



Statistical Review of World Energy

2021 | 70th edition



Reviewing world energy
data for 70 years

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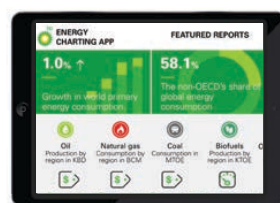
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- The energy charting tool – view predetermined reports or chart specific data according to energy type, region, country and year.
- Historical data from 1965 for many sections. Additional country and regional coverage for all consumption tables.
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Chief executive officer's introduction



2020 will forever be remembered as the year COVID-19 turned our daily lives upside down.

Above all, this is a human tragedy. At the time of writing, around four million people are estimated to have died due to COVID-19. The true number is almost certainly far higher, and it continues to rise.

The combination of the pandemic and the actions taken to limit its impact led to the largest recession in modern peacetime, with that loss falling disproportionately on those in the world's poorest and least-developed countries. The economic scars from the pandemic will likely persist for years to come. And, of course, the pandemic and resulting economic turmoil spilled over into unparalleled volatility and disruption in global energy markets.

“ Companies that are committed to ‘greening’ have a hugely significant part to play in achieving the Paris goals. ”

This year's 70th edition of the bp Statistical Review provides all of us with the objective and timely data needed to help make sense of the most tumultuous events affecting energy markets in any of the past seven decades.

Energy in 2020

Global energy demand is estimated to have fallen by 4.5% in 2020. This is the largest recession since the end of World War II, driven by an unprecedented collapse in oil demand, as the imposition of lockdowns around the world decimated transport-related demand. The drop in oil consumption accounted for around three-quarters of the total decline in energy demand. Natural gas showed greater resilience, helped primarily by continuing strong growth in China.

Despite the disorder of 2020, renewable energy, led by wind and solar energy, continued to grow prolifically. Remarkably, wind and solar capacity increased by a colossal 238 GW last year – 50% larger than any previous expansion. Likewise, the share of wind and solar generation in the global power mix recorded its largest ever increase. The relative immunity of renewable energy to the events of last year is encouraging.

The fall in carbon emissions from energy use was equally striking, with emissions falling by over 6% in 2020 – again, the largest decline since 1945. Although unmatched in modern peacetime, the rate of decline in carbon emissions last year is similar to what the world needs to average each year for the next 30 years to be on track to meet the aims of the Paris Agreement.

Not just green but greening

There are worrying signs that last year's COVID-induced dip in carbon emissions will be short lived as the world economy recovers and lockdowns are lifted. The challenge is to achieve sustained, comparable year-on-year reductions in emissions without massive disruption to our livelihoods and our everyday lives.

Since the Paris Conference of Parties (COP21) in 2015 there has been a huge increase in countries' ambitions to decarbonize. Around 70% of the world's carbon emissions are now covered by net zero targets and pledges. But this rising ambition has yet to be translated into a decisive reduction in emissions. The next big staging post for that challenge will occur later this year in Glasgow, Scotland which will host COP26 – arguably the most important UN climate change conference since the Paris meeting. I hope that, in years to come, we all talk about the Glasgow Agreement with the same importance and reverence as we do the Paris goals.

I sincerely believe that companies like bp with net zero ambitions, coherent plans, and near, medium, and long-term aims – companies that are committed to ‘greening’ – have a hugely significant part to play in achieving the Paris goals. Yes, the world needs more low carbon companies. But maybe more than anything, it also needs existing energy companies to decarbonize and in so doing use their scale and expertise to help bring about the deep and complex rewiring and replumbing of the global energy system that the world wants and needs to see over the next 30 years.

It will take producers and consumers, as well as companies, governments, and society, all working together to bring about the necessary change.

100th anniversary of the Statistical Review

In 30 years, the Statistical Review will celebrate its 100th anniversary reporting and analyzing energy developments in 2050, a year which has become the focal point for so many net zero ambitions and aims. What events and developments will our successors be able to look back on in 30 years' time? Did the world respond quickly and decisively enough to reduce the impacts of climate change?

We at bp are committed to playing our role. And I hope this year's Statistical Review will be useful to everyone pursuing a similar transition. The Review would not be possible without the continuing co-operation and transparency of governments and statistical agencies around the world who each year contribute their official data, and the bp team who make it so accessible and useful. You have my heartfelt thanks. And as ever, Spencer Dale and the team welcome any feedback you might have.

A handwritten signature in black ink that reads "Bernard Looney".

Bernard Looney
Chief executive officer
July 2021

2020 at a glance

The COVID-19 pandemic had a dramatic impact on energy markets, with both primary energy and carbon emissions falling at their fastest rates since the Second World War. Nevertheless, renewable energy continued to grow, with solar power recording its largest ever increase.

