bp Energy Outlook 2025

Global insights

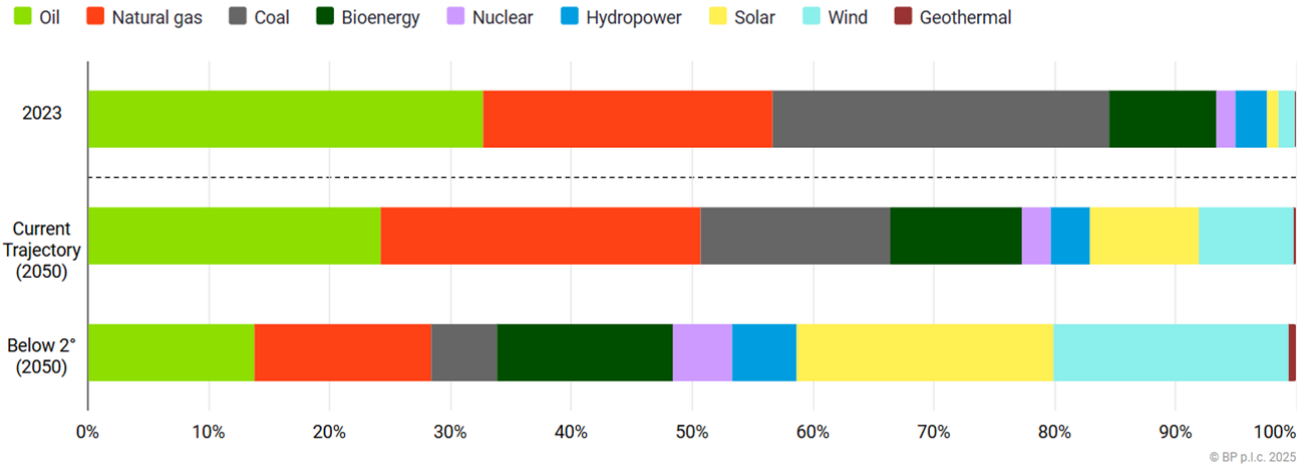
Carbon emissions decline between 25% and 90% over the course of the Outlook, with the greatest share coming from the decarbonization of power and industry

Consumption of energy increases throughout Current Trajectory, driven by electrification of industry, transport and buildings

Solar and wind **increases 2.7x by 2035** in Current Trajectory, becoming the main source of power generation by 2050

Demand for **oil and gas remains robust** over the next decade across both scenarios

Primary energy consumption mix by source



Summary

- Global GDP growth averages 2.5% per year over the Outlook. This is weaker than average global growth of 3.4% over the past 25 years, mostly due to lower global population growth.
- Primary energy demand increases by nearly 10% to 2050 in **Current Trajectory** but declines by 25% in **Below 2°** due to greater improvements in energy efficiency. Emerging economies excluding China significantly increase demand in both scenarios out to 2035.
- Oil demand is broadly stable over the next decade, supported by increasing demand for petrochemical feedstocks. However, electrification and fuel efficiency ultimately force oil demand to fall by over 15% in **Current Trajectory** and by two-thirds in **Below 2°** in 2023-50.
- The outlook for natural gas is highly dependent on the pace of the energy transition, increasing 20% in **Current Trajectory** and decreasing 55% in **Below 2°** in 2023-50. In **Current Trajectory**, over 80% of the growth out to 2035 occurs in emerging economies.
- Coal's share of primary energy falls around 45% and 80% in **Current Trajectory** and **Below 2°** respectively, with most of the decline from the power sector.
- Modern bioenergy, which includes solid biomass, biofuels and biomethane, increases 1.7-2.7% per year on average in 2023-50.
- Electricity generation roughly doubles in **Current Trajectory** and more than doubles in **Below 2°** in 2023-50. This is led by significant growth in wind and solar, which account for between half and three-quarters of all electricity generation in 2050.
- In **Below 2°**, low carbon hydrogen reaches significant deployment to decarbonize hard-to-abate processes and sectors. In this scenario, production reaches 355Mt per annum by 2050 and is 62% green.
- As the energy system decarbonizes, net emissions decline in both scenarios from 41GtCO_2e in 2023 to 31GtCO_2e in **Current Trajectory** and 4GtCO_2e in **Below 2°** by 2050. In the latter scenario, CCS accounts for 5.5Gt of the emissions reduction in 2050.

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	Level in 2050			Shares in 2050 (%)		Change 2023-2050 (% p.a.)	
	2023	Current Trajectory	Below 2°	2023	Current Trajectory	Below 2°	Current Trajectory	Below 2°
Primary energy consumption by energy type (EJ)								
Total	**601**	**653**	**449**	**100%**	**100%**	**100%**	**0.3%**	**-1.1%**
Oil†	197	158	62	33%	24%	14%	-0.8%	-4.2%
Natural gas	144	173	66	24%	27%	15%	0.7%	-2.9%
Coal	167	102	24	28%	16%	5.4%	-1.8%	-6.9%
Nuclear	9.9	16	22	1.6%	2.5%	4.9%	1.8%	3.0%
Hydro	15	21	24	2.5%	3.2%	5.3%	1.2%	1.7%
Renewables (incl. biofuels)	68	182	251	11%	28%	56%	3.7%	5.0%
Primary energy consumption (native units)								
Oil† (Mb/d)	100	83	34				-0.7%	-3.9%
Natural gas (Bcm)	4,007	4,806	1,822				0.7%	-2.9%
Total final consumption by sector (EJ)								
Total	**493**	**572**	**406**	**100%**	**100%**	**100%**	**0.6%**	**-0.7%**
Transport	121	122	92	25%	21%	237%	0%	-1.0%
Feedstocks	41	58	42	8.3%	10%	10%	1.3%	0.1%
Buildings	117	145	85	24%	25%	21%	0.8%	-1.2%
Industry	214	246	186	43%	43%	46%	0.5%	-0.5%
Generation								
Power (TWh)	29,795	57,717	70,249				2.5%	3.2%
Hydrogen (Mt)	79	136	359				2.0%	5.8%
Production								
Liquids† (Mb/d)	99	87	32				-0.5%	-4.1%
Natural gas (Bcm)	4,059	4,806	1,844				0.6%	-2.9%
Coal (EJ)	179	108	23				-1.8%	-7.4%
Emissions								
Carbon emissions†† (Gt of CO_2e)	41	31	4.1				-1.1%	-8.2%
CCS (Mt of CO_2)	-12	-715	-5,487				16%	26%

EJ = exajoules

Primary energy is accounted using the direct equivalent method, which directly equates secondary energy from non-combustible sources to the primary energy used to produce it.

† Oil supply includes crude oil, shale oil, oil sands, natural gas liquids, liquid fuels derived from coal and gas, refinery gains, and biofuels.

†† Carbon emissions include CO_2 emissions from energy use, industrial processes, natural gas flaring, and methane emissions from energy production.

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