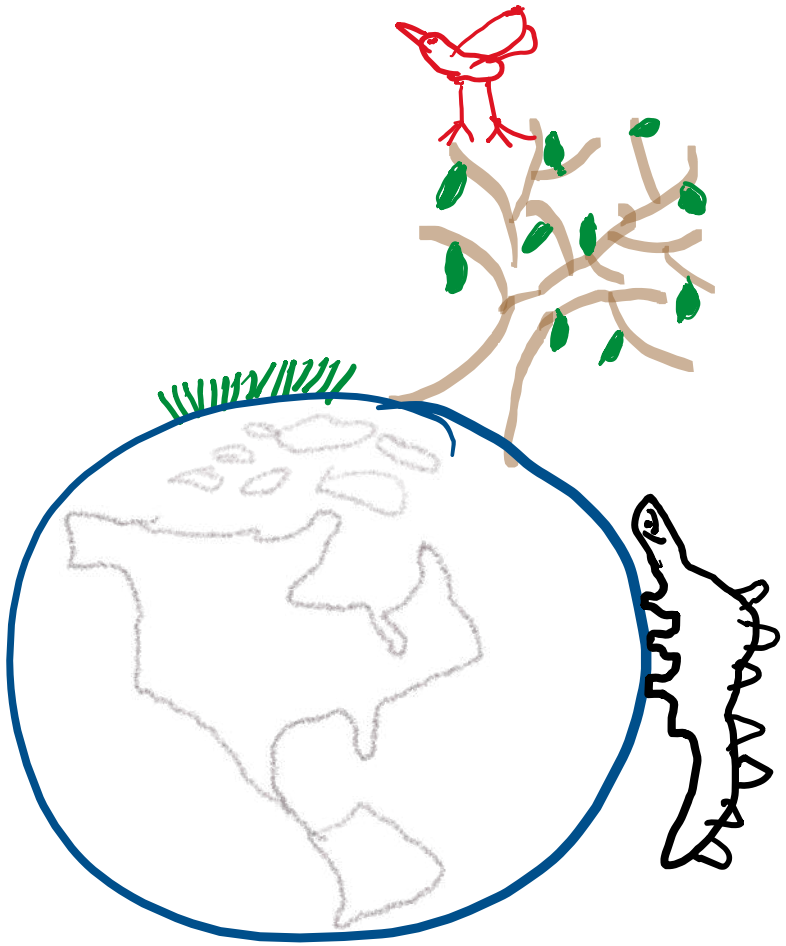
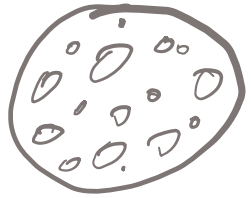
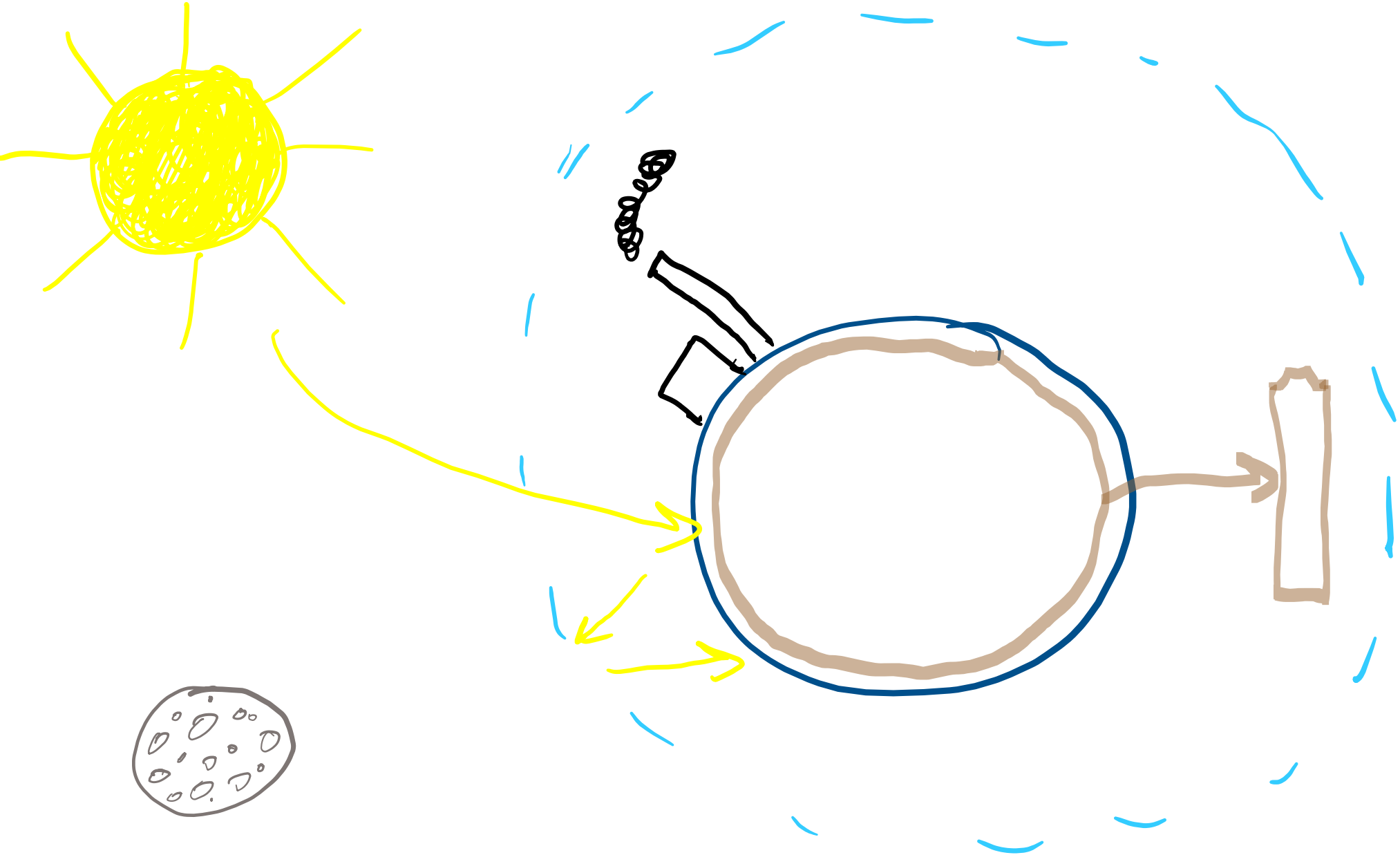
→ **Tej Gidda**
Global Leader – Future Energy

