

Statistical Review of World Energy – 2022

The Brazilian energy system in 2021

Brazil's primary energy consumption bounced back in 2021 – to almost pre-pandemic level in 2019 (12.57 EJ in 2021 and 12.56 EJ in 2019). Except for hydro, all fuels saw their consumption increase between 2020 and 2021

1. Economic recovery post-Covid saw GDP increase by 5%
2. Renewables grew 10% and their share (excluding hydro) in electricity generation was 22%
3. Fossil fuel (oil, natural gas and coal) electricity generation share increased from 13.6% in 2020 to 20.3% in 2021

5%

Increase in Brazil's primary energy consumption

12%

Increase in CO₂ from energy

5.6%

Increase in total electricity generation

- ▶ Primary energy consumption returned to pre-pandemic levels (12.57 EJ).
- ▶ The combined share of energy consumption from oil, gas and coal stood at 53%, similar to its pre-pandemic level.
- ▶ Natural gas was the fastest-growing fuel, increasing 29% above its 2020 level.
- ▶ The share of coal in primary energy was 5.7%, compared to 24% at a global level.
- ▶ Natural gas consumption increased to 40 bcm (a 29% increase). The share of natural gas in primary energy increased from 9.4% in 2020 to 11.6% in 2021.
- ▶ Natural gas production was similar to 2020, 24 bcm, still below the peak of 27 bcm in 2017. LNG imports increased by 204% to 10.1 bcm, with the US providing the largest share (86%).
- ▶ Fossil fuel (natural gas, oil, and coal) -fired electricity generation increased by 48.6 TWh in 2021.
- ▶ Renewables in primary energy grew by 10%, but their share of primary energy increased only from 18.2% to 19% (2020-2021).
- ▶ Brazil installed 5.2 GW of solar capacity and 4 GW of wind capacity. The total installed capacity at the end of 2021 amounts to 13.1 GW of solar capacity and 21.1 GW of wind capacity.
- ▶ Total electricity generation increased from 621 TWh to 654 TWh, a 5.6% increase.
- ▶ Coal's share in power generation decreased from 3.9% in 2019 to 3.7% in 2021. Renewables generation (excluding hydro) increased from 127 TWh in 2020 to 144 TWh in 2021, representing a 22% share.
- ▶ Brazilian biofuels production dropped from 394 to 376 kboe/d, a decrease of 4.3%; biofuel consumption increased from 390 to 412 kboe/d, a 5.9% increase.
- ▶ CO₂ emissions from energy use increased by 12.1% to over 436 Mt, slightly up from its pre-pandemic level (425.1 Mt).





Units in EJ unless otherwise stated	Level			Growth rate per annum				Share		
				(%)		(EJ)		(%)		
	2010	2020	2021	2010-20	2021	2010-20	2021	2010	2020	2021
Consumption										
Primary energy	11.3	12.0	12.6	0.6	5.0	0.7	0.6	100.0	100.0	100.0
Oil	4.6	4.2	4.5	-0.8	5.9	-0.3	0.2	40.4	35.1	35.5
Natural gas	1.0	1.1	1.5	1.3	29.1	0.1	0.3	8.8	9.4	11.6
Coal	0.6	0.6	0.7	-0.3	21.6	0.0	0.1	5.4	4.9	5.7
Nuclear	0.1	0.1	0.1	-0.9	4.5	0.0	0.0	1.2	1.1	1.1
Hydro	4.0	3.7	3.4	-0.8	-8.6	-0.3	-0.3	35.7	31.2	27.2
Renewables	1.0	2.2	2.4	8.5	9.5	1.2	0.2	8.5	18.2	19.0
Wind	0.0	0.5	0.7	37.8	26.6	0.5	0.1	0.2	4.5	5.4
Solar	0.0	0.1	0.2	0.0	55.7	0.1	0.1	0.0	0.8	1.3
Other renewables*	0.9	1.5	1.6	5.1	0.5	0.6	0.0	8.3	12.9	12.3
Native units										
Oil (Mb/d)	2,277.5	2,133.8	2,251.8	-0.7	5.8	-143.7	118.0			
Natural gas (bcm)	27.6	31.4	40.4	1.3	29.1	3.8	9.0			
Electricity generation (TWh)										
Total	515.8	621.3	654.4	1.8	5.6	105.5	33.1	100.0	100.0	100.0
Oil	15.7	10.5	21.9	-4.0	108.6	-5.2	11.4	3.0	1.7	3.3
Natural gas	36.5	53.5	86.9	3.9	62.9	17.0	33.4	7.1	8.6	13.3
Coal	11.7	20.3	24.1	5.7	19.0	8.6	3.8	2.3	3.3	3.7
Nuclear	14.5	14.1	14.7	-0.4	4.9	-0.5	0.7	2.8	2.3	2.2
Hydro	403.3	396.4	362.8	-0.2	-8.2	-6.9	-33.6	78.2	63.8	55.4
Renewables	34.1	126.5	144.0	14.0	14.1	92.4	17.5	6.6	20.4	22.0
Other †	0.0	0.0	0.0	-100.0	0.0	0.0	0.0	0.0	0.0	0.0
Production										
Oil (Mb/d)	2,136.9	3,030.3	2,987.2	3.5	-1.2	893.4	-43.1			
Biofuels (Kboe/d)	292.3	394.0	375.8	3.0	-4.3	101.7	-18.1			
Natural gas (bcm)	15.0	24.2	24.3	4.9	0.7	9.2	0.1			
Coal (Mt)	7.7	7.1	8.2	-0.9	17.0	-0.6	1.2			
Emissions										
Total CO ₂ e (Mt) ‡	448.9	448.6	495.8	0.0	10.8	-0.3	47.2			
CO ₂ from energy (Mt)	399.4	390.5	436.6	-0.3	12.1	-8.9	46.1			
Macro										
Population (millions)	195.9	212.7	214.2	0.8	0.9	16.8	1.4			
GDP (USD billion – PPP, 2015)	2,846.7	2,914.0	3,050.9	0.2	5.0	67.3	136.9			

EJ = exajoules

* Includes biomass, geothermal and biofuels

† Includes sources not specified elsewhere, e.g. pumped hydro, non-renewable waste and statistical discrepancies.

‡ Total emissions include CO₂ emissions from energy use, most non-energy related industrial processes, and natural gas flaring, plus methane emissions associated with the production, transmission and distribution of fossil fuels, expressed in CO₂ equivalent terms.