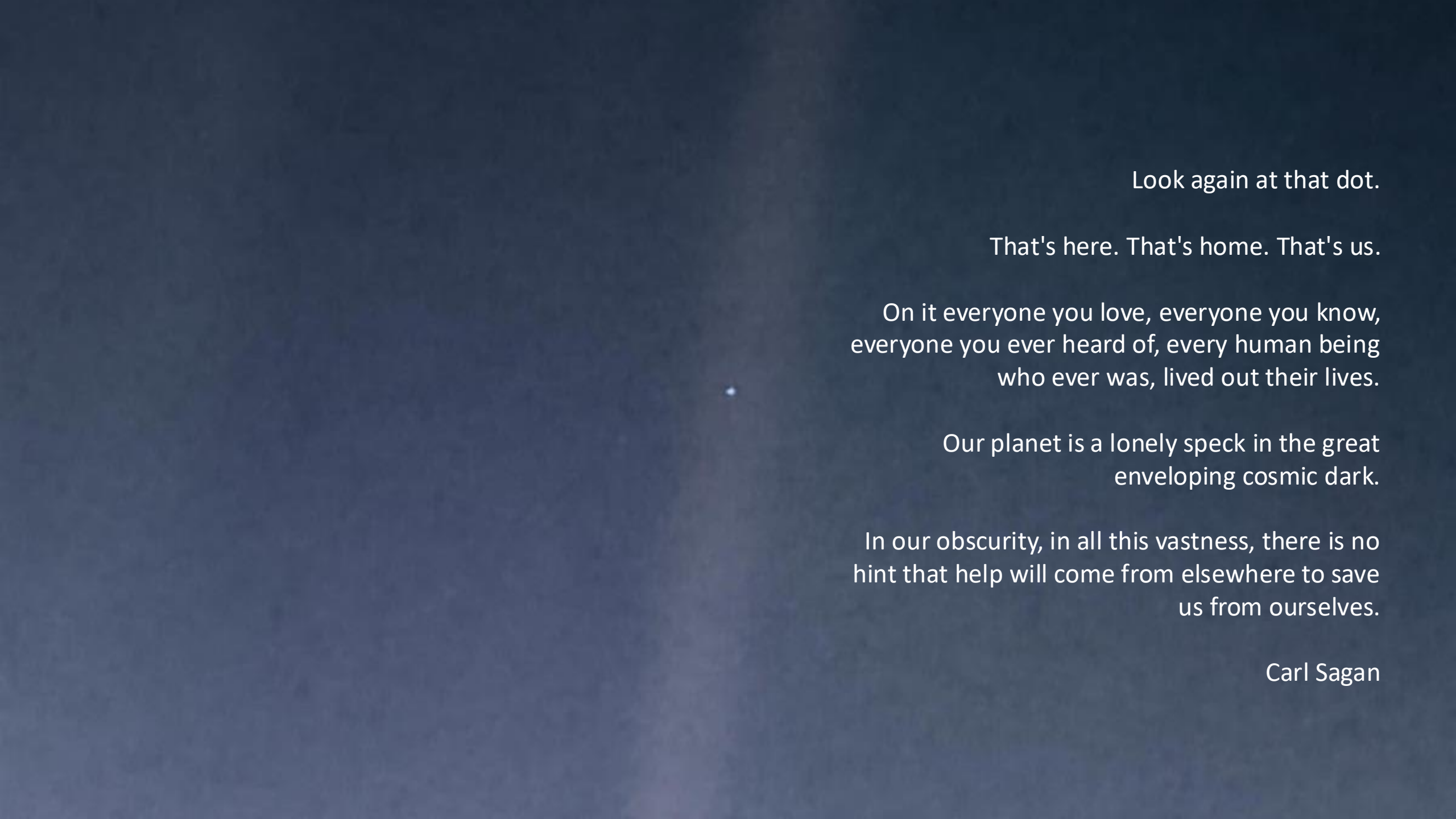
Climate Change overview

Ignacio GONZÁLEZ-BLANCH

December 2024

Funded by the European Union



Look again at that dot.

That's here. That's home. That's us.