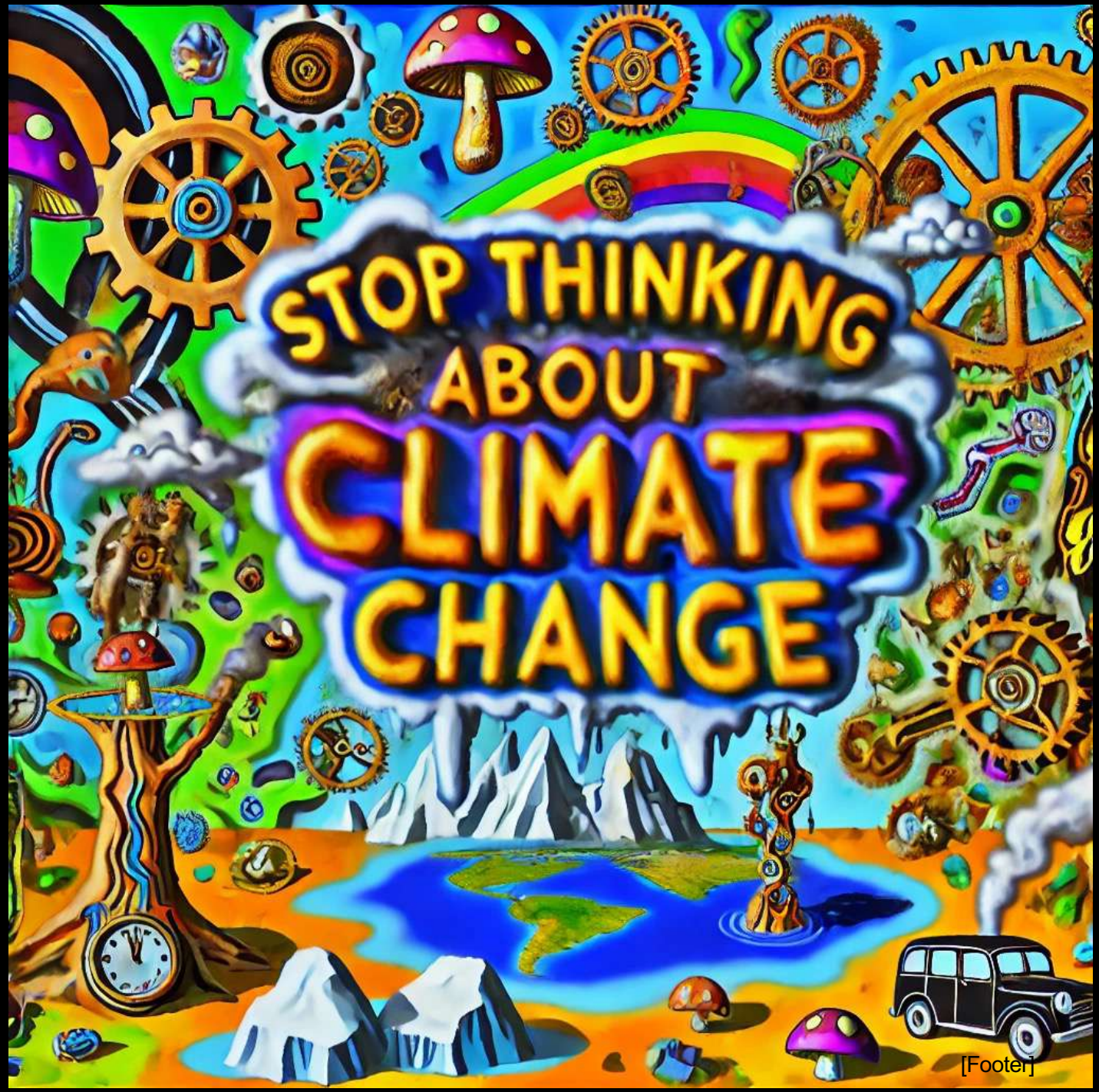
The World is a Battery.

