

## Six Myths about Climate

**Tom Nelson Podcast** 

Bruce M. Everett, PhD CO<sub>2</sub> Coalition November 8, 2023

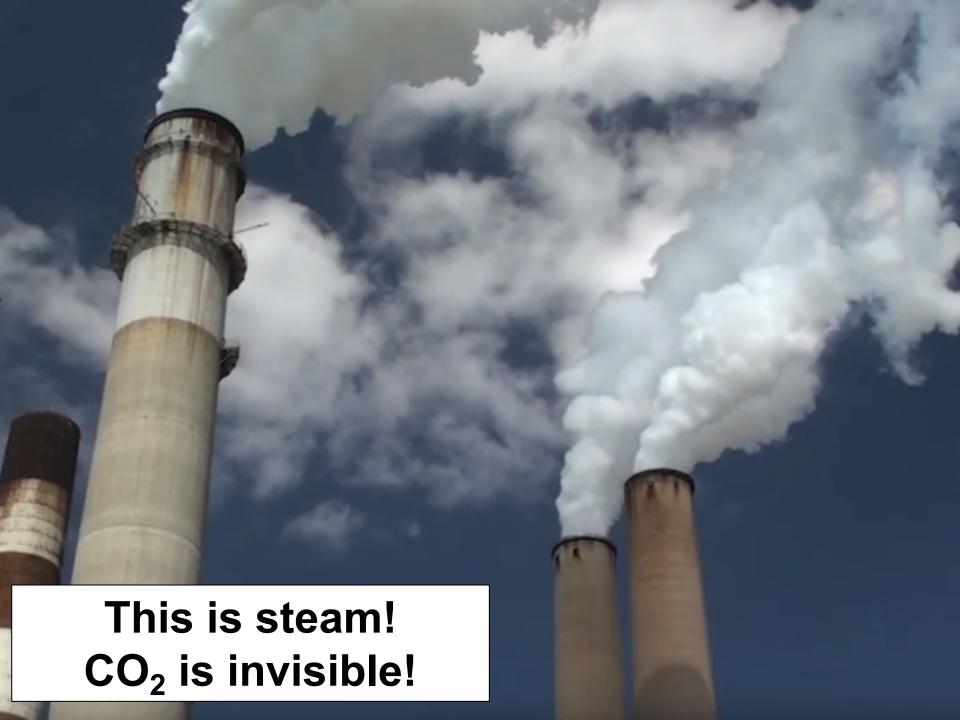


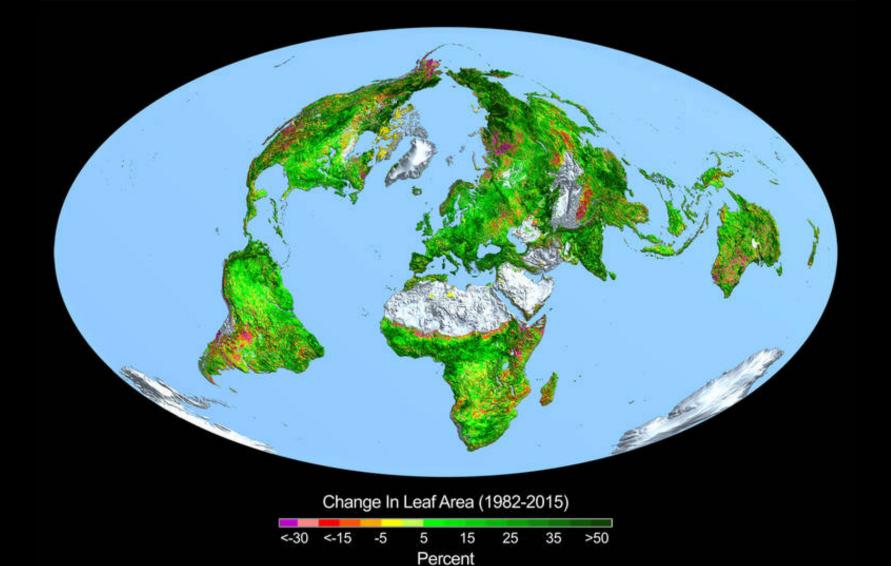
# Myth #1 The "climate emergency"