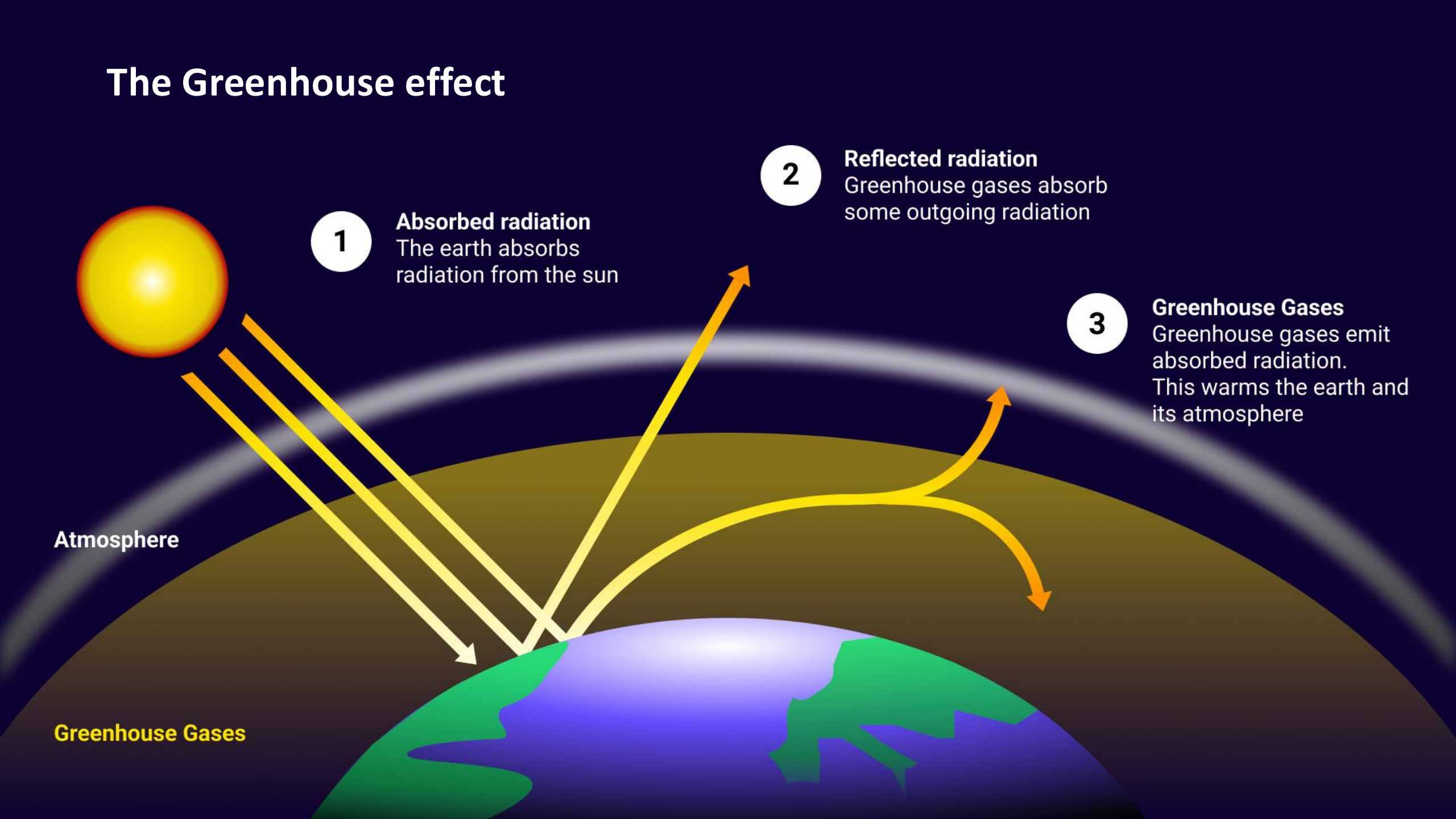
On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives.

Our planet is a lonely speck in the great enveloping cosmic dark.

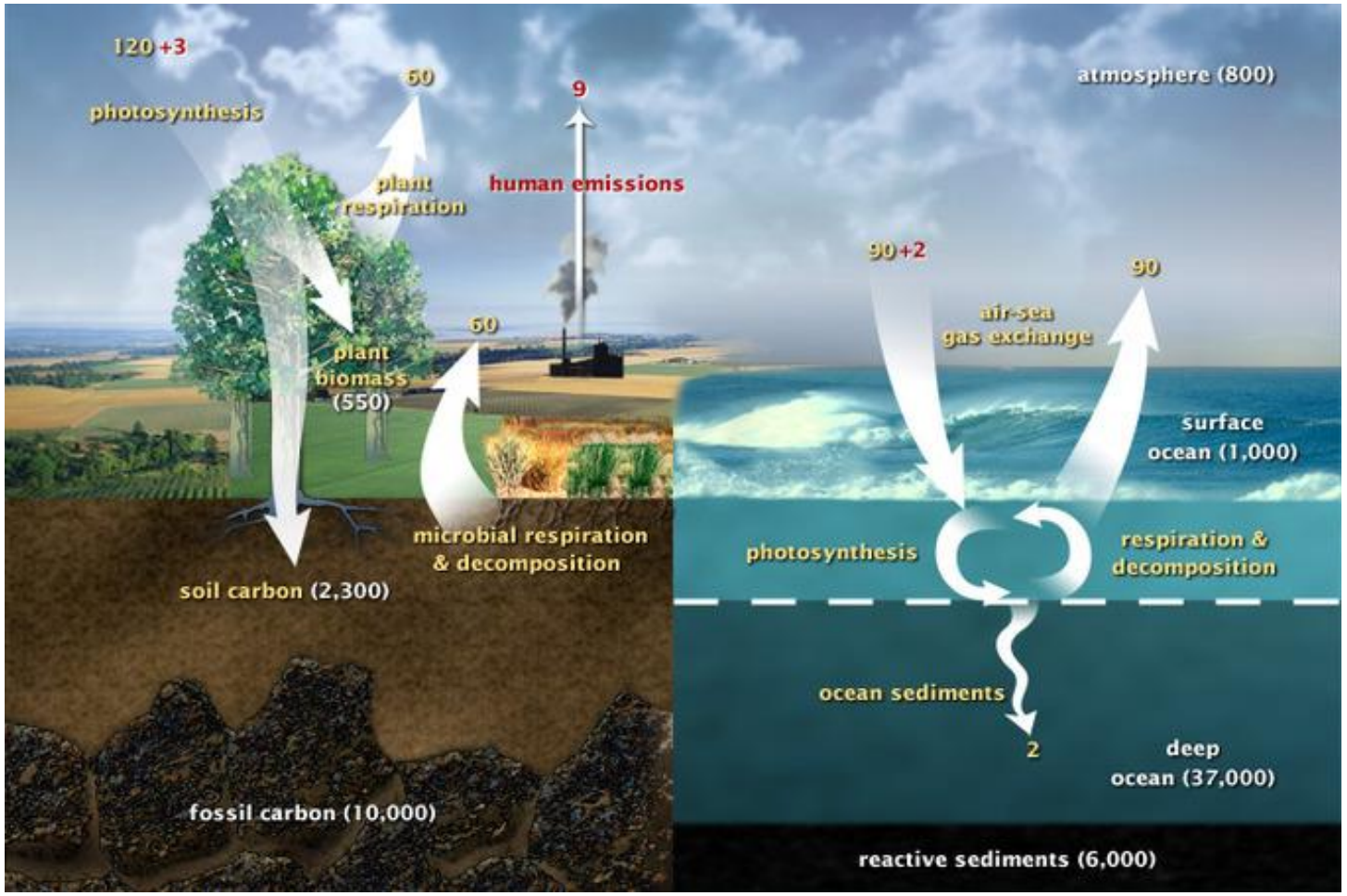
In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves.

