	2.6	2.6	3.4	4.2	4.8	5.6	6.4	7.0	8.5	9.2	8.1%	13.8%	2.2%
Mexico	1.7	1.9	1.8	1.8	2.0	2.0	2.3	2.6	3.1	3.7	4.1	10.4%	7.2%	1.0%
Total North America	27.0	29.4	34.1	39.2	45.5	52.5	59.6	69.3	77.2	83.6	97.1	15.7%	12.9%	23.1%
Argentina	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.8	0.6	0.7	5.0%	8.4%	0.2%
Brazil	3.4	4.2	4.7	5.4	7.6	7.9	9.1	10.6	13.3	16.0	19.0	18.4%	17.8%	4.5%
Chile	0.3	0.6	0.7	1.0	0.6	1.1	1.2	1.4	1.6	1.9	2.3	19.9%	16.7%	0.5%
Colombia	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	15.4%	12.8%	0.1%
Ecuador	†	†	†	†	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12.6%	18.1%	♦
Peru	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.4	0.6	29.9%	18.5%	0.1%
Trinidad & Tobago	†	†	†	†	†	†	†	†	†	†	†	—	-14.1%	♦
Venezuela	—	—	—	—	†	†	†	†	†	†	†	—	—	♦
Other S. & Cent. America	1.3	1.4	1.6	1.8	2.0	2.2	2.7	3.0	3.6	4.5	5.1	11.9%	14.5%	1.2%
Total S. & Cent. America	5.7	6.9	7.7	9.0	11.1	12.3	14.1	16.4	20.2	24.0	28.2	17.1%	16.6%	6.7%
Austria	1.2	1.4	1.4	1.4	1.5	1.5	1.7	1.9	2.0	2.3	2.4	6.0%	10.5%	0.6%
Azerbaijan	—	—	—	†	†	—	—	†	†	†	†	66.3%	—	♦
Belarus	†	†	†	†	†	†	†	†	†	†	0.1	100.5%	65.2%	♦
Belgium	0.6	0.7	0.9	1.2	1.4	1.9	2.3	2.6	2.7	3.2	3.2	-1.7%	22.8%	0.8%
Bulgaria	†	†	†	0.1	0.2	0.2	0.5	0.6	0.6	0.7	0.7	1.5%	90.3%	0.2%
Czech Republic	0.2	0.3	0.4	0.5	0.7	1.2	1.3	1.5	1.6	1.7	1.7	-3.5%	27.5%	0.4%
Denmark	2.1	2.3	2.3	2.3	2.8	3.2	3.4	3.6	4.1	4.3	4.1	-5.7%	6.8%	1.0%
Finland	2.5	2.3	2.4	2.0	2.5	2.6	2.9	2.9	3.1	3.4	8.6%	3.5%	0.8%	♦
France	1.4	1.9	2.3	2.8	3.4	4.4	5.5	5.8	6.5	7.9	8.2	2.9%	21.8%	1.9%
Germany	11.7	15.2	16.5	17.2	18.9	23.8	27.2	29.0	32.1	38.1	37.9	-0.9%	14.7%	9.0%
Greece	0.4	0.5	0.6	0.6	0.7	0.9	1.3	1.8	1.7	2.0	2.1	4.7%	20.2%	0.5%
Hungary	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	15.8%	6.3%	0.2%
Ireland	0.4	0.5	0.6	0.7	0.7	1.1	1.0	1.1	1.3	1.6	1.5	-5.8%	19.0%	0.4%
Italy	3.5	3.8	4.1	4.6	5.8	8.4	11.4	13.4	14.1	14.3	15.0	4.3%	16.4%	3.6%
Kazakhstan	†	†	†	†	†	—	†	†	†	†	0.1	95.1%	—	♦
Lithuania	†	†	†	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	20.0%	65.2%	0.1%
Netherlands	1.8	1.7	2.1	2.4	2.5	2.8	2.8	2.7	2.6	3.1	3.1	0.8%	6.3%	0.7%
Norway	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.5	-14.6%	12.5%	0.1%
Poland	0.5	0.7	1.0	1.4	1.8	2.4	3.4	3.3	4.0	4.7	4.6	-1.8%	28.9%	1.1%
Portugal	1.1	1.4	1.8	2.3	2.8	2.8	3.1	3.6	3.6	3.6	3.7	4.4%	16.2%	0.9%
Romania	†	†	†	†	0.1	0.4	0.6	1.2	1.5	2.2	2.0	-6.0%	109.1%	0.5%
Russian Federation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	6.9%	4.0%	♦
Slovakia	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.5	0.5	0.5	1.8%	49.5%	0.1%
Spain	6.2	7.2	8.7	10.7	12.5	12.6	15.0	16.3	16.1	15.6	15.5	-0.9%	10.8%	3.7%
Sweden	2.1	2.5	2.8	3.2	3.6	4.0	4.4	4.8	5.0	6.1	6.1	-0.8%	12.4%	1.5%
Switzerland	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	17.6%	10.3%	0.2%
