

# The Short List of Climate Actions That Will Work



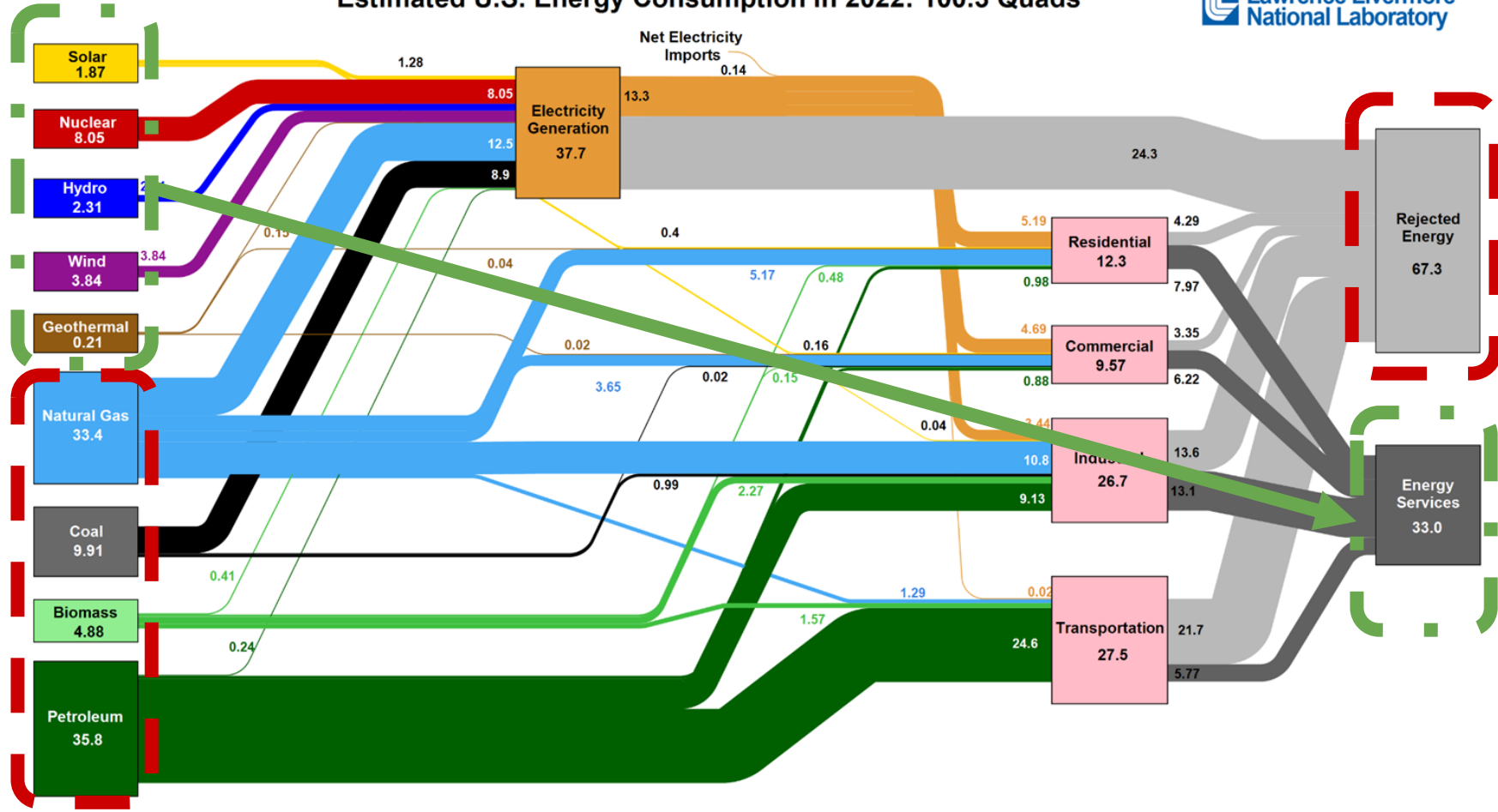
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Climate futurist, strategist, author  
Founder TFIE Strategy  
Advisory board FLIMAX  
Host Redefining Energy Tech



