

CYPRUS ENVIRONMENT SYMPOSIUM



Climate Change overview

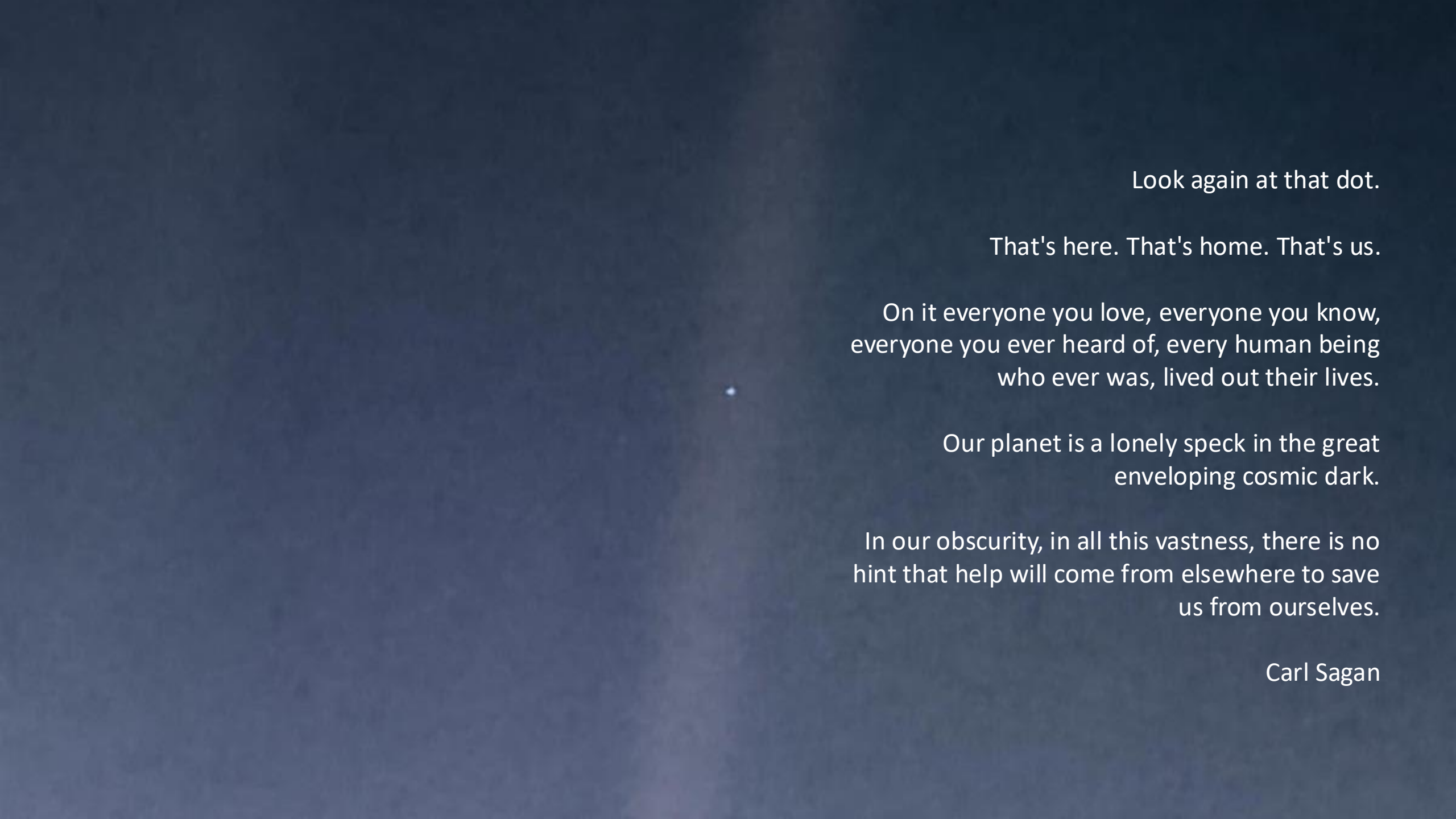
Ignacio GONZÁLEZ-BLANCH

December 2024



Funded by
the European Union





Look again at that dot.

