EESI
Environmental and Energy Study Institute

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Navigating Climate Information for Effective Policy-Making

Congressional Climate Camp

Wednesday, January 29, 2025

About EESI

EESI
Environmental and Energy Study Institute

Non-partisan Educational Resources for Policymakers

A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan information on environmental, energy, and climate policies

Direct Assistance for Equitable and Inclusive Financing Program

In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs

Commitment to Diversity, Equity, Inclusion, and Justice

We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making

Sustainable Solutions

Our mission is to advance science-based solutions for climate change, energy, and environmental challenges in order to achieve ***our vision of a sustainable, resilient, and equitable world***

Policymaker Education

Briefings and Webcasts

Live, in-person and online public briefings, archived webcasts, and written summaries

Climate Change Solutions

Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker

Fact Sheets and Issue Briefs

Timely, objective coverage of environmental, clean energy, and climate change topics

Social Media (@EESIOnline)

Active engagement on Twitter, Facebook, LinkedIn, and YouTube

Upcoming Briefings

EESI
Environmental and Energy Study Institute

Congressional Climate Camp

Navigating Climate Information for Effective Policy-Making
Today!

Understanding the Budget and Appropriations Process
Thursday, February 13, 3-4:30 PM

The Process and Path Forward for a Bipartisan Surface Transportation Bill
Thursday, March 13, 2025, 3-4:30 PM

Signup for our *Climate Change Solutions* newsletter here: eesi.org/signup
Briefing RSVP here: eesi.org/2025climatecamps

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What did you think of the briefing?

Please take 2 minutes to let us know at:
www.eesi.org/survey

***Materials will be available at*:**
www.eesi.org/012925camp

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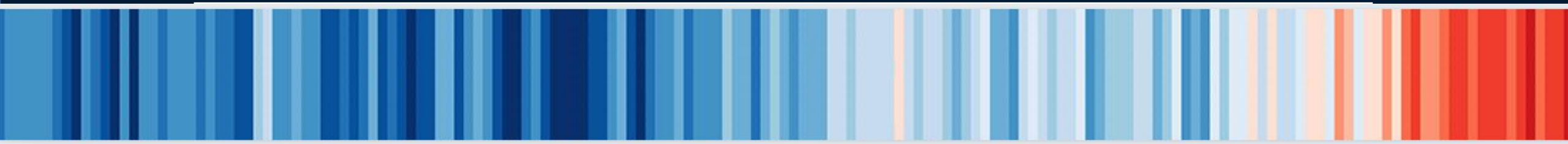
Wednesday, January 29, 2025

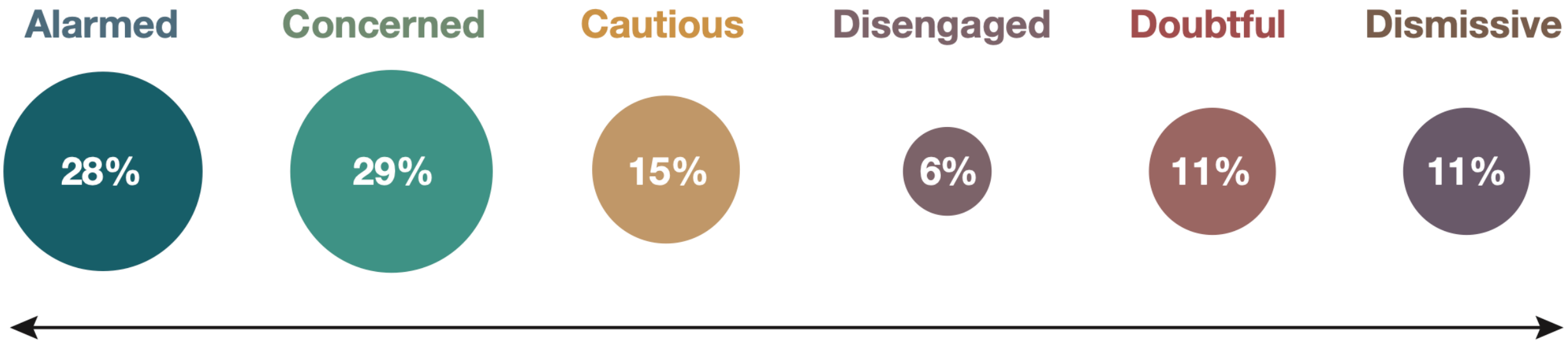
Our Changing Climate



CLIMATE CENTRAL

CLIMATE CENTRAL

CLIMATE CENTRAL



Global Warming's Six Americas, Fall 2023
Base: 1,033 U.S. adults

Source: Yale Program on Climate Change Communication;
George Mason University Center for Climate Change Communication

CLIMATE CENTRAL

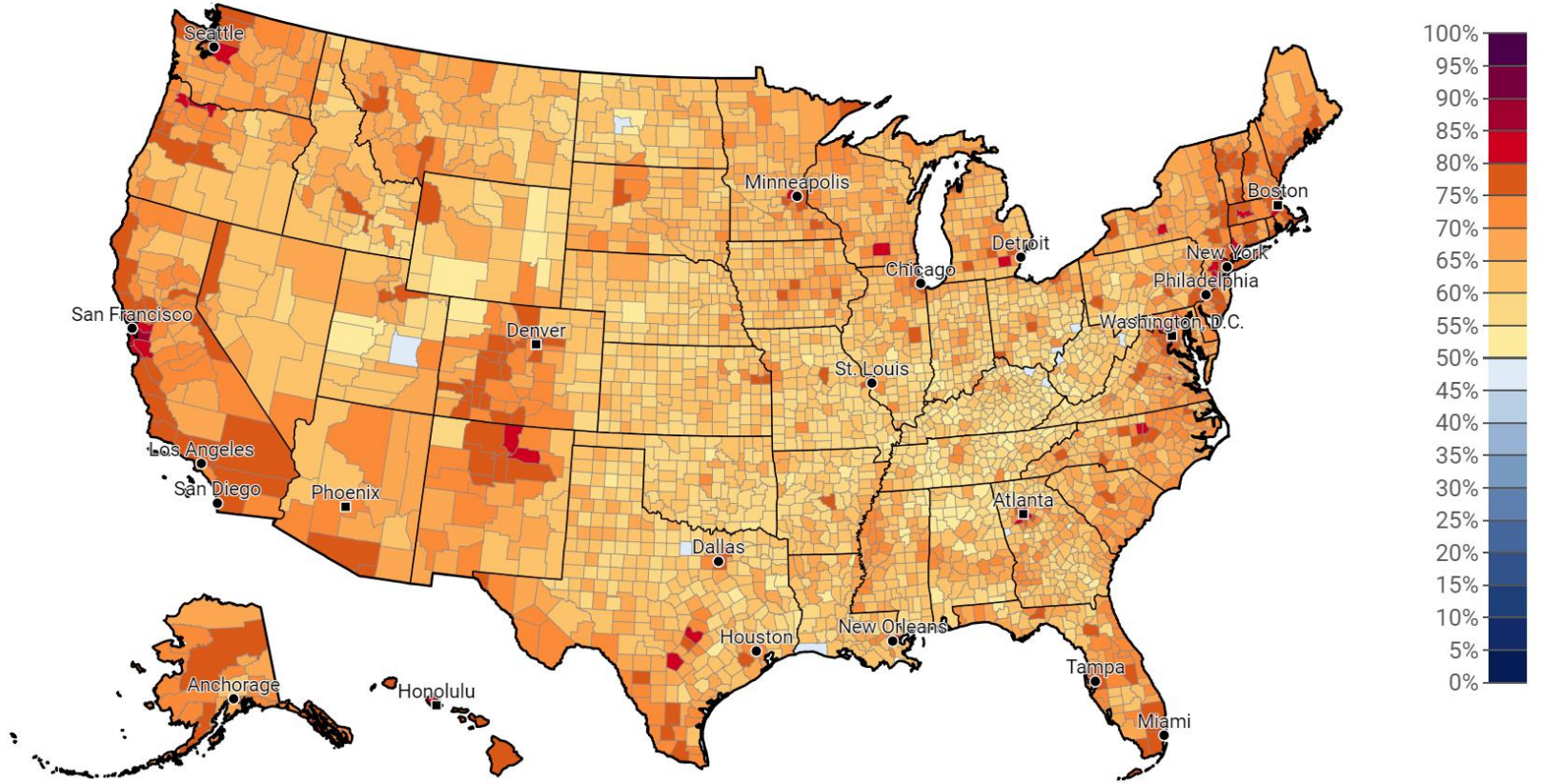
Estimated % of adults who think global warming is happening (nat'l avg. 72%), 2023