# Carbon dioxide (CO<sub>2</sub>) is a benign molecule, essential for life

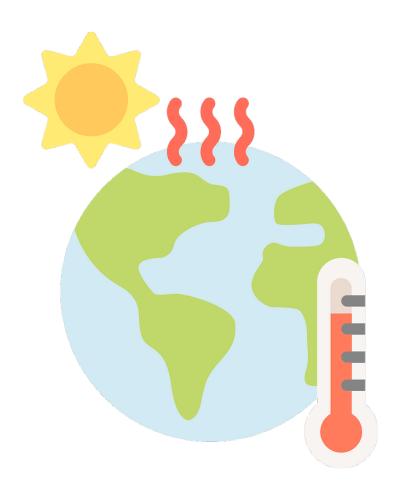
### Not pollution!

CO<sub>2</sub> concentration in 1800s was ~ 0.03% CO<sub>2</sub> concentration now ~ 0.04%



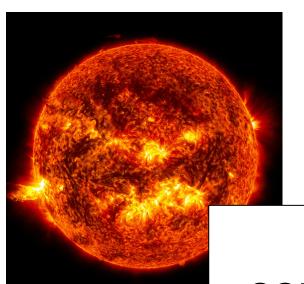


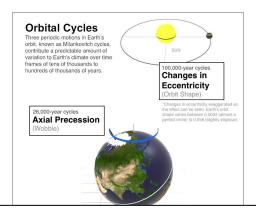
NASA satellite photos show the "fertilization effect" of CO<sub>2</sub>



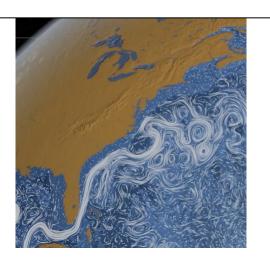
# Predicted massive temperature increases have not materialized