Welcome

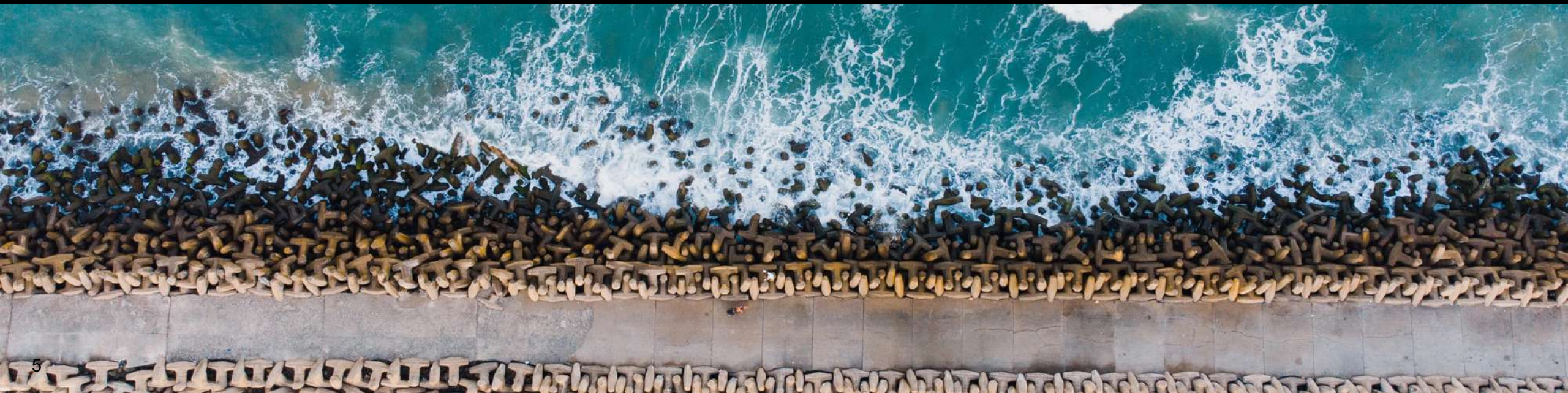




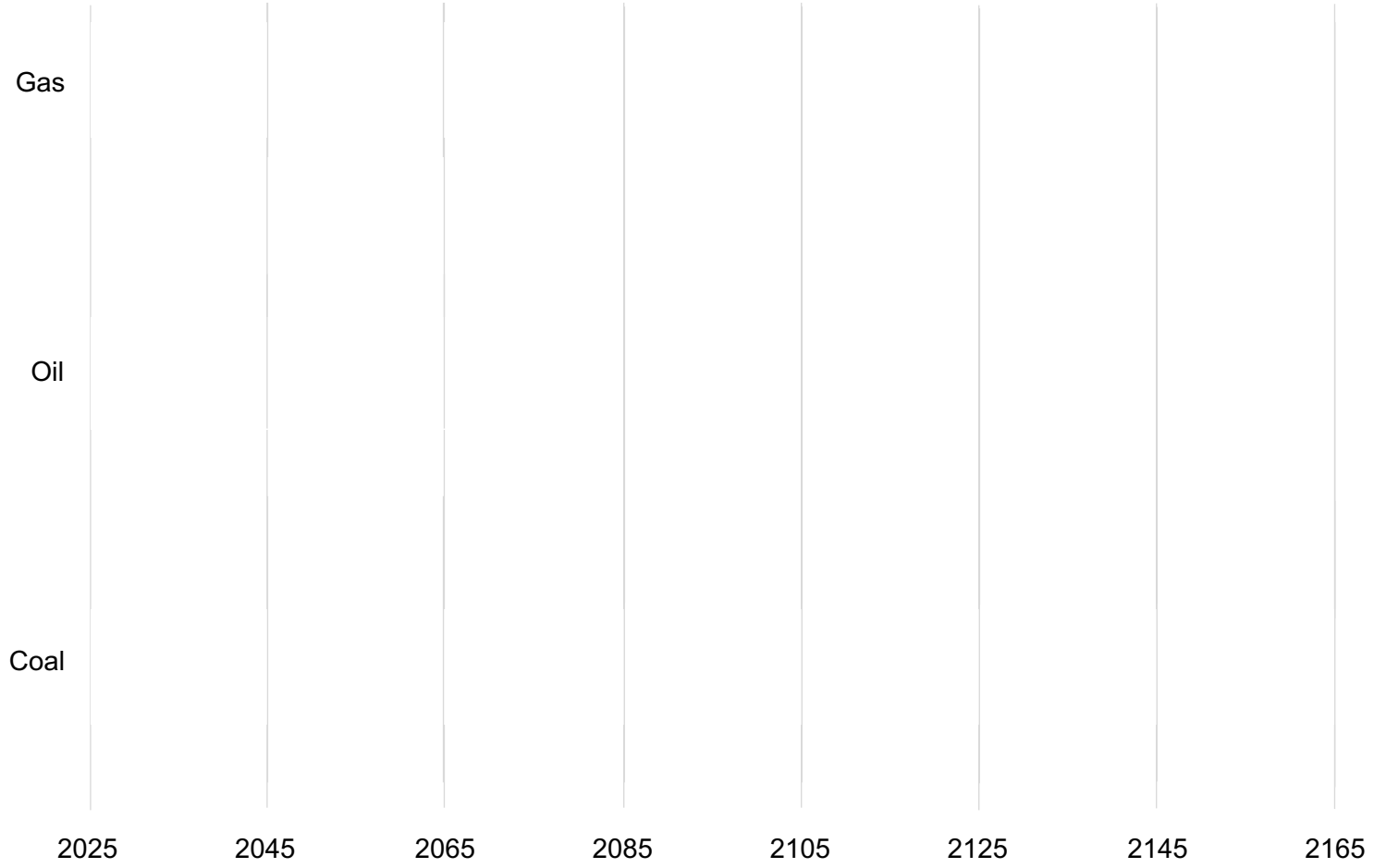



STOP THINKING
ABOUT
CLIMATE
CHANGE

Why energy transition ?