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

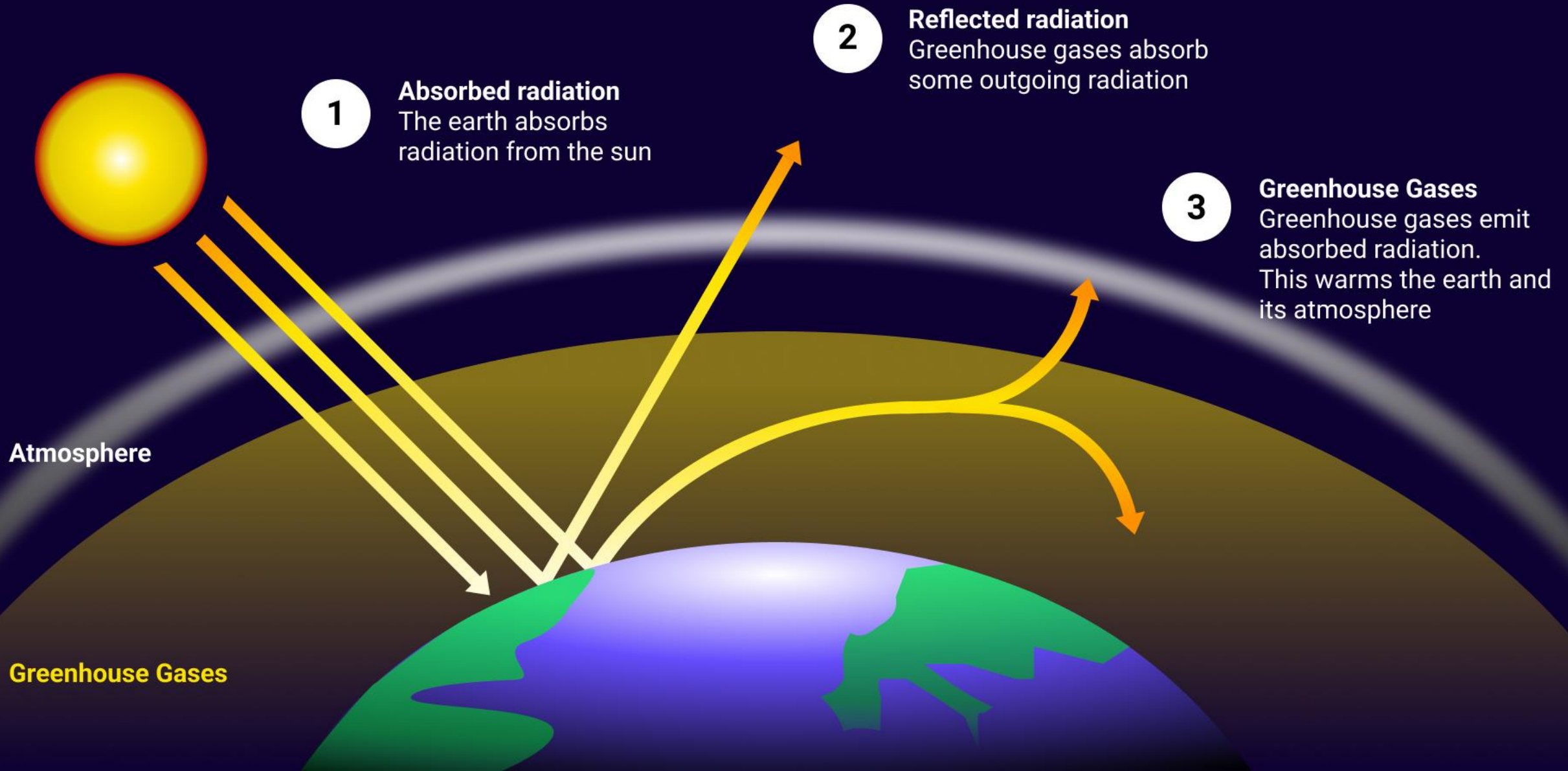
On it everyone you love, everyone you know,
everyone you ever heard of, every human being
who ever was, lived out their lives.

