



Global energy consumption grows by around one-third over the Outlook; energy intensity falls faster than at any time since at least 1965, and the energy mix shifts towards lower carbon fuels

1. Renewables are the fastest growing fuel source, nearly quintupling over the Outlook.
2. Oil and gas account for more than half of global energy in 2040, down from 57% today.
3. Coal's share of power generation declines from 40% in 2017 to nearly one-quarter in 2040.

+1.2%

Annual growth in global energy consumption

50%

Contribution of renewables to primary energy growth

40%

Proportion of CO₂ emissions from power sector in 2040

+7%

Growth in global CO₂ emissions from energy use

- ▶ In the Evolving transition scenario world energy demand increases by one-third from 2017 to 2040.
- ▶ All of this growth comes from developing economies, with emerging Asia (India, China and other developing Asia) accounting for two-thirds of the increase.
- ▶ Nearly half of the growth in energy consumption comes from industrial uses (combusted and non-combusted); just over a third from buildings; and about a sixth from transport.
- ▶ Natural gas grows robustly, overtaking coal as the second largest source of energy by the mid-2020s and converging on oil by the end of the Outlook. Natural gas contributes around a third of the increase in primary energy.
- ▶ Demand for oil and other liquid fuels increases by 10 Mb/d (to 108 Mb/d). Most of that growth happens during the first 10 years with demand broadly plateauing in the 2030s.
- ▶ Non-combusted use of liquid fuels (7 Mb/d) is the main source of demand growth, followed by transport (6 MB/d).
- ▶ Global coal consumption is broadly flat (-0.1%), with falls in China and the OECD offset by increases in India and other developing Asia.
- ▶ Renewables and natural gas are the only energy sources whose share in primary energy increases over the Outlook, and together account for 85% of the increase. Renewables share rises from 4% today to 15% by 2040.
- ▶ Global oil production becomes geographically more concentrated as low-cost producers gain share. The Middle East, US, and Russia account for two-thirds of oil production in 2040, up from 60% in 2017.
- ▶ The US, the Middle East and Russia account for 60% of the gas production increase. Liquefied natural gas (LNG) more than doubles, driven by the US and the Middle East, overtaking gas shipped inter-regionally by pipeline.
- ▶ CO₂ emissions from energy use rise by 7% by 2040. In 2040, 46% of CO₂ emissions are from the industrial sector; the transport and buildings sectors contribute just over a quarter each.



BP Energy Outlook – 2019

Insights from the Evolving transition scenario – Global



	Level		Shares		Change (abs.)		Change (%)		Change (annual)*	
	2017	2040	2017	2040	1995-2017	2017-2040	1995-2017	2017-2040	1995-2017	2017-2040
Primary energy consumption (units in Mtoe unless otherwise noted)										
Total	13511	17866			4946	4355	58%	32%	2.1%	1.2%
Oil† (Mb/d)	96	104	34%	27%	26	8	37%	8%	1.4%	0.3%
Gas (Bcm)	3670	5370	23%	26%	1558	1699	74%	46%	2.5%	1.7%
Coal	3731	3625	28%	20%	1507	-106	68%	-3%	2.4%	-0.1%
Nuclear	596	770	4%	4%	71	173	13%	29%	0.6%	1.1%
Hydro	919	1245	7%	7%	355	327	63%	36%	2.2%	1.3%
Renewables (including biofuels)	571	2748	4%	15%	526	2177	>1000%	381%	>10%	7.1%
Transport^	2817	3521	21%	20%	1117	704	66%	25%	2.3%	1.0%
Industry^	5853	7443	43%	42%	2093	1590	56%	27%	2%	1.1%
Non-combusted^	856	1263	6%	7%	346	407	68%	48%	2.4%	1.7%
Buildings^	3985	5638	29%	32%	1390	1653	54%	41%	2%	1.5%
Power	5751	8972	43%	50%	2515	3221	78%	56%	2.6%	2%
Production										
Oil† (Mb/d)	96	104			26	8	37%	9%	1.5%	0.4%
Gas (Bcm)	3680	5370			1587	1690	76%	46%	2.6%	1.7%
Coal	3769	3651			1529	-118	68%	-3%	2.4%	-0.1%

* Compound annual growth rate.

† 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.

^ Includes electricity and the associated conversion losses in power generation.



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