Select Question: Global warming is happening

Click map or: Select a State | Select a County

Absolute Value

National | States | Cong. Districts | Metro Areas | **Counties**



CLIMATE CENTRAL

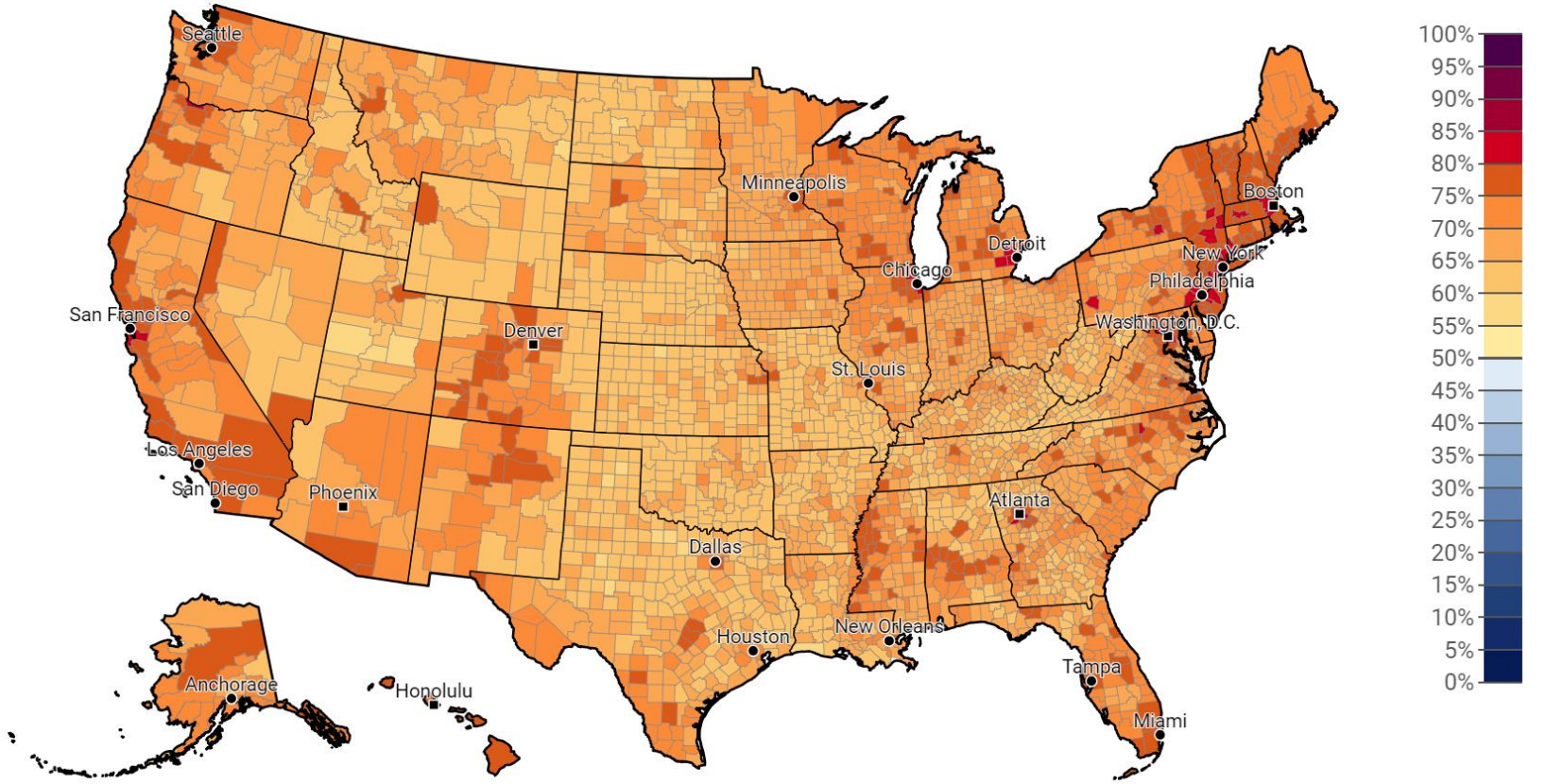
Estimated % of adults who support regulating CO2 as a pollutant (nat'l avg. 74%), 2023

Select Question: Regulate CO2 as a pollutant

Click map or: Select a State | Select a County

Absolute Value

National | States | Cong. Districts | Metro Areas | **Counties**



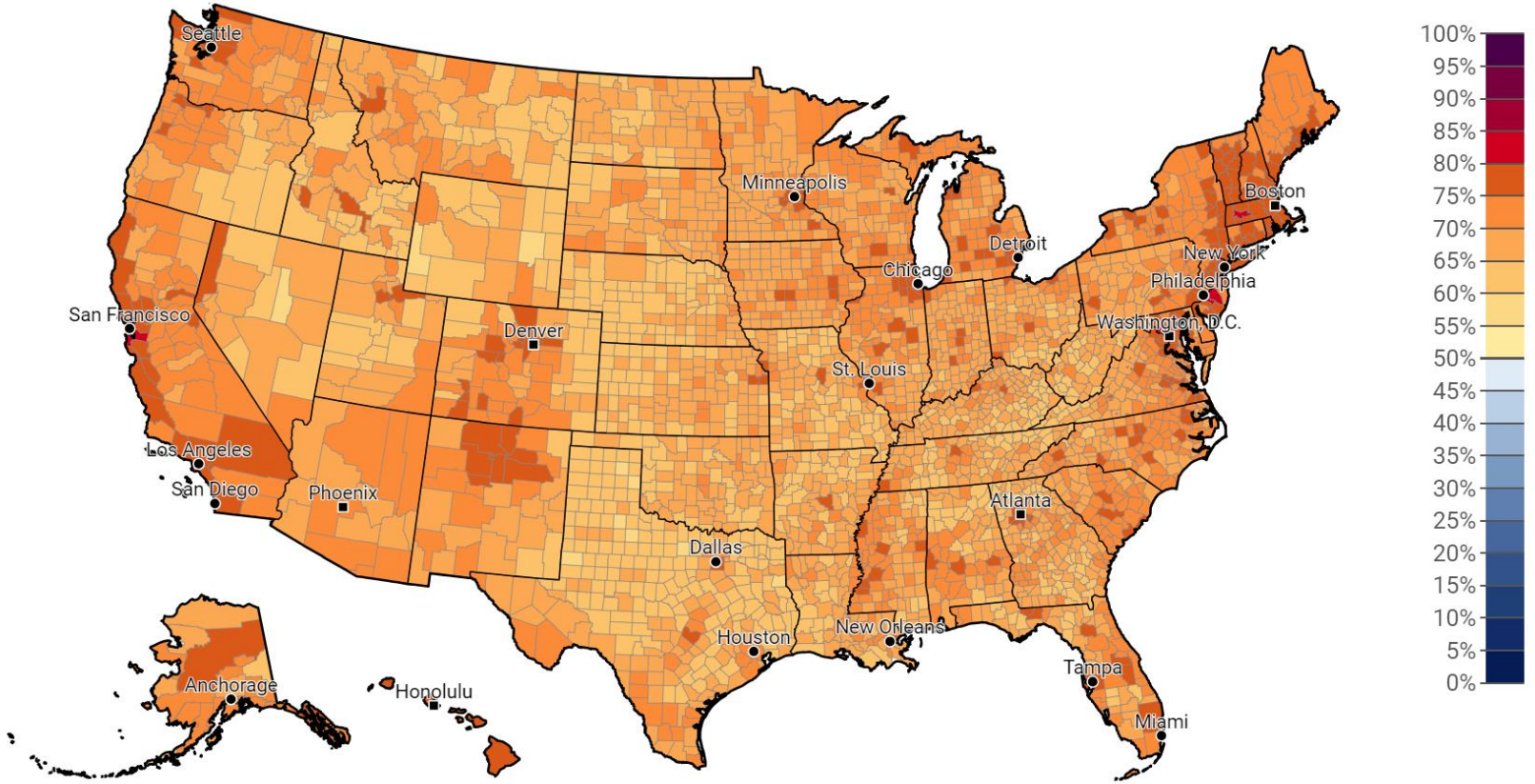
Estimated % of adults who support tax rebates for people who purchase energy-efficient vehicles or solar panels (nat'l avg. 74%), 2023

Select Question: Provide tax rebates for energy-efficient vehicles or solar panels