Turkey	0.1	0.2	0.3	0.5	0.9	1.3	1.7	2.3	2.8	3.9	5.2	33.8%	51.0%	1.2%
Turkmenistan	—	—	—	—	†	†	†	†	†	†	†	27.0%	—	♦
Ukraine	†	0.1	0.1	†	0.1	0.1	0.2	0.3	0.4	0.4	0.3	-12.4%	46.9%	0.1%
United Kingdom	3.1	3.3	3.8	4.5	5.0	6.5	8.1	11.0	13.3	17.5	17.5	-0.1%	20.4%	4.2%
Uzbekistan	—	—	—	—	—	—	—	†	†	†	†	50.0%	—	♦
Other Europe & Eurasia	0.7	0.9	1.1	1.3	1.4	1.6	1.9	2.0	2.2	2.3	2.5	7.7%	17.2%	0.6%
Total Europe & Eurasia	40.4	48.1	54.4	61.2	71.0	85.7	101.5	114.1	123.8	141.6	144.0	1.5%	15.0%	34.3%
Iran	†	†	†	0.1	†	0.1	0.1	0.1	0.1	0.1	0.1	2.6%	20.0%	♦
Israel	†	†	†	†	†	0.1	0.1	0.1	0.2	0.3	0.4	37.1%	60.6%	0.1%
Kuwait	—	—	—	—	—	—	—	—	—	—	†	580.0%	—	♦
Qatar	—	—	—	—	—	—	—	—	—	—	†	10.0%	—	♦
Saudi Arabia	—	—	—	—	—	—	—	—	—	—	†	14.3%	—	♦
United Arab Emirates	—	—	—	†	†	†	†	†	†	†	0.1	2.6%	—	♦
Other Middle East	†	†	†	†	†	†	†	†	†	†	0.2	196.8%	39.9%	♦
Total Middle East	†	†	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.7	42.0%	38.4%	0.2%
Algeria	—	—	—	—	†	†	†	†	†	†	0.1	190.2%	—	♦
Egypt	0.1	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.6	35.5%	13.3%	0.1%
South Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	1.4	1.8	26.3%	35.3%	0.4%
Other Africa	0.7	0.6	0.6	0.7	0.9	0.9	1.0	1.3	1.8	2.4	2.6	9.6%	16.6%	0.6%
Total Africa	0.9	0.8	0.9	1.1	1.3	1.4	1.4	1.7	2.7	4.2	5.0	18.5%	19.6%	1.2%
Australia	1.4	1.6	1.7	1.7	1.9	2.5	3.0	3.7	4.1	4.8	5.4	12.0%	14.9%	1.3%
Bangladesh	†	†	†	†	†	†	†	†	†	†	†	15.3%	40.8%	♦
China	2.5	3.5	6.4	11.0	15.9	22.8	29.4	42.3	50.8	64.4	86.1	33.4%	44.1%	20.5%
China Hong Kong SAR	†	†	†	†	†	†	†	†	†	†	†	-0.4%	—	♦
India	3.3	4.0	4.8	6.3	7.2	8.8	10.4	11.6	12.0	12.7	16.5	29.2%	18.8%	3.9%
Indonesia	1.5	1.6	1.9	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.6	7.1%	4.7%	0.6%
Japan	5.8	6.2	6.1	6.1	6.7	7.0	7.7	9.3	11.8	14.8	18.8	26.7%	10.0%	4.5%
Malaysia	—	—	—	—	—	—	—	—	—	—	0.3	21.6%	—	0.1%
New Zealand	1.0	1.1	1.3	1.6	1.8	2.0	2.0	2.0	2.3	2.4	2.4	-0.2%	10.0%	0.6%
Pakistan	—	—	—	—	—	—	—	—	—	—	0.4	47.0%	—	0.1%
Philippines	2.4	2.3	2.4	2.4	2.3	2.3	2.4	2.2	2.4	2.8	3.1	10.8%	2.2%	0.7%
Singapore	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	14.8%	6.2%	0.1%
South Korea	0.1	0.2	0.3	0.4	1.0	1.7	2.0	2.3	3.3	3.9	4.3	9.6%	45.6%	1.0%
Taiwan	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.8%	8.8%	0.2%
Thailand	0.5	0.6	0.5	0.5	0.8	0.9	1.2	1.6	2.0	2.3	2.8	24.4%	18.3%	0.7%
Vietnam	†	†	†	†	†	†	†	†	†	†	0.1	40.5%	15.9%	♦
Other Asia Pacific	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	1.3%	20.8%	0.1%
Total Asia Pacific	19.2	22.0	26.2	33.3	41.1	51.7	61.8	79.0	93.0	112.7	144.5	27.9%	21.1%	34.4%
Total World	93.2	107.2	123.4	143.9	170.1	203.6	238.5	280.7	317.3	366.7	419.6	14.1%	16.1%	100.0%
of which: OECD	75.9	86.9	98.2	110.8	127.9	151.5	175.2	199.4	221.0	248.9	270.1	8.2%	13.9%	64.4%
Non-OECD	17.3	20.3	25.1	33.0	42.2	52.1	63.4	81.3	96.3					