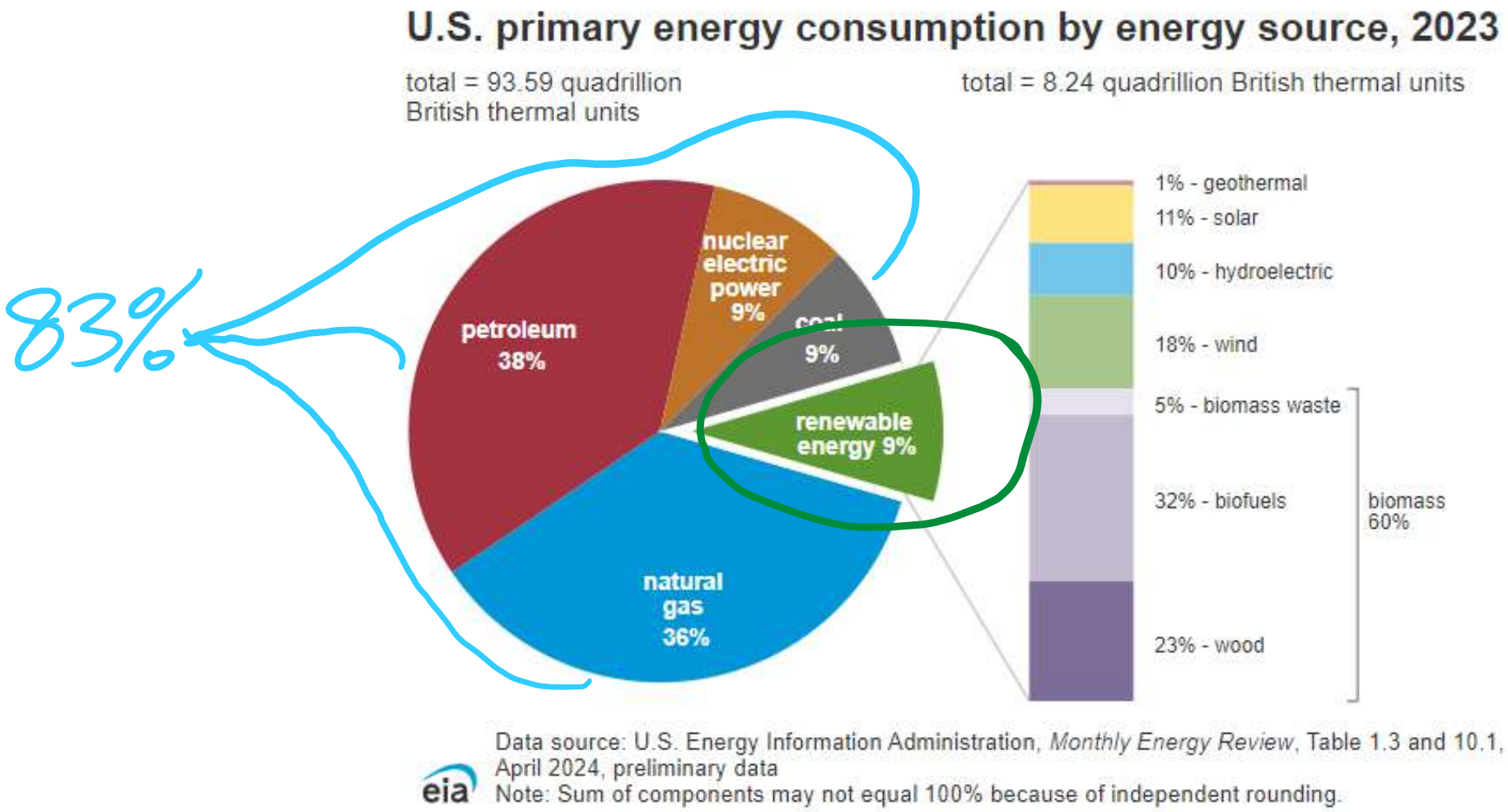


Our Shared Battery



Data Source: Energy Institute – Statistical Review of World Energy (2024)

