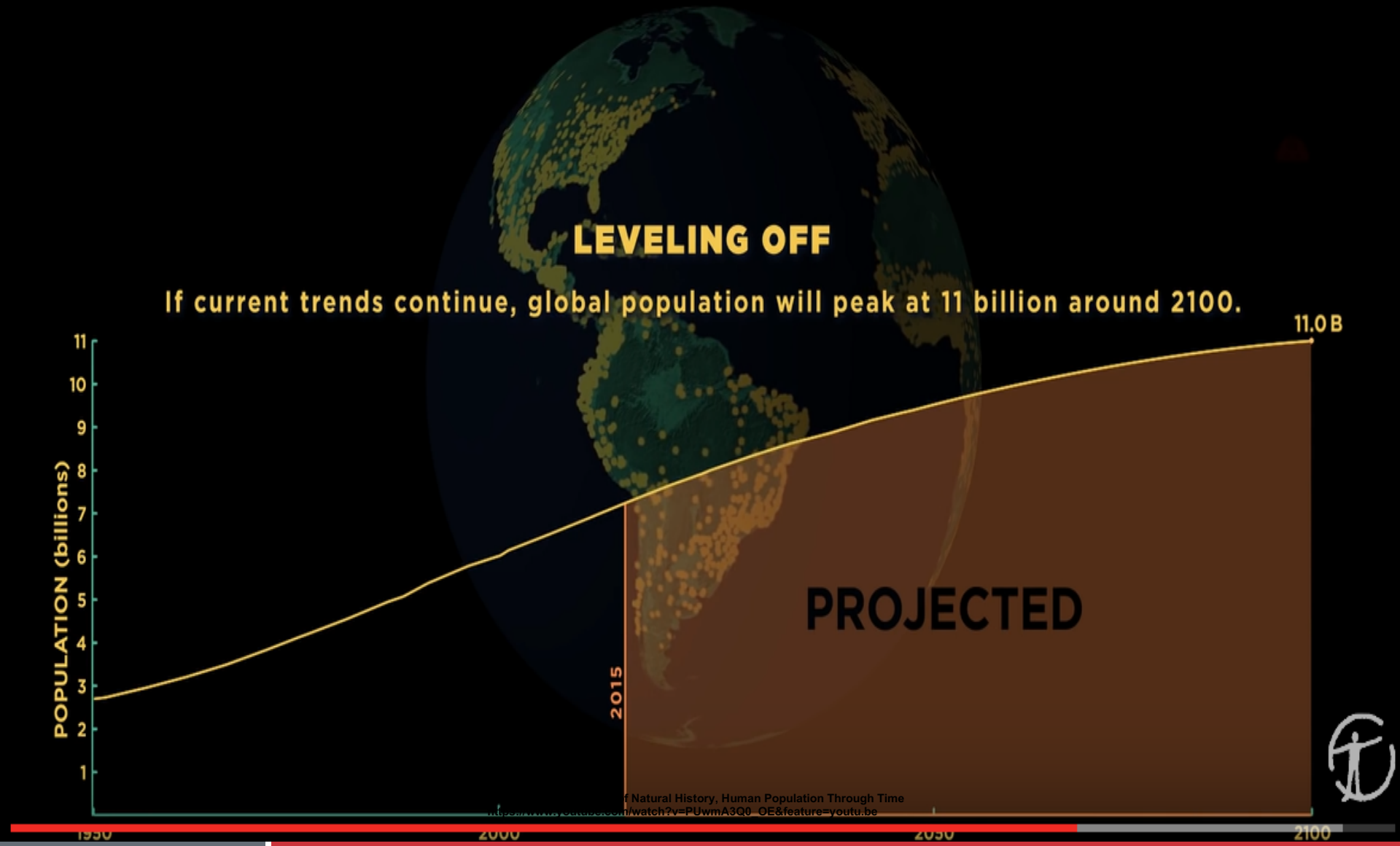
A Symposium on Carbon Capture and Sequestration:
Friday, February 5, 2021