Click map or: Select a State | Select a County

Absolute Value

National | States | Cong. Districts | Metro Areas | **Counties**



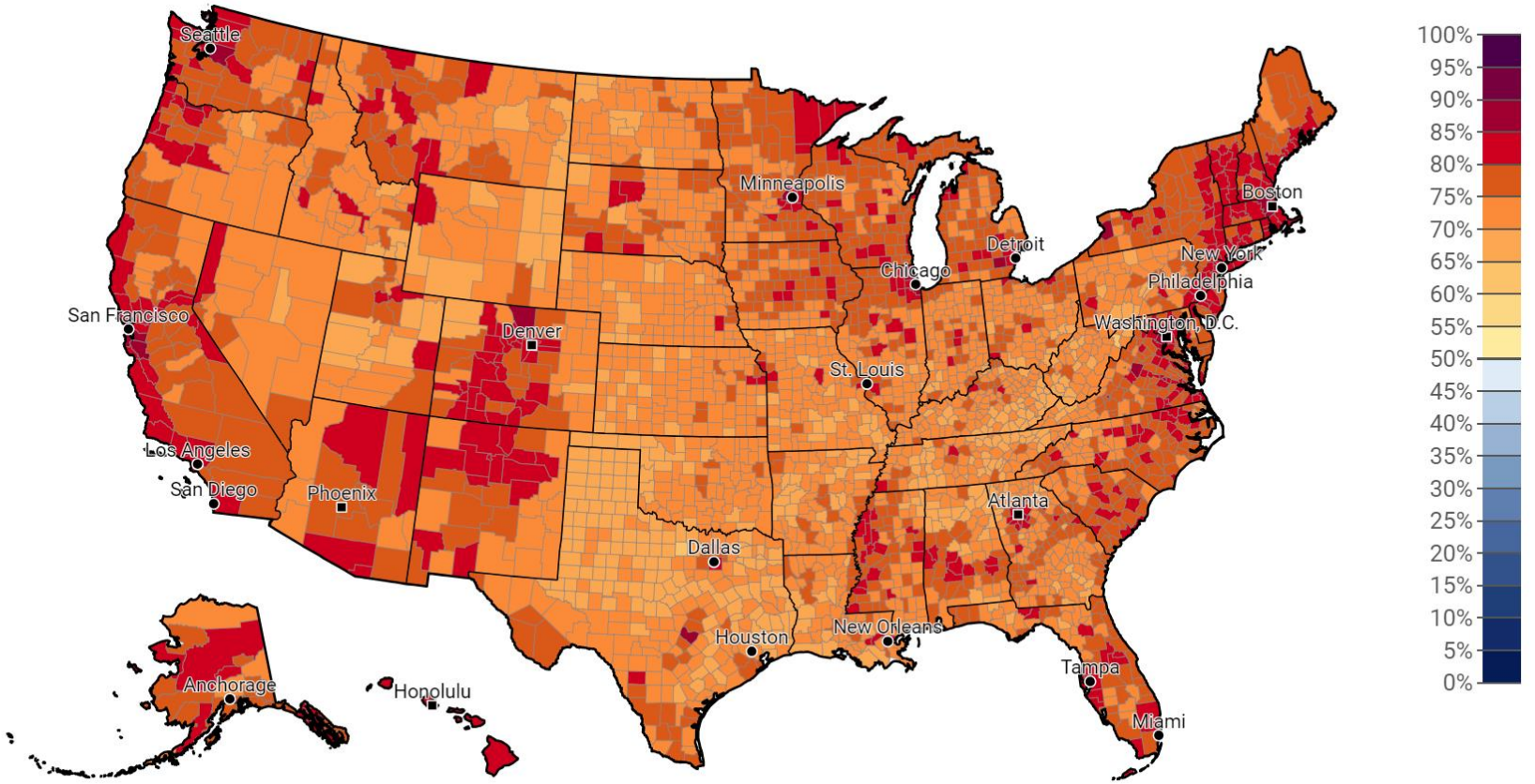
Estimated % of adults who support funding research into renewable energy sources (nat'l avg. 79%), 2023