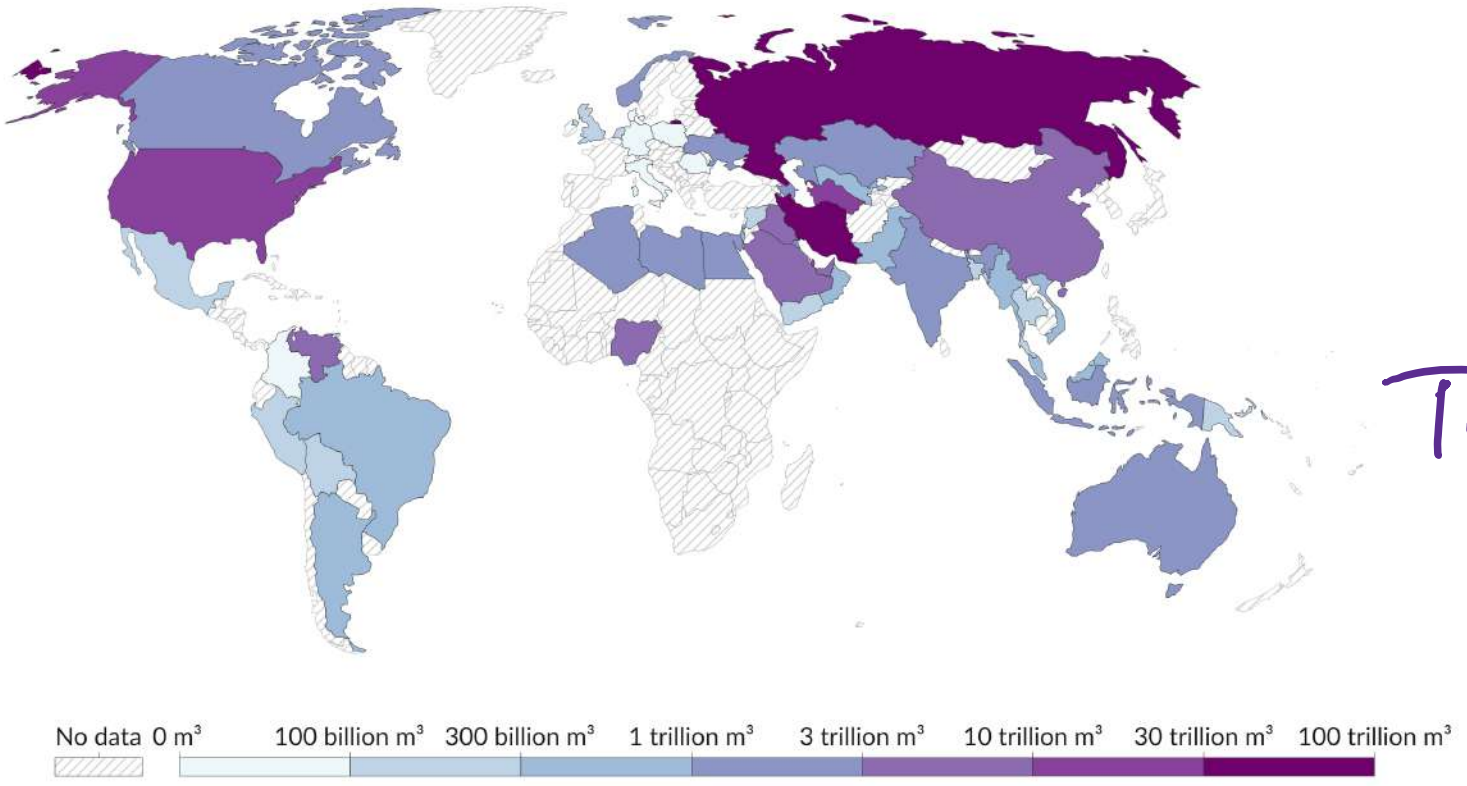
The US Alone…


U.S. primary energy consumption by energy source, 2023
total = 93.59 quadrillion British thermal units
total = 8.24 quadrillion British thermal units
83%
petroleum 38%
nuclear electric power 9%
9%
renewable energy 9%
natural gas 36%
1% - geothermal
11% - solar
10% - hydroelectric
18% - wind
5% - biomass waste
32% - biofuels
23% - wood
biomass 60%
Data source: U.S. Energy Information Administration, Monthly Energy Review, Table 1.3 and 10.1, April 2024, preliminary data
Note: Sum of components may not equal 100% because of independent rounding.

Gas reserves, 2020

Our World in Data

Proved reserves, measured in cubic meters, are generally those quantities that can be recovered in the future from known reservoirs under existing economic and operating conditions, according to geological and engineering information.



Data source: Energy Institute - Statistical Review of World Energy (2024)

