



# Statistical Review of World Energy – 2021

## Germany's energy market in 2020

Germany's carbon emissions decreased by 11% last year driven by declines across all fossil fuels in the energy mix and increase in renewables

1. Primary energy consumption fell by 7.5% last year, the largest decline since 2009
2. Consumption of all fuels in the energy mix fell, except for renewables, which increased by 4.7%, slower growth than the average of the previous decade (9.7%)
3. The large declines in the consumption of coal (-18%) and oil (-9.9%) led to a significant decline in CO<sub>2</sub> emissions (-11%) last year

**-7.5%**

Decline in primary energy consumption

**-18%**

Decline in coal consumption

**-11%**

Decline in CO<sub>2</sub> emissions

**+4.7%**

Growth in renewable power generation

- ▶ Primary energy consumption in Germany declined by 0.9 EJ (-7.5%). This was the third consecutive annual decline but the largest in more than a decade. The rate of decline last year also far exceeded the 10-year annual average of -0.1%.
- ▶ Oil consumption declined by 225 Kb/d (-9.9%), reflecting the decline in mobility due to Covid restrictions throughout the year.
- ▶ Gas demand declined by 2.1 bcm (-2.7%) and coal declined 0.4 EJ (-18%). The large contraction in coal was supported by its falling share in power generation. This squeeze on coal in power generation reflected strong growth in wind and solar and declining overall electricity demand.
- ▶ The share of electricity generated from coal fell to 24% compared to 43% just over 10 years ago. The share of gas in power generation increased 1 percentage point to 16% last year.
- ▶ Wind and solar output increased by 3.4% and 8.4%, respectively. These rates are below the global average, reflecting the relatively mature status of the German market. Renewables made up 18% of primary energy and 41% of power generation.
- ▶ Nuclear output continued to fall, declining 0.1 EJ in 2020, the same rate as the annual average over the previous decade.
- ▶ Carbon emissions declined by 77 Mt (-11%) while Germany's carbon intensity (carbon emissions per unit GDP) declined by 6.4%, well ahead of the global average decline of 2.9%. This above average decline occurred even though Germany's carbon intensity is already ~40% below the global average level.
- ▶ Similarly, Germany's overall energy intensity (the amount of energy required per unit of GDP) declined by 2.2% in 2020, more than double the global average rate of improvement of -1.0%.





Units in EJ unless otherwise stated	Level			Growth rate per annum				Share		
				(%)		(EJ)		(%)		
	2009	2019	2020	2009-19	2020	2009-19	2020	2009	2019	2020
<b>Consumption</b>										
Primary energy	13	13	12	-0.1	-7.5	0	-0.9	100	100	100
Oil	4.8	4.7	4.2	-0.3	-9.9	0	-0.5	37	36	35
Natural gas	3.0	3.2	3.1	0.5	-2.7	0	-0.1	23	24	26
Coal	3.0	2.2	1.8	-2.9	-18	-0.1	-0.4	23	17	15
Nuclear	1.3	0.7	0.6	-6.2	-15	-0.1	-0.1	9.7	5.1	4.7
Hydro	0.2	0.2	0.2	0	-8.3	0	0	1.4	1.4	1.4
Renewables	0.8	2.1	2.2	9.7	4.7	0.1	0.1	6.3	16	18
Wind	0.4	1.1	1.2	12	3.4	0.1	0	2.8	8.6	9.6
Solar	0.1	0.4	0.4	21	8.4	0	0	0.5	3.2	3.7
Other renewables*	0.4	0.6	0.6	3.4	4.6	0	0	3.1	4.3	4.9
<b>Native units</b>										
Oil (Mb/d)	2.3	2.3	2.0	-0.3	-9.9	0	-0.2			
Natural gas (bcm)	84	89	87	0.5	-2.7	0.4	-2.1			
<b>Electricity generation (TWh)</b>										
Total	596	609	572	0.2	-6.4	1.4	-38	100	100	100
Oil	10	4.8	4.3	-7.2	-10	-0.5	-0.5	1.7	0.8	0.8
Natural gas	81	90	92	1.1	1.8	0.9	1.9	14	15	16
Coal	253	171	135	-3.8	-22	-8.2	-37	43	28	24
Nuclear	135	75	64	-5.7	-14	-6.0	-11	23	12	11
Hydro	19	20	19	0.6	-8.0	0.1	-1.6	3.2	3.3	3.3
Renewables	76	223	232	11	4.1	15	9.7	13	37	41
<b>Production</b>										
Oil (Mb/d)										
Biofuels (Kboe/d)	47	66	65	3.3	-0.6	1.8	-0.4			
Natural gas (bcm)	13	5.3	4.5	-8.3	-16	-0.7	-0.8			
Coal	1.9	1.2	1.0	-4.8	-18	-0.1	-0.2			
<b>Carbon</b>										
CO <sub>2</sub> emissions (billion tonnes)	0.8	0.7	0.6	-1.0	-11	0	-0.1			
<b>Macro</b>										
Population (millions)	81	84	84	0.3	0.3	0.3	0.3			
GDP (USD billion – PPP, 2015)	3,435	4,166	3,953	1.9	-5.1	73	-214			

EJ = exajoules

\*includes biomass, geothermal and biofuels