Biofuels production

Thousand tonnes oil equivalent	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	10670	14709	20934	23761	28044	31184	29808	31057	32890	33849	35779	5.4%	15.2%	43.5%
Canada	174	503	546	786	809	950	1017	1056	1188	1142	1160	1.2%	22.8%	1.4%
Mexico	—	5	5	5	14	13	15	58	58	58	58	—	—	0.1%
Total North America	10844	15216	21485	24552	28866	32147	30840	32171	34137	35049	36997	5.3%	15.4%	45.0%
Argentina	30	173	635	1055	1670	2234	2295	2014	2644	2038	2828	38.4%	71.7%	3.4%
Brazil	9590	12427	15486	15277	16866	14403	14739	17114	18005	19332	18552	-4.3%	8.4%	22.5%
Colombia	144	155	158	320	455	572	627	650	676	693	626	-10.0%	46.2%	0.8%
Other S. & Cent. America	513	596	806	634	229	310	300	354	378	379	373	-1.9%	6.5%	0.5%
Total S. & Cent. America	10278	13351	17085	17285	19220	17519	17961	20131	21703	22442	22378	-0.6%	9.8%	27.2%
Austria	109	222	269	373	391	390	390	374	329	381	419	9.8%	18.0%	0.5%
Belgium	22	146	282	486	603	664	562	547	574	556	558	—	89.9%	0.7%
Finland	12	54	101	231	301	208	263	330	367	445	446	—	51.8%	0.5%
France	682	1153	2064	2408	2353	1935	2145	2306	2541	2519	2226	-11.9%	18.5%	2.7%
Germany	2603	3243	2805	2834	3022	2967	3031	2770	3460	3191	3198	-0.1%	7.2%	3.9%
Italy	594	448	623	772	678	486	298	457	585	582	583	—	5.1%	0.7%
Netherlands	23	82	78	242	391	674	1276	1495	1756	1675	1680	—	87.5%	2.0%
Poland	154	103	290	408	439	414	652	697	750	940	898	-4.6%	23.2%	1.1%
Portugal	70	162	149	226	284	330	276	274	301	321	298	-7.5%	79.7%	0.4%
Spain	273	378	384	1001	1312	851	620	749	1030	1122	1148	2.0%	14.0%	1.4%
Sweden	91	150	183	254	339	400	491	635	789	222	211	-5.1%	15.7%	0.3%
United Kingdom	228	374	289	220	304	322	303	517	403	310	351	12.8%	22.4%	0.4%
Other Europe & Eurasia	407	506	964	1190	1187	1235	1428	1351	1560	1749	1761	0.4%	19.2%	2.1%
Total Europe & Eurasia	5269	7021	8482	10646	11604	10876	11734	12503	14445	14012	13777	-1.9%	15.5%	16.7%
Total Middle East	—	—	—	—	5	—	—	♦						
Total Africa	9	6	11	18	8	8	23	32	40	40	40	—	20.5%	♦
Australia	59	76	119	174	222	223	239	202	169	157	144	-8.5%	21.9%	0.2%
China	925	982	1194	1224	1584	1970	2103	2346	2609	2653	2053	-22.8%	14.6%	2.5%
India	146	149	169	77	123	210	229	268	349	410	505	23.0%	12.7%	0.6%
Indonesia	44	217	530	469	723	1110	1397	1750	2547	1354	2503	84.3%	65.4%	3.0%
South Korea	41	78	146	358	511	309	283	321	337	385	404	4.7%	45.4%	0.5%
Thailand	87	148	525	656	700	765	1054	1330	1490	1603	1610	0.2%	39.9%	2.0%
Other Asia Pacific	144	227	390	478	443	692	997	1234	1873	1913	1889	-1.5%	69.1%	2.3%
Total Asia Pacific	1446	1876	3074	3435	4306	5280	6300	7450	9374	8476	9110	7.2%	25.0%	11.1%
Total World	27848	37471	50138	55936	64008	65834	66863	72293	79703	80024	82306	2.6%	14.1%	100.0%
of which: OECD	16174	22281	29997	35389	40889	43192	42733	44808	48698	49186	50900	3.2%	15.5%	61.8%
Non-OECD	11674	15190	20141	20547	23119	22642	24130	27485	31005	30838	31407	1.6%	12.2%	38.2%
European Union	5214	6945	8334	10461	11466	10707	11593	12394	14286	13820	13580	-2.0%	15.5%	16.5%
CIS	—	2	7	36	34	28	29	23	25	25	25	—	—	♦

*Less than 0.05%.

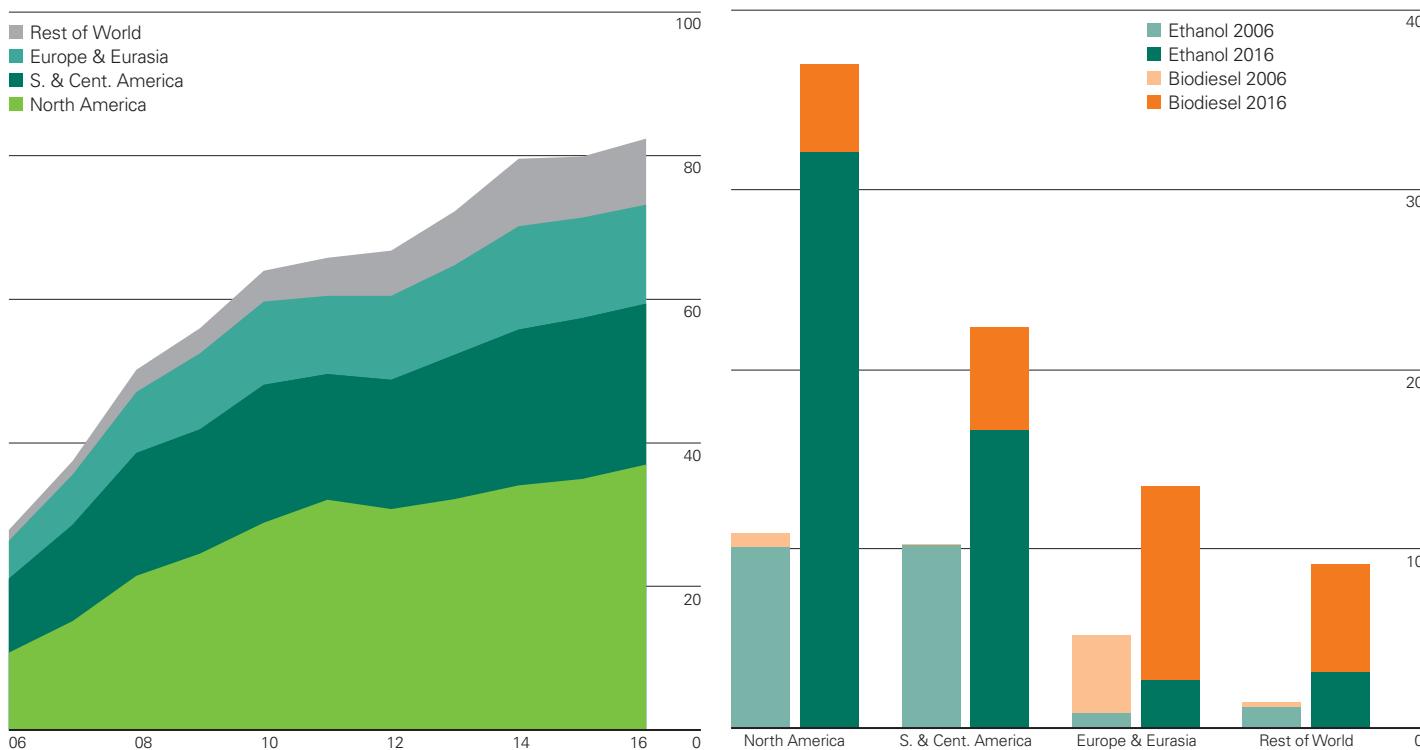
Source: Includes data from F.O. Lichets; US Energy Information Administration.