LSU Law

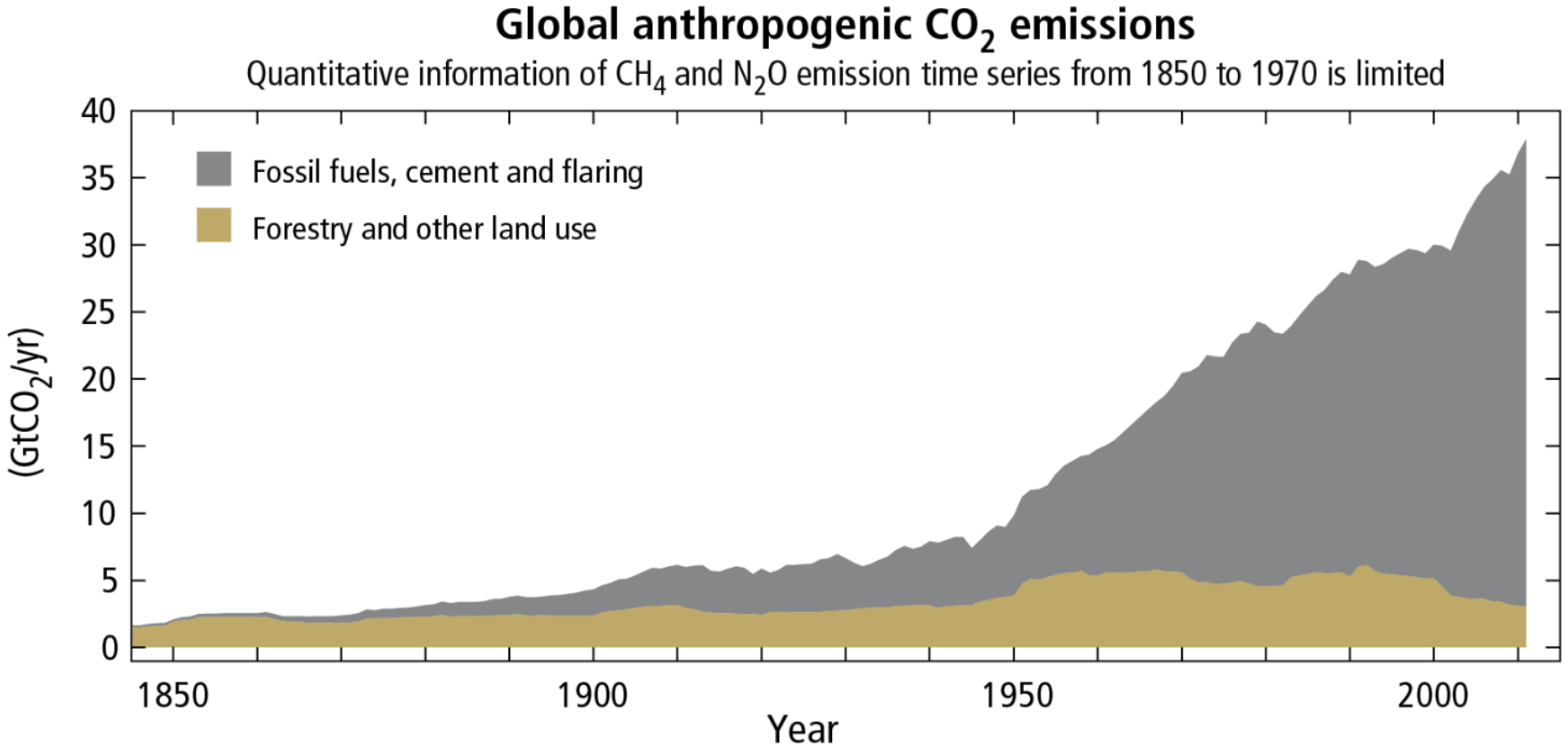
National Climate Policy and Carbon Sequestration

L. Poe Leggette

PROJECTED HUMAN POPULATION



f Natural History, Human Population Through Time
/watch?v=PUwmA3Q0_OE&feature=youtu.be



Source: IPCC Climate Change 2014 Synthesis Report, Topic 1 (Observed Changes and their Causes), Figure SPM.1


Cub Run

Global Carbon Project

Earth Syst. Sci. Data, 12, 3269–3340, 2020
https://doi.org/10.5194/essd-12-3269-2020

