



# bp Energy Outlook – 2024

## Insights from the UK

In **Current Trajectory** and **Net Zero**, primary energy consumption falls by 19% and 27%, respectively, between 2022 and 2050; fossil fuel consumption falls and renewable energy consumption rises

1. Primary energy consumption falls from 2022 to 2050 by 19% and 27% in **Current Trajectory** and **Net Zero**, respectively
2. The share of electricity in total final energy consumption rises from 21% in 2022 to between 46% and 60% in 2050
3. Power generation from solar and wind rises roughly 400-500% in 2050 in **Current Trajectory** and **Net Zero**, respectively

### 19% to 27%

fall in primary energy consumption from 2022 to 2050

### 46% to 60%

share of electricity in total final energy consumption in 2050

### 50% to 61%

share of renewables in primary energy consumption in 2050

### 0.1Gt to -0.1Gt

net CO<sub>2</sub> emissions by 2050

- ▶ The UK's economy grows at a rate of 1.4% a year in 2022-50, similar to the growth rate over the previous 20 years. This mostly reflects higher standards of living measured by GDP per capita. Population growth is close to zero.
- ▶ Primary energy consumption decreases in both scenarios. This reflects faster growth in energy efficiency than economic growth. Energy consumption falls by 19% and 27% in **Current Trajectory** and **Net Zero**, respectively, between 2022-50.
- ▶ The UK economy becomes increasingly electrified in both scenarios. The share of electricity in total final energy consumption increases to 46% and 60% in 2050 in **Current Trajectory** and **Net Zero**, respectively (from 21% in 2022).
- ▶ The shift towards electric vehicles contributes to lower oil consumption in both scenarios. Oil consumption falls to 0.5 Mb/d and 0.1 Mb/d in 2050 in **Current Trajectory** and **Net Zero**, respectively, from 1.3 Mb/d in 2022.
- ▶ Power generation from solar and wind increases to 452 TWh and 548 TWh in **Current Trajectory** and **Net Zero**, respectively, from 94 TWh in 2022. The shares of solar and wind in the electricity mix increase to around 70% in both scenarios from 27% in 2022.
- ▶ Hydrogen production increases to 0.9 Mt and 8.9 Mt in **Current Trajectory** and **Net Zero**, respectively, from 0.2 Mt in 2022. Unlike today, hydrogen produced by 2050 is mostly low carbon. This is true in both scenarios.
- ▶ Natural gas consumption decreases in both scenarios. Annual consumption declines to 37 Bcm and 33 Bcm in **Current Trajectory** and **Net Zero**, respectively, from 72 Bcm in 2022.
- ▶ Net CO<sub>2</sub> emissions decrease to 108 Mt and -61 Mt in **Current Trajectory** and **Net Zero**, respectively, from 369 Mt in 2022. CO<sub>2</sub> removal technologies make negative emissions possible.



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	Level in 2050			2022	Shares in 2050 (%)		Change 2022-2050 (% p.a.)	
	2022	Current Trajectory	Net Zero		Current Trajectory	Net Zero	Current Trajectory	Net Zero
<b>Primary energy consumption by energy type (EJ)</b>								
<b>Total</b>	<b>6.7</b>	<b>5.4</b>	<b>4.9</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>-0.8%</b>	<b>-1.1%</b>
Oil†	2.7	1.0	0.2	40%	18%	3.5%	-3.5%	-9.4%
Natural gas	2.6	1.3	1.2	39%	25%	24%	-2.3%	-2.8%
Coal	0.3	0	0	5.0%	0.6%	0.3%	-8.0%	-10%
Nuclear	0.2	0.3	0.6	2.6%	5.7%	11%	2.1%	4.3%
Hydro	0	0	0	0.3%	0.4%	0.6%	0.3%	1.5%
Renewables (incl. biofuels)	0.9	2.7	3.0	14%	50%	61%	3.9%	4.3%
<b>Primary energy consumption (native units)</b>								
Oil† (Mb/d)	1.3	0.5	0.1					
Natural gas (Bcm)	72	37	33					
<b>Total final consumption by sector (EJ)</b>								
<b>Total</b>	<b>6.0</b>	<b>4.8</b>	<b>3.7</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>-0.8%</b>	<b>-1.8%</b>
Transport	2.1	1.5	1.3	34%	31%	35%	-1.2%	-1.7%
Feedstocks	0.2	0.2	0.1	3.7%	3.9%	3.8%	-0.6%	-1.7%
Buildings	2.2	2.0	1.2	36%	41%	32%	-0.4%	-2.2%
Industry	1.5	1.2	1.1	25%	24%	29%	-1.0%	-1.3%
<b>Generation</b>								
Power (TWh)	348	635	772				2.2%	2.9%
Hydrogen (Mt)	0.2	0.9	8.9				5.4%	14%
<b>Production</b>								
Oil† (Mb/d)	0.8	0.4	0.1				-2.7%	-7.9%
Natural gas (Bcm)	38	19	2.8				-2.5%	-8.9%
Coal (EJ)	0	0	0				-5.5%	-6.8%
<b>Emissions</b>								
Carbon emissions†† (Gt of CO <sub>2</sub> e)	0.4	0.1	-0.1				-4.3%	
CCUS (Mt of CO <sub>2</sub> )	0	-35	-134					

EJ = exajoules

† Oil supply includes crude oil, shale oil, oil sands, natural gas liquids, liquid fuels derived from coal and gas, and refinery gains, but excludes biofuels. Oil demand includes consumption of all liquid hydrocarbons but excludes biofuels. †† Carbon emissions include CO<sub>2</sub> emissions from energy use, industrial processes, natural gas flaring, and methane emissions from energy production.