Only about 1° C in the last 120 years



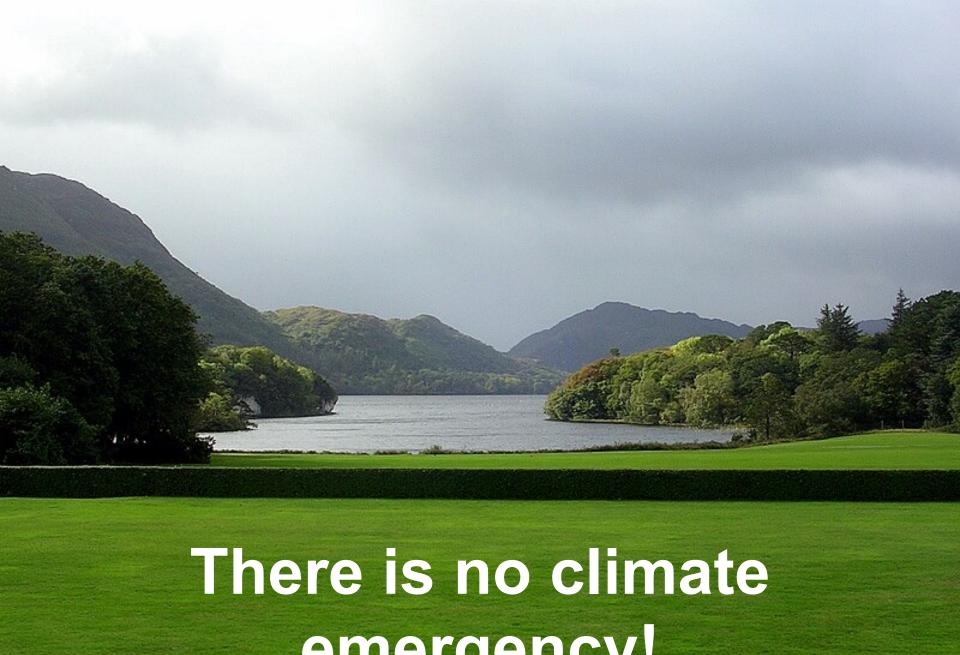


Climate is too complex for simple answers







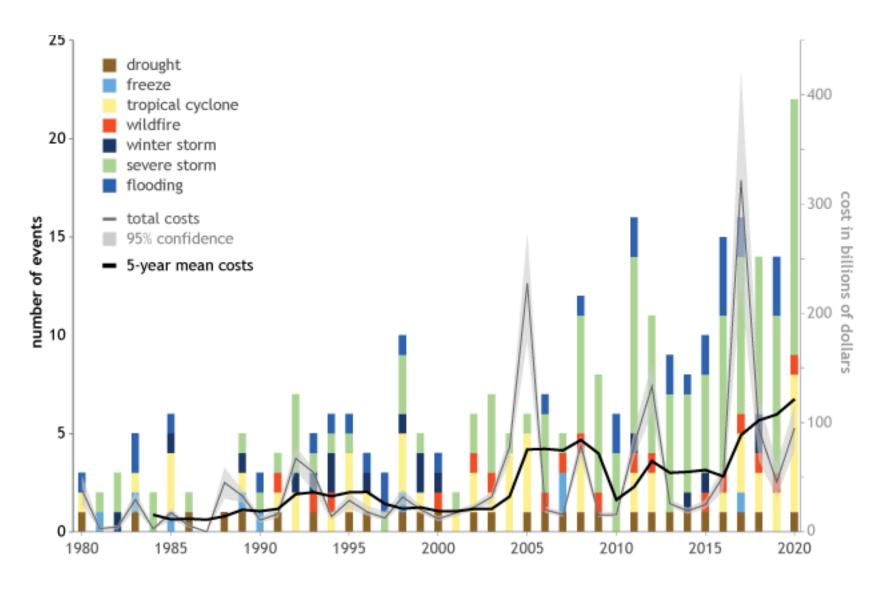


emergency!

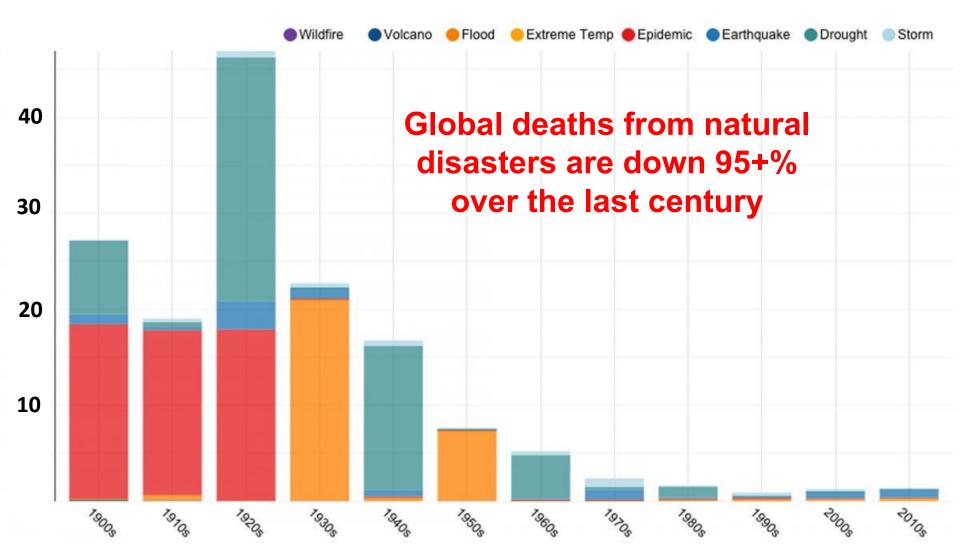
#### Myth #2: Carbon dioxide has made natural disasters worse



#### Billion-dollar disasters, 1980-2020



### Annual Deaths per 100,000 from Natural Catastrophes, 1900-2020



#### Calculating storm damage

Since 1980:

Inflation = 4X

But:

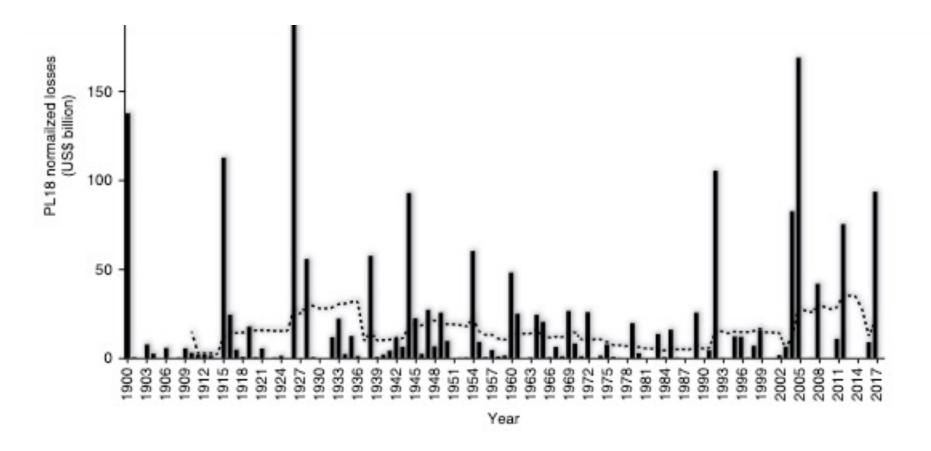
Number of houses = 1.7X



Average \$\$\$ in path of storm = 11X



### Roger Pielke's Normalized Hurricane Damage 1900-2017



Source: Weinkle, Landsea, Collins, Musulin, Crompton, Klotzbach and Pielke, "Normalized hurricane damage in the continental United States 1900–2017", Nature Sustainability, December 2018.\*

# Myth #3 Renewable energy is less expensive than fossil fuels



#### **Natural Gas Combined Cycle**

200 MW \$230M capex (1 square block) 1.5B kWh

#### **Onshore Wind Farm**

200 MW \$375M capex (13 mi<sup>2</sup>) 0.6B kWh



7¢/kWh required price



8¢/kWh required price

#### **Natural Gas Combined Cycle**

200 MW \$230M capex (1 square block) <del>1.5B kWh</del> 0.9B kWh

#### **Onshore Wind Farm**

200 MW \$375M capex (13 mi<sup>2</sup>) 0.6B kWh





9¢/kWh required price (~30%↑)