Open Access Earth System Science Data

Global Carbon Budget 2020

The Carbon Cycle and Carbon Budget for 2020

Estimated Tons of Carbon Emitted

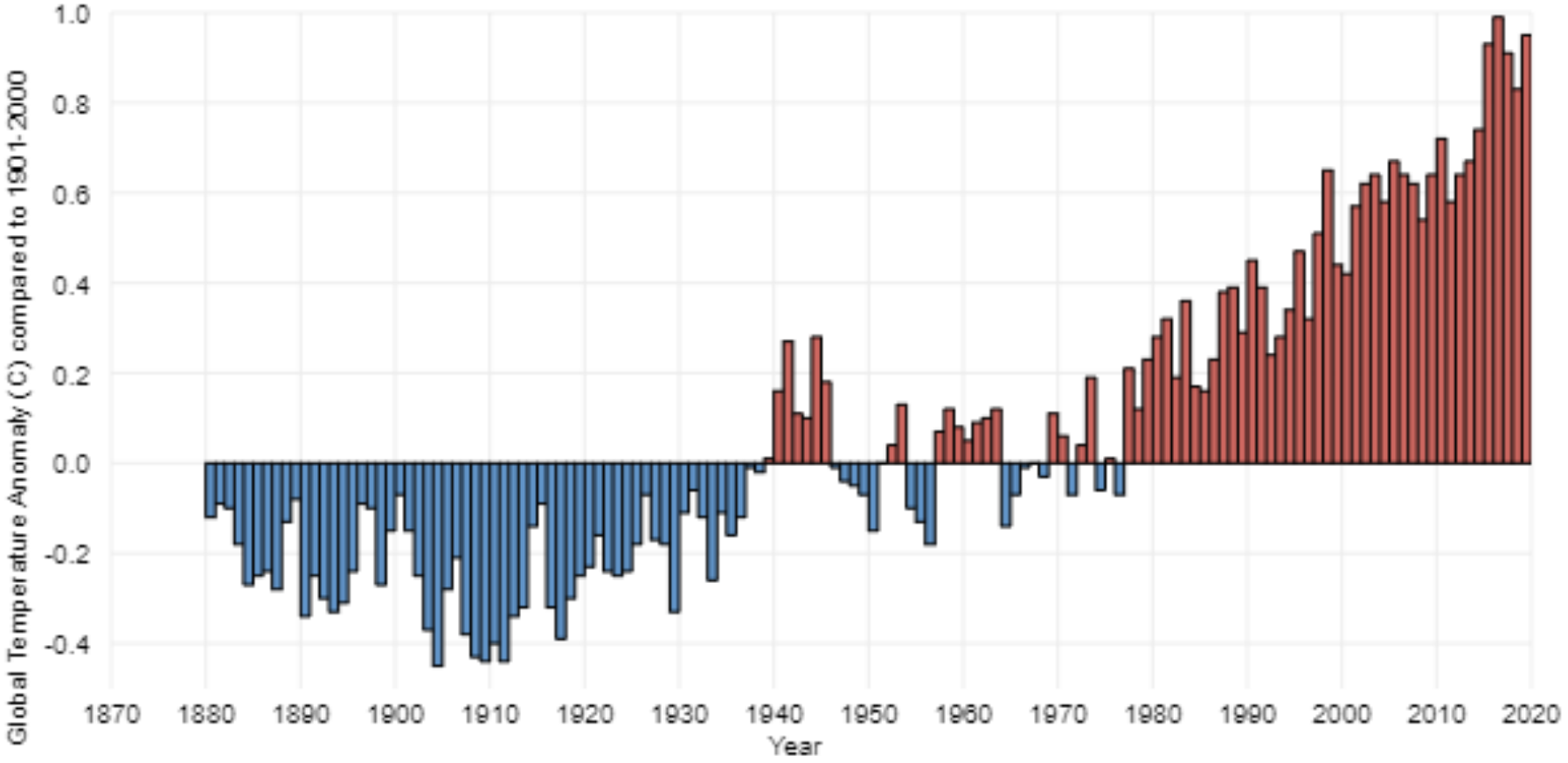
Natural processes:	210 gigatons
Consumption of fossil fuels:	9.4 gigatons
Land Use:	1.6 gigatons
Total:	***221 gigatons***