Select Question: Fund research into renewable energy sources

Click map or: Select a State | Select a County

Absolute Value

National | States | Cong. Districts | Metro Areas | **Counties**



CLIMATE CENTRAL

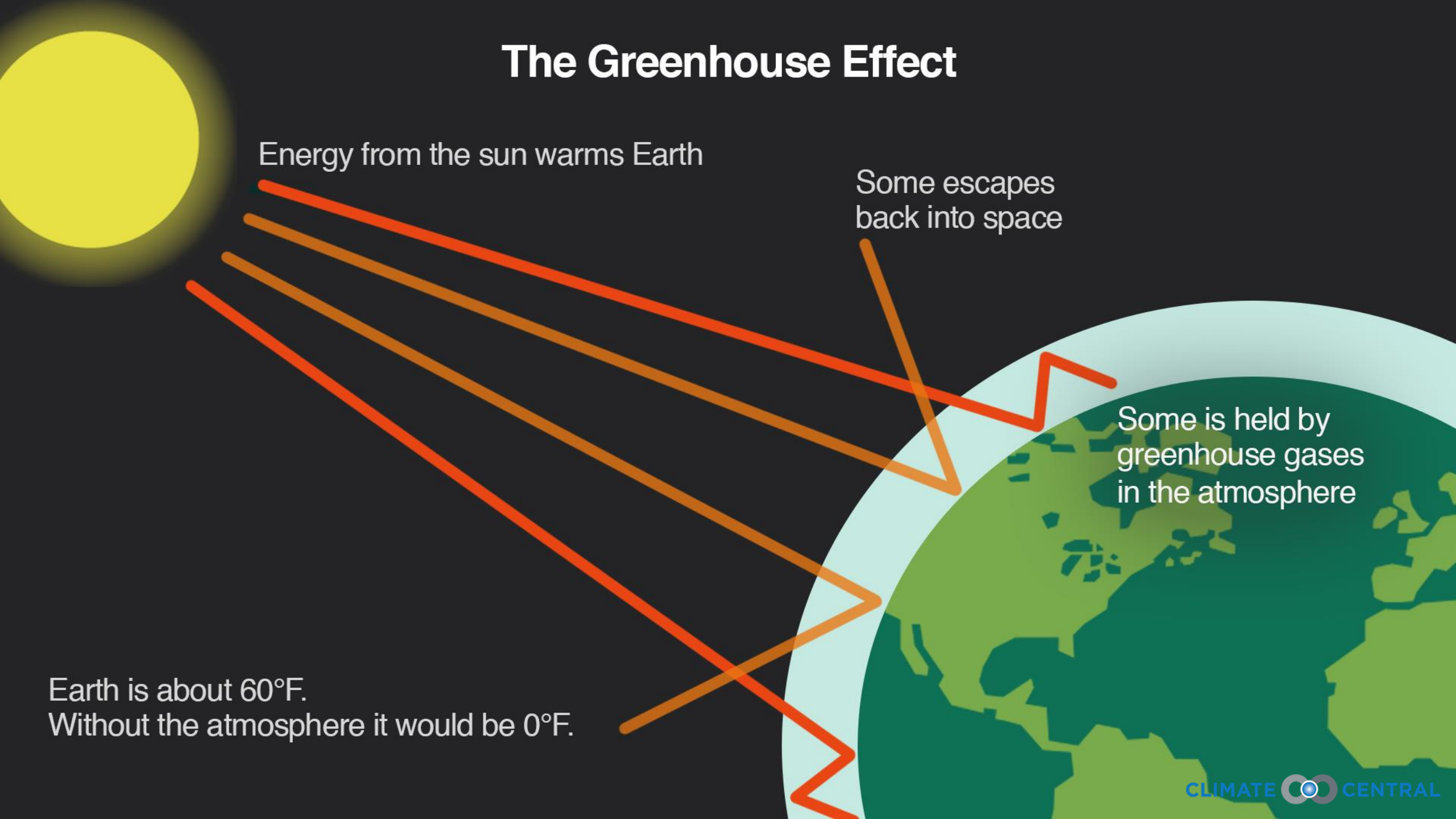
How We Know
Why It Matters

CLIMATE CENTRAL

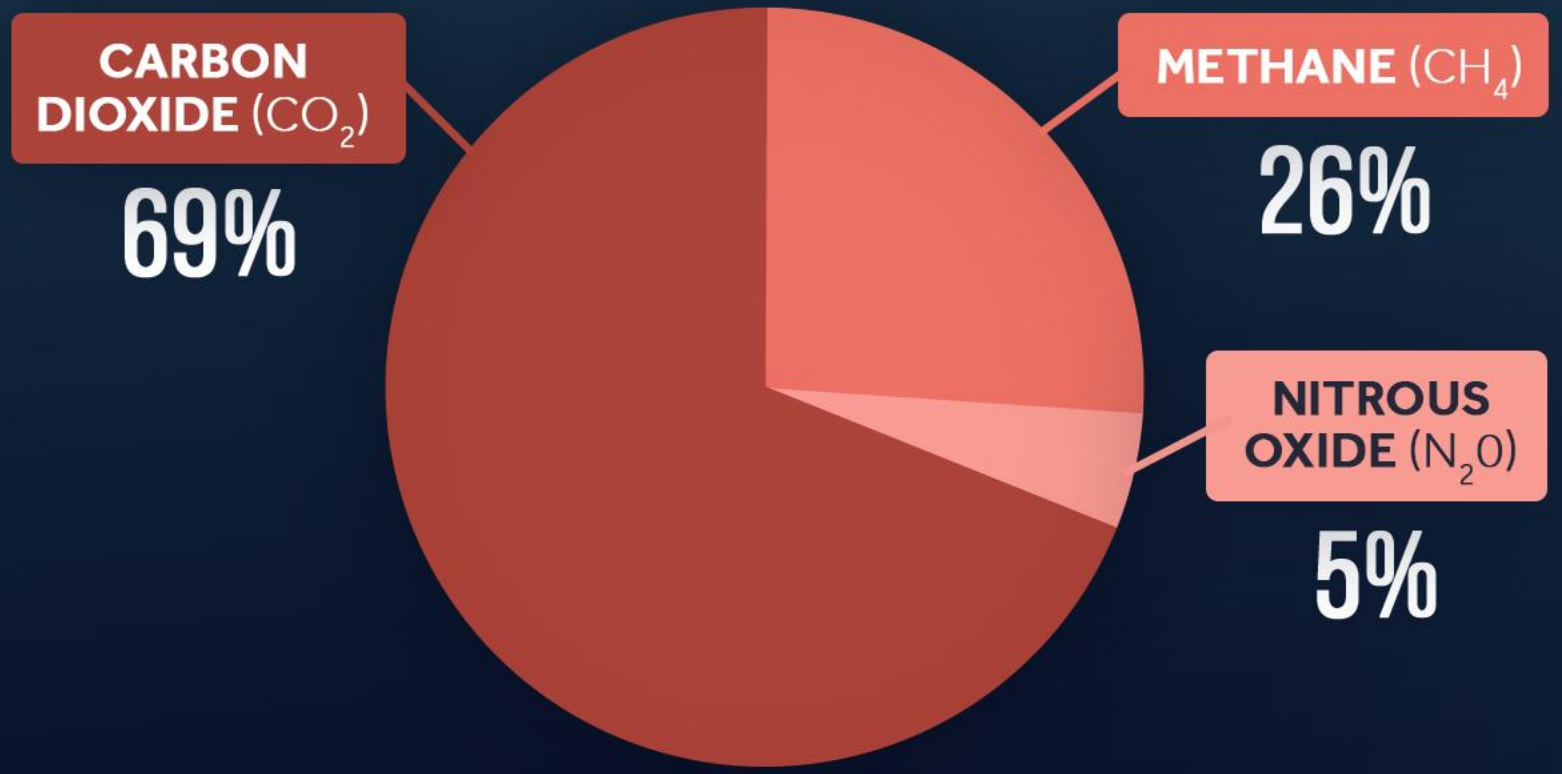
How We Know
Why It Matters

CLIMATE CENTRAL

The Greenhouse Effect



WARMING FROM MAIN GREENHOUSE GASES

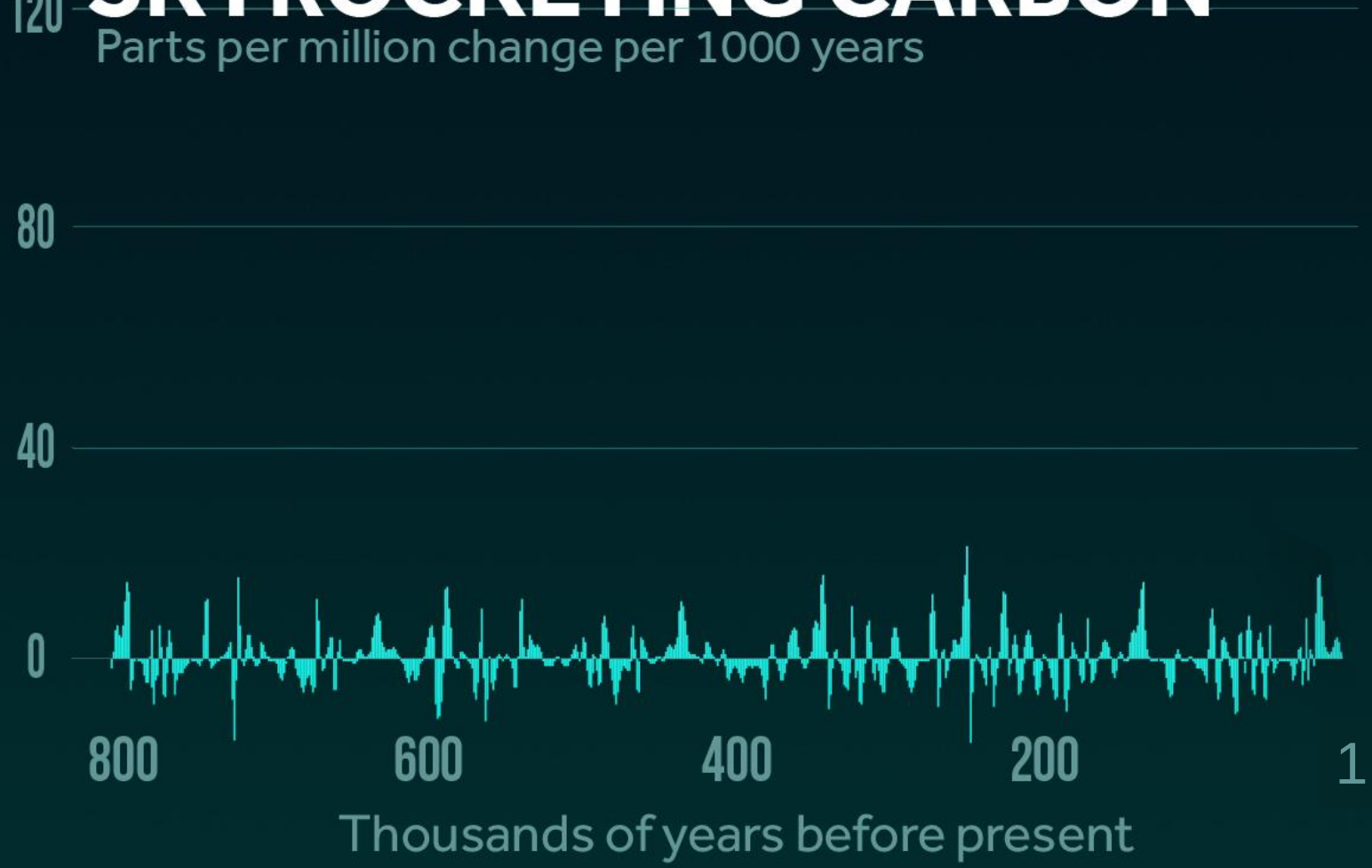


CO2, CH4, and N2O are key human-driven GHGs widely regulated by the UNFCCC.
Source: Jones et al. (2023)

CLIMATE CENTRAL

SKYROCKETING CARBON

Parts per million change per 1000 years

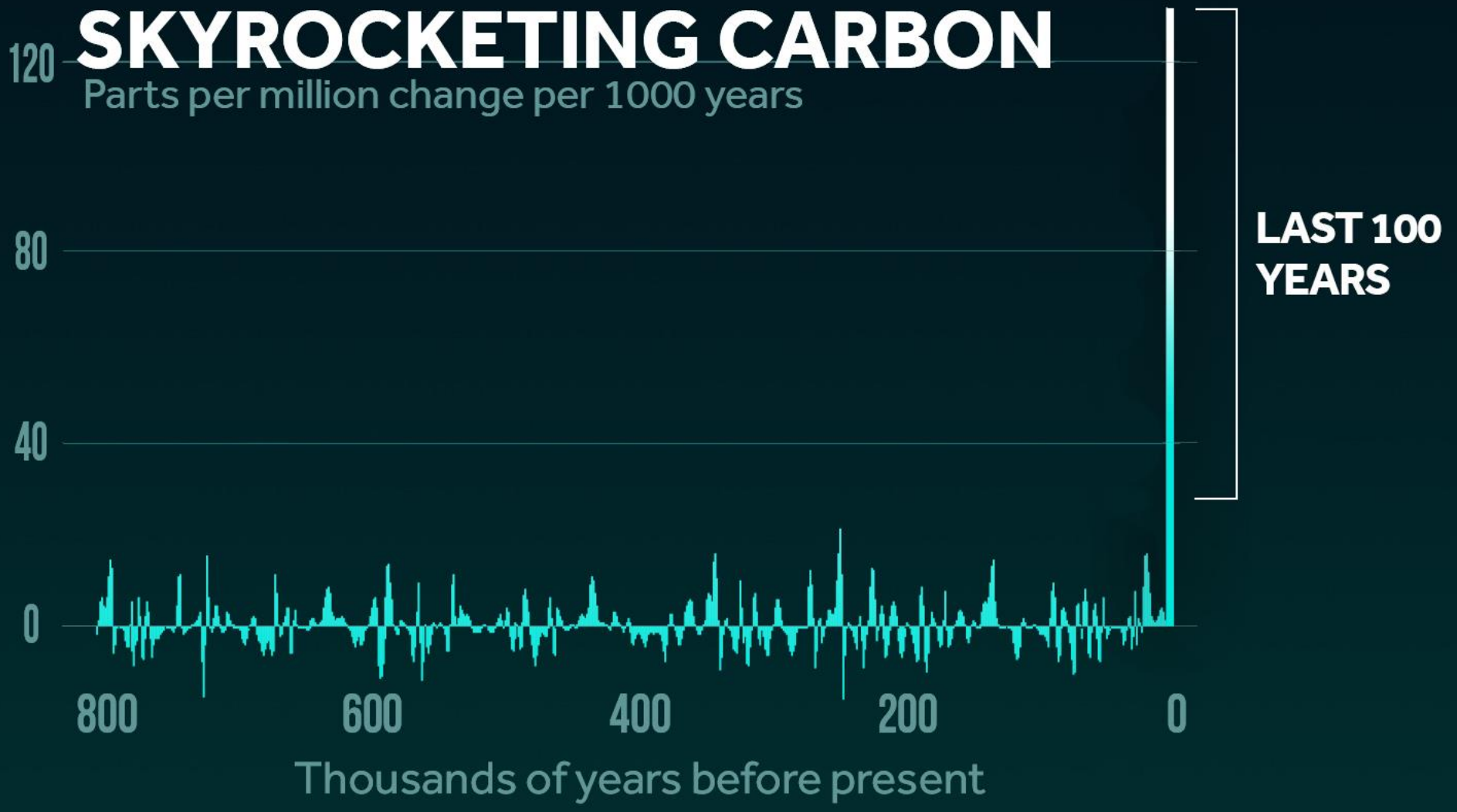


Changes in carbon dioxide levels in the atmosphere during the past 1 million years.
Source: Bereiter et al. (2015), Brook (2020), NOAA ESRL.
Additional interpolation developed by Climate Central.