#### **Natural Gas Combined Cycle**

200 MW \$230M capex (1 square block) 1.5B kWh 0.7B kWh

#### **Offshore Wind Farm**

200 MW \$1,050M capex (NA) 0.8B kWh





17¢/kWh required price

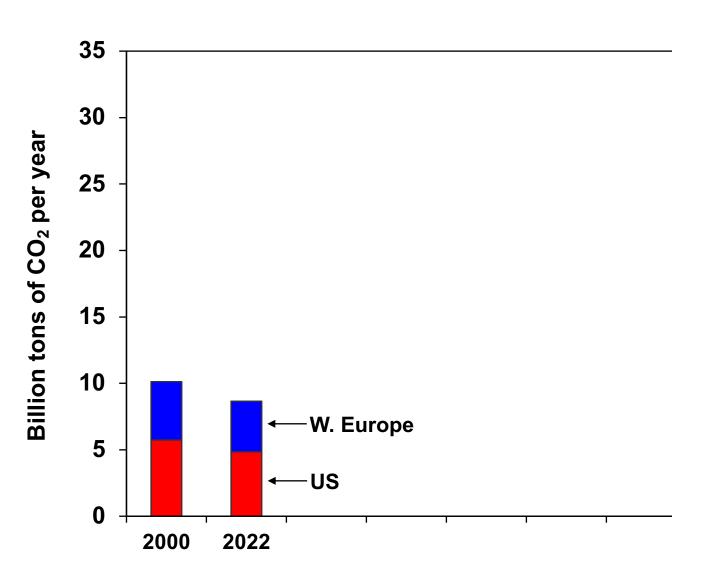


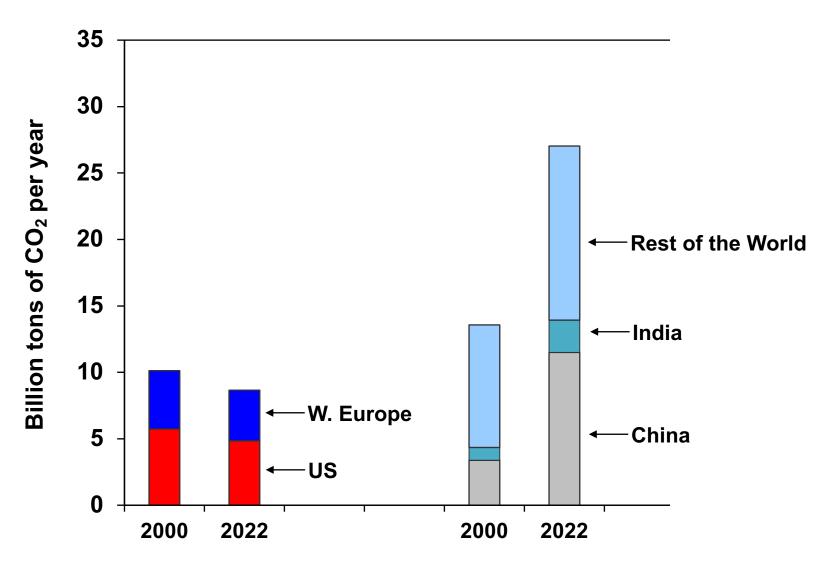
#### **Myth #4:**

The global community has united to reduce CO<sub>2</sub> emissions

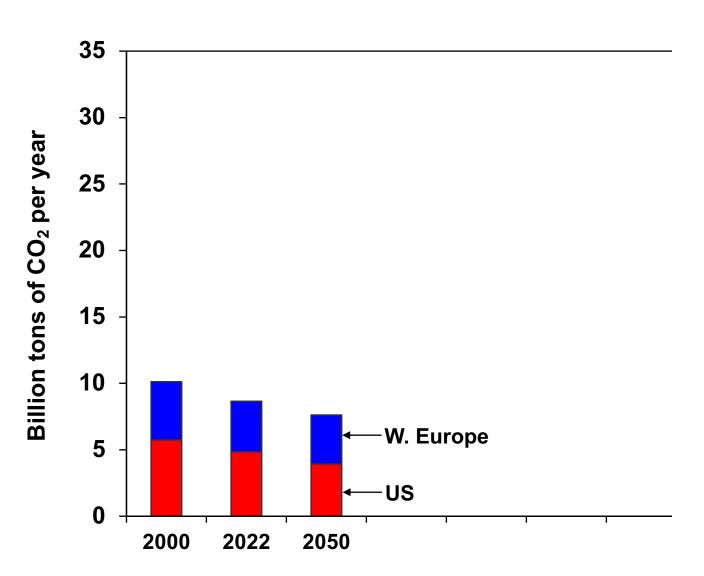


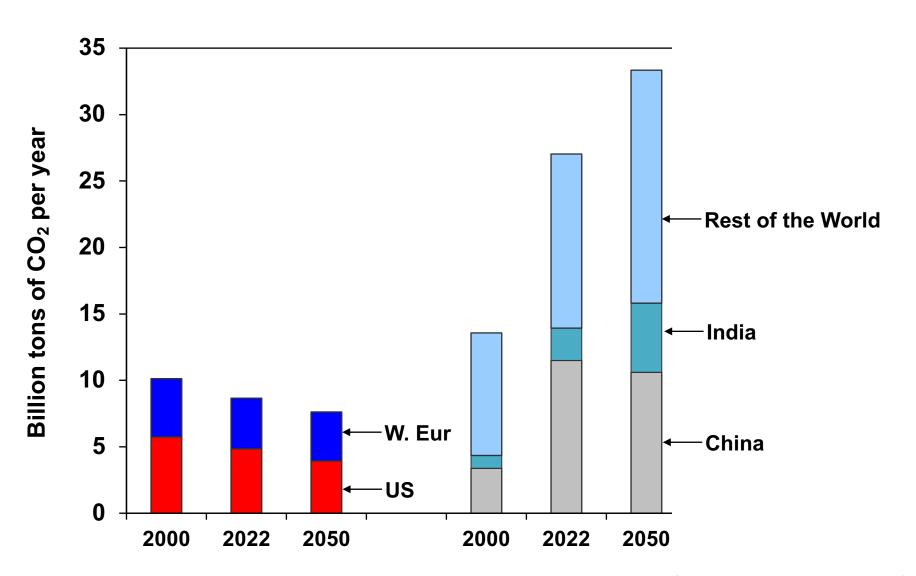
# Where does CO<sub>2</sub> come from?