Energy developments

- Primary energy consumption fell by 4.5% in 2020 – the largest decline since 1945.
- The drop in energy consumption was driven mainly by oil, which contributed almost three-quarters of the net decline, although natural gas and coal also saw significant declines.
- Wind, solar and hydroelectricity all grew despite the fall in overall energy demand.
- By country, the US, India and Russia contributed the largest declines in energy consumption. China posted the largest increase (2.1%), one of only a handful of countries where energy demand grew last year.

Carbon emissions

- Carbon emissions from energy use fell by 6.3%, to their lowest level since 2011. As with primary energy, this was the largest decline since the end of World War II.

Oil

- The oil price (Dated Brent) averaged \$41.84/bbl in 2020 – the lowest since 2004.
- Oil consumption fell by a record 9.1 million barrels per day (b/d), or 9.3%, to its lowest level since 2011.
- Oil demand fell most in the US (-2.3 million b/d), the EU (-1.5 million b/d) and India (-480,000 b/d). China was virtually the only country where consumption increased (220,000 b/d).
- Global oil production shrank by 6.6 million b/d, with OPEC accounting for two-thirds of the decline. Libya (-920,000 b/d) and Saudi Arabia (-790,000 b/d) saw the largest OPEC declines, while Russia (-1.0 million b/d) and the US (-600,000 b/d) led non-OPEC reductions.
- Refinery utilization fell by a record 8.0 percentage points to 74.1%, the lowest level since 1985.

-4.5% and -6.3%

Decline in global primary energy consumption and carbon emissions, the largest falls since 1945



Natural gas

- Natural gas prices declined to multi-year lows: US Henry Hub averaged \$1.99/mmBtu in 2020 – the lowest since 1995, while Asian LNG prices (Japan Korea Marker) registered their lowest level on record (\$4.39/mmBtu).
- Natural gas consumption fell by 81 billion cubic metres (bcm), or 2.3%. Nevertheless, the share of gas in primary energy continued to rise, reaching a record high of 24.7%.
- Declines in gas demand were led by Russia (-33 bcm) and the US (-17 bcm), with China (22 bcm) and Iran (10 bcm) contributing the largest increases.
- Inter-regional gas trade reduced by 5.3%, completely accounted for by a 54 bcm (10.9%) drop in pipeline trade.
- LNG supply grew by 4 bcm or 0.6%, well below the 10-year average rate of 6.8% p.a. US LNG supply expanded by 14 bcm (29%), but this was partially offset by declines in most other regions, notably Europe and Africa.

Coal

- Coal consumption fell by 6.2 exajoules (EJ), or 4.2%, led by declines in the US (-2.1 EJ) and India (-1.1 EJ), with OECD coal consumption falling to its lowest level in our data series back to 1965.
- China and Malaysia were notable exceptions, increasing their consumption by 0.5 EJ and 0.2 EJ respectively.
- Global coal production was down 8.3 EJ (5.2%). As with consumption, production growth in China (1.1 EJ) was outweighed by sharp declines in several countries, including the US (-3.6 EJ), Indonesia (-1.3 EJ) and Colombia (-1.0 EJ).

Renewables, hydro and nuclear

- Renewable energy (including biofuels but excluding hydro) rose by 9.7%, slower than the 10-year average (13.4% p.a.) but the increment in energy terms (2.9 EJ) was similar to increases seen in 2017, 2018 and 2019.
- Solar electricity rose by a record 1.3 EJ (20%), however, wind (1.5 EJ) provided the largest contribution to renewables growth.
- Solar capacity expanded by 127 GW, while wind capacity grew 111 GW – almost double its previous highest annual increase.
- China was the largest individual contributor to renewables growth (1.0 EJ), followed by the US (0.4 EJ). Europe, as a region, contributed 0.7 EJ.
- Hydroelectricity grew by 1.0%, again led by China (0.4 EJ), while nuclear energy fell 4.1%, driven mainly by declines in France (-0.4 EJ), the US (-0.2 EJ) and Japan (-0.2 EJ).

Electricity

- Electricity generation fell by 0.9% – more than the decline in 2009 (-0.5%), the only other year in our data series (which starts in 1985) when electricity demand fell.
- The share of renewables in power generation increased from 10.3% to 11.7%, while coal's share fell 1.3 percentage points to 35.1% – a new low in our data series.

Key minerals

- Lithium production fell 4.6% on a drop in Australian output, while Cobalt output rose 2.9% as production in the Democratic Republic of Congo partially recovered from its dip in 2019.
- Rare earth metals production expanded by 23.2%, driven by strong growth in Australia and the US.

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