CLIMATE CENTRAL

SKYROCKETING CARBON

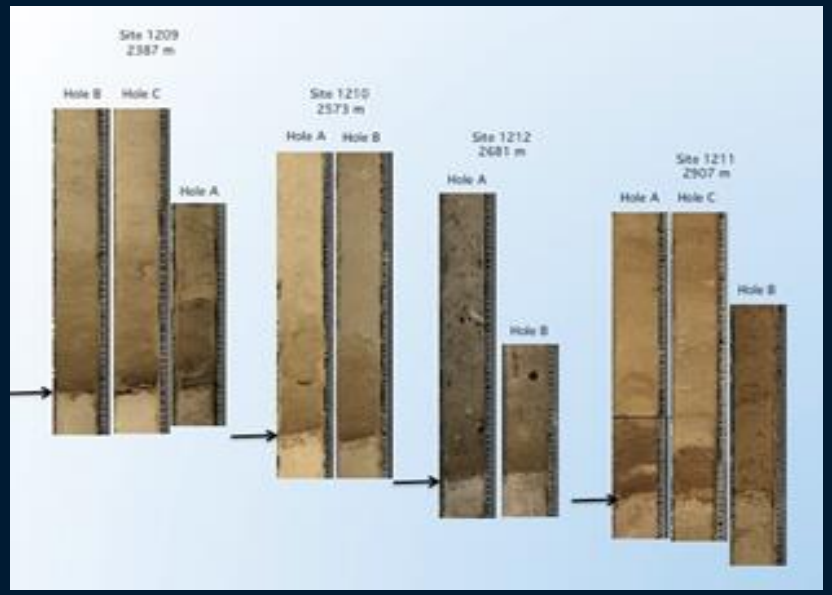
Parts per million change per 1000 years



Changes in carbon dioxide levels in the atmosphere during the past 1 million years.
Source: Bereiter et al. (2015), Brook (2020), NOAA ESRL.
Additional interpolation developed by Climate Central.