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

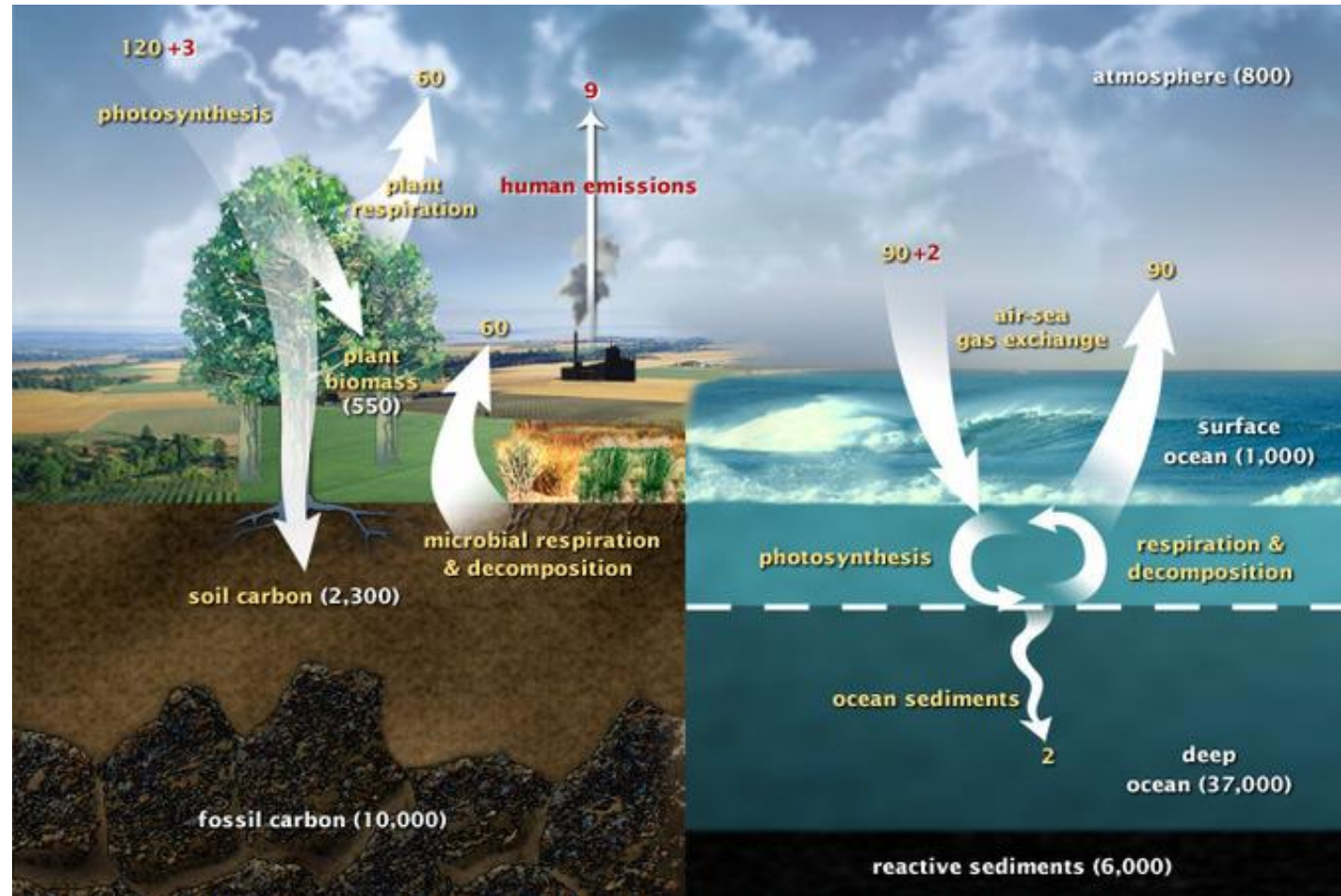
In our obscurity, in all this vastness, there is no
hint that help will come from elsewhere to save
us from ourselves.

Carl Sagan

The Greenhouse effect



The carbon cycle





Atmospheric CO₂ concentration

Global average long-term atmospheric concentration of carbon dioxide (CO₂), measured in parts per million (ppm).