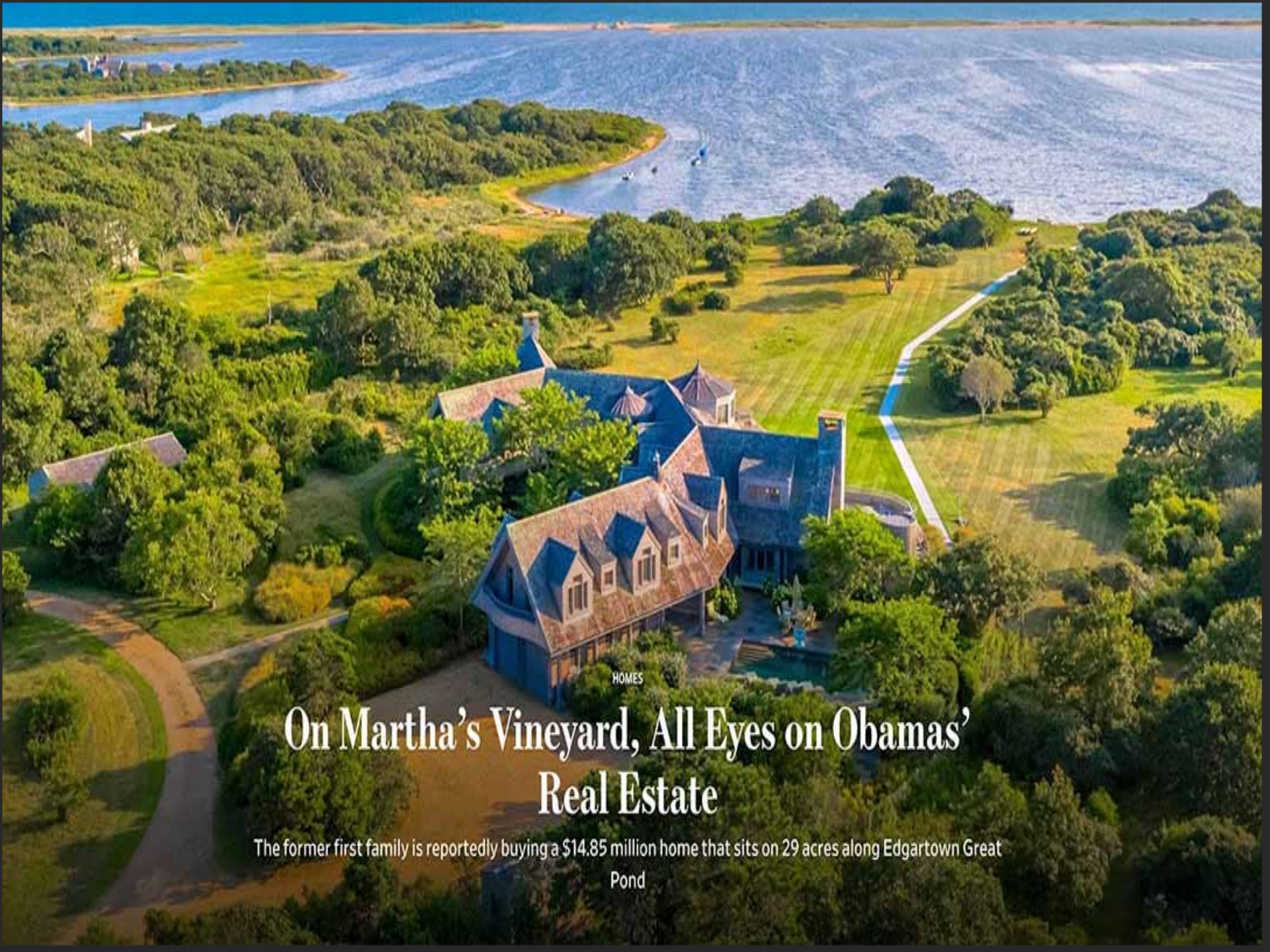
Estimated Tons of Carbon Removed

Absorbed by Vegetation:	123 gigatons
Absorbed by Ocean:	93 gigatons
Total:	***216 gigatons***

Estimated Net Remaining in Atmosphere: ***5 gigatons***

Source: Global Carbon Project


Global Temperature Anomaly (C) compared to 1901-2000
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
Year