Notes: Consumption of fuel ethanol and biodiesel is included in oil consumption tables.

Annual changes and shares of total are calculated using thousand tonnes a day oil equivalent figures. Growth rates are adjusted for leap years.

World biofuels production

Million tonnes oil equivalent



Global biofuels production rose by 2.6% in 2016, well below the 10-year average of 14.1%, but faster than in 2015 (0.4%). The US provided the largest increment (1930 thousand tonnes of oil equivalent, or ktoe). Global ethanol production increased by only 0.7%, partly due to falling production in Brazil. Biodiesel production rose by 6.5% with Indonesia providing more than half of the increment (1149 ktoe).

Electricity generation*

Terawatt-hours	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	4331.0	4431.8	4390.1	4206.5	4394.3	4363.4	4310.6	4330.3	4363.3	4348.7	4350.8	-0.2%	0.1%	17.5%
Canada	601.5	625.6	627.7	604.2	596.7	628.6	629.0	651.2	648.6	652.3	663.0	1.4%	0.6%	2.7%
Mexico	256.2	263.2	269.3	267.8	275.6	292.1	296.4	297.1	303.3	310.3	314.8	1.1%	2.3%	1.3%
Total North America	5188.7	5320.6	5287.1	5078.4	5266.5	5284.1	5236.0	5278.6	5315.3	5311.3	5328.6	0.1%	0.2%	21.5%
Argentina	112.8	115.2	129.0	129.8	132.5	129.5	136.0	139.7	141.6	145.4	146.9	0.7%	2.7%	0.6%
Brazil	419.4	445.1	463.1	466.2	515.8	531.8	552.5	570.8	590.5	581.5	581.7	-0.2%	3.7%	2.3%
Chile	57.6	60.1	60.9	61.0	61.6	65.0	69.7	73.0	73.6	75.4	77.5	2.4%	3.3%	0.3%
Colombia	59.7	61.1	61.9	63.8	67.0	68.0	69.4	71.6	74.5	77.0	78.5	1.7%	3.3%	0.3%
Ecuador	15.1	17.3	18.6	18.3	19.5	20.5	22.8	23.3	24.3	26.0	27.1	4.1%	6.8%	0.1%
Peru	27.4	29.9	32.5	32.9	35.9	38.8	41.0	43.3	45.5	48.3	51.5	6.3%	6.6%	0.2%
Trinidad & Tobago	6.9	7.7	7.7	7.7	8.5	8.8	9.1	9.5	9.9	9.7	8.9	-8.4%	3.2%	♦
Venezuela	110.6	113.7	119.3	124.8	116.7	122.9	127.9	127.6	110.4	127.8	115.6	-9.8%	2.0%	0.5%
Other S. & Cent. America	178.6	186.8	188.2	187.9	192.1	198.4	205.4	209.6	206.6	212.9	224.6	5.2%	1.9%	0.9%
Total S. & Cent. America	988.1	1037.0	1081.2	1092.5	1149.6	1183.7	1233.9	1268.4	1277.0	1304.0	1312.2	0.4%	3.2%	5.3%
Austria	64.4	64.9	66.9	69.1	71.1	65.9	72.4	68.0	65.1	64.9	67.6	3.8%	-0.3%	0.3%
Azerbaijan	24.5	21.8	21.6	18.9	18.7	20.3	23.0	23.4	24.7	24.7	25.0	0.9%	0.8%	0.1%
Belarus	31.8	31.8	35.1	30.4	34.9	32.2	30.8	31.5	34.7	34.1	33.1	-3.1%	1.0%	0.1%
Belgium	85.6	88.8	84.9	91.2	95.2	90.2	82.9	83.5	72.7	70.6	86.9	22.7%	-2.1%	0.4%
Bulgaria	45.8	43.3	45.0	43.0	46.7	50.8	47.3	43.8	47.5	49.2	45.1	-8.7%	1.0%	0.2%
Czech Republic	84.4	88.0	83.5	82.3	85.9	87.6	87.6	87.1	86.0	83.9	83.3	-1.0%	0.2%	0.3%
Denmark	45.6	39.3	36.6	36.4	38.9	35.2	30.7	34.7	32.2	28.9	30.3	4.4%	-2.2%	0.1%
Finland	82.3	81.2	77.4	72.1	80.7	73.5	70.4	71.2	68.1	68.6	68.6	-0.3%	-0.3%	0.3%
France	575.0	570.3	574.9	542.8	574.3	566.8	565.1	573.1	561.7	568.7	553.4	-3.0%	-0.1%	2.2%
Germany	639.6	640.6	640.7	595.6	633.1	613.1	630.1	638.7	626.7	646.9	648.4	♦	0.4%	2.6%
Greece	60.8	63.5	63.7	61.4	57.4	59.4	61.0	57.2	50.5	51.9	52.5	0.9%	-1.4%	0.2%
Hungary	35.9	40.0	40.0	35.9	37.4	36.0	34.6	30.3	29.4	30.3	31.5	3.7%	-1.6%	0.1%
Ireland	27.5	28.7	30.3	28.4	28.7	27.5	27.6	26.1	26.3	28.4	30.4	6.9%	0.9%	0.1%
Italy	314.1	313.9	319.1	292.6	302.1	302.6	299.3	289.8	279.8	283.0	286.3	0.9%	-0.7%	1.2%
Kazakhstan	71.7	76.6	80.3	78.7	82.6	86.6	90.6	92.6	94.6	91.6	94.5	2.8%	3.0%	0.4%
Lithuania	12.5	14.0	14.0	15.4	5.7	4.8	5.0	4.8	4.4	4.9	4.3	-13.5%	-10.4%	♦
Netherlands	98.8	105.2	108.2	113.5	118.2	113.0	102.5	100.9	103.4	109.6	114.7	4.3%	0.9%	0.5%
Norway	121.4	137.2	142.1	131.8	123.6	127.6	147.7	134.0	142.0	144.5	149.5	3.2%	0.5%	0.6%