Carl Sagan

The Greenhouse effect



The carbon cycle



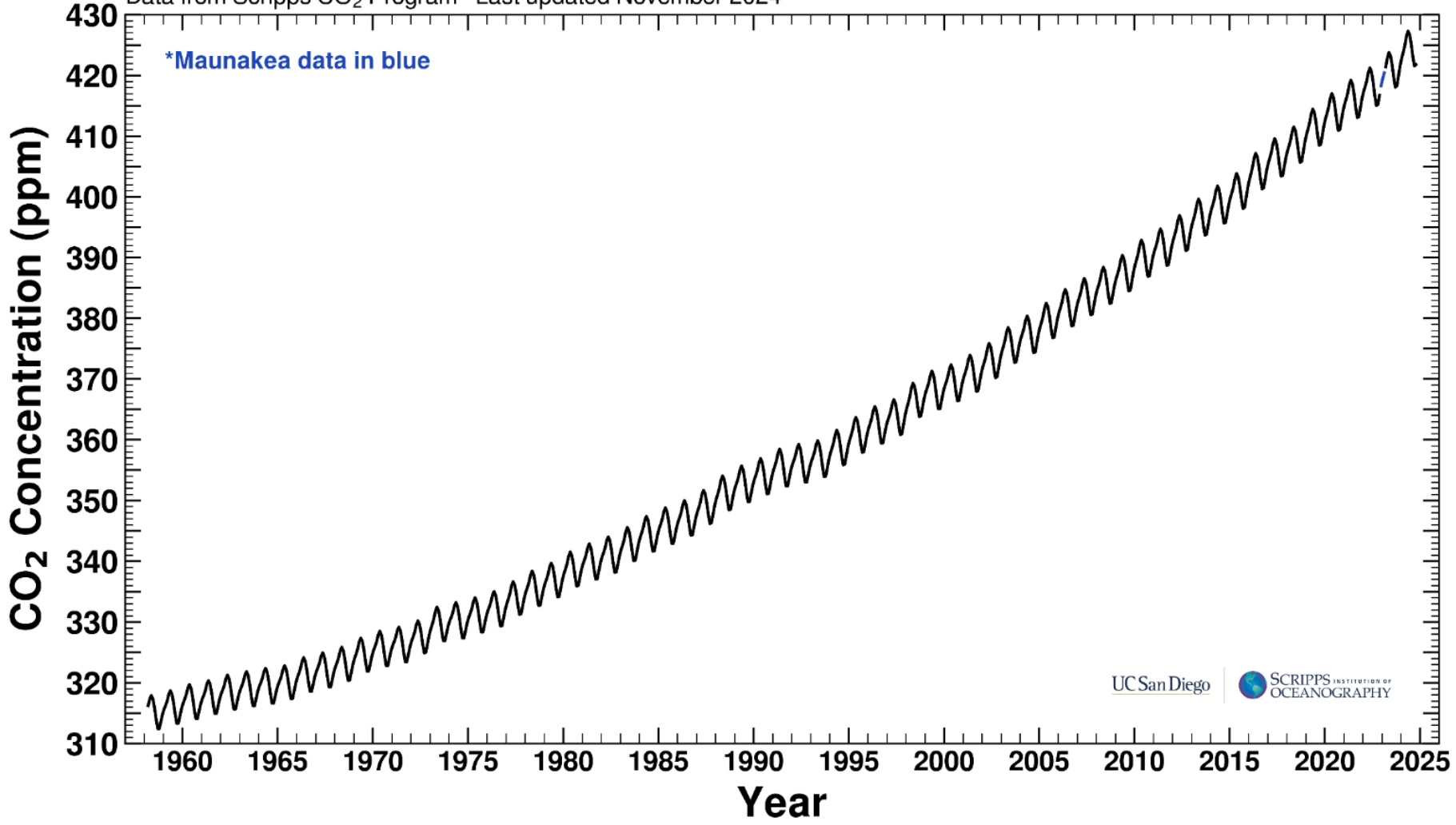
Atmospheric CO_2 concentration

Global average long-term atmospheric concentration of carbon dioxide (CO_2), measured in parts per million (ppm).