# Electrify everything

Estimated U.S. Energy Consumption in 2022: 100.3 Quads

Lawrence Livermore  
National Laboratory

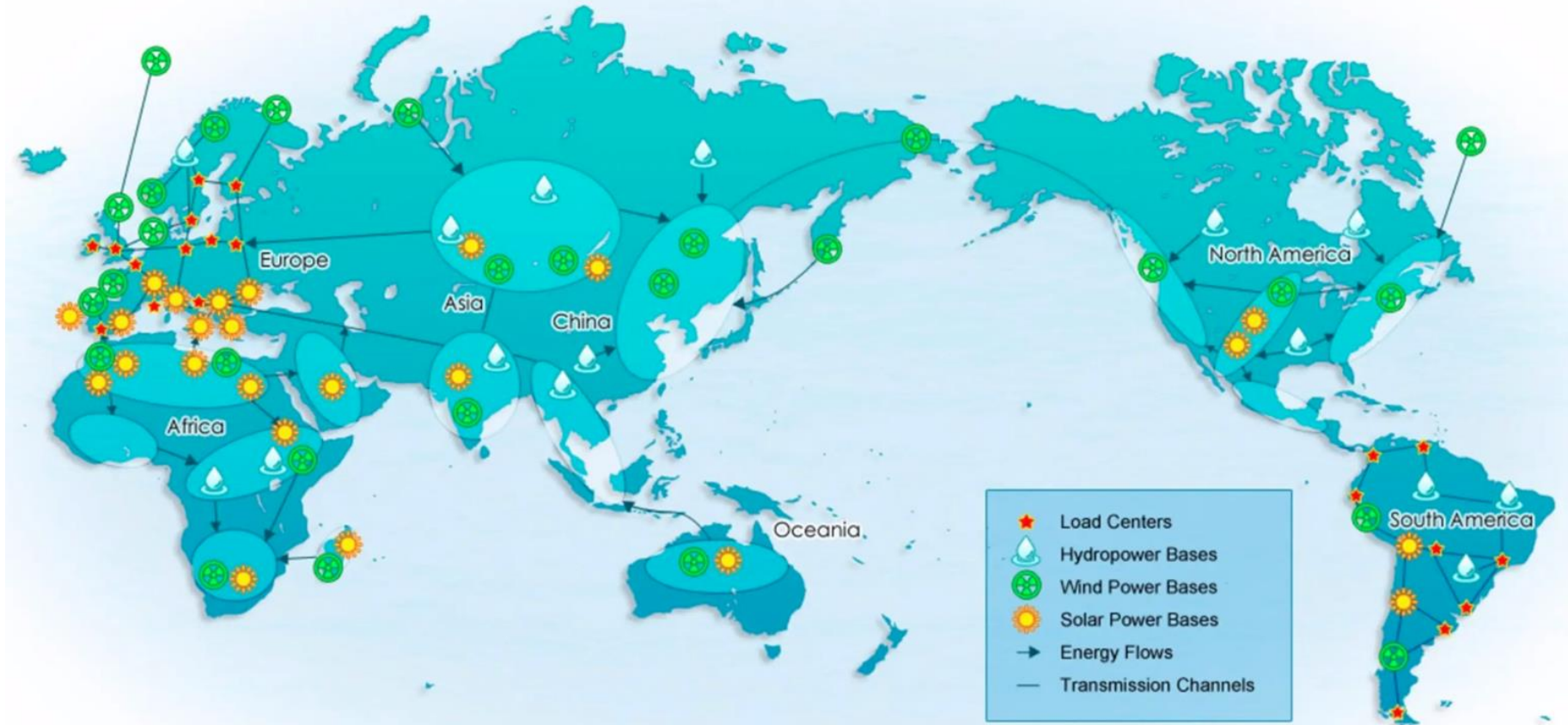




# Overbuild renewable generation



# Build continent scale grids and markets



Global Energy Interconnection



# Build pumped hydro and other storage



**Australian National University**  
100% Renewable Energy Group

Explore map data

Upload

DATA SETS (7)