Poland	161.7	159.3	155.3	151.7	157.7	163.5	162.1	164.6	159.1	164.9	166.6	0.7%	0.5%	0.7%
Portugal	49.0	47.3	46.0	50.2	54.1	52.5	46.6	51.7	52.8	52.4	60.5	15.1%	1.2%	0.2%
Romania	62.7	61.7	65.0	58.0	61.0	62.2	59.0	58.9	63.3	66.3	64.8	-2.5%	1.1%	0.3%
Russian Federation	992.1	1018.7	1040.0	993.1	1035.7	1050.2	1064.1	1050.7	1058.7	1063.4	1087.1	1.9%	1.1%	4.4%
Slovakia	31.2	27.9	29.3	26.1	27.7	28.1	28.4	28.6	27.3	27.2	27.5	0.7%	-1.4%	0.1%
Spain	302.9	312.2	317.9	296.3	303.0	291.8	297.6	283.6	278.8	280.5	274.4	-2.4%	-0.5%	1.1%
Sweden	143.3	148.7	149.7	136.7	148.3	151.2	166.3	153.2	153.7	162.1	154.9	-4.7%	0.2%	0.6%
Switzerland	66.8	70.9	72.0	71.5	71.2	67.6	73.1	73.5	74.9	70.9	66.3	-6.8%	1.3%	0.3%
Turkey	176.3	191.6	198.4	194.8	211.2	229.4	239.5	240.2	252.0	261.8	272.7	3.9%	4.9%	1.1%
Turkmenistan	13.7	14.9	15.0	16.0	16.7	17.2	17.8	18.9	20.1	21.5	22.6	4.7%	5.3%	0.1%
Ukraine	192.1	195.1	191.7	172.9	187.9	194.9	198.9	194.4	182.8	163.7	163.7	-0.3%	-1.2%	0.7%
United Kingdom	397.3	396.8	388.9	376.8	381.8	367.4	363.6	358.4	338.2	339.1	338.6	-0.4%	-1.6%	1.4%
Uzbekistan	49.3	49.0	50.1	50.0	51.7	52.4	52.5	54.2	55.6	57.6	58.9	1.9%	1.9%	0.2%
Other Europe & Eurasia	186.7	187.3	194.4	196.0	213.3	204.9	201.5	214.1	202.7	201.8	209.3	3.4%	0.9%	0.8%
Total Europe & Eurasia	5246.8	5330.6	5378.1	5129.4	5356.2	5326.4	5379.7	5335.3	5269.3	5318.2	5373.1	0.8%	0.3%	21.7%
Iran	184.3	196.0	206.3	215.1	226.1	235.5	247.7	254.6	274.6	281.9	286.0	1.2%	5.2%	1.2%
Israel	51.8	55.1	55.8	55.3	58.5	59.3	63.0	61.4	61.3	65.4	67.4	2.7%	2.8%	0.3%
Kuwait	47.6	48.8	51.7	53.2	57.1	57.5	62.7	61.0	65.1	68.3	71.1	3.9%	4.6%	0.3%
Qatar	15.3	19.5	21.6	24.2	28.1	30.7	34.8	34.7	38.7	41.8	42.4	0.9%	11.3%	0.2%
Saudi Arabia	181.4	190.5	204.2	217.3	240.1	250.1	271.7	284.0	311.8	328.1	330.5	0.4%	6.4%	1.3%
United Arab Emirates	66.8	78.8	80.5	85.7	93.9	99.1	106.2	110.0	116.5	127.4	136.8	7.1%	7.7%	0.6%
Other Middle East	121.1	128.5	139.6	155.3	167.6	170.8	177.2	171.1	179.1	179.4	181.5	0.9%	4.8%	0.7%
Total Middle East	668.4	717.2	759.8	806.1	871.4	902.9	963.2	976.7	1047.2	1092.4	1115.7	1.9%	5.7%	4.5%
Algeria	35.2	37.3	40.2	43.1	45.7	53.1	57.4	59.9	64.2	68.8	70.2	1.8%	7.3%	0.3%
Egypt	110.7	119.0	127.9	133.3	143.5	148.6	161.9	164.0	170.2	180.6	187.3	3.4%	5.7%	0.8%
South Africa	253.8	263.5	258.3	249.6	259.6	262.5	257.9	256.1	254.7	249.7	251.9	0.6%	0.2%	1.0%
Other Africa	188.3	189.3	194.7	200.6	219.7	218.1	242.3	262.6	275.8	276.3	272.7	-1.6%	4.6%	1.1%
Total Africa	588.0	609.0	621.1	626.6	668.5	682.3	719.4	742.5	764.9	775.4	782.1	0.6%	3.3%	3.2%
Australia	238.0	243.2	245.4	249.9	251.0	256.3	250.7	249.6	247.4	253.0	256.9	1.2%	0.9%	1.0%
Bangladesh	29.5	31.0	34.2	37.2	40.8	44.2	48.6	53.1	55.8	60.8	67.4	10.6%	8.7%	0.3%
China	2865.7	3281.6	3495.8	3714.7	4207.2	4713.0	4987.6	5431.6	5649.6	5814.6	6142.5	5.4%	8.8%	24.8%
China Hong Kong SAR	38.6	38.9	38.0	38.7	38.3	39.0	38.8	39.1	39.8	38.0	38.2	0.3%	-0.1%	0.2%
India	744.1	794.8	825.8	879.7	935.3	1031.1	1088.2	1141.4	1252.0	1308.4	1400.8	6.8%	6.4%	5.6%
Indonesia	133.1	142.4	149.4	156.8	169.8	183.4	200.3	216.2	228.5	234.0	248.9	6.1%	6.3%	1.0%
Japan	1164.3	1180.1	1183.7	1114.0	1156.0	1104.2	1106.9	1087.8	1062.7	1030.1	999.6	-3.2%	-1.1%	4.0%
Malaysia	100.0	103.6	106.9	111.3	120.1	120.9	127.3	138.3	143.6	144.7	156.8	8.1%	4.4%	0.6%
New Zealand	43.4	43.8	43.8	43.4	44.9	44.4	44.3	43.3	43.6	44.3	43.9	-1.2%	0.3%	0.2%
Pakistan	96.1	98.1	96.2	97.1	100.3	100.3	99.3	102.2	107.2	110.2	115.4	4.5%	2.0%	0.5%
Philippines	56.8	59.6	60.8	61.										