Source: Scripps CO_2 Program

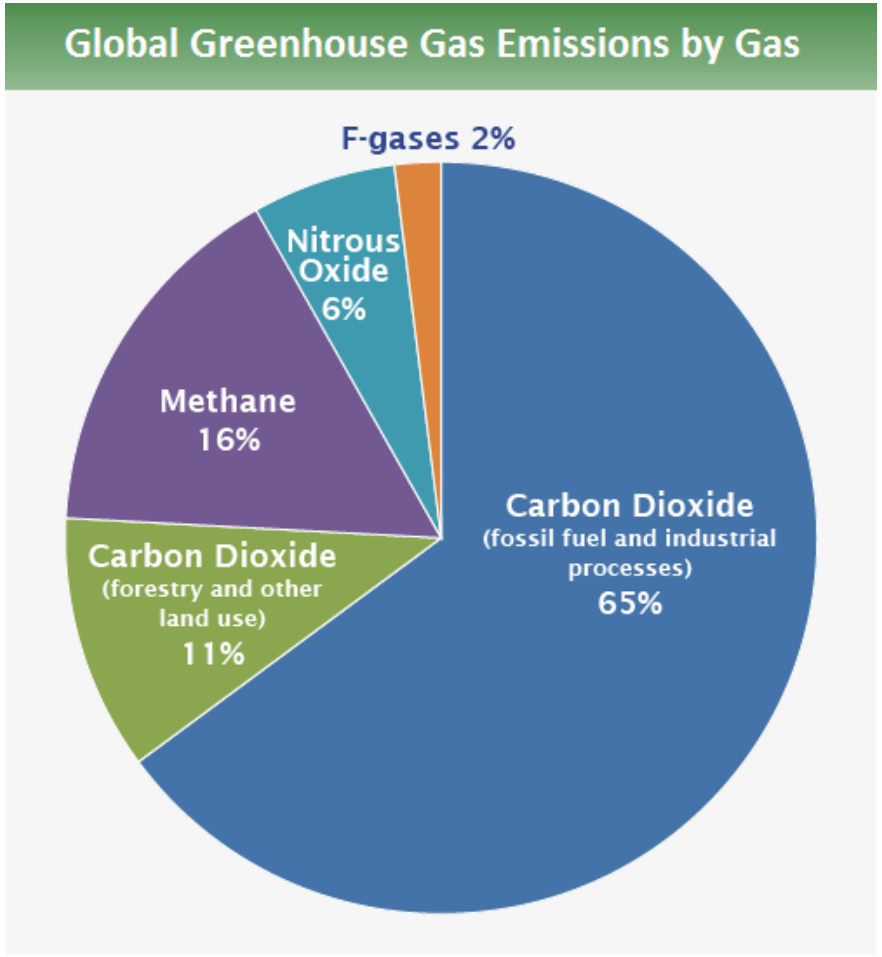
Mauna Loa Observatory, Hawaii*
Monthly Average Carbon Dioxide Concentration