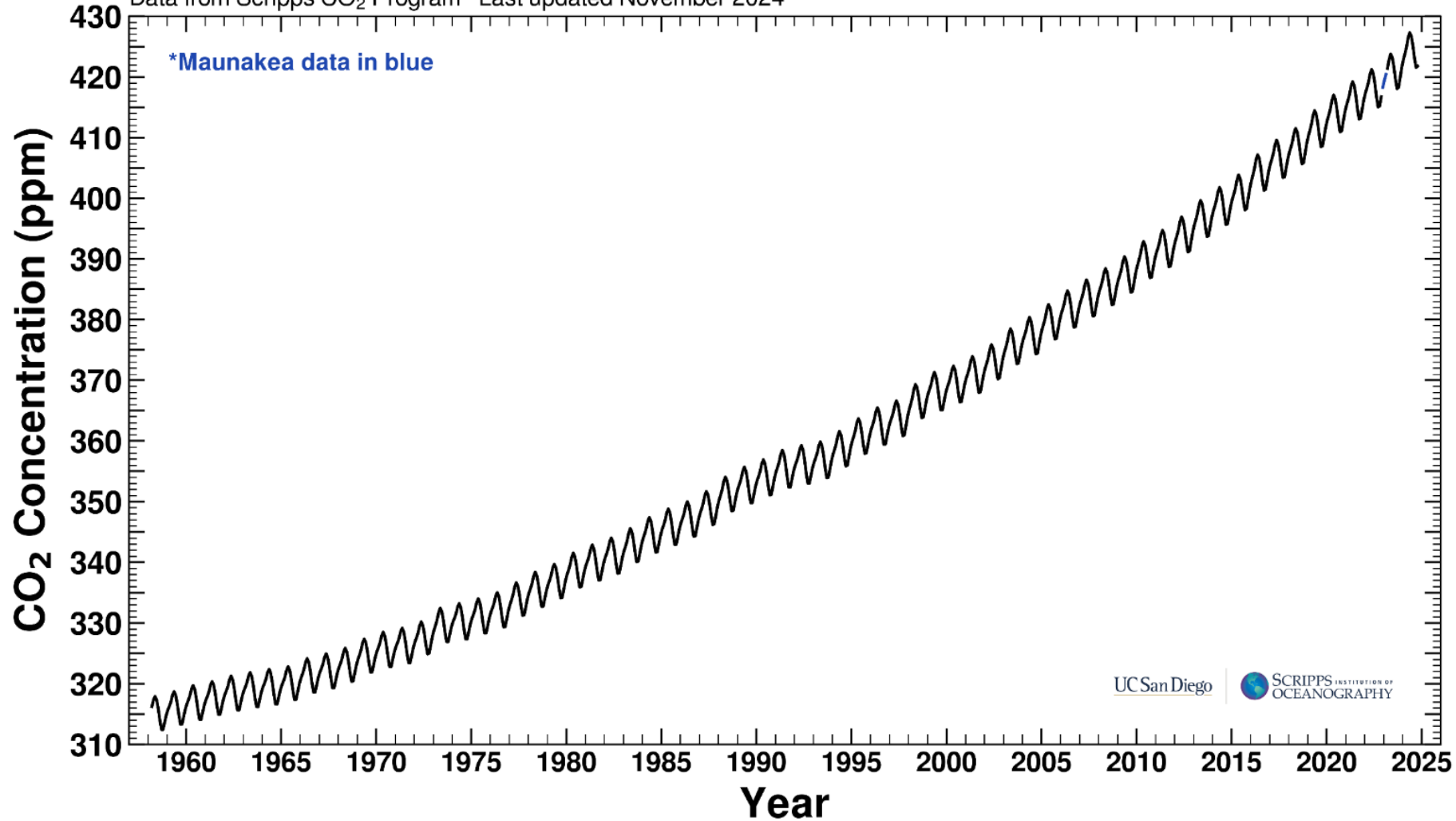
Source: Scripps CO₂ Program

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Mauna Loa Observatory, Hawaii* Monthly Average Carbon Dioxide Concentration