Remove All

Collapse All

☒ Global Greenfield 1500GWh 504h

☒ Global Greenfield 500GWh 168h

☒ Global Greenfield 150GWh 50h

☒ Global Greenfield 50GWh 50h

☒ Global Greenfield 15GWh 18h

☒ Global Greenfield 5GWh 18h

☒ Global Greenfield 2GWh 6h

ABOUT DATA

Opacity: 100 %

☒ Upper Reservoir

☒ Lower Reservoir

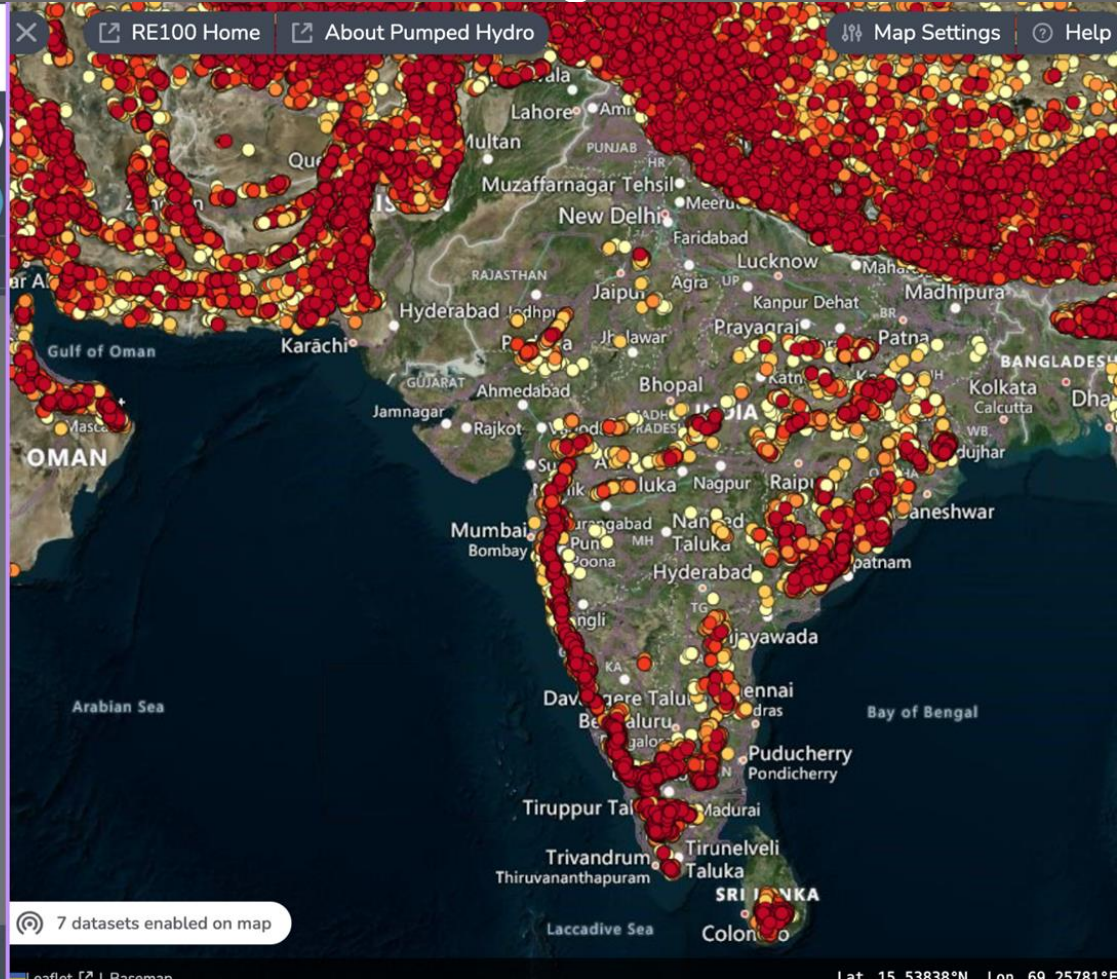
☒ Dam Wall

☒ Class A

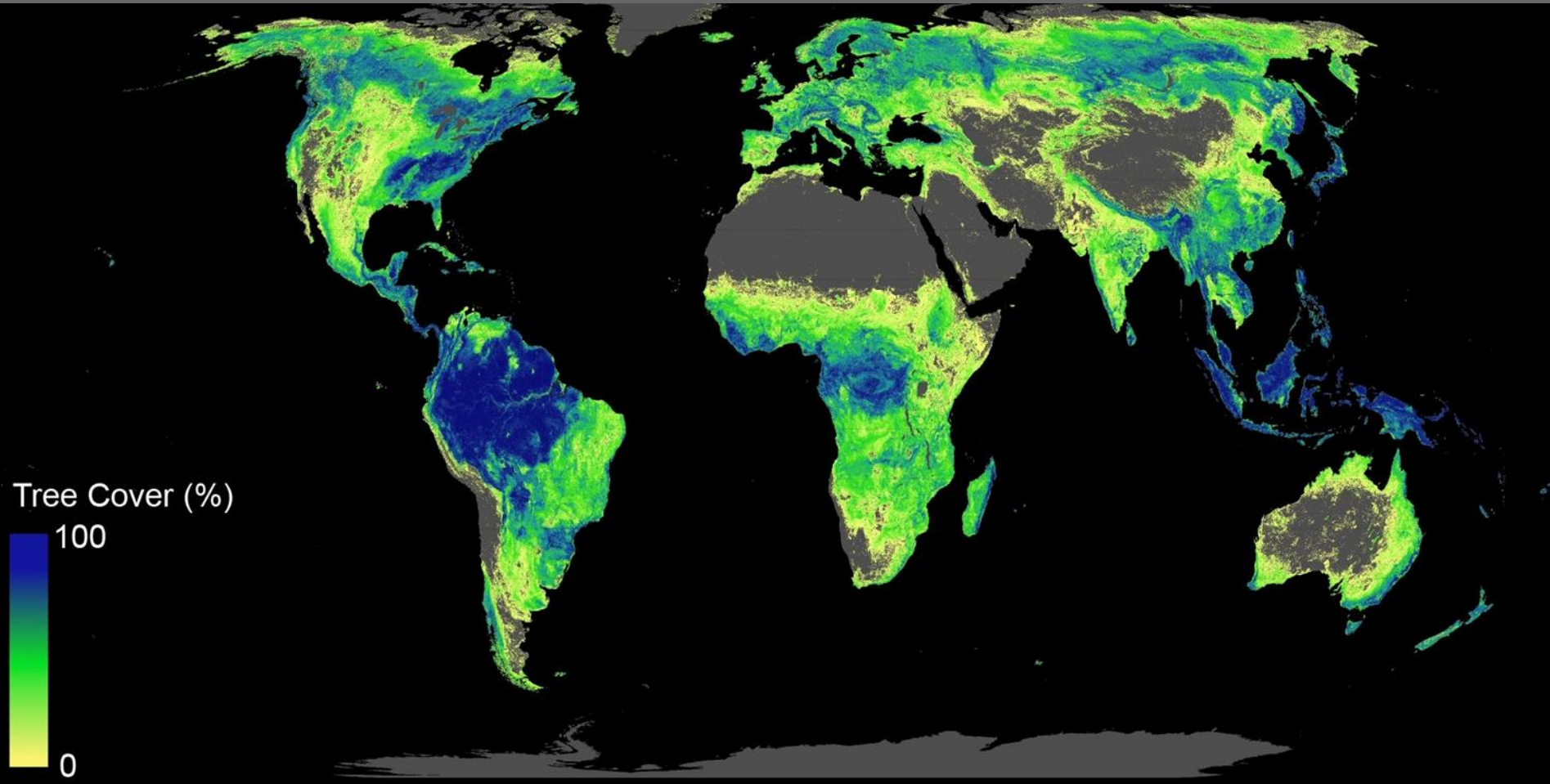
☒ Class B

☒ Class C

☒ Class D



# Plant a lot of trees





# Change agricultural practices



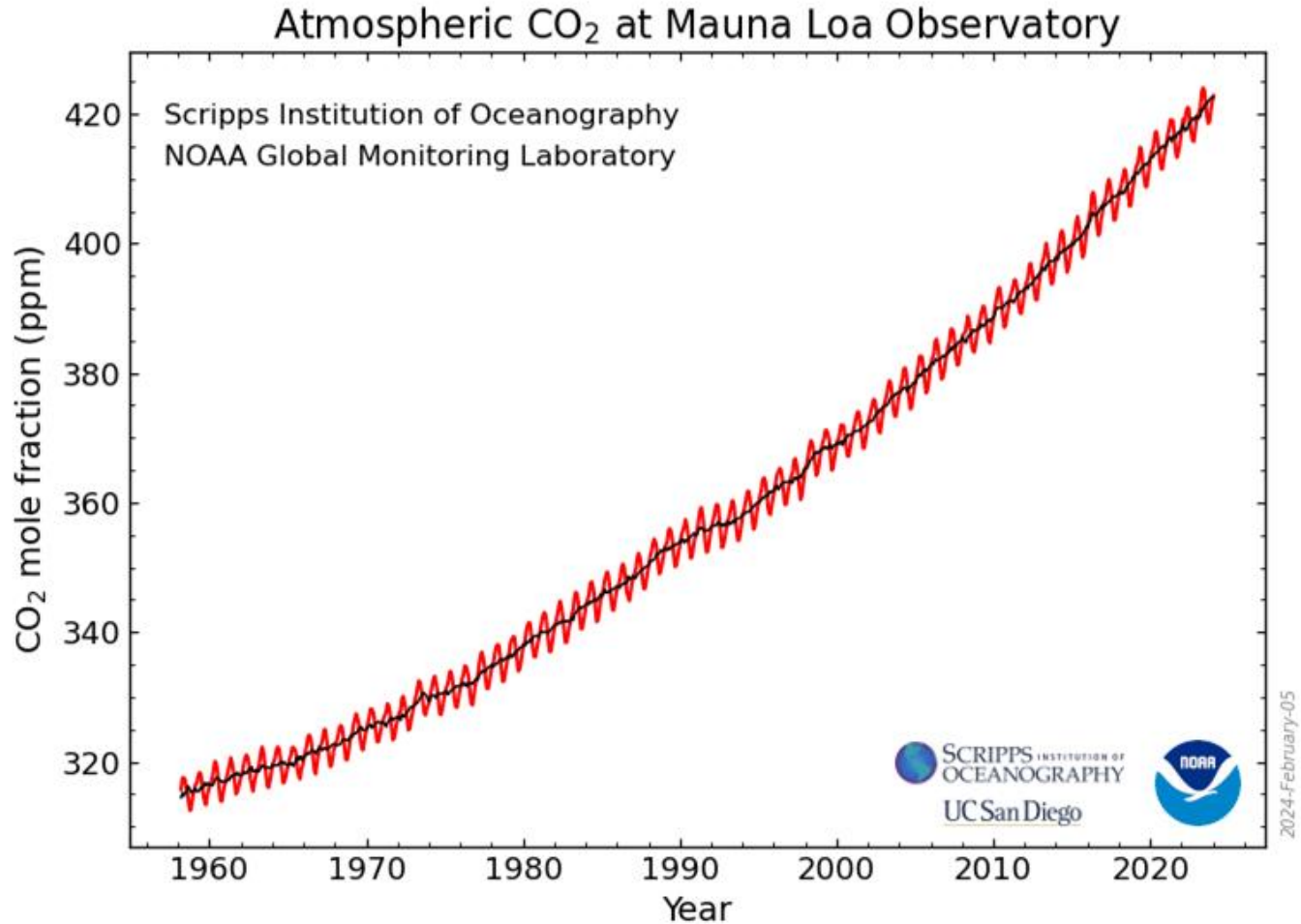