Data from Scripps CO_2 Program Last updated November 2024

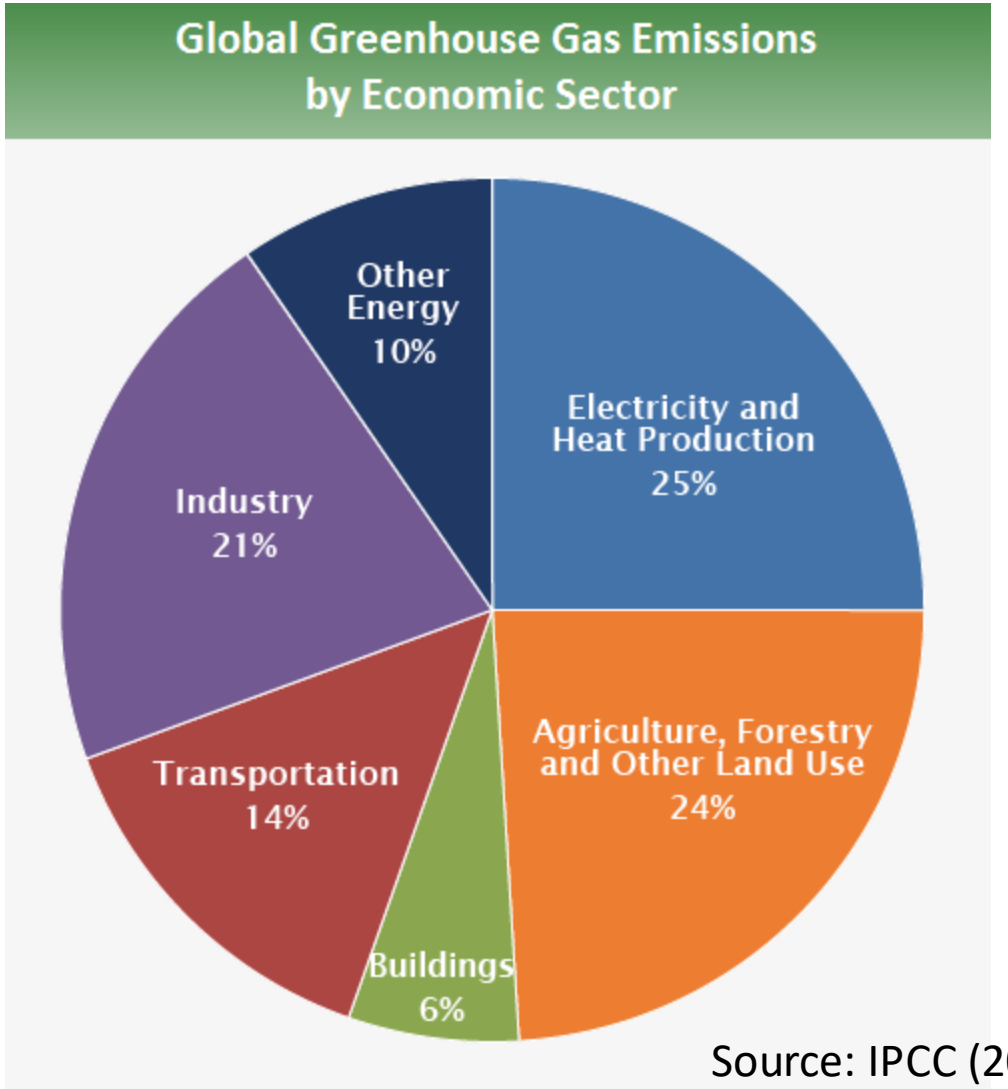


Global Warming Potential (GWP) of the six primary Greenhouse gases

GAS	GWP 100 (AR5)
CO_2	1
N_2O	265
CH_4	28
SF_6	23,900
HFC	140-11,700
PFC	6,500-9200



Source: IPCC (2014)



Source: IPCC (2014)

Global warming and Climate Change effects

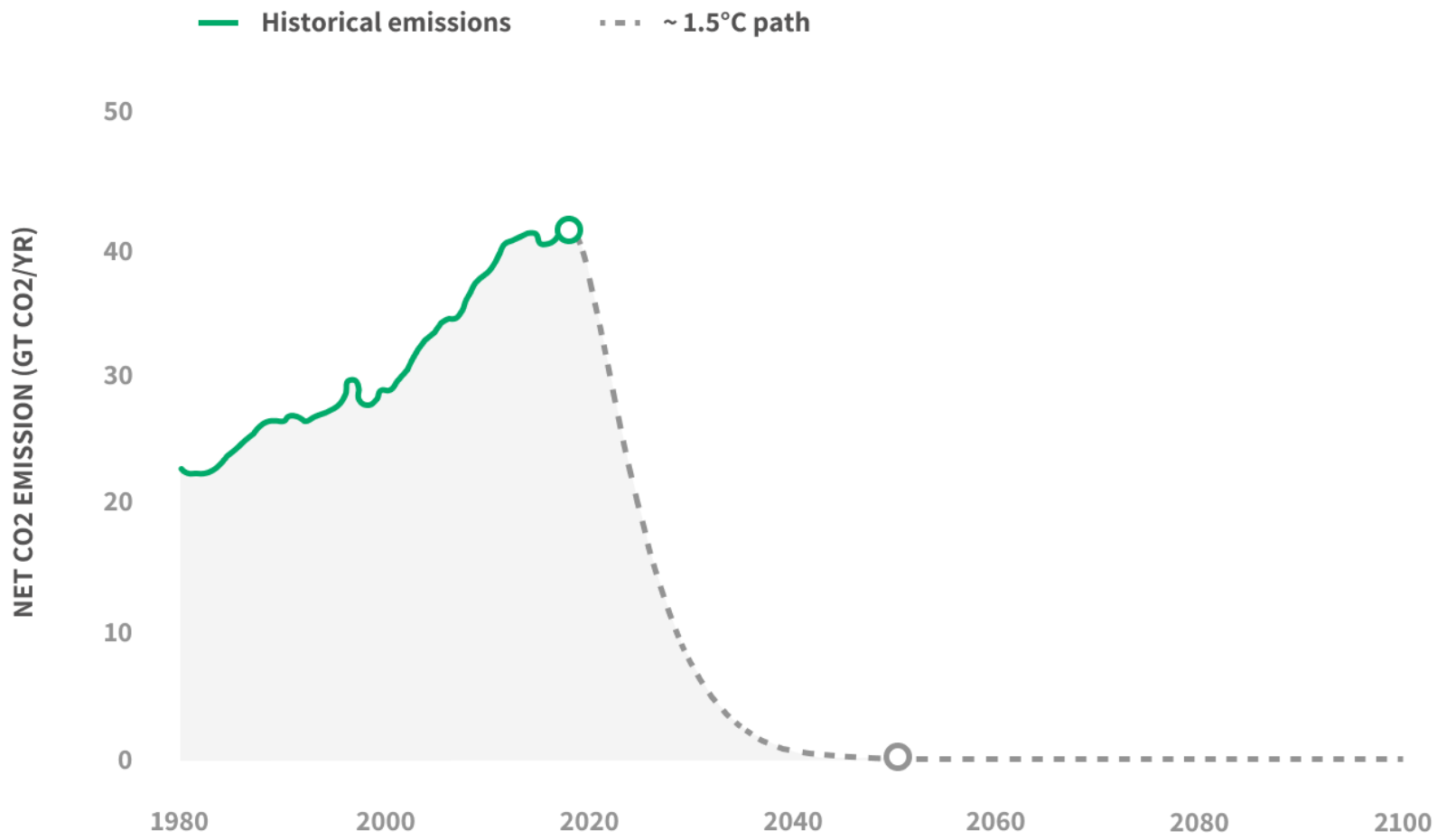
- Global average temperature increase
- Sea level rise
- Sea ice extent decrease
- Oceans global average heat content increase