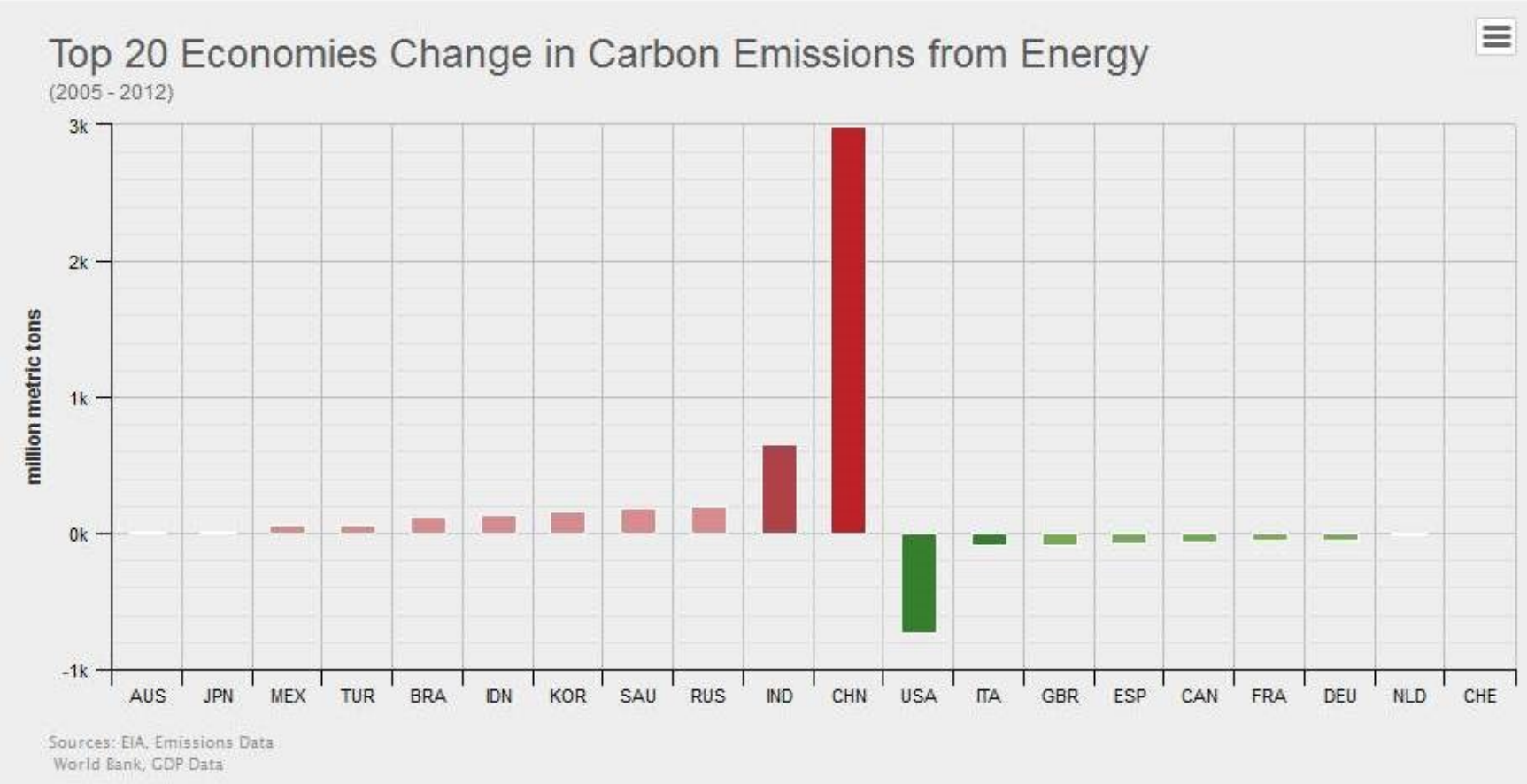
HOMES

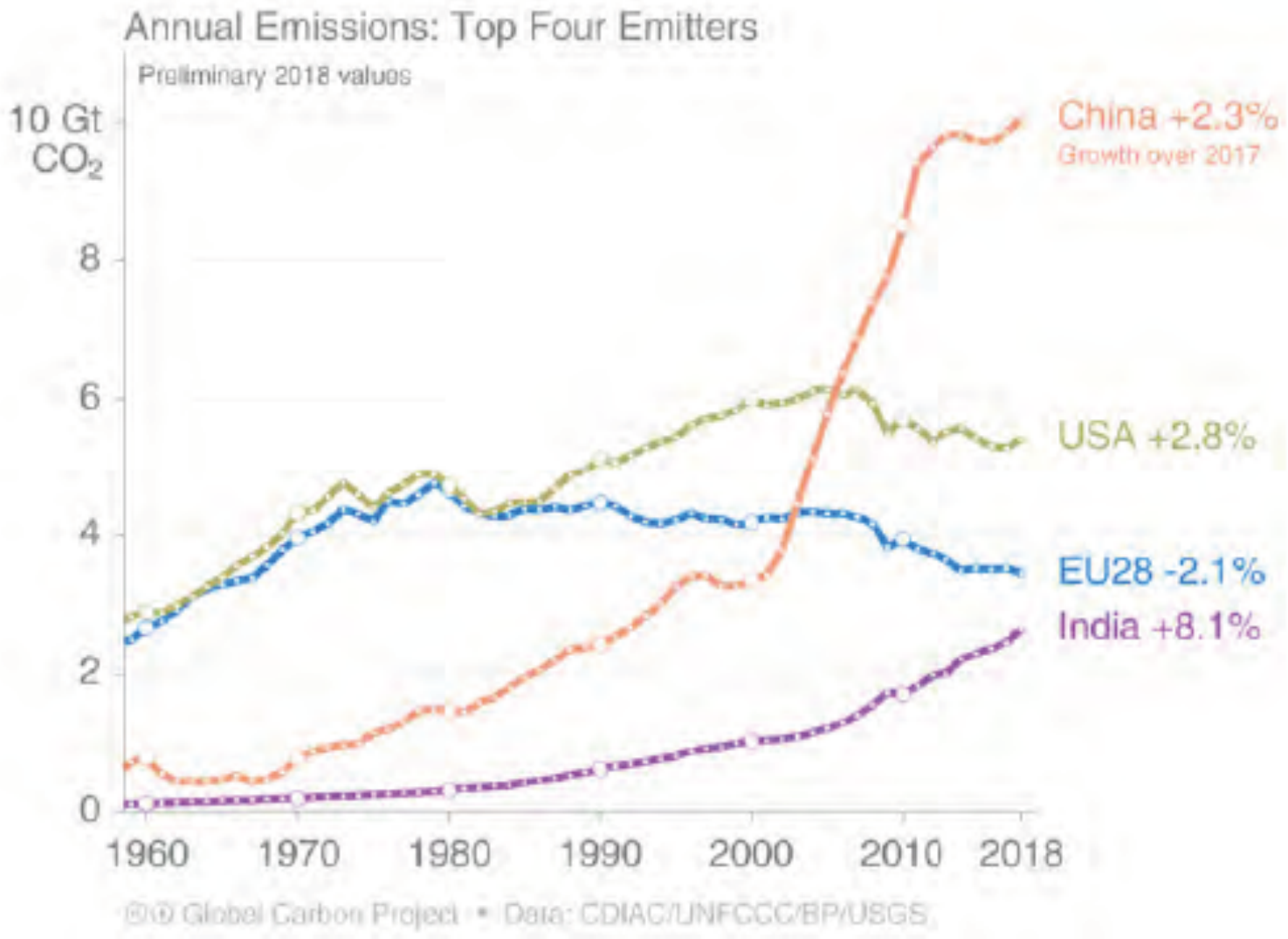
On Martha's Vineyard, All Eyes on Obamas' Real Estate