Fix concrete, steel and industrial processes





# Price carbon aggressively



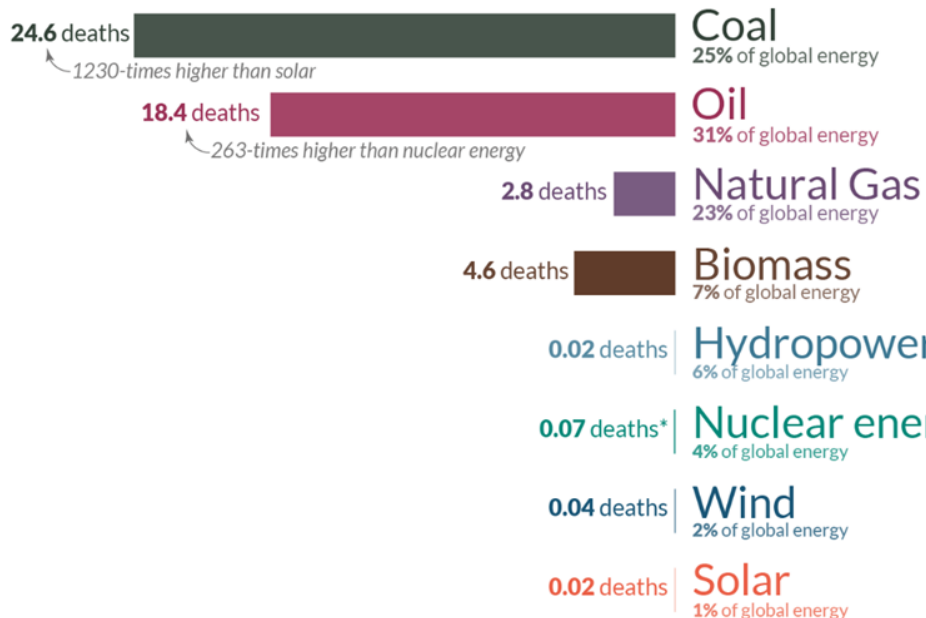
# Shut down coal and gas

Our World  
in Data

## What are the **safest** and **cleanest** sources of energy?

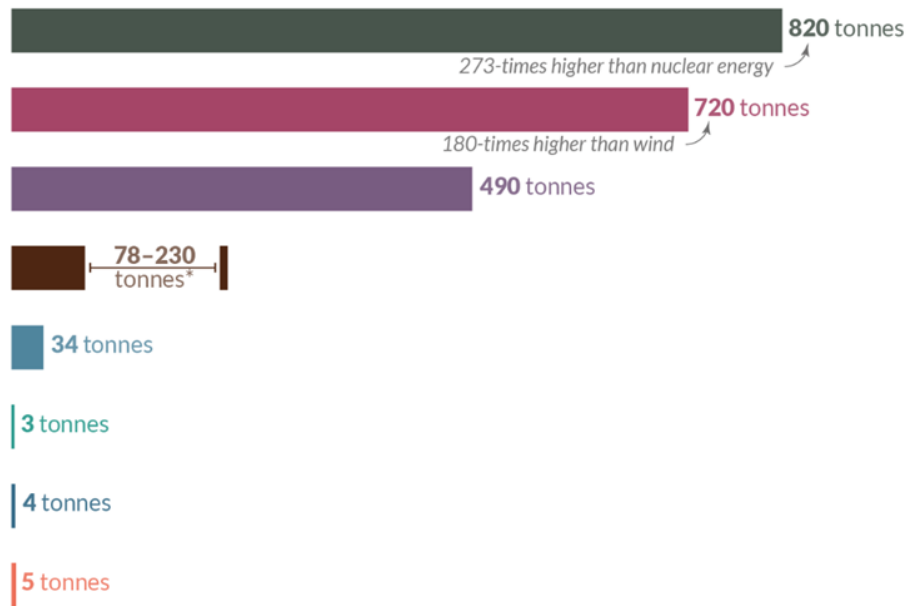
### Death rate from accidents and air pollution

Measured as deaths per terawatt-hour of energy production.  
1 terawatt-hour is the annual energy consumption of 27,000 people in the EU.