Source: Energy Institute & EIA



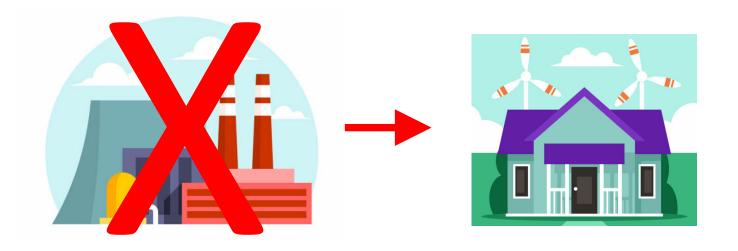


Source: Energy Institute & EIA

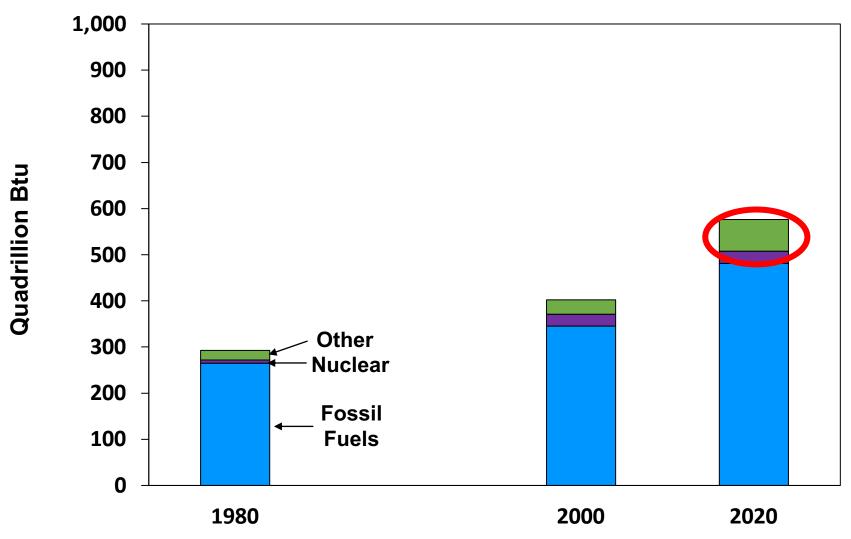


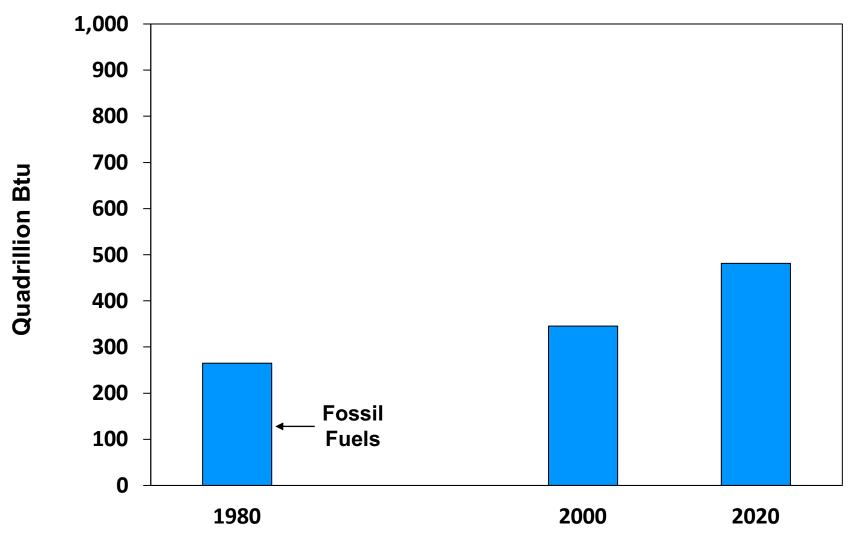
### Why are countries not decarbonizing?