OurWorldInData.org/fossil-fuels | CC BY

Russia - 37 Tn m^3

Iran - 32 Tn m^3

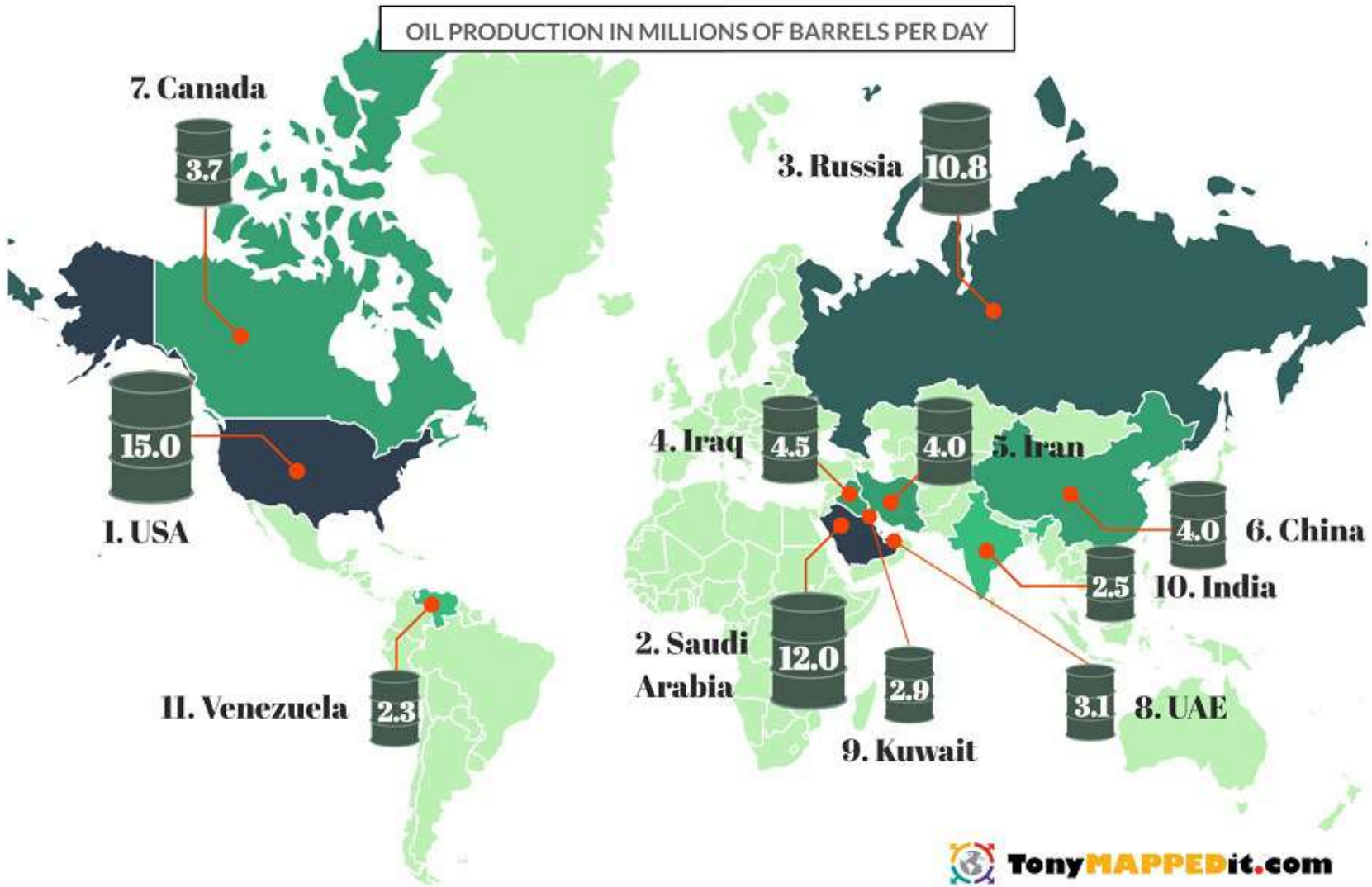
Qatar - 25 Tn m^3

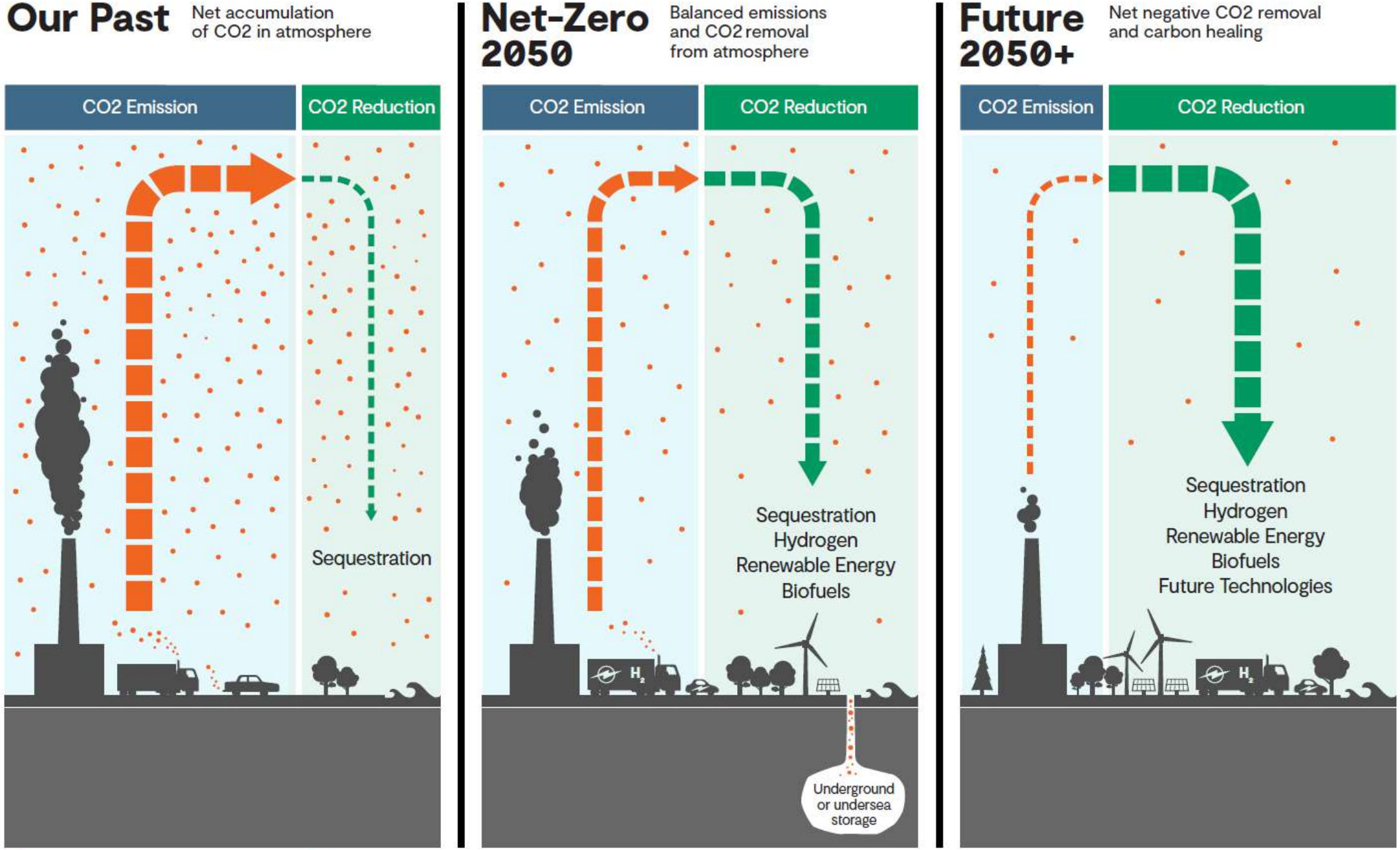
Turkmenistan - 13 Tn m^3

US - 12 Tn m^3

China - 8 Tn m^3

World Oil Production

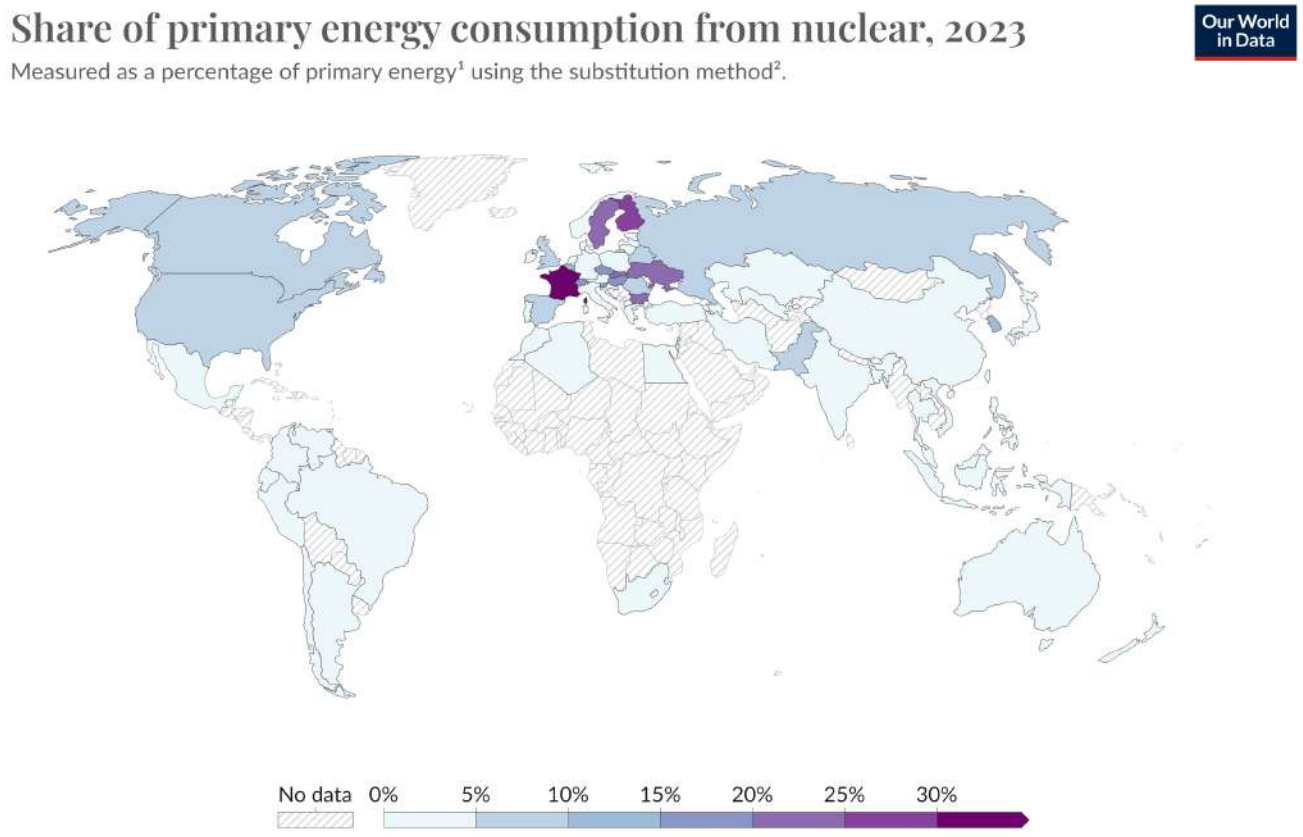



Our Past
Net accumulation of CO2 in atmosphere
CO2 Emission
CO2 Reduction
Sequestration
Net-Zero 2050
Balanced emissions and CO2 removal from atmosphere
CO2 Emission
CO2 Reduction
Sequestration
Hydrogen
Renewable Energy
Biofuels
Underground or undersea storage
Future 2050+
Net negative CO2 removal and carbon healing
CO2 Emission
CO2 Reduction
Sequestration
Hydrogen
Renewable Energy
Biofuels
Future Technologies
Excess carbon dioxide in atmosphere
Reduction in carbon dioxide in atmosphere

The magic answer must be…

There isn't one.

