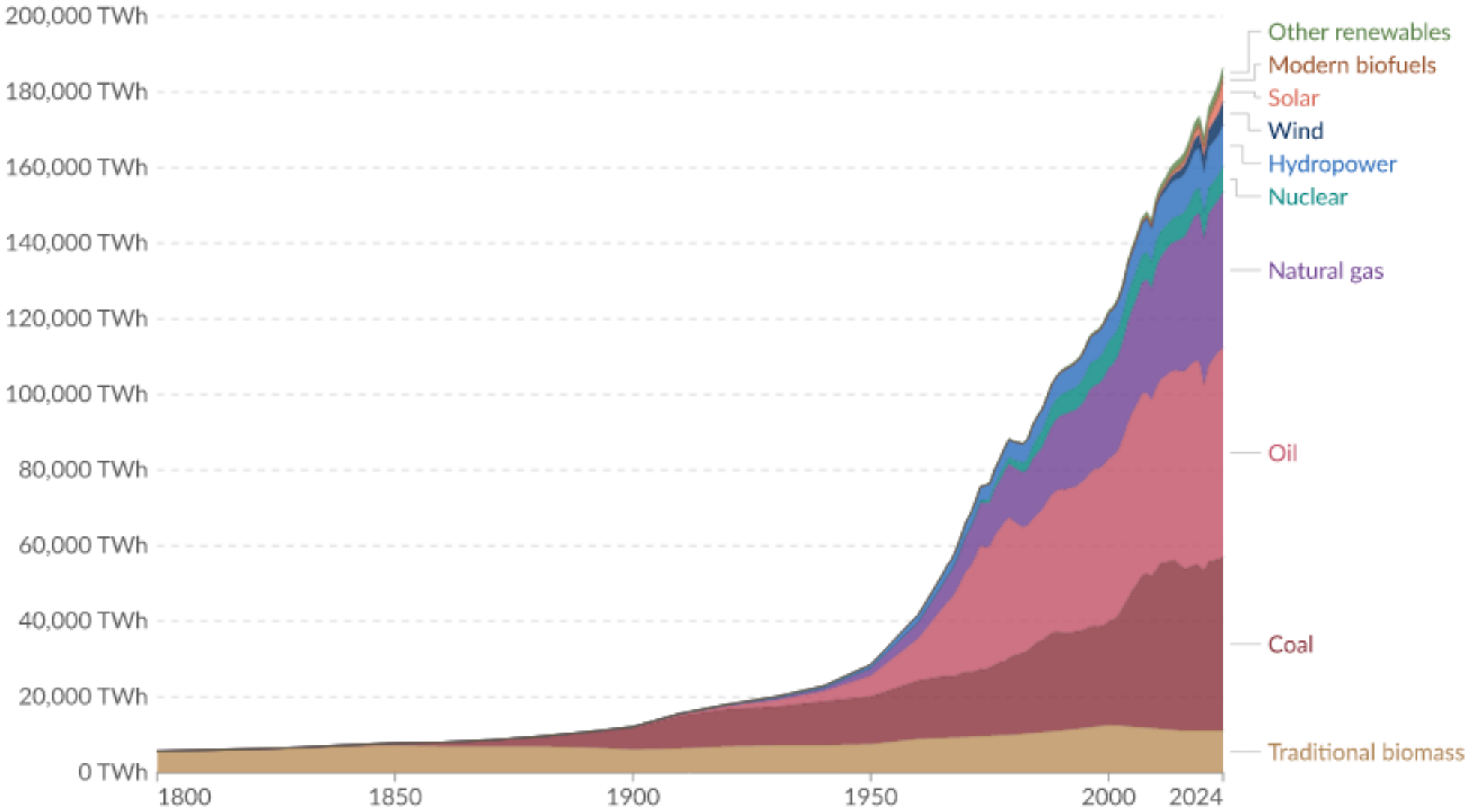
Global primary energy consumption by source