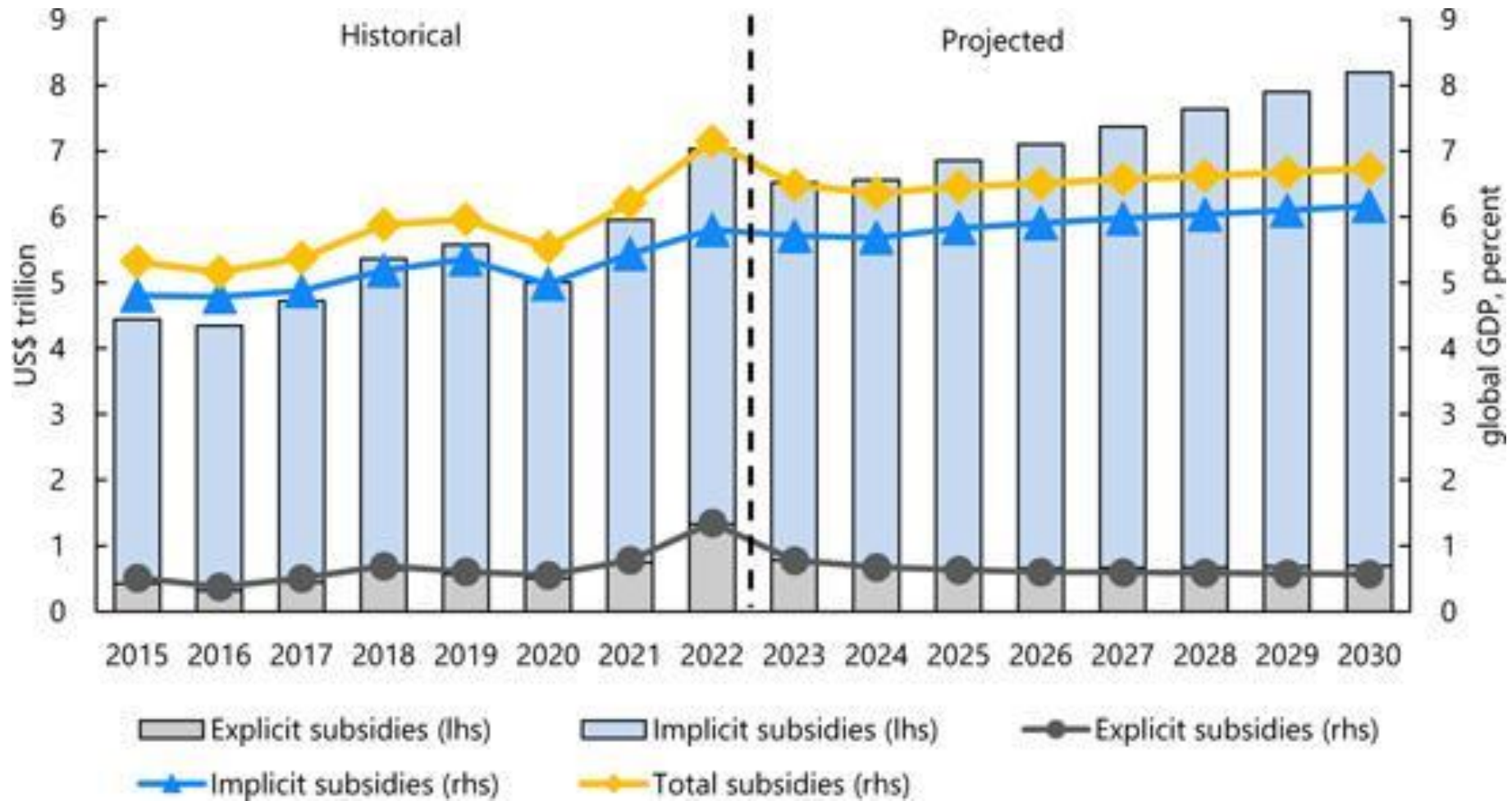
### Greenhouse gas emissions

Measured in emissions of CO<sub>2</sub>-equivalents per gigawatt-hour of electricity over the lifecycle of the power plant.  
1 gigawatt-hour is the annual electricity consumption of 160 people in the EU.