CLIMATE CENTRAL

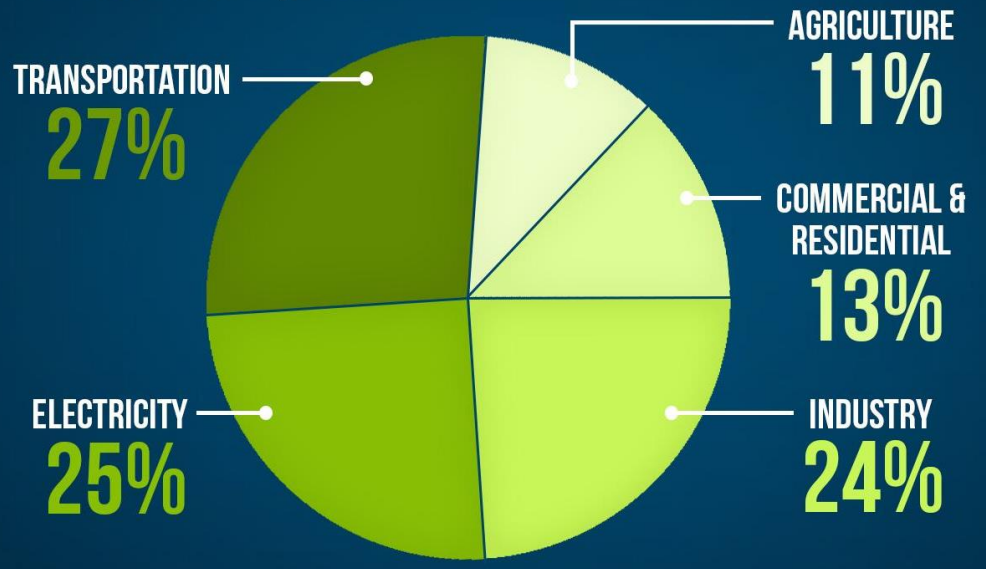
Reconstructing Past Climates



CLIMATE CENTRAL

GREENHOUSE GAS EMISSIONS

U.S. Emissions by Sector

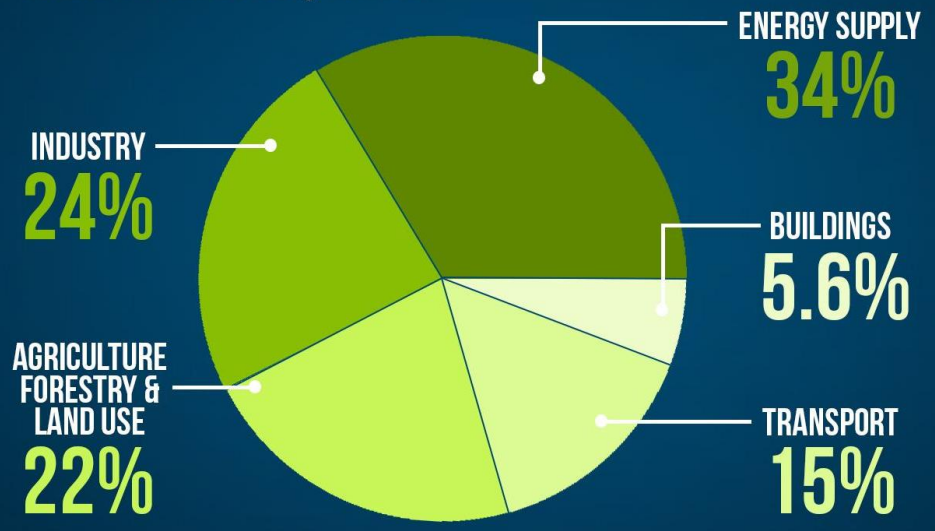


U.S. greenhouse gas emissions (2020) by sector.
Source: U.S. EPA

CLIMATE CENTRAL

GREENHOUSE GAS EMISSIONS

Global Emissions by Sector

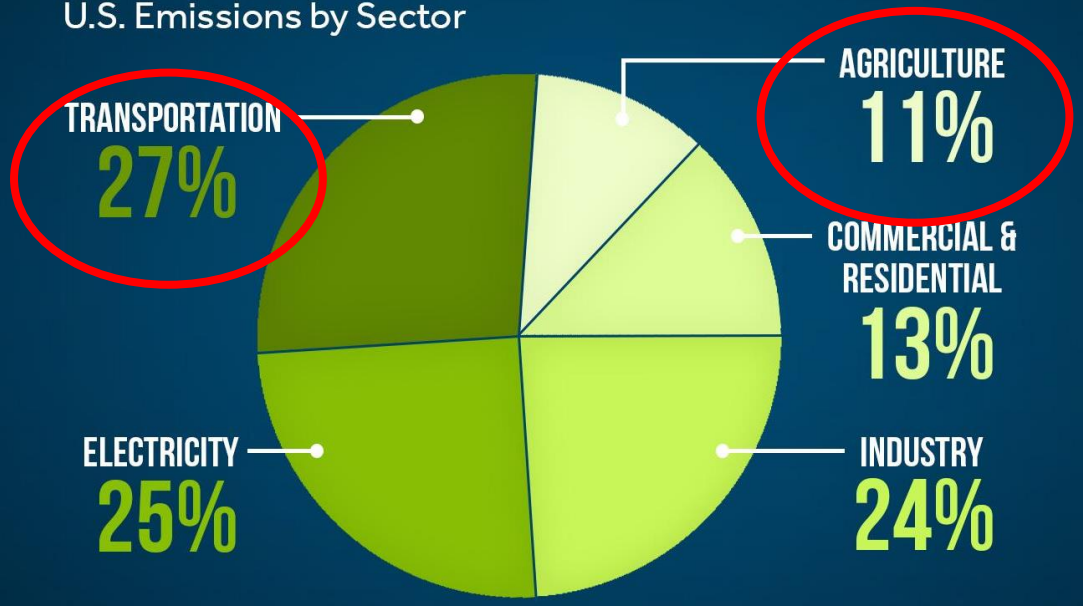


Global greenhouse gas emissions (2019) by sector.
Source: IPCC

CLIMATE CENTRAL

GREENHOUSE GAS EMISSIONS

U.S. Emissions by Sector

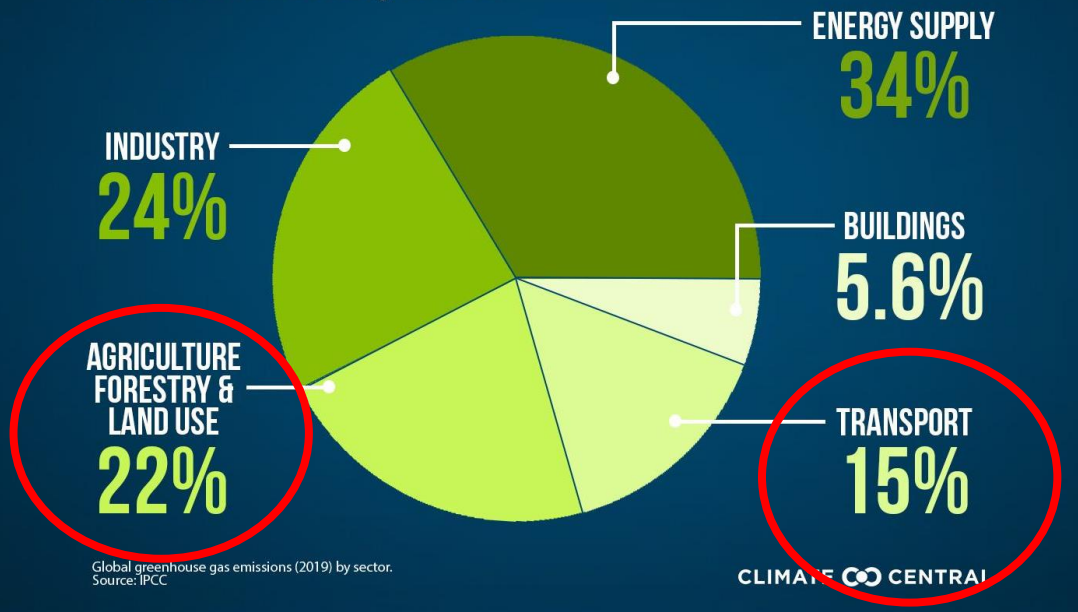


