



The US becomes energy self-sufficient by 2020 and maintains its position as the world’s largest producer of liquid fuels and natural gas

1. The share of renewables in the US fuel mix grows from 6% today to 18% by 2040.
2. Natural gas demand surpasses oil in the early-2030s; renewables surpass coal in the late 2020s.
3. US energy production as a share of consumption is projected to rise from 89% in 2017 to 115% by 2040.

-1%

Decline in US energy consumption, 2017-40

12%

Share of global energy consumption in 2040

+29%

Growth in US energy production, 2017-40

14%

Share of global energy production in 2040

- ▶ Energy consumption is essentially flat (-1% to 2040). Energy use in power generation grows by 13%. Among final sectors, growth in buildings (+6%), non-combusted uses (+28%), and industry (+1%) offsets a fall in transport (-15%).
- ▶ Energy consumed in power generation increases by 0.5% p.a. from 2017-40, similar to the growth rate of 1995-2017.
- ▶ Improvements in vehicle efficiency cause energy use in transport to fall by 0.7% p.a., after growing by 0.8% p.a. over 1995-2017.
- ▶ By fuel, growth in consumption of renewables (+199%) and natural gas (+29%) is offset by declines in coal (-58%), oil (-18%) and nuclear power (-46%).
- ▶ Natural gas becomes the leading fuel, accounting for 37% of US energy consumption, up from 28% today. Renewables (18% in 2040) also gain market share while coal and oil lose significant share (accounting for 6% and 31% of energy use, respectively, in 2040).
- ▶ Renewables (including biofuels) see the largest growth increment of any fuel growing by 4.9% p.a..
- ▶ Renewables surpass coal as the 2nd-largest source of power generation (by fuel input) in the late 2020s and nearly equal natural gas by 2040.
- ▶ Domestic energy production increases by 29%; growth in natural gas (+54%), renewables (+200%) and oil (+35%) outpaces declines in coal (-37%) and nuclear power (-46%).
- ▶ The US remains the largest producer of liquid fuels and natural gas. Oil production increases by 5 Mb/d over the Outlook to reach 19 Mb/d by 2040; the US becomes a net oil exporter in the early 2020s.
- ▶ Natural gas output rises by nearly 400 Bcm to over 1130 Bcm, and LNG exports rise to more than 175 Bcm.
- ▶ Energy intensity (the amount of energy per unit of GDP) declines by 36% 2017-40, in line with the decline from 1995-2017 and with the global decline to 2040.
- ▶ Flat energy consumption and the shift in the fuel mix drives a decline in CO₂ emissions from energy use (-20%) by 2040.





	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	2235	2223			164	-12	8%	-1%	0.3%	0.0%
Oil† (Mb/d)	19	15	39%	31%	1	-3	6%	-18%	0.3%	-0.9%
Gas (Bcm)	739	957	28%	37%	141	218	24%	29%	1%	1.1%
Coal	332	138	15%	6%	-149	-194	-31%	-58%	-1.7%	-3.8%
Nuclear	192	104	9%	5%	31	-88	20%	-46%	0.8%	-2.6%
Hydro	67	69	3%	3%	-3	2	-5%	2%	-0.2%	0.1%
Renewables (including biofuels)	132	394	6%	18%	114	263	635%	199%	9.5%	4.9%
Transport [^]	670	568	30%	26%	113	-102	20%	-15%	0.8%	-0.7%
Industry [^]	594	598	27%	27%	-84	4	-12%	1%	-0.6%	0.0%
Non-combusted [^]	116	149	5%	7%	9	32	9%	28%	0.4%	1.1%
Buildings [^]	855	908	38%	41%	126	53	17%	6%	0.7%	0.3%
Power	912	1026	41%	46%	82	115	10%	13%	0.4%	0.5%
Production										
Oil† (Mb/d)	14	19			5	5	54%	35%	2%	1.3%
Gas (Bcm)	735	1132			231	397	46%	54%	1.7%	1.9%
Coal	371	233			-156	-138	-30%	-37%	-1.6%	-2.0%

* 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.