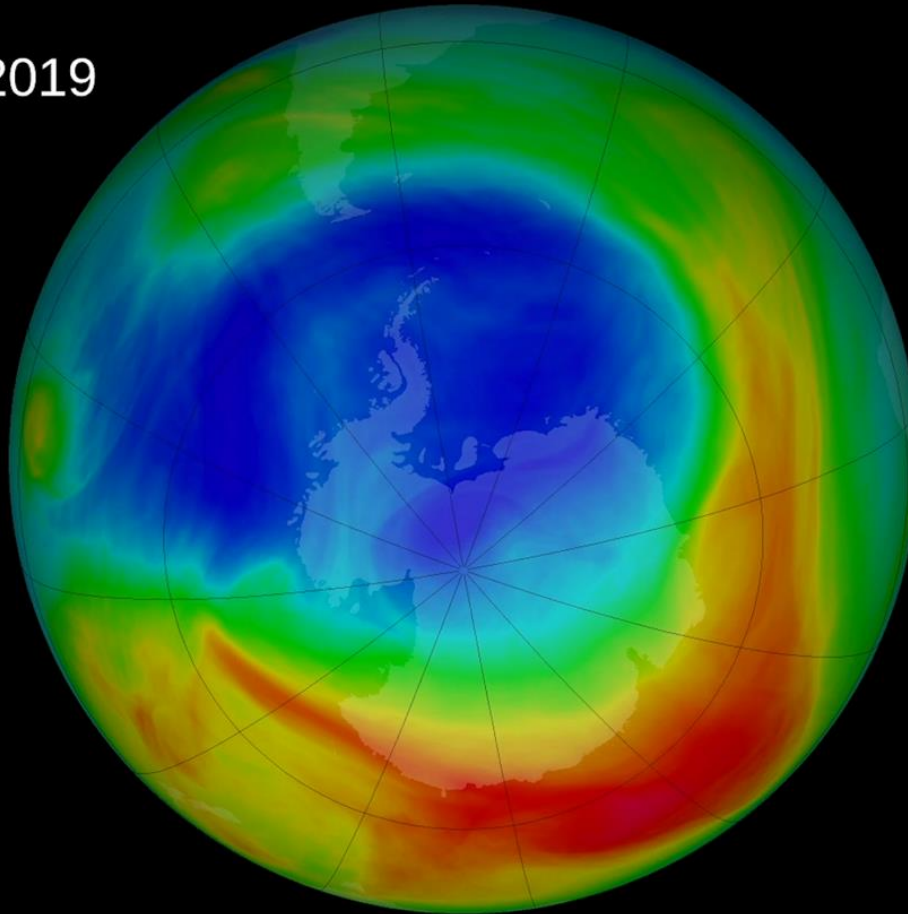


# Stop financing and subsidies for fossil fuel



# Eliminate HFCs in refrigeration

Sep 08, 2019





# Distractions: Nuclear generation including SMRs

Increasing TWh Generation Per Year in China

Time / Additional Annual TWh

— Nuclear — WWS