U.S. greenhouse gas emissions (2020) by sector.
Source: U.S. EPA

CLIMATE CENTRAL

GREENHOUSE GAS EMISSIONS

Global Emissions by Sector



Global greenhouse gas emissions (2019) by sector.
Source: IPCC

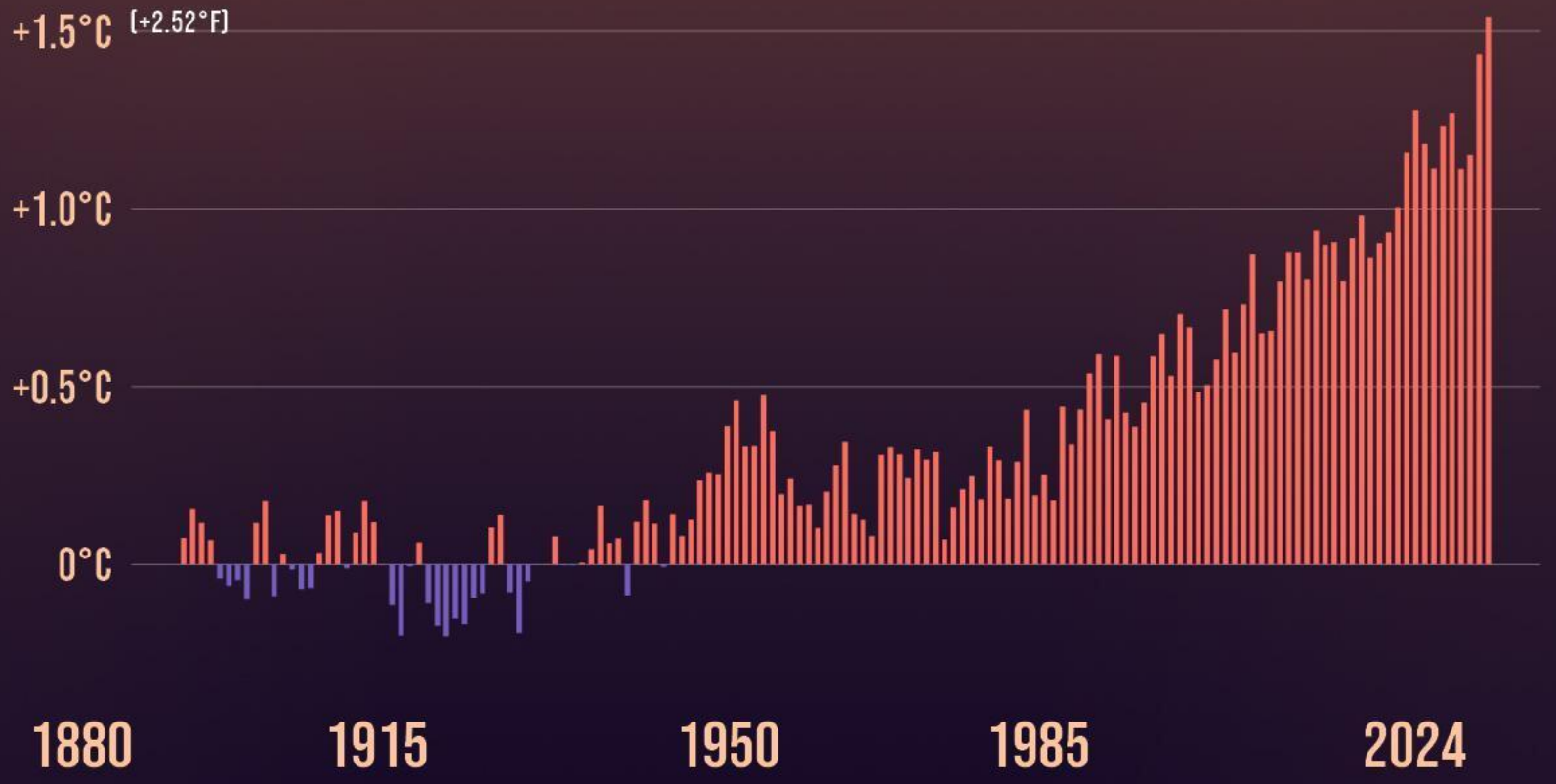
CLIMATE CENTRAL

How We Know
Why It Matters

CLIMATE CENTRAL

GLOBAL TEMPERATURE

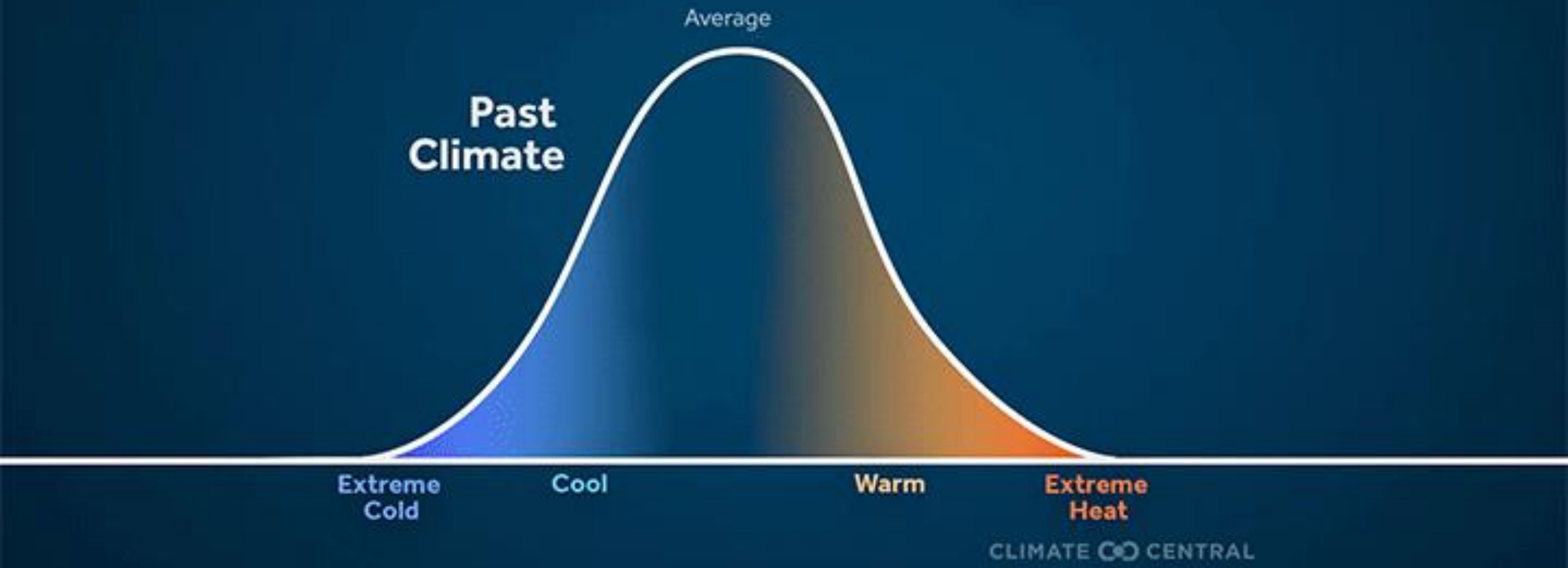
Departure from 1881-1910 average



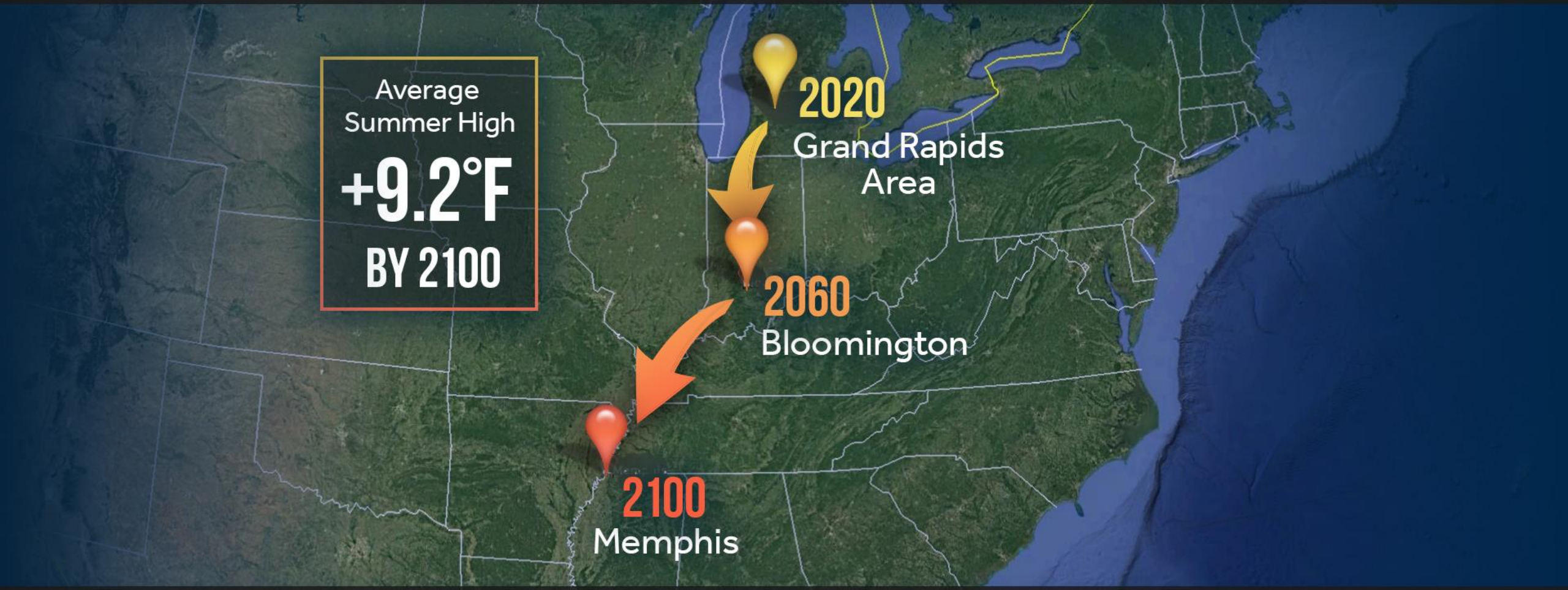
Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910).
Data as of 1/10/2025.
Source: NASA GISS & NOAA NCEI