→ There are many.

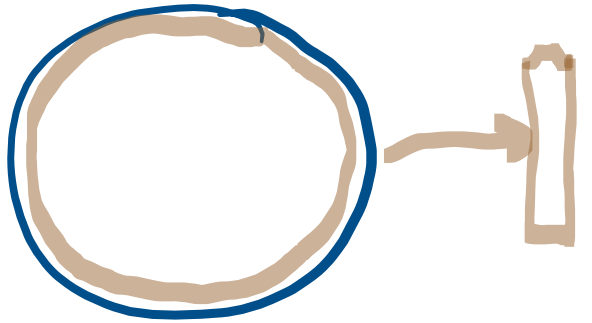


More batteries...

1.5 Bn vehicles globally

8 kg Li/electric vehicle

= 12 M tonnes Li



Global reserves = 21 M tonnes Li

∘°∘ develop new battery tech

The One Single Biggest Problem…

We can't afford this.

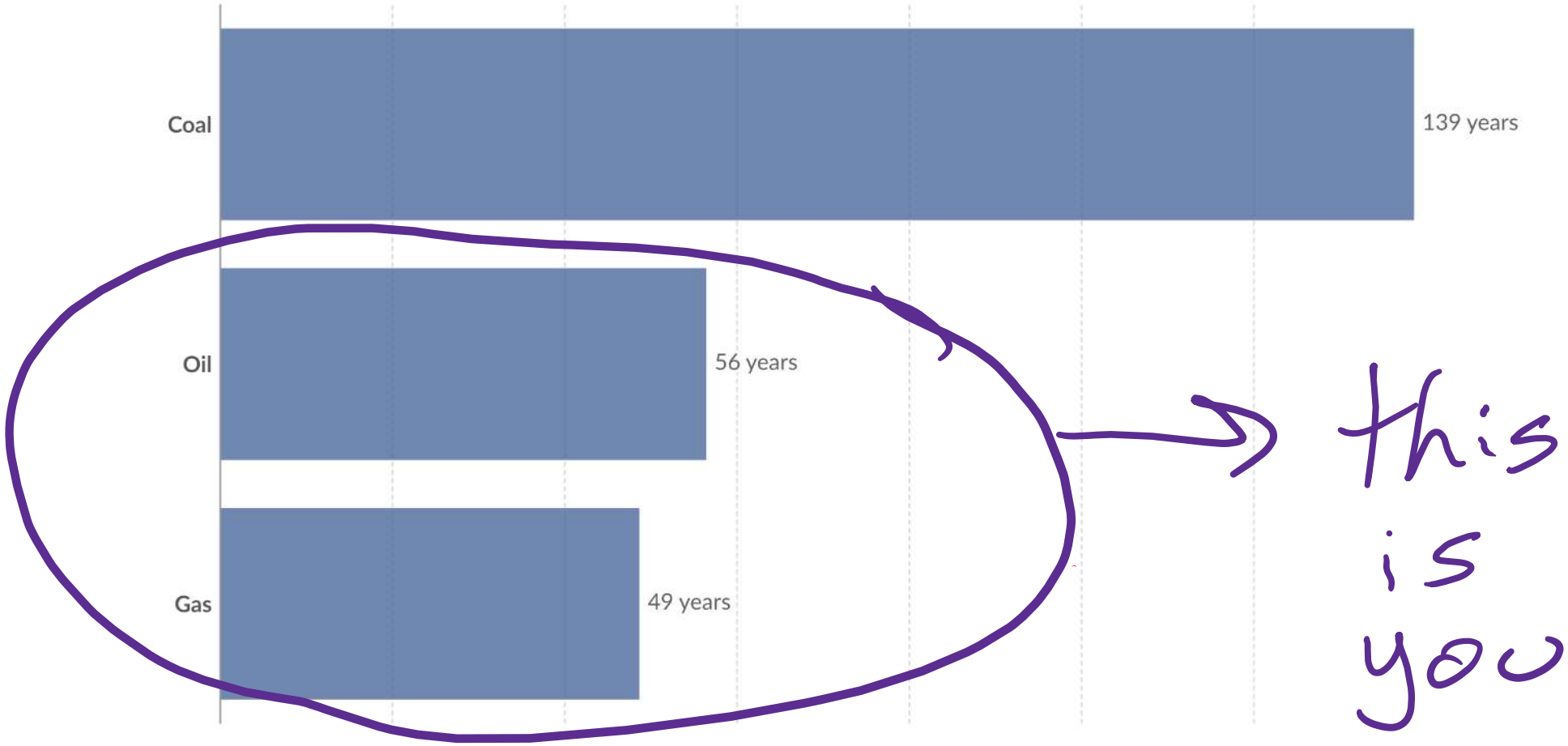
Some communities and countries more than others. Seek a just transition.

But we also can't afford not to do it - there's no choice left, because…

Years of fossil fuel reserves left, 2020

Our World in Data

Years of global coal, oil and natural gas left, reported as the reserves-to-product (R/P) ratio which measures the number of years of production left based on known reserves and present annual production levels. Note that these values can change with time based on the discovery of new reserves, and changes in annual production.



Data source: Energy Institute - Statistical Review of World Energy (2024)

OurWorldInData.org/fossil-fuels | CC BY