Carbon dioxide emissions

Million tonnes of carbon dioxide	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Growth rate per annum			Share 2016
											2016	2016	2005-15	
US	6029.2	6132.4	5954.1	5529.8	5754.6	5617.3	5406.0	5544.3	5599.9	5445.0	5350.4	-2.0%	-1.1%	16.0%
Canada	556.6	567.2	565.5	525.0	544.5	550.8	536.0	548.2	545.5	531.6	527.4	-1.1%	-0.7%	1.6%
Mexico	450.5	445.5	447.9	451.6	459.7	482.1	491.8	490.0	481.6	481.4	470.3	-2.6%	0.9%	1.4%
Total North America	7036.2	7145.1	6967.5	6506.3	6758.9	6650.2	6433.8	6582.4	6627.0	6458.1	6348.0	-2.0%	-1.0%	19.0%
Argentina	150.3	162.9	166.1	159.2	172.7	176.5	182.3	188.4	189.3	193.4	194.3	0.2%	2.9%	0.6%
Brazil	336.9	351.4	374.9	352.1	400.3	426.4	447.3	486.6	508.3	491.3	458.0	-7.0%	4.0%	1.4%
Chile	64.4	75.9	77.0	73.9	75.1	85.9	88.4	90.1	90.6	91.0	95.9	5.1%	4.2%	0.3%
Colombia	62.1	60.8	70.5	66.3	73.7	72.2	81.1	83.1	88.7	91.1	89.0	-2.6%	5.8%	0.3%
Ecuador	26.3	26.8	27.3	27.7	31.9	32.7	34.0	36.2	38.1	37.3	35.0	-6.4%	4.2%	0.1%
Peru	27.5	31.1	34.8	34.7	38.8	42.9	44.2	45.4	46.7	49.2	53.1	7.6%	5.6%	0.2%
Trinidad & Tobago	24.8	27.5	27.8	26.5	28.3	28.3	27.6	29.0	28.3	28.4	25.8	-9.4%	3.7%	0.1%
Venezuela	161.4	165.3	173.8	171.1	171.3	166.3	177.7	175.1	166.6	164.0	161.0	-2.1%	1.4%	0.5%
Other S. & Cent. America	221.4	224.7	215.9	214.9	218.2	225.0	223.6	220.3	223.4	232.1	236.1	1.4%	0.8%	0.7%
Total S. & Cent. America	1075.0	1126.6	1168.2	1126.5	1210.3	1256.3	1306.2	1354.3	1380.1	1377.9	1348.2	-2.4%	3.1%	4.0%
Austria	73.7	69.8	70.3	64.4	69.7	67.0	64.3	64.5	60.1	62.2	63.2	1.3%	-1.9%	0.2%
Azerbaijan	32.3	29.1	28.7	25.2	24.0	27.7	28.7	29.4	31.0	33.9	33.9	-0.2%	0.4%	0.1%
Belarus	58.3	57.1	59.8	57.6	60.4	57.4	58.6	59.1	57.7	50.7	53.7	5.7%	-1.0%	0.2%
Belgium	139.8	139.4	141.3	128.3	137.3	123.0	118.6	119.3	112.0	117.6	120.2	1.9%	-1.6%	0.4%
Bulgaria	49.2	52.5	50.3	43.2	45.0	50.4	45.3	39.9	42.5	45.5	42.9	-6.0%	-0.6%	0.1%
Czech Republic	126.1	127.0	119.8	111.0	115.1	111.3	106.7	104.9	99.0	102.3	105.2	2.5%	-1.9%	0.3%
Denmark	61.7	56.9	54.4	50.6	51.3	46.5	40.9	43.4	40.3	37.2	38.9	4.4%	-3.5%	0.1%
Finland	69.7	67.6	60.2	57.7	65.7	56.8	50.3	50.8	46.1	43.1	44.6	3.1%	-3.2%	0.1%
France	378.8	369.6	370.1	355.9	360.8	335.8	336.4	337.3	304.2	309.7	316.0	1.7%	-2.2%	0.9%
Germany	840.1	807.2	806.5	751.0	779.9	761.0	770.7	795.1	749.4	751.1	760.8	1.0%	-0.9%	2.3%
Greece	105.9	109.2	104.1	100.5	93.6	93.0	88.1	79.8	76.2	73.4	70.5	-4.3%	-3.4%	0.2%
Hungary	57.2	55.6	54.5	48.2	49.0	47.7	43.7	42.3	41.6	44.4	45.8	2.8%	-2.5%	0.1%
Ireland	47.5	48.5	47.9	42.8	42.6	38.1	38.2	36.9	36.6	38.4	40.5	5.4%	-2.2%	0.1%
Italy	470.2	459.7	446.9	404.0	409.7	399.9	380.5	349.9	325.1	336.2	336.9	♦	-3.3%	1.0%
Kazakhstan	157.7	173.3	187.0	167.9	180.5	199.2	200.9	202.6	225.0	207.6	207.2	-0.5%	3.5%	0.6%
Lithuania	13.3	13.0	13.2	11.9	13.1	12.2	12.3	11.6	10.9	11.3	11.6	2.0%	-1.3%	♦
Netherlands	242.0	236.8	232.5	224.1	233.0	224.6	216.4	210.9	199.4	207.5	212.5	2.1%	-1.6%	0.6%
Norway	37.8	37.8	36.7	37.2	37.9	37.8	37.5	37.7	37.0	37.0	37.5	1.1%	-0.1%	0.1%
Poland	317.4	314.2	316.4	302.3	320.4	320.1	304.5	307.4	290.4	290.1	299.0	2.8%	-0.6%	0.9%
Portugal	61.3	59.5	57.9	57.2	51.9	51.7	50.9	49.3	49.2	53.9	52.9	-2.2%	-2.0%	0.2%
Romania	98.6	96.6	94.9	79.8	77.4	83.1	81.1	69.4	69.4	69.1	69.2	-0.1%	-3.1%	0.2%