The former first family is reportedly buying a $14.85 million home that sits on 29 acres along Edgartown Great Pond

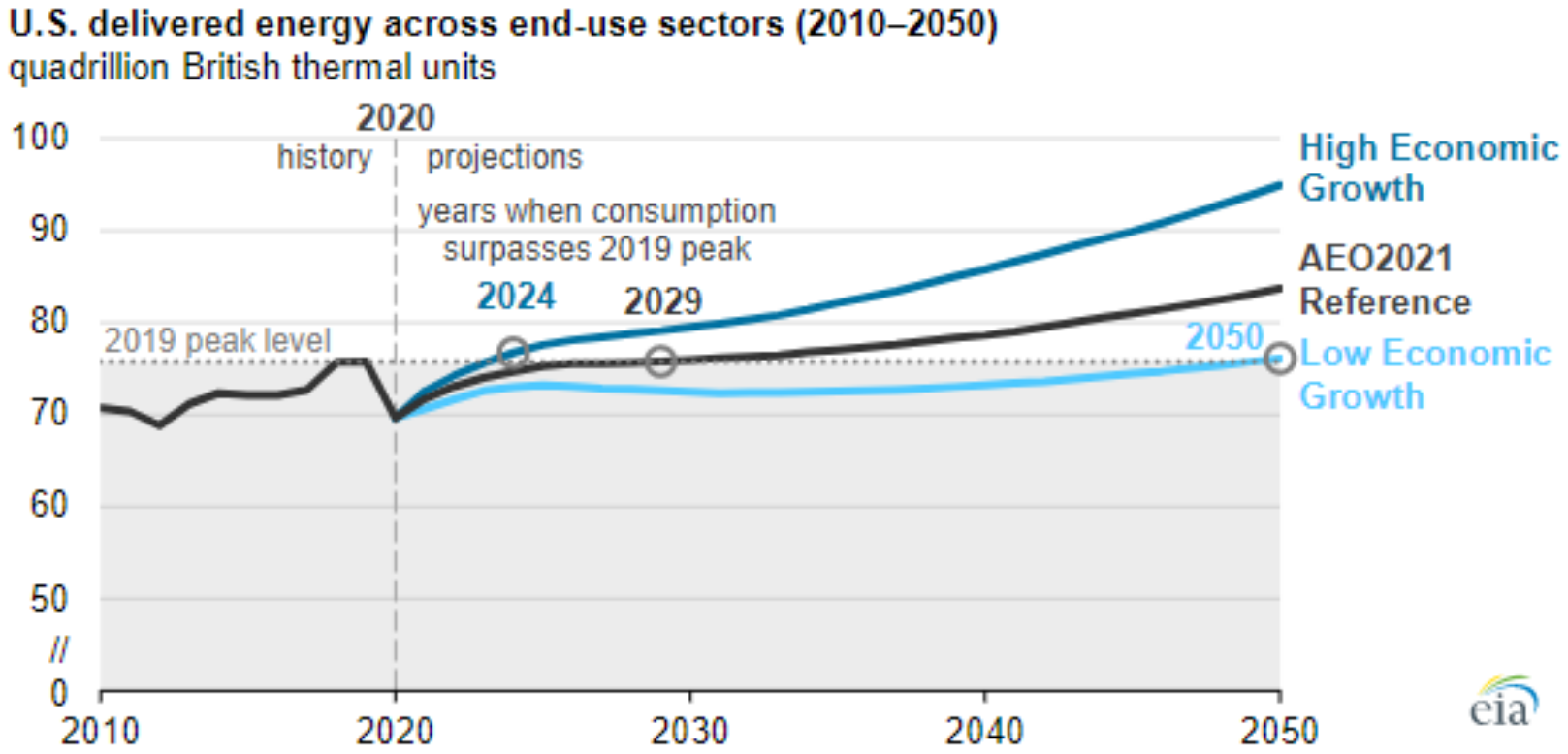
The oil & gas industry is the number one reason the United States leads the world in reducing greenhouse gas emissions.