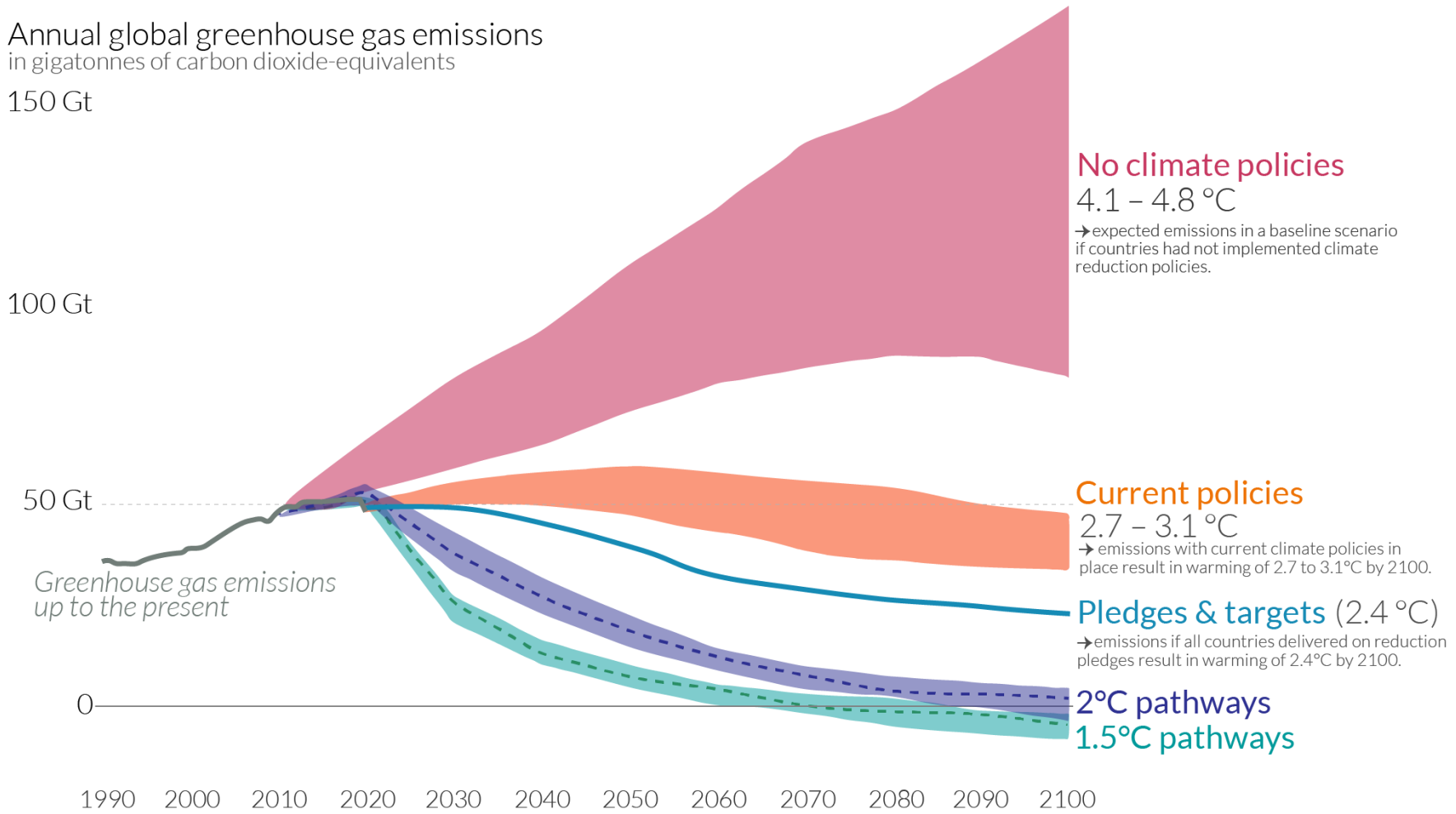
- Extreme weather events frequency increase (droughts, floods, fires, heatwaves, etc.)
- Biodiversity loss
- Water scarcity
- Crops yield decrease
- Migratory crisis

The greenhouse effect is an established fact.

Climate change is real. The future impact is uncertain but likely very significant, and possibly catastrophic.

Scenario to limit the average global temperature to 1.5C





Data source: Climate Action Tracker (based on national policies and pledges as of May 2021).
OurWorldinData.org – Research and data to make progress against the world's largest problems.

Last updated: July 2021.

Five trends today

1. Manifestation of Physical Risks
2. Evolving social norms
3. Government action
4. Innovation
5. Investors reaction

Source: Professor Usher, Columbia Business School
Climate Trends - Investing in the Era of Climate Change