Data from Scripps CO₂ Program Last updated November 2024



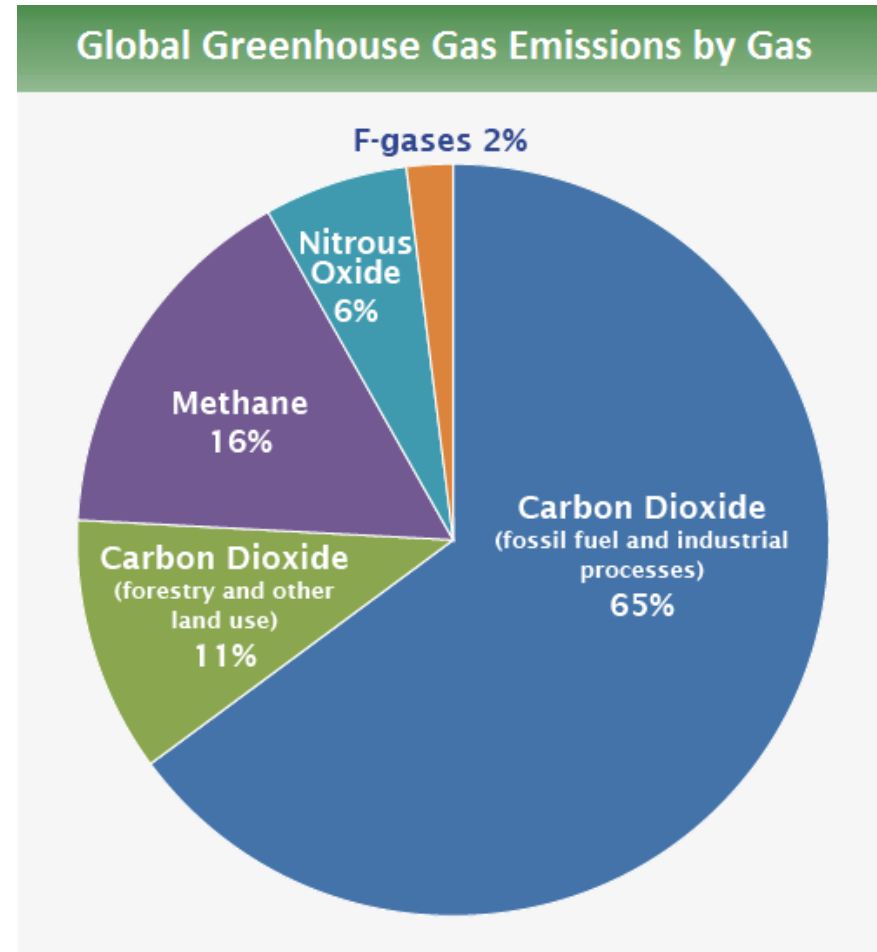
UC San Diego

SCRIPPS INSTITUTION OF
OCEANOGRAPHY

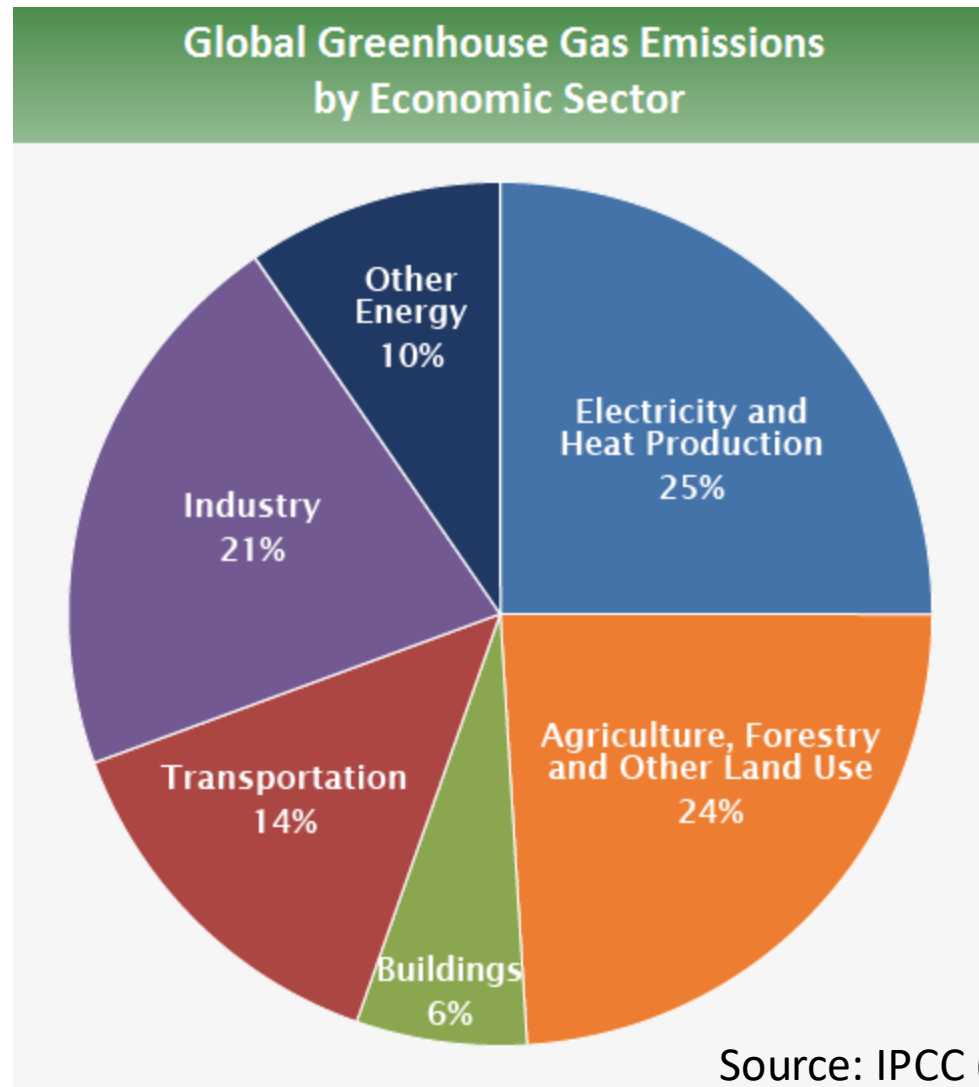


Global Warming Potential (GWP) of the six primary Greenhouse gases

GAS	GWP 100 (AR5)
CO ₂	1
N ₂ O	265
CH ₄	28
SF ₆	23,900
HFC	140-11,700
PFC	6,500-9200



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

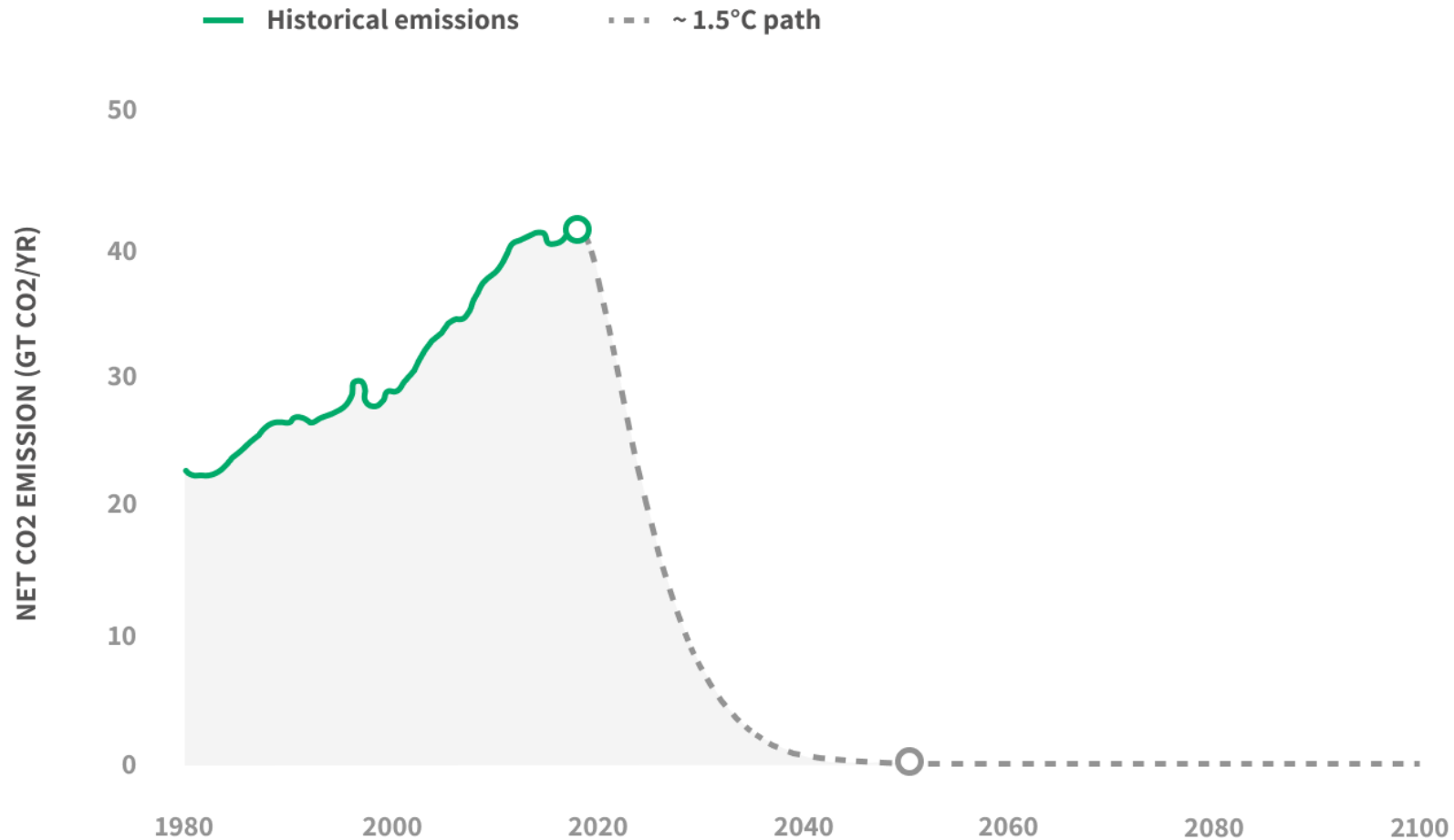


The greenhouse effect is an established fact.

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





Annual global greenhouse gas emissions
in gigatonnes of carbon dioxide-equivalents

150 Gt

100 Gt

50 Gt

Greenhouse gas emissions
up to the present

0

1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

No climate policies

4.1 – 4.8 °C

→ expected emissions in a baseline scenario if countries had not implemented climate reduction policies.

Current policies

2.7 – 3.1 °C

→ emissions with current climate policies in place result in warming of 2.7 to 3.1°C by 2100.

Pledges & targets (2.4 °C)

→ emissions if all countries delivered on reduction pledges result in warming of 2.4°C by 2100.