1500

1000

500

2012

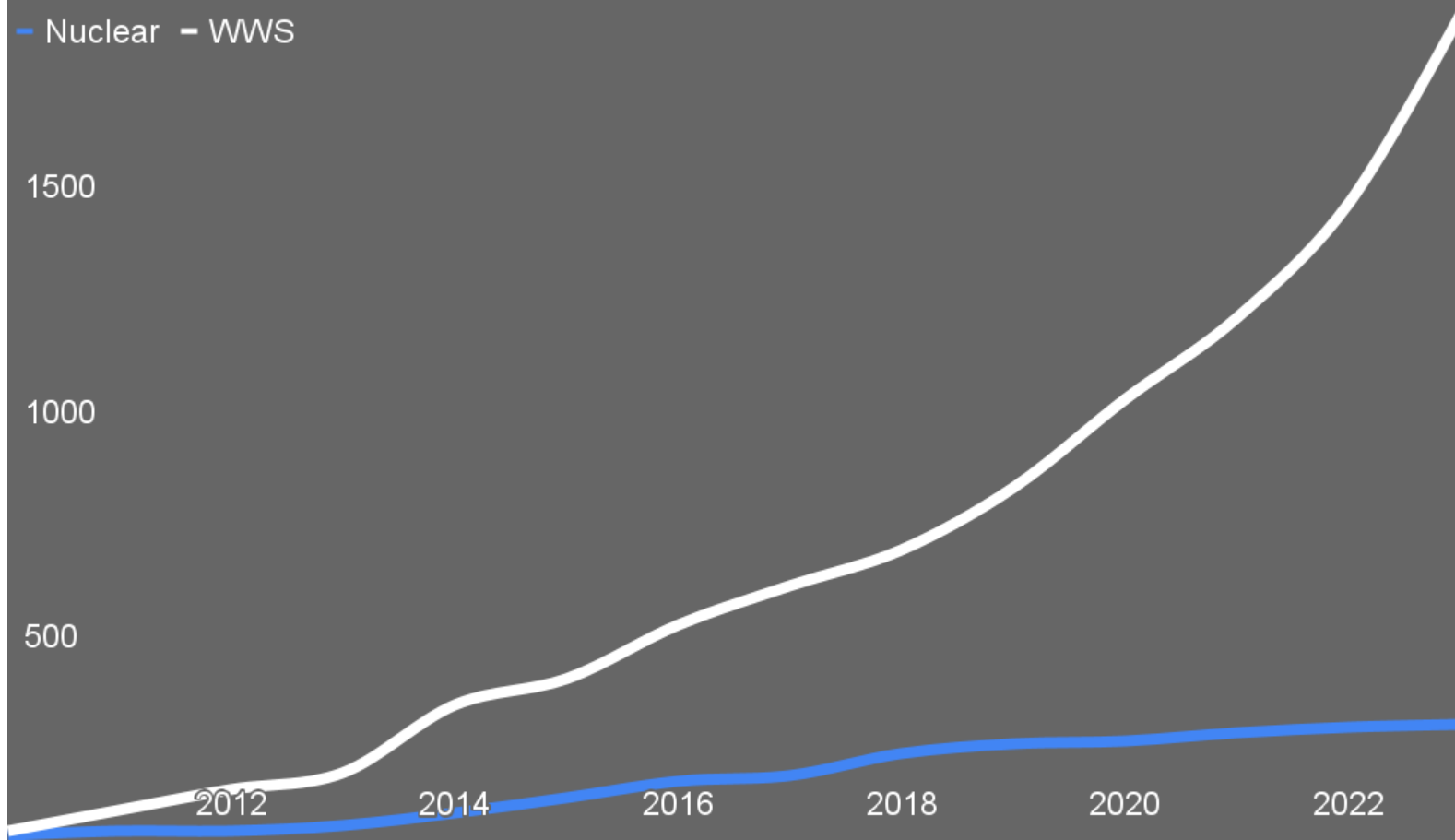
2014

2016

2018

2020

2022

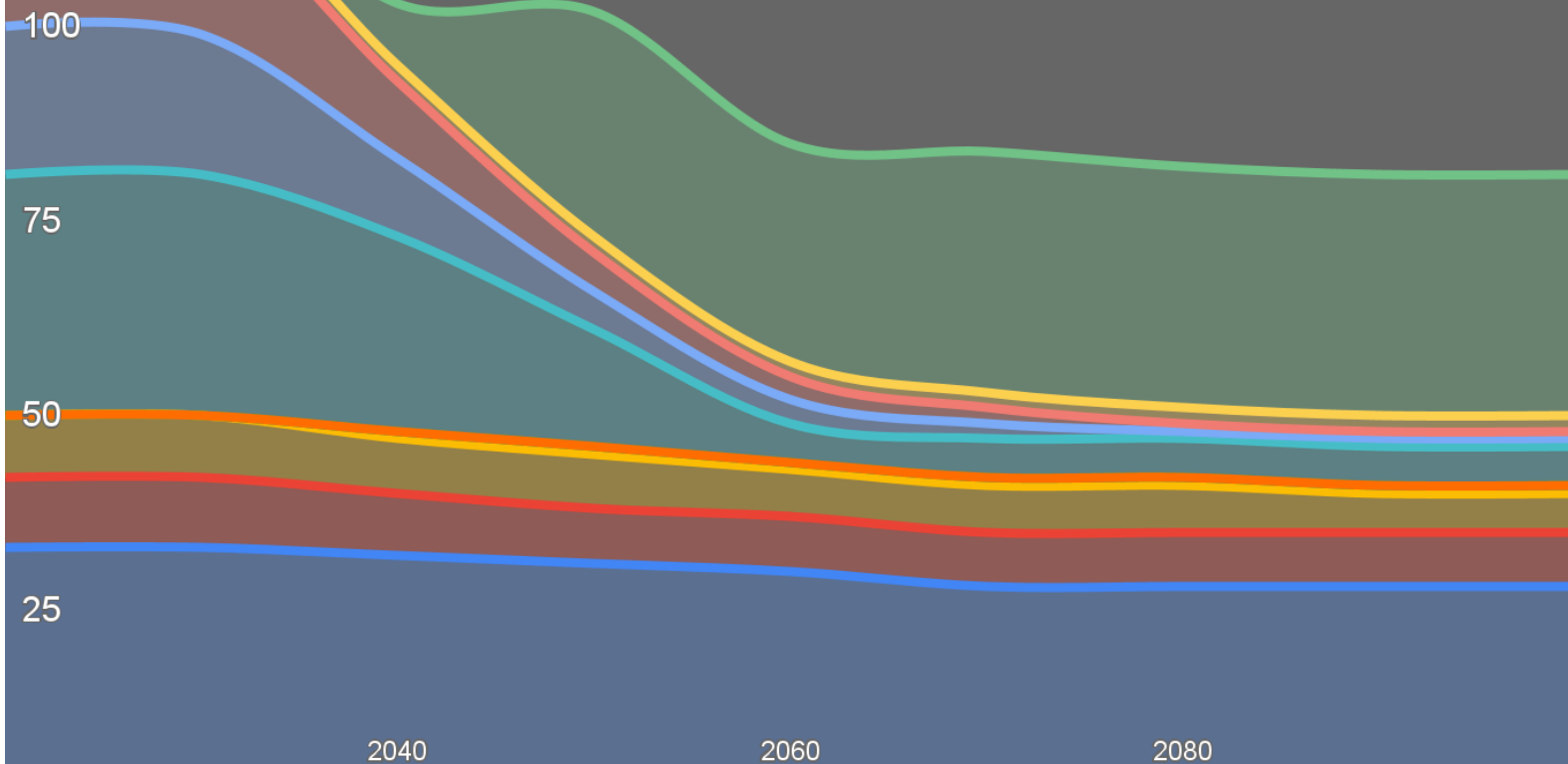


# Distractions: hydrogen for energy

## Hydrogen Demand Projection

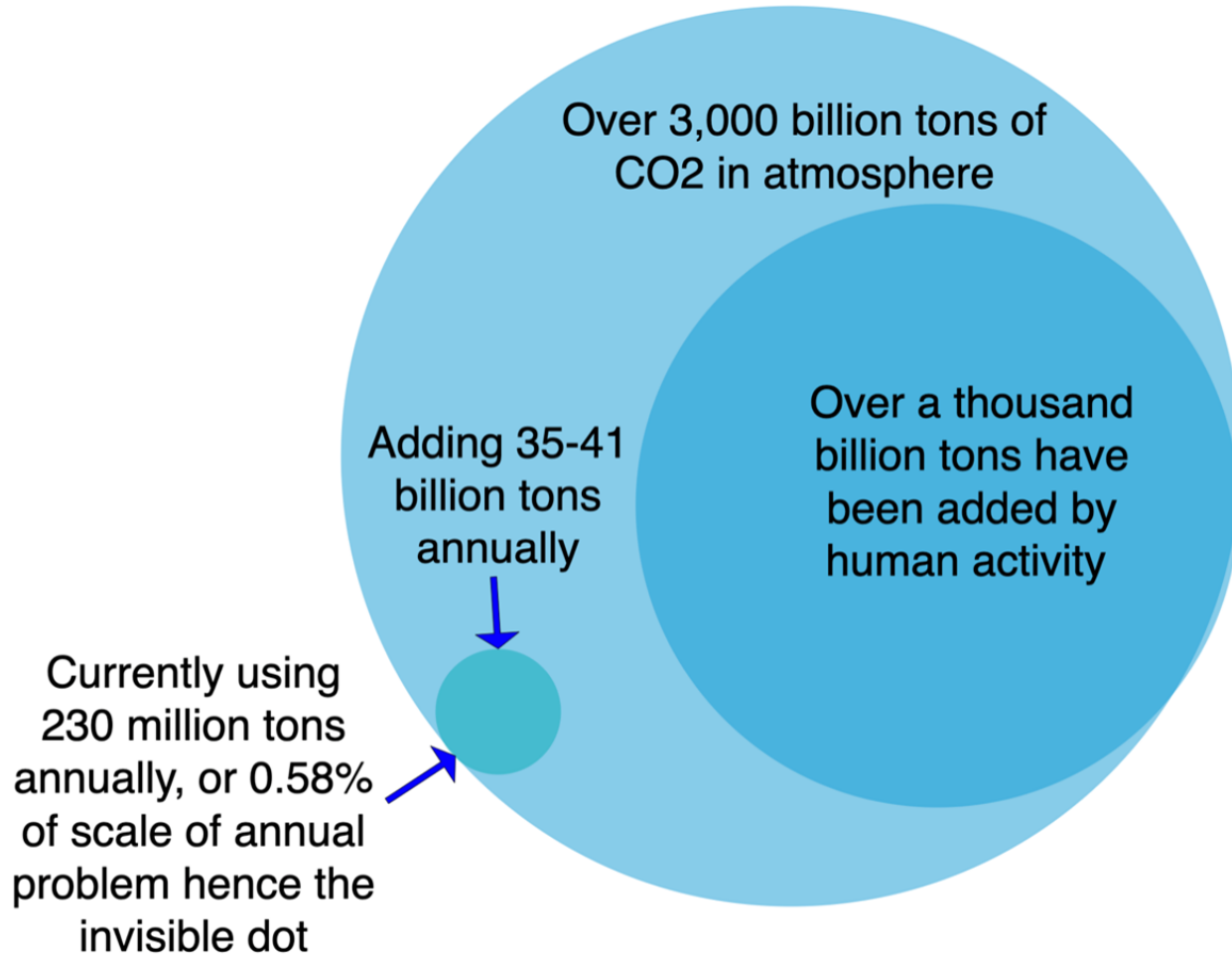
Hydrogen demand sources / Millions of tons