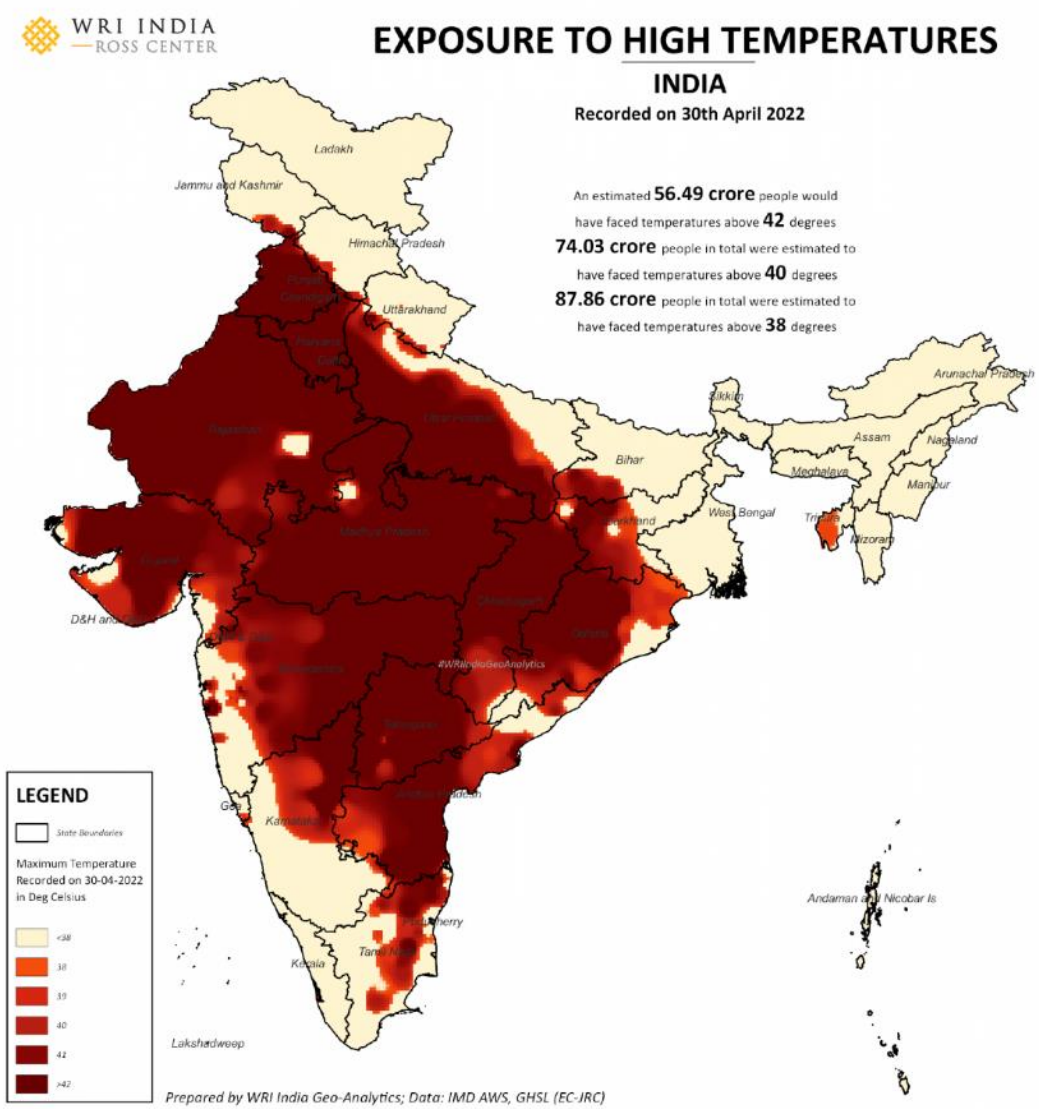
Trends today

1. Manifestation of Physical Risks

India could soon experience heat waves that break human survivability limit: World Bank report

PTI • Last Updated: Dec 07, 2022, 01:13:00 PM IST

Synopsis
"In April 2022, India was plunged into the grip of a punishing early spring heat wave that brought the country to a standstill, with temperatures in the capital, New Delhi, topping 46 degrees Celsius (oC) (114 degrees Fahrenheit). The month of March, which witnessed extraordinary spikes in temperatures, was the hottest ever recorded", a World Bank report said.



Professor Usher, Columbia Business School
Climate Trends - Investing in the Era of Climate Change

Trends today

2. Evolving social norms

“I want you to act as if the house is on fire. Because it is.”

Greta Thunberg, climate activist

Trends today

3. Government action

"The European Green Deal is our new growth strategy - Our goal is to reconcile the economy with our planet, to reconcile the way we produce and the way we consume with our planet and to make it work for our people."