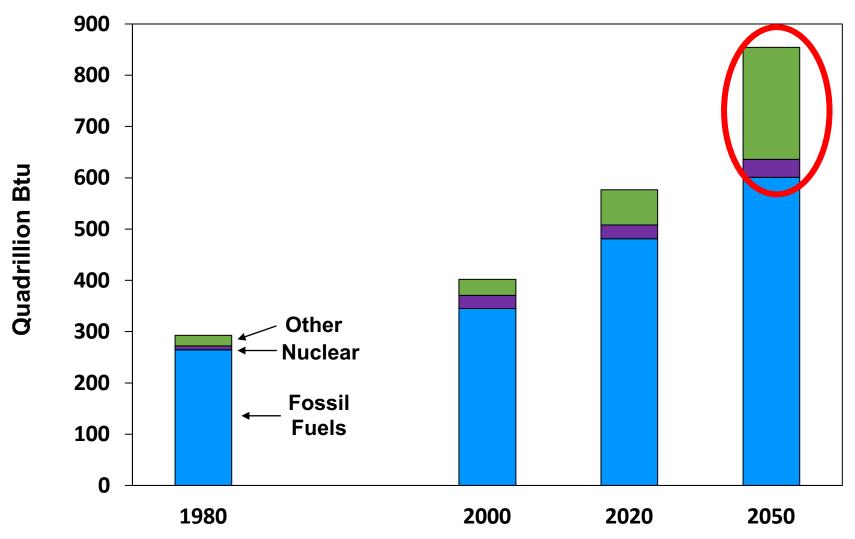
Because fossil fuels are the only economically viable source of plentiful, secure energy.

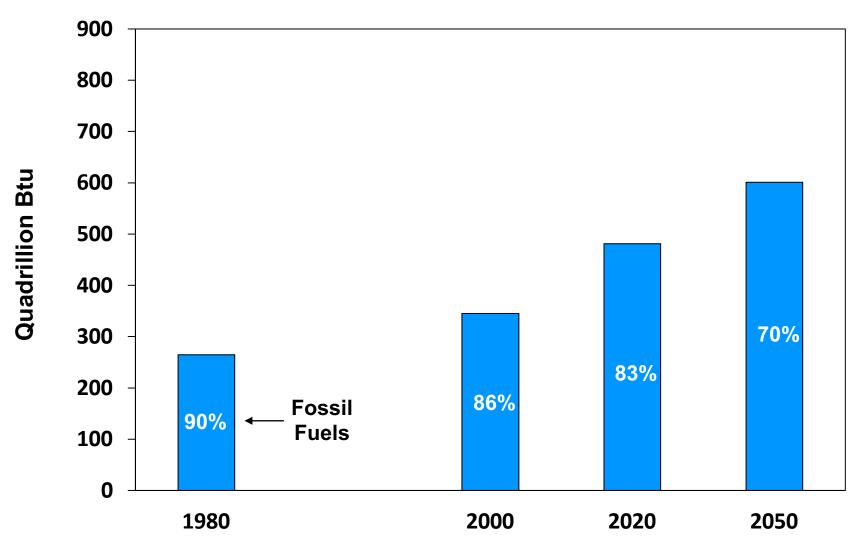


# Myth #5: The world is undergoing a transition from fossil fuels to renewable energy









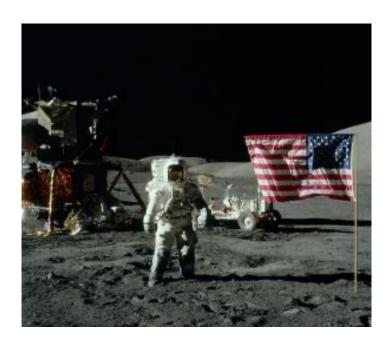


## Myth #6 The Moonshot Fallacy

"If we can put a man on the moon, we can....."

#### Apollo achieved:

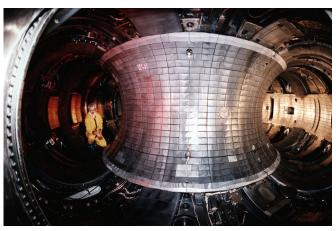
- A technically difficult feat <u>a few times</u> at <u>great cost</u>
  - ~\$15 billion (\$2023) per astronaut landed
- Energy technologies must <u>scale up</u> at <u>low cost</u>
- The "moonshot" is not the right model for commercial development



#### Two corollary fallacies:

- 1. R&D can produce whatever we want.
- 2. Scaling up inferior technologies improves them.





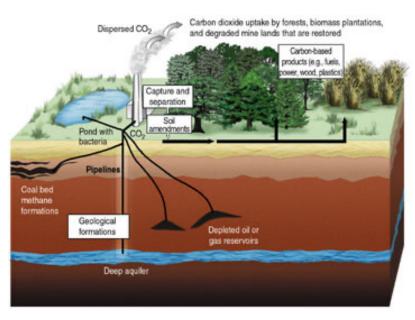








**Batteries?** 



Carbon capture?

Technologies can be deployed when they are ready, not before!