Russian Federation	1559.0	1552.4	1578.3	1464.1	1509.8	1572.1	1582.2	1533.8	1542.2	1521.9	1490.1	-2.4%	0.2%	4.5%
Slovakia	37.2	35.1	36.3	33.5	36.0	33.8	32.2	32.9	30.0	30.1	30.7	1.7%	-2.4%	0.1%
Spain	365.1	378.6	352.4	314.6	299.0	308.3	306.5	275.3	272.8	289.4	282.4	-2.7%	-2.5%	0.8%
Sweden	60.2	58.1	56.3	52.9	57.7	53.3	50.3	48.5	47.6	47.3	49.1	3.6%	-2.4%	0.1%
Switzerland	44.1	40.2	42.9	43.5	41.2	39.3	40.6	42.7	38.0	38.9	37.5	-4.0%	-1.1%	0.1%
Turkey	253.7	280.7	284.8	283.4	288.6	303.4	317.0	305.5	337.9	343.0	361.8	5.2%	4.1%	1.1%
Turkmenistan	54.0	60.9	61.6	57.3	65.2	67.8	74.5	67.6	74.2	82.8	83.2	0.2%	5.3%	0.2%
Ukraine	321.3	315.5	317.4	271.9	287.0	303.1	296.8	281.3	241.5	190.3	206.9	8.4%	-4.9%	0.6%
United Kingdom	579.0	568.9	561.4	513.0	529.7	494.4	512.2	497.4	454.4	433.4	406.4	-6.5%	-2.8%	1.2%
Uzbekistan	106.0	114.0	116.0	97.7	97.6	111.4	109.6	108.5	112.4	115.1	117.0	1.4%	0.7%	0.3%
Other Europe & Eurasia	224.5	232.9	234.4	225.5	231.8	240.1	231.5	229.8	218.2	226.2	230.6	1.7%	0.5%	0.7%
Total Europe & Eurasia	7042.7	7017.8	6995.1	6478.0	6661.9	6671.2	6627.9	6464.8	6272.5	6240.7	6258.5	♦	-1.0%	18.7%
Iran	473.5	505.5	529.8	544.6	548.2	560.9	564.2	594.7	623.7	616.5	630.9	2.1%	3.5%	1.9%
Israel	67.8	70.9	72.3	69.1	72.5	74.0	79.4	73.3	70.2	73.5	72.9	-1.1%	0.8%	0.2%
Kuwait	77.9	77.1	82.2	83.5	89.4	92.5	108.6	103.7	98.3	108.3	108.6	-0.1%	2.7%	0.3%
Qatar	43.9	55.0	49.5	52.2	70.8	53.2	60.4	92.3	91.1	108.5	106.7	-1.9%	10.3%	0.3%
Saudi Arabia	387.9	405.9	439.0	457.2	501.5	518.4	543.7	552.9	589.0	611.7	621.8	1.4%	5.2%	1.9%
United Arab Emirates	175.4	192.8	220.1	214.1	222.6	234.6	245.6	249.6	254.8	275.2	288.0	4.4%	5.2%	0.9%
Other Middle East	251.0	252.9	277.3	294.2	311.1	312.5	319.2	333.5	331.1	333.9	338.8	1.2%	3.0%	1.0%
Total Middle East	1477.4	1560.2	1670.2	1714.9	1816.0	1846.0	1921.0	2000.0	2058.1	2127.5	2167.8	1.6%	4.2%	6.5%
Algeria	84.8	89.3	94.9	100.2	98.5	105.0	113.8	120.7	127.7	136.4	136.0	-0.5%	5.4%	0.4%
Egypt	156.7	165.9	176.5	183.4	195.5	197.0	208.4	207.1	208.8	211.4	220.6	4.1%	3.4%	0.7%
South Africa	401.3	411.5	447.5	447.1	449.2	440.7	435.6	439.4	440.4	421.8	425.7	0.6%	0.7%	1.3%
Other Africa	296.8	311.4	328.7	324.8	351.0	349.4	369.2	390.9	409.9	422.9	426.6	0.6%	3.5%	1.3%
Total Africa	939.6	978.1	1047.6	1055.4	1094.1	1092.1	1127.0	1158.2	1190.4	1192.6	1209.0	1.1%	2.6%	3.6%
Australia	393.2	397.6	408.3	404.7	395.1	404.0	397.2	393.3	398.4	413.6	408.9	-1.4%	1.1%	1.2%
Bangladesh	40.1	42.0	45.5	50.6	53.9	58.2	63.8	65.0	68.5	75.4	78.5	3.9%	7.3%	0.2%
China	6661.6	7223.9	7362.3	7692.5	8118.7	8806.7	8979.4	9218.8	9224.1	9164.5	9123.0	-0.7%	4.2%	27.3%
China Hong Kong SAR	80.6	86.2	79.9	87.1	89.2	92.7	89.3	92.1	90.1	90.9	93.1	2.1%	1.8%	0.3%
India	1257.3	1370.7	1472.2	1601.7	1667.2	1741.2	1853.3	1933.1	2085.9	2157.4	2271.1	5.0%	6.0%	6.8%
Indonesia	360.4	388.4	378.2	390.1	429.5	481.1	510.8	523.4	477.1	492.5	531.4	7.6%	3.7%	1.6%
Japan	1252.2	1266.0	1273.1	1110.2	1182.4	1192.1	1284.4	1274.6	1240.8	1206.6	1191.2	-1.5%	-0.6%	3.6%
Malaysia	183.3	184.3	193.1	184.7	199.8	210.5	218.6	228.9	240.1	247.6	263.8	6.3%	3.3%	0.8%
New Zealand	37.2	36.0	37.2	34.2	34.3	33.7	35.2	34.8	35.0	35.1	35.2	0.1%	-0.5%	0.1%
Pakistan	145.5	157.4	162.1	161.7	161.6	160.2	162.4	161.8						