Our World in Data

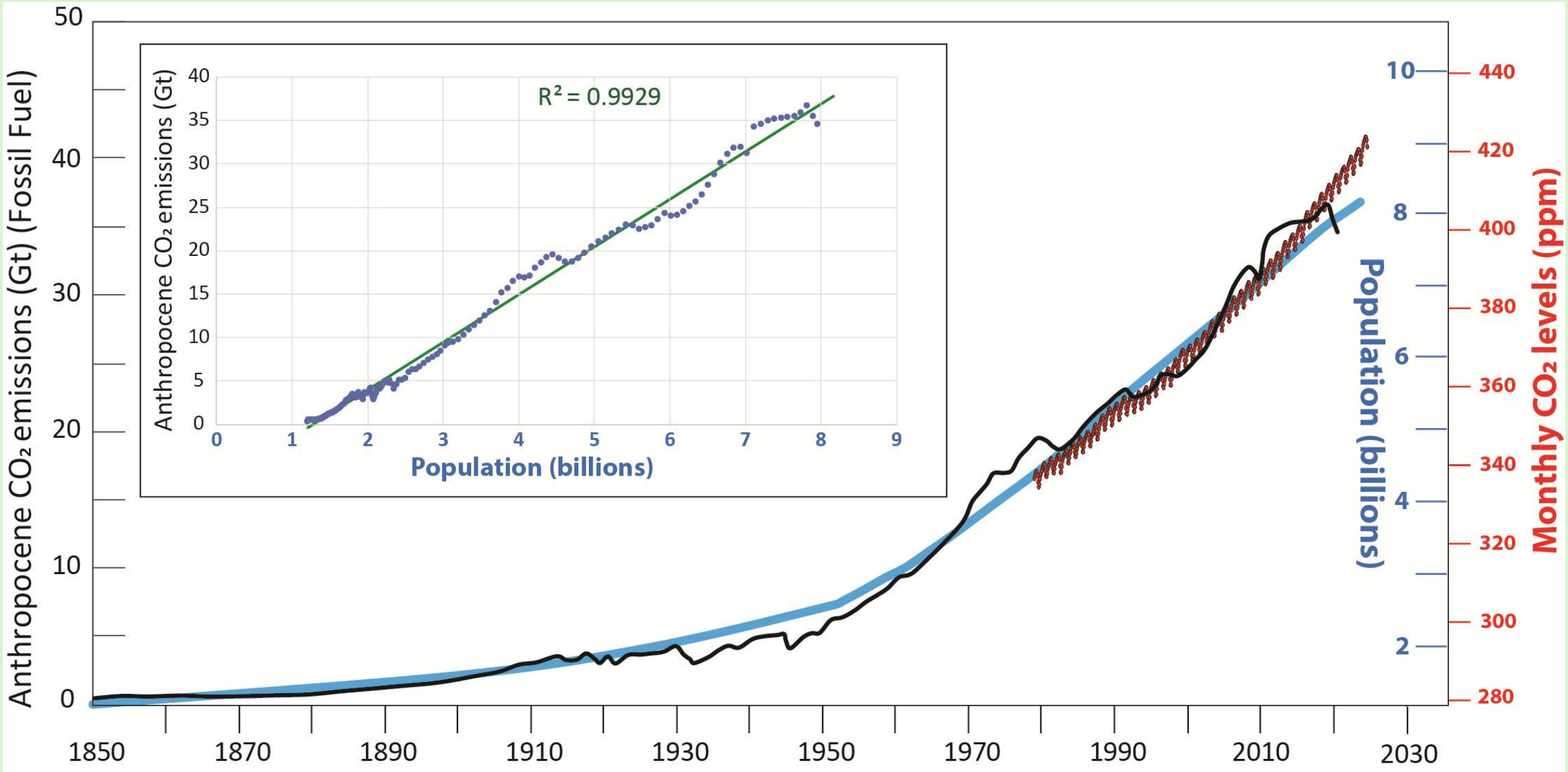
Primary energy is based on the substitution method and measured in terawatt-hours.



Data source: Energy Institute - Statistical Review of World Energy (2025); Smil (2017)

OurWorldinData.org/energy | CC BY

Note: In the absence of more recent data, traditional biomass is assumed constant since 2015.


Anthropocene CO_2 emissions (Gt) (Fossil Fuel)
50
40
30
20
10
0
1850
1870
1890
1910
1930
1950
1970
1990
2010
2030
Population (billions)
10
8
6
4
2
Monthly CO_2 levels (ppm)
440
420
400
380
360
340
320
300
280
Anthropocene CO_2 emissions (Gt)
40
35
30
25
20
15
10
5
0
$R^2 = 0.9929$
0
1
2
3
4
5
6
7
8
9
Population (billions)

"By 2028.., the power going to AI-specific purposes will rise to between 165 and 326 TWh per year.
.. more than currently (2024) used for all US data centres for all purposes"

By 2028, the researchers estimate, the power going to AI-specific purposes will rise to between 165 and 326 terawatt-hours per year. That's more than all electricity currently used by US data centers for all purposes; it's enough to power 22% of US households each year. That could generate the same emissions as driving over 300 billion miles—over 1,600 round trips to the sun from Earth.

The researchers were clear that adoption of AI and the accelerated server technologies that power it has been the primary force causing electricity demand from data centers to skyrocket after remaining stagnant for over a decade. Between 2024 and 2028, the share of US electricity going to data centers may triple, from its current 4.4% to 12%.

This unprecedented surge in power demand for AI is in line with what leading companies are announcing. SoftBank, OpenAI, Oracle, and the Emirati investment firm MGX intend to spend $500 billion in the next four years on new data centers in the US. The first has started construction in Abilene, Texas, and includes eight buildings that are each the size of a baseball stadium. In response to a White House request for information, Anthropic suggested that the US build an additional 50 gigawatts of dedicated power by 2027.

Data centers in the US used somewhere around 200 terawatt-hours of electricity in 2024, roughly what it takes to power Thailand for a year.




AI

Gansu Dunhuang Solar Park, China