■ Steel ■ Transportation ■ Desulphurization ■ Hydrocracking ■ Fertiliser ■ Heating  
■ Long-term storage ■ Hydrogenation ■ Methanol ■ Mixed Other





# Distractions: Carbon capture and sequestration



Distractions: Direct air capture and air to fuels

## Direct-air-capture's scale problem

All the air in the Grand Canyon only contains

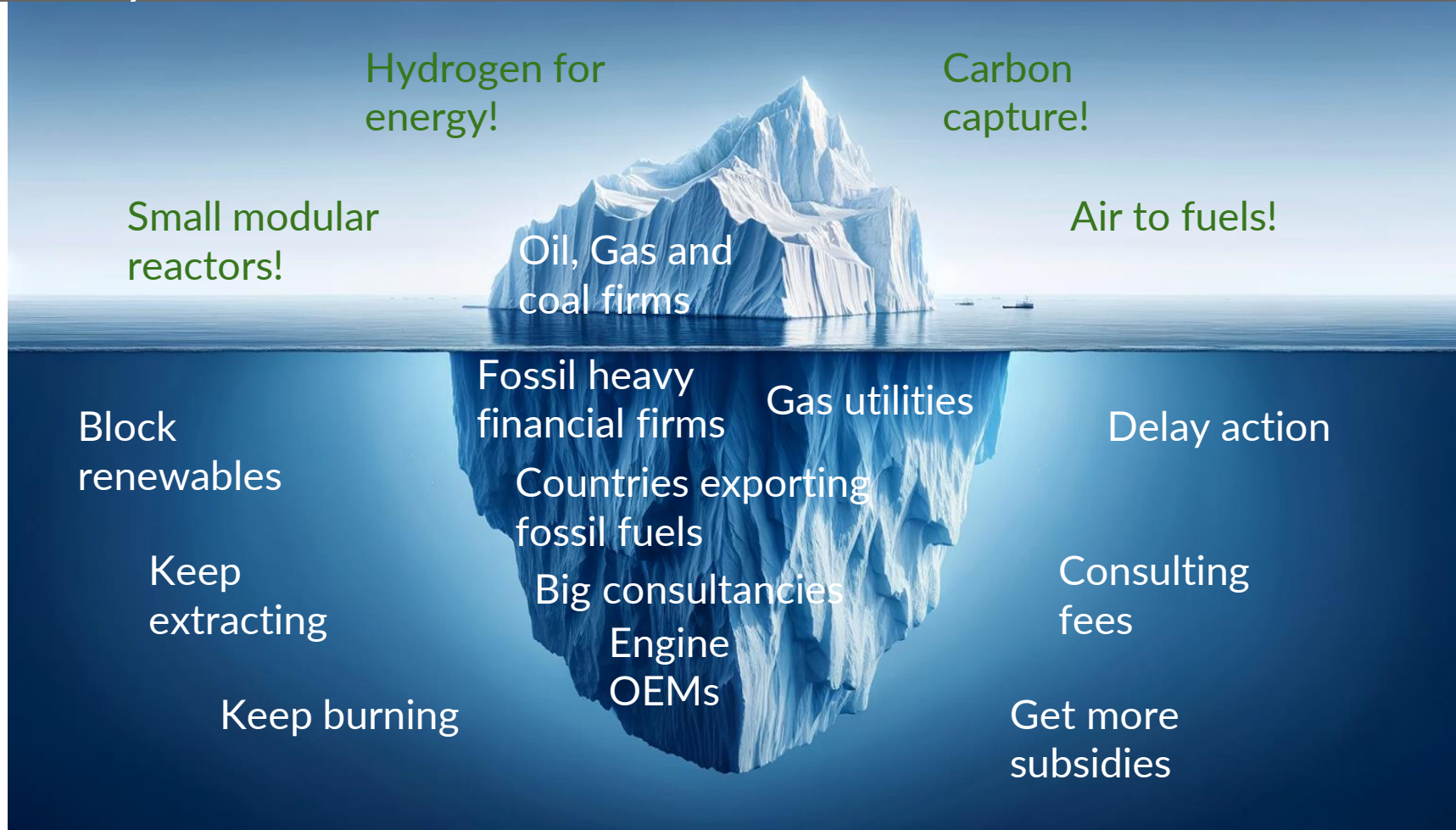
- 1,270 -

tons of CO<sub>2</sub>

Grand Canyons's volume  
is **1.67** billion cubic meters



# Pay attention to motivations



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*Let's  
talk*