Appendices

Approximate conversion factors

Crude oil*

From	To				
	tonnes (metric)	kilolitres	barrels	US gallons	tonnes per year
			Multiply by		
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

*Based on worldwide average gravity.

Products

	To convert			
	barrels to tonnes	tonnes to barrels	kilolitres to tonnes	tonnes to kilolitres
		Multiply by		
Liquefied petroleum gas (LPG)	0.086	11.60	0.542	1.844
Gasoline	0.120	8.35	0.753	1.328
Kerosene	0.127	7.88	0.798	1.253
Gas oil/diesel	0.134	7.46	0.843	1.186
Residual fuel oil	0.157	6.35	0.991	1.010
Product basket	0.125	7.98	0.788	1.269

Natural gas (NG) and liquefied natural gas (LNG)

From	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			
1 billion cubic metres NG	1	35.3	0.90	0.74	35.7	6.16
1 billion cubic feet NG	0.028	1	0.025	0.021	1.01	0.17
1 million tonnes oil equivalent	1.11	39.2	1	0.82	39.7	6.84
1 million tonnes LNG	1.36	48.0	1.22	1	48.6	8.37
1 trillion British thermal units	0.028	0.99	0.025	0.021	1	0.17
1 million barrels oil equivalent	0.16	5.74	0.15	0.12	5.80	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 and geographic groupings

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

North America

US (excluding US territories), Canada, Mexico.

South & Central America

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

Europe

European members of the OECD plus Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, The former Yugoslav Republic of Macedonia, Georgia, Gibraltar, Latvia, Lithuania, Malta, Montenegro, Romania and Serbia.

Commonwealth of Independent States (CIS)

Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

Europe & Eurasia

All countries listed above under the headings Europe and CIS.

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*, China Macau 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.

Australasia

Australia, New Zealand.

OECD members

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

Other member countries: Australia, Canada, Chile, Israel, 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.

South America: Ecuador, Venezuela.

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 and sub-bituminous coal
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.

1 barrel of ethanol = 0.58 barrels of oil equivalent

1 barrel of biodiesel = 0.86 barrels of oil equivalent

1 tonne of ethanol = 0.68 tonnes of oil equivalent

1 tonne of biodiesel = 0.88 tonnes of oil equivalent

European Union members

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

Non-OECD

All countries that are not members of the OECD.

Methodology

The primary energy values of nuclear and hydroelectric power generation, as well as electricity from renewable sources, 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).

Fuels used as inputs for conversion technologies (gas-to-liquids, coal-to-liquids and coal-to-gas) are counted as production for the source fuel and the outputs are counted as consumption for the converted fuel.

Percentages

Calculated before rounding of actuals.

Rounding differences

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

Tonnes

Metric equivalent of tons.

More information

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