U.S. is Already Leading on Reducing Emissions




Annual Emissions: Top Four Emitters
Preliminary 2018 values
10 Gt
CO_2
8
6
4
2
0
1960
1970
1980
1990
2000
2010
2018
China +2.3%
Growth over 2017
USA +2.8%
EU28 -2.1%
India +8.1%
Global Carbon Project • Data: CDIAC/UNFCCC/BP/USGS

The COVID Consumption Cliff

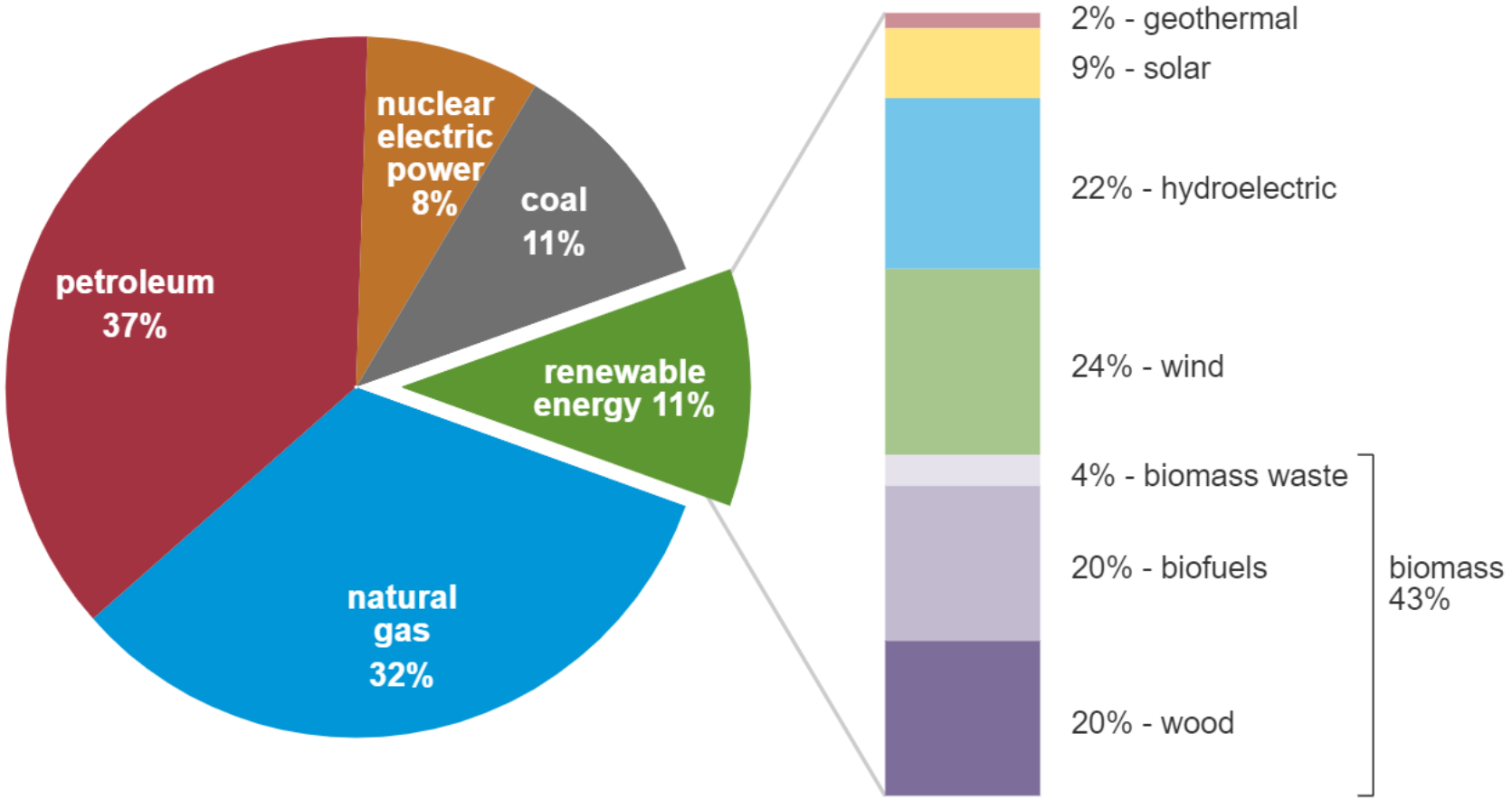


Source: U.S. Energy Information Administration, *Annual Energy Outlook 2021* (AEO2021)

U.S. primary energy consumption by energy source, 2019

total = 100.2 quadrillion British thermal units (Btu)

total = 11.4 quadrillion Btu



Note: Sum of components may not equal 100% because of independent rounding.
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2020, preliminary data

Will Green New Dealers Embrace This?

WIRED on Energy

The spiralling environmental cost of our lithium battery addiction

As the world scrambles to replace fossil fuels with clean energy, the environmental impact of finding all the lithium required could become a major issue in its own right

Here's a thoroughly modern riddle: what links the battery in your smartphone with a dead yak floating down a Tibetan river? The answer is lithium – the reactive alkali metal that powers our phones, tablets, laptops and electric cars.