2°C pathways

1.5°C pathways



Five trends today

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



Trends today

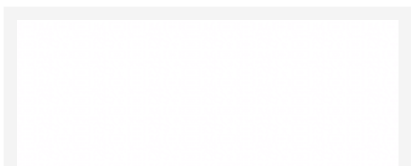
1. Manifestation of Physical Risks

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

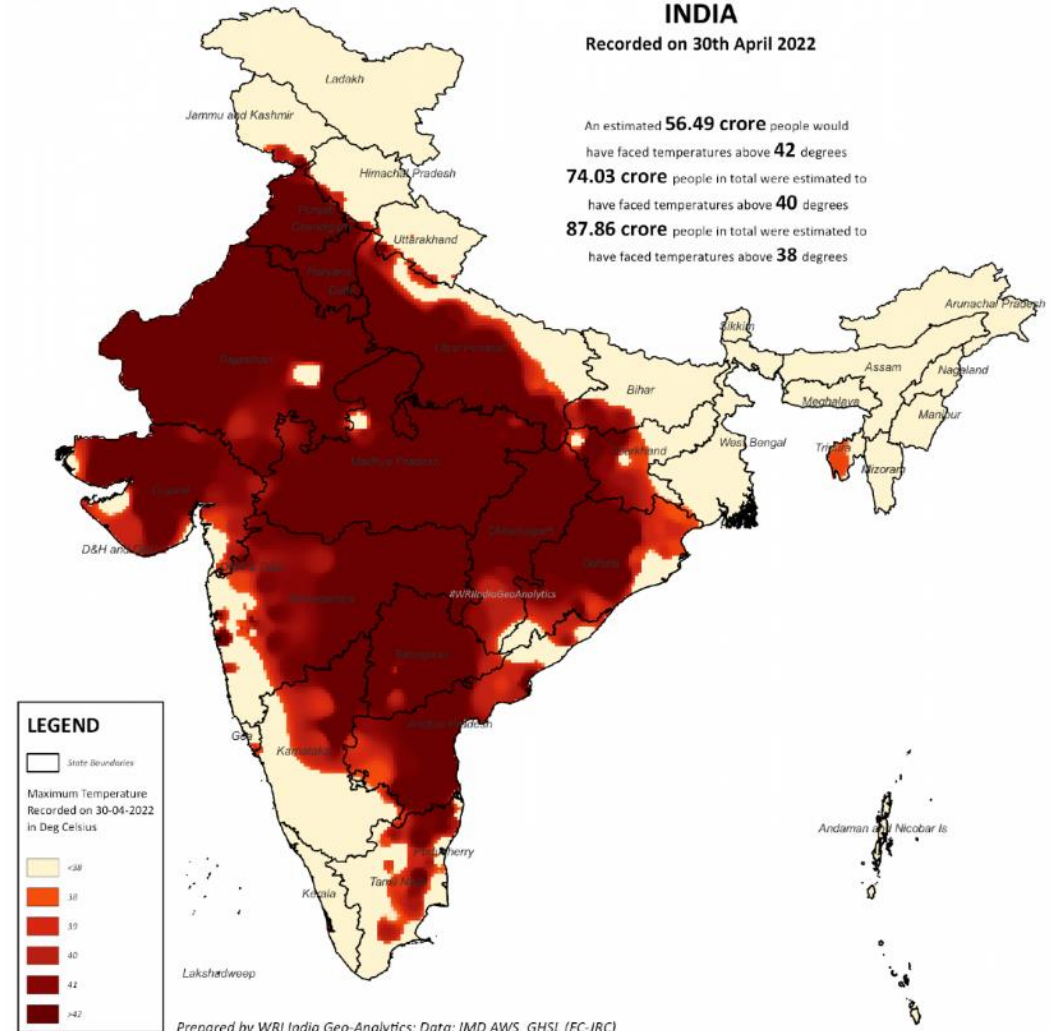


EXPOSURE TO HIGH TEMPERATURES

INDIA

Recorded on 30th April 2022

An estimated **56.49 crore** people would have faced temperatures above **42** degrees
74.03 crore people in total were estimated to have faced temperatures above **40** degrees
87.86 crore people in total were estimated to have faced temperatures above **38** degrees