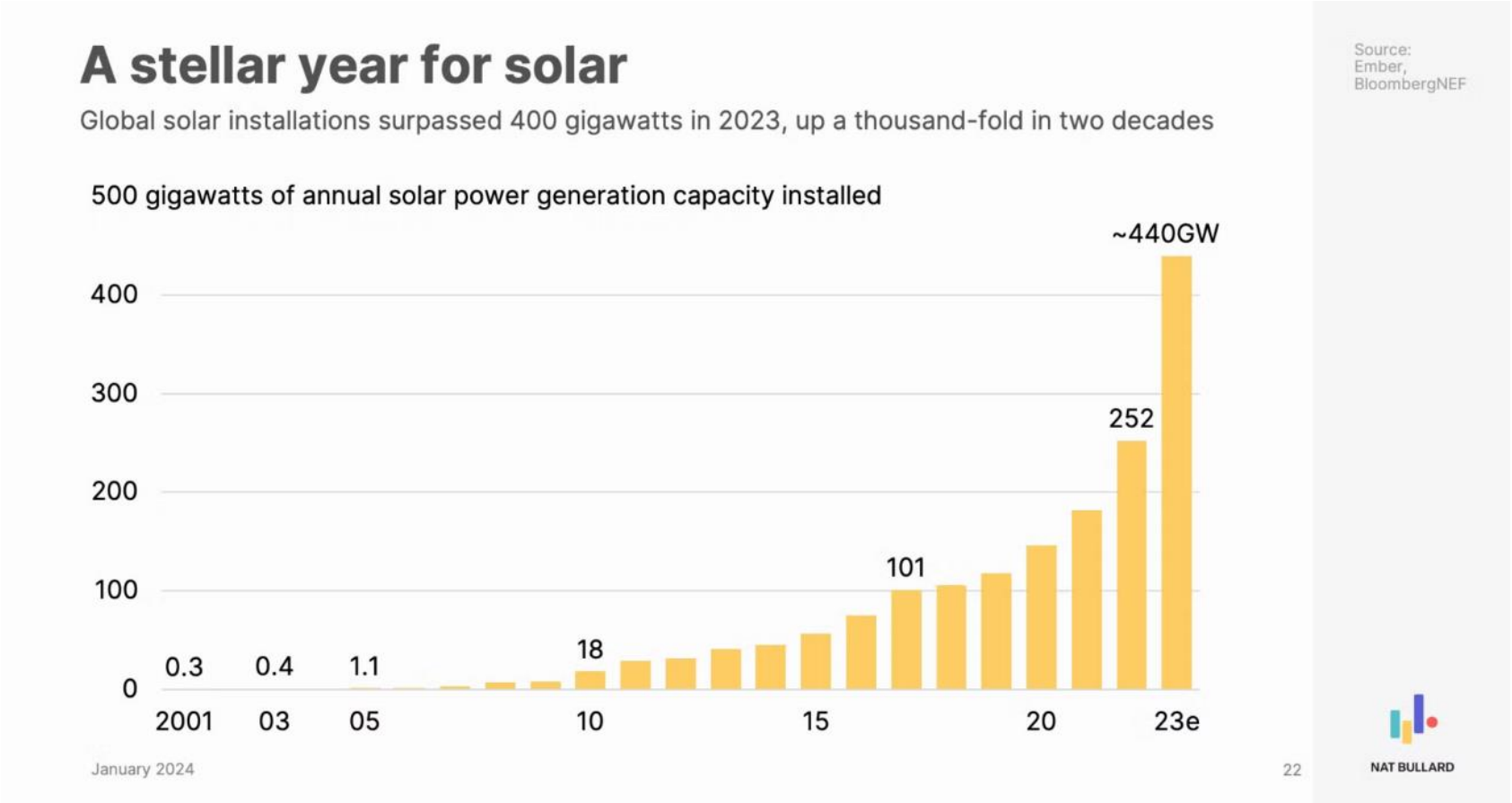
President von der Leyen,
European Commission

Figure 1: The European Green Deal

Trends today

4. Innovation

More solar in a year alone than 100 coal fire plants

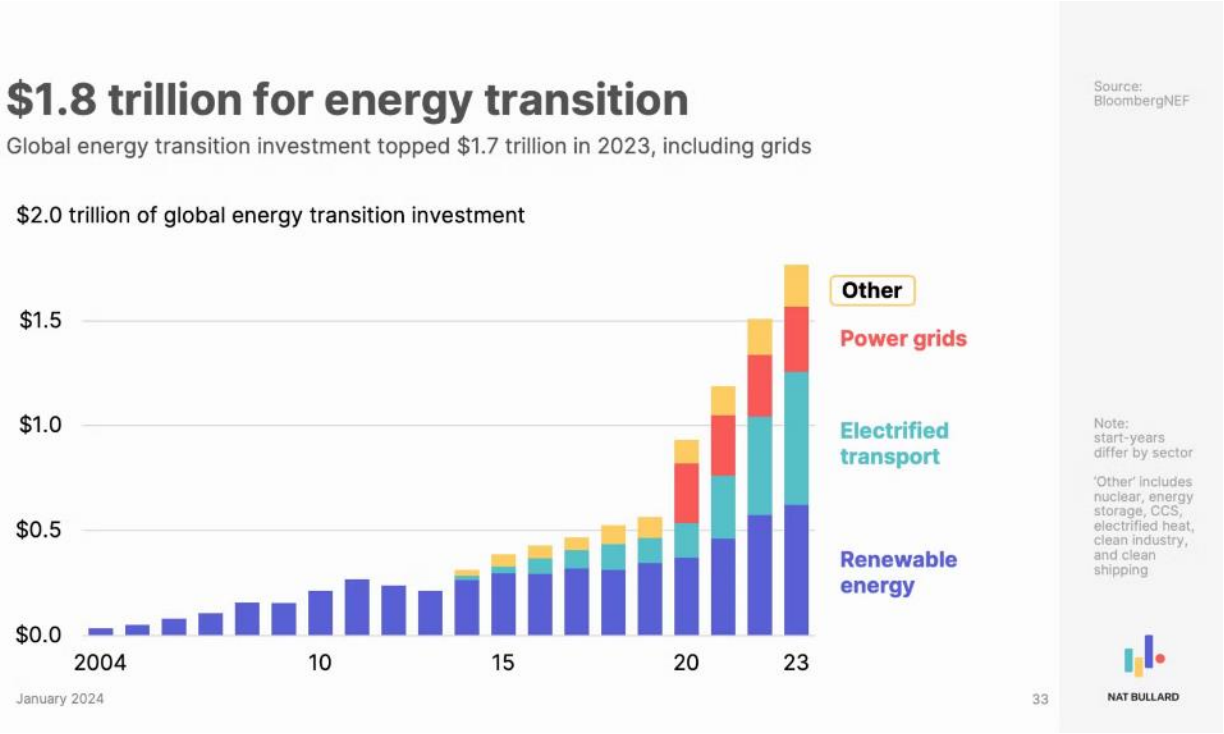


Trends today

5. Investor reactions

In the near future – and sooner than most anticipate – there will be a significant reallocation of capital.

Larry Fink, CEO BlackRock



Takeaways

Climate change and the decarbonisation will alter economies and countries

The low-carbon transition will provide with the opportunity and a challenge of a lifetime

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