In May 2016, hundreds of protestors threw dead fish onto the streets of Tagong, a town on the eastern edge of the Tibetan plateau. They had plucked them from the waters of the Liqi river, where a toxic chemical leak from the Ganzizhou Rongda Lithium mine had wreaked havoc with the local ecosystem.

What can you make from one barrel of oil?

Researchers broke down a typical barrel of domestic crude oil into what could be produced from it. The average domestic crude oil has a gravity of **32 degrees** and weighs **7.21 pounds per gallon**. Here's what just one barrel of crude oil can produce:

Wax for
170
birthday candles or
27
crayons.

Distillate fuel to drive a large truck (five miles per gallon) for almost
40 miles
If jet fuel fraction is included, that same truck can run nearly
50 miles

Asphalt to make about
one gallon
of tar for patching roofs or streets.

Lubricants to make about
one quart
of motor oil.

Nearly
70kilowatt-hours
of electricity at a power plant generated by residual fuel.

About
four pounds
of charcoal briquettes.

Gasoline to drive a medium-sized car (17 miles per gallon) for more than
280 miles

Liquefied gases, such as propane, to fill
12
small (14.1-ounce) cylinders for home, camping or workshop use.

There would be enough petrochemicals left in that same barrel to also provide the base for:

540
toothbrushes

750
pocket combs

39
polyester shirts

23
hula hoops

135
four-inch rubber balls

65
plastic drinking cups

11
plastic telephone housings

65
plastic dustpans

195
one-cup measuring cups

The lighter materials in a barrel are used mainly for paint thinners and dry-cleaning solvents, and they can make nearly a quart of one of these products. The miscellaneous fraction of what is left still contains enough byproducts to be used in medicinal oils, still gas, road oil and plant condensates.

It's a real industrial horn of plenty.

HOUSTON CHRONICLE

Fighting climate change should not come at expense of fighting viruses [Opinion]

Poe Leggette
March 10, 2020 | Updated: March 11, 2020 8:52 a.m.

Meli Jimenez, sales manager, talks about the four shelves where face masks are usually stocked at Spring Branch Medical Supply, 8700 Long Point Rd., Friday, Feb. 28, 2020, in Houston.
Melissa Phillip, Staff photographer / Houston Chronicle

THE WALL STREET JOURNAL.

https://www.wsj.com/articles/big-oil-to-the-coronavirus-rescue-11587683239

OPINION | REVIEW & OUTLOOK

Big Oil to the Coronavirus Rescue

Look whose products are crucial for fighting off Covid-19.

By The Editorial Board
April 23, 2020 7:07 pm ET

The Exxonmobil Port Allen Lubricants Plant in Port Allen, Louisiana.
PHOTO: LEE CELANO/REUTERS

Anti-carbon activists don't sleep even during a pandemic, and earlier this week New York City Council members introduced a resolution to divest from banks invested in fossil fuels. Perhaps they don't know that hand sanitizer and personal protective equipment come from hydrocarbons synthesized by their arch-villain Exxon Mobil.

NOAA Satellite Data Used in Study Finding Significant Greening in Earth's Vegetative Areas

SHARE:  VIEW MORE ARTICLES

Tuesday, April 26, 2016

A new study based long-term vegetation data sets derived, in part, from NOAA polar-orbiting satellites has found significant greening on a quarter to one-half of the Earth's vegetated lands.

https://www.nesdis.noaa.gov/content/noaa-satellite-data-used-study-finding-significant-greening-earths-vegetative-areas

Getting Greener

A new study, "Greening of the Earth and its Drivers," published today (April 25) in the journal *Nature Climate Change* reports significant greening of a quarter to one-half of the Earth's vegetated lands. The findings are based on long-term vegetation data sets derived, in part, from imagery produced by the Advanced Very High Resolution Radiometer (or AVHRR) instruments aboard NOAA polar-orbiting (NOAA-series) satellites.

"We were able to tie the greening largely to the fertilizing effect of rising atmospheric CO2 concentration by tasking several computer models to mimic plant growth observed in the satellite data," Ranga Myneni, study co-author and professor in Boston University's Department of Earth and Environment, said in a press release.

"Greening" refers to an increase in leaves on plants and trees. Green leaves produce sugars using energy in the sunlight to mix carbon dioxide (CO2) drawn in from the air with water and nutrients pumped in from the ground. These sugars are the source of food, fiber and fuel for life on Earth.

https://www.nesdis.noaa.gov/content/noaa-satellite-data-used-study-finding-significant-greening-earths-vegetative-areas

Always Look on the Bright Side of Life

- Zheng, et al., “The Optimal CO2 Concentrations for the Growth of Three Perennial Grass Species,” BMC Plant Biology (2018).

- Optimal atmospheric concentration of CO2 to grow winter wheat is 894 ppm

  - For tall fescue 915 ppm
  - For perennial ryegrass 1178 ppm
  - For Kentucky Bluegrass 1386 ppm