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

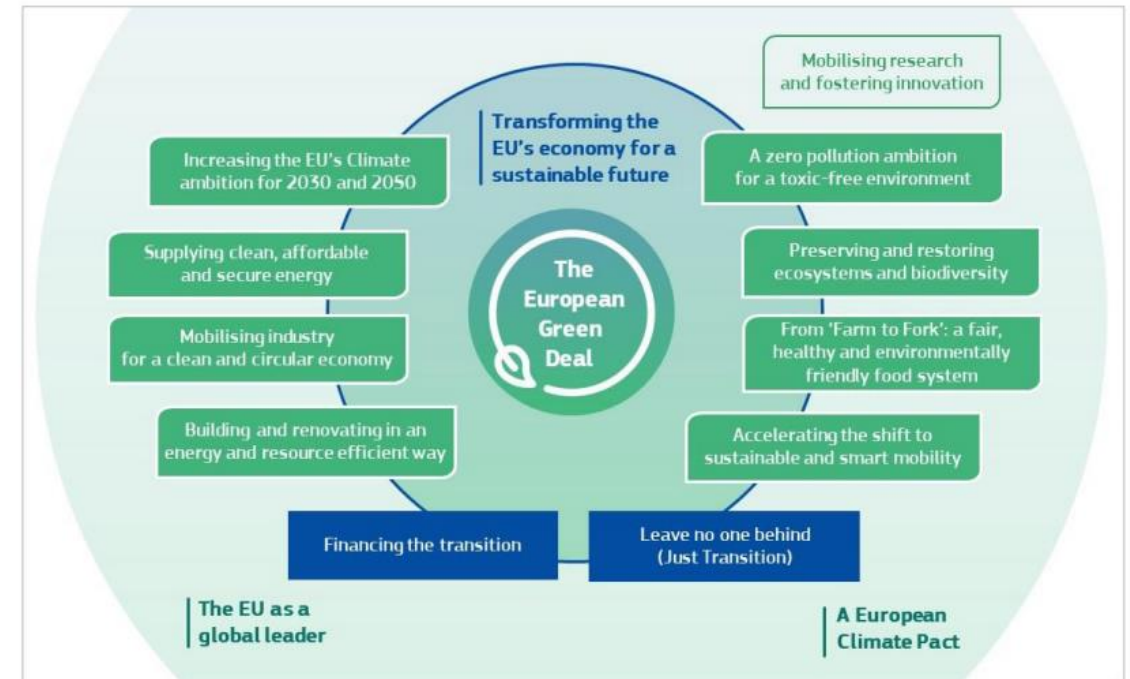


Figure 1: The European Green Deal



Trends today

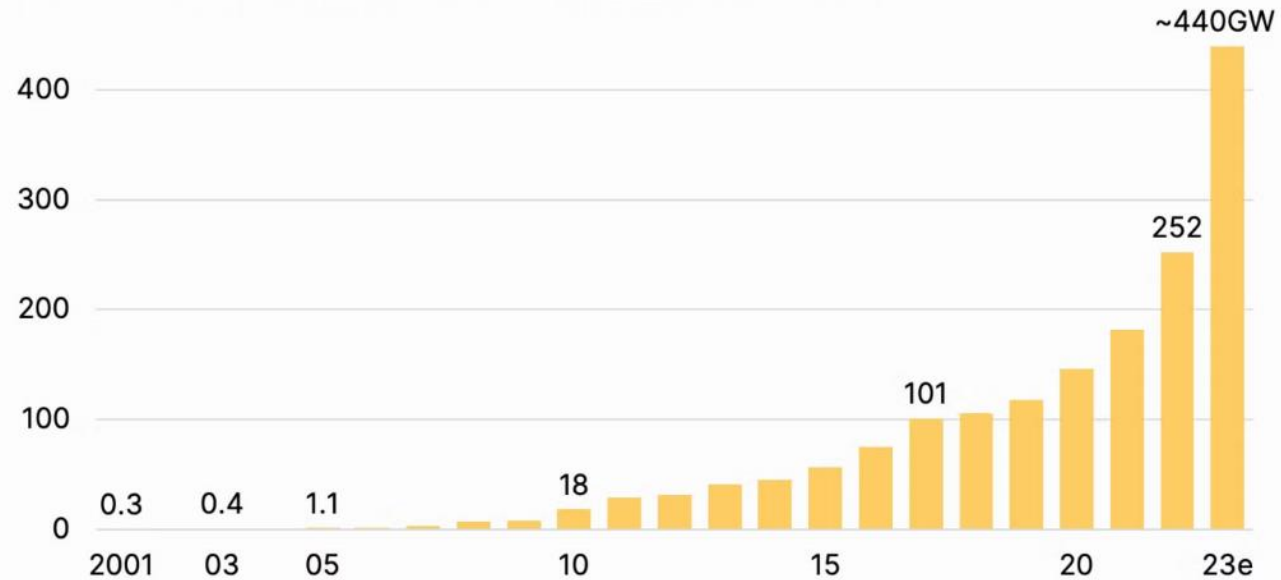
4. Innovation

More solar in a year alone than 100 coal fire plants

A stellar year for solar

Global solar installations surpassed 400 gigawatts in 2023, up a thousand-fold in two decades

500 gigawatts of annual solar power generation capacity installed



Source: Ember, BloombergNEF

January 2024

22



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Trends today

5. Investor reactions

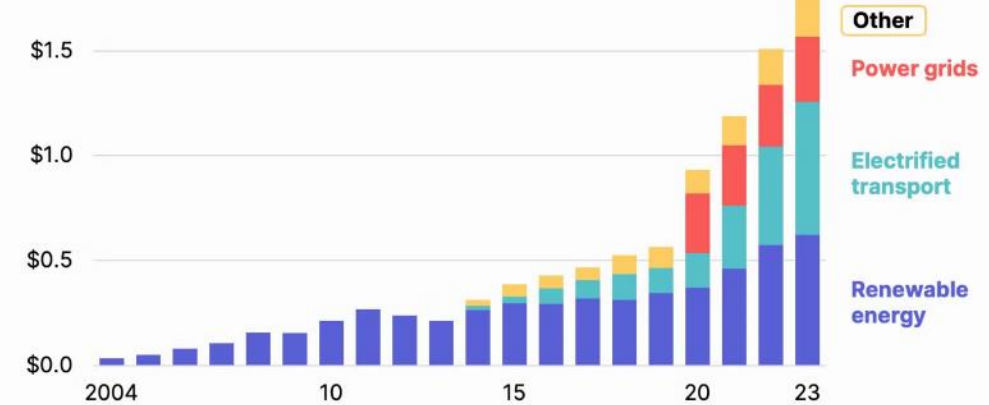
In the near future – and sooner than most anticipate – there will be a significant reallocation of capital.

Larry Fink, CEO BlackRock

\$1.8 trillion for energy transition

Global energy transition investment topped \$1.7 trillion in 2023, including grids

\$2.0 trillion of global energy transition investment



Source: BloombergNEF

Note: start-years differ by sector

'Other' includes nuclear, energy storage, CCS, electrified heat, clean industry, and clean shipping



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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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Stantec