CLIMATE CENTRAL

SMALL CHANGE IN AVERAGE
BIG CHANGE IN EXTREMES

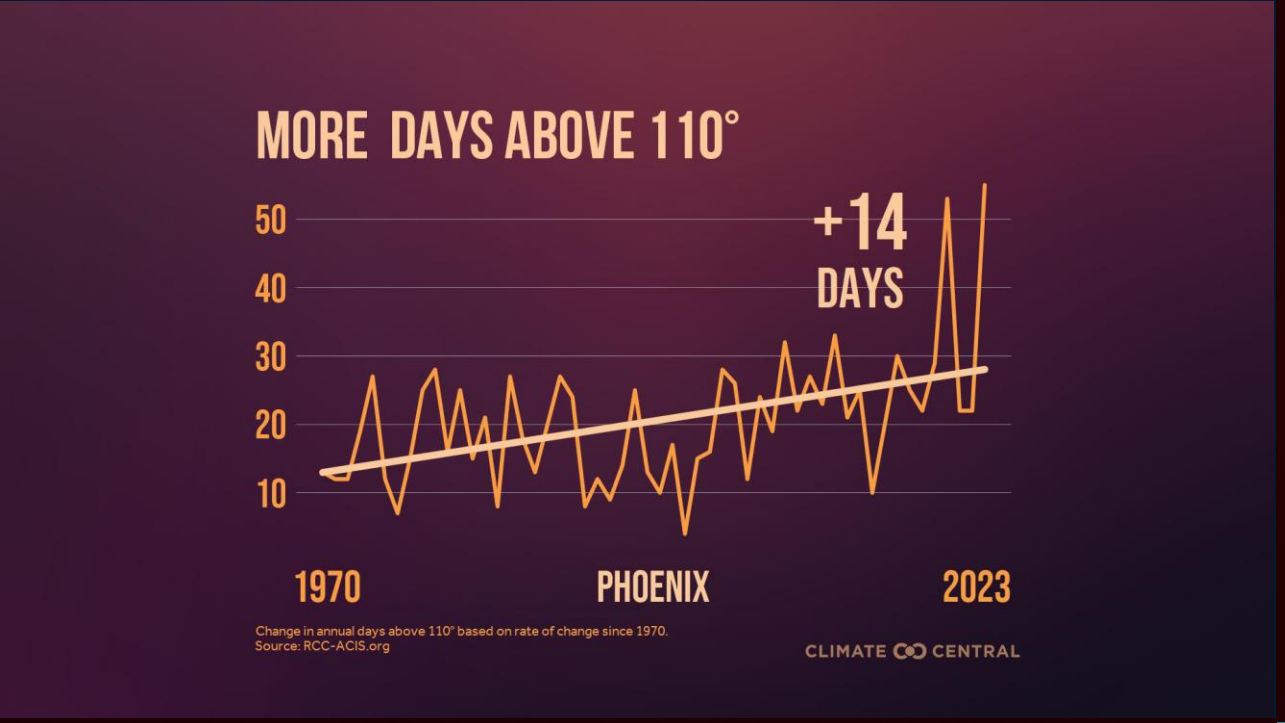


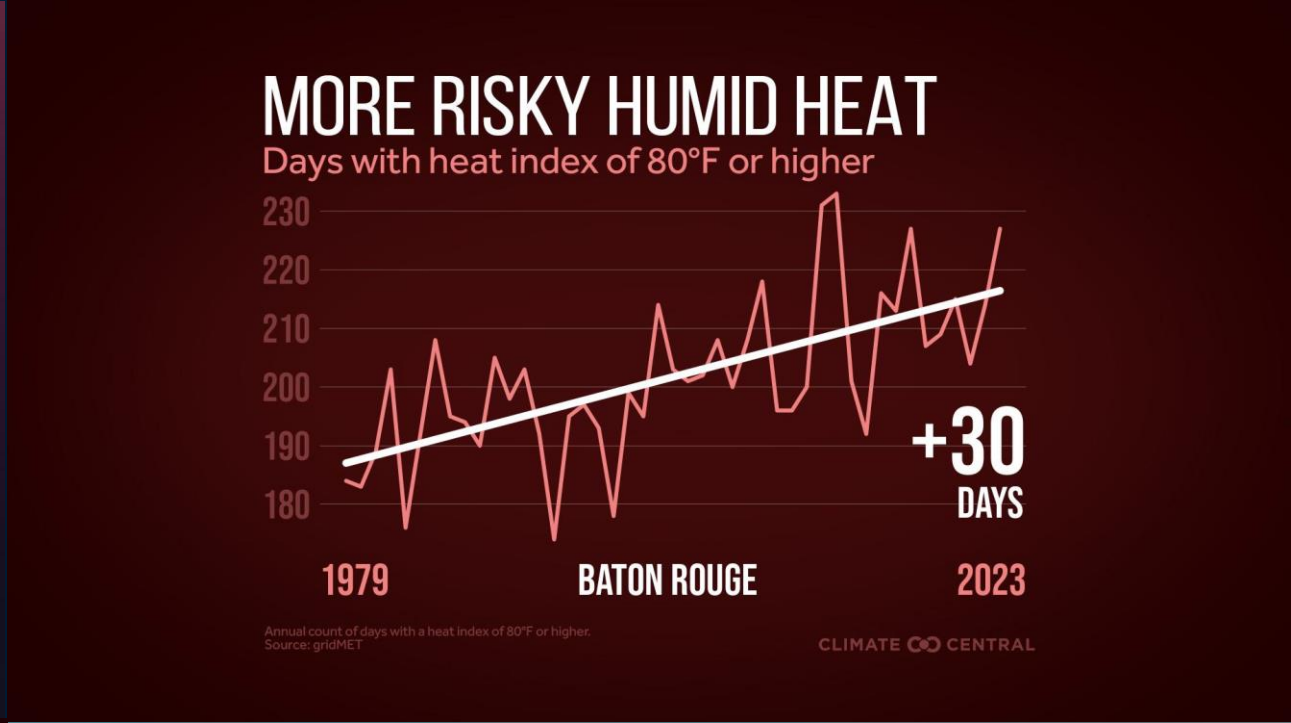
WHERE YOUR SUMMER IS HEADED

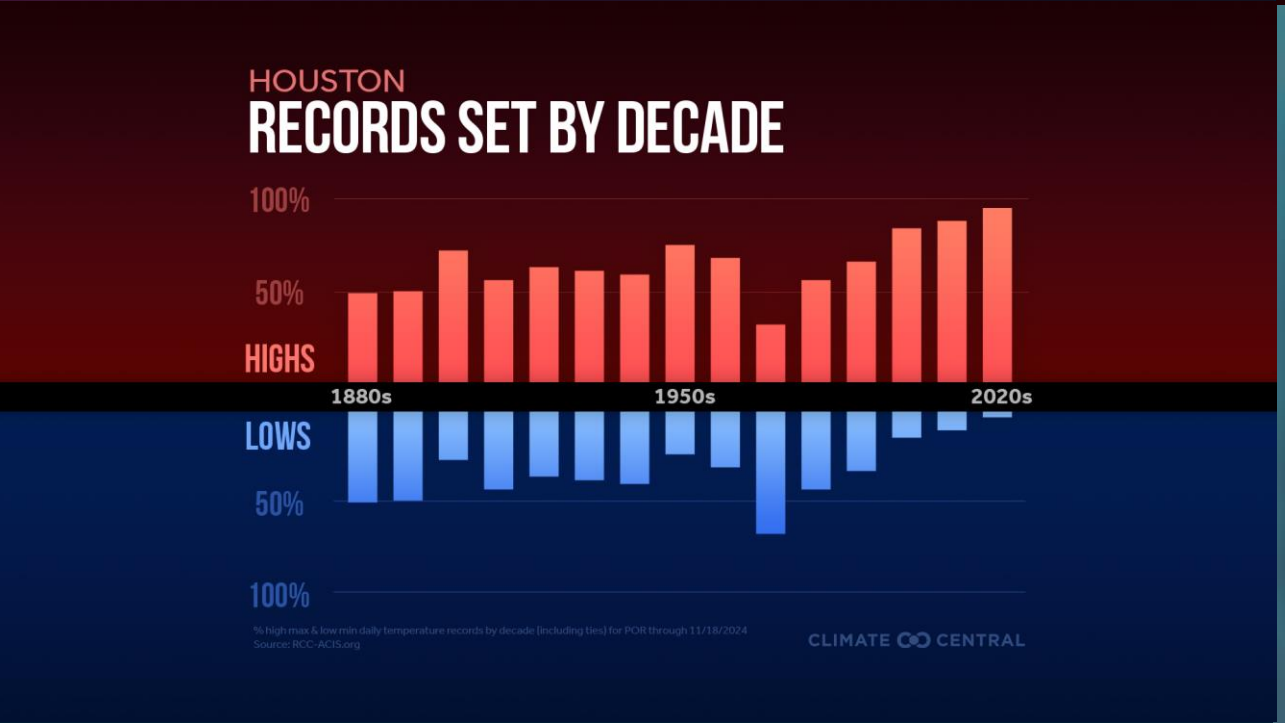


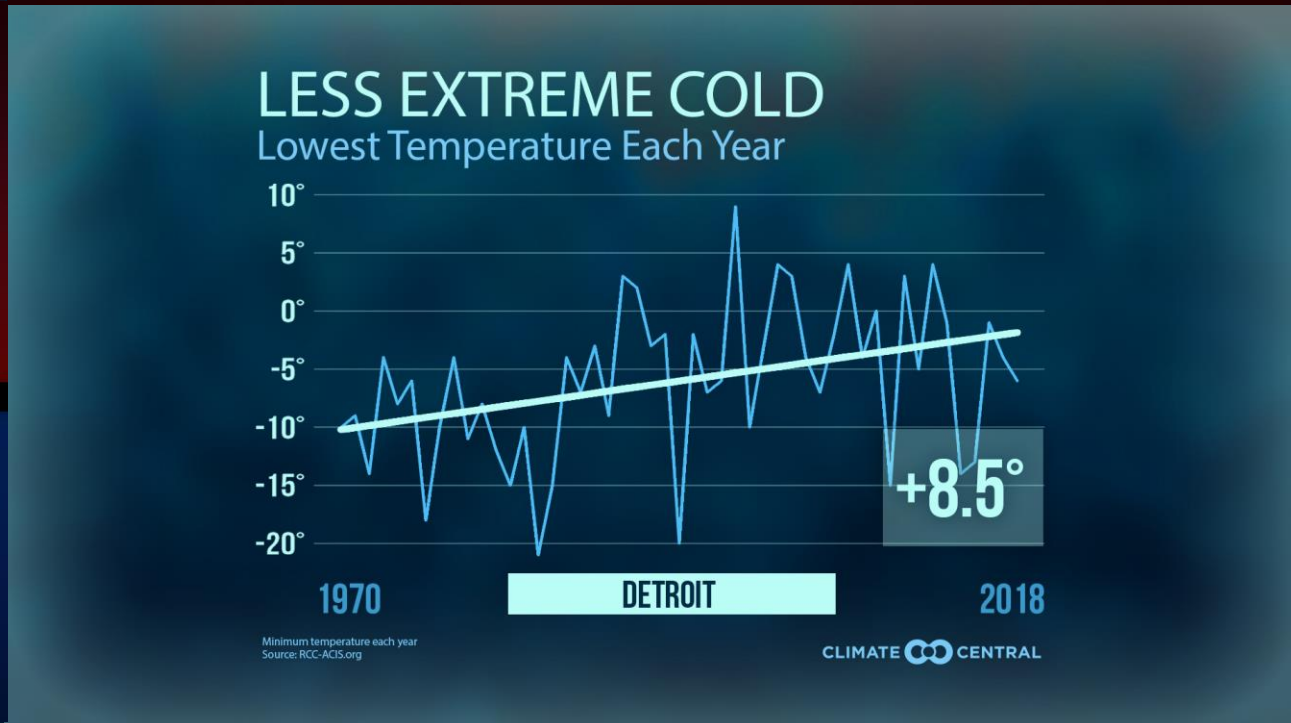
Current temperatures: ERA5, European Centre for Medium-Range Weather Forecasts, accessed 6/15/2022
CMIP6 multi-model ensemble dataset based on current emissions trends (SSP3)

CLIMATE CENTRAL


MORE DAYS ABOVE 110°
50
40
30
20
10
+14
DAYS
1970
PHOENIX
2023
Change in annual days above 110° based on rate of change since 1970.
Source: RCC-ACIS.org
CLIMATE CENTRAL


MORE RISKY HUMID HEAT
Days with heat index of 80°F or higher
230
220
210
200
190
180
+30
DAYS
1979
BATON ROUGE
2023
Annual count of days with a heat index of 80°F or higher.
Source: gridMET
CLIMATE CENTRAL


HOUSTON
RECORDS SET BY DECADE
100%
50%
HIGHS
1880s
1950s
2020s
LOWS
50%
100%
% high max & low min daily temperature records by decade (including ties) for POR through 11/18/2024
Source: RCC-ACIS.org
CLIMATE CENTRAL


LESS EXTREME COLD
Lowest Temperature Each Year
10°
5°
0°
-5°
-10°
-15°
-20°
+8.5°
1970
DETROIT
2018
Minimum temperature each year
Source: RCC-ACIS.org
CLIMATE CENTRAL

CLIMATE CENTRAL

Share | Screenshot Map | EN

Explore our new CSI: Ocean map →

Climate Shift Index® Global Map

Select type of map:

- Climate Shift Index
- Temperature anomaly
- Temperature

City

Type a city name

Date

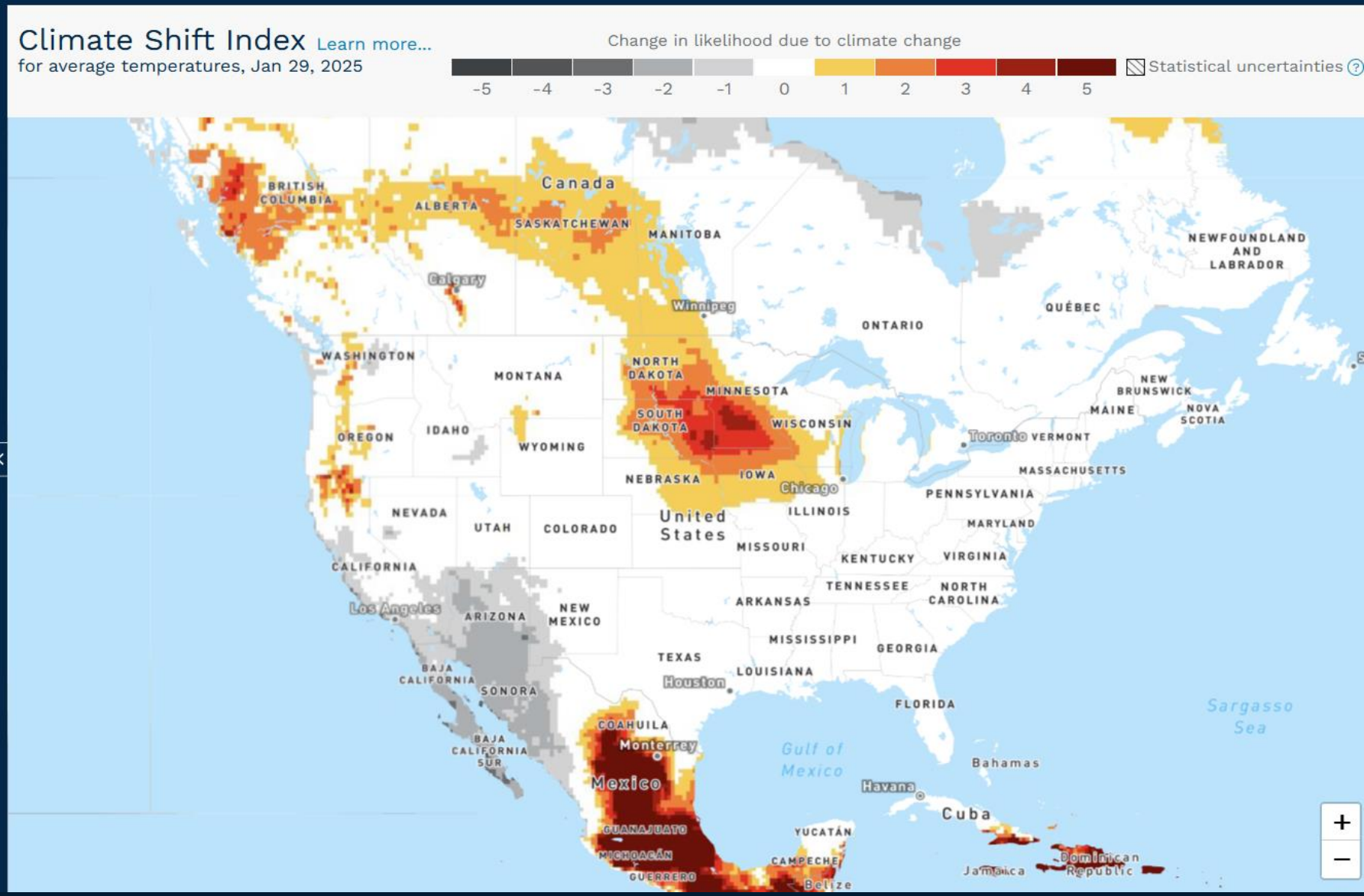
◂ Today ▸

Single date | Multi-day average

› Advanced settings

Sign up for daily CSI data in KML format →

Based on NOAA GFS forecasts through 2025-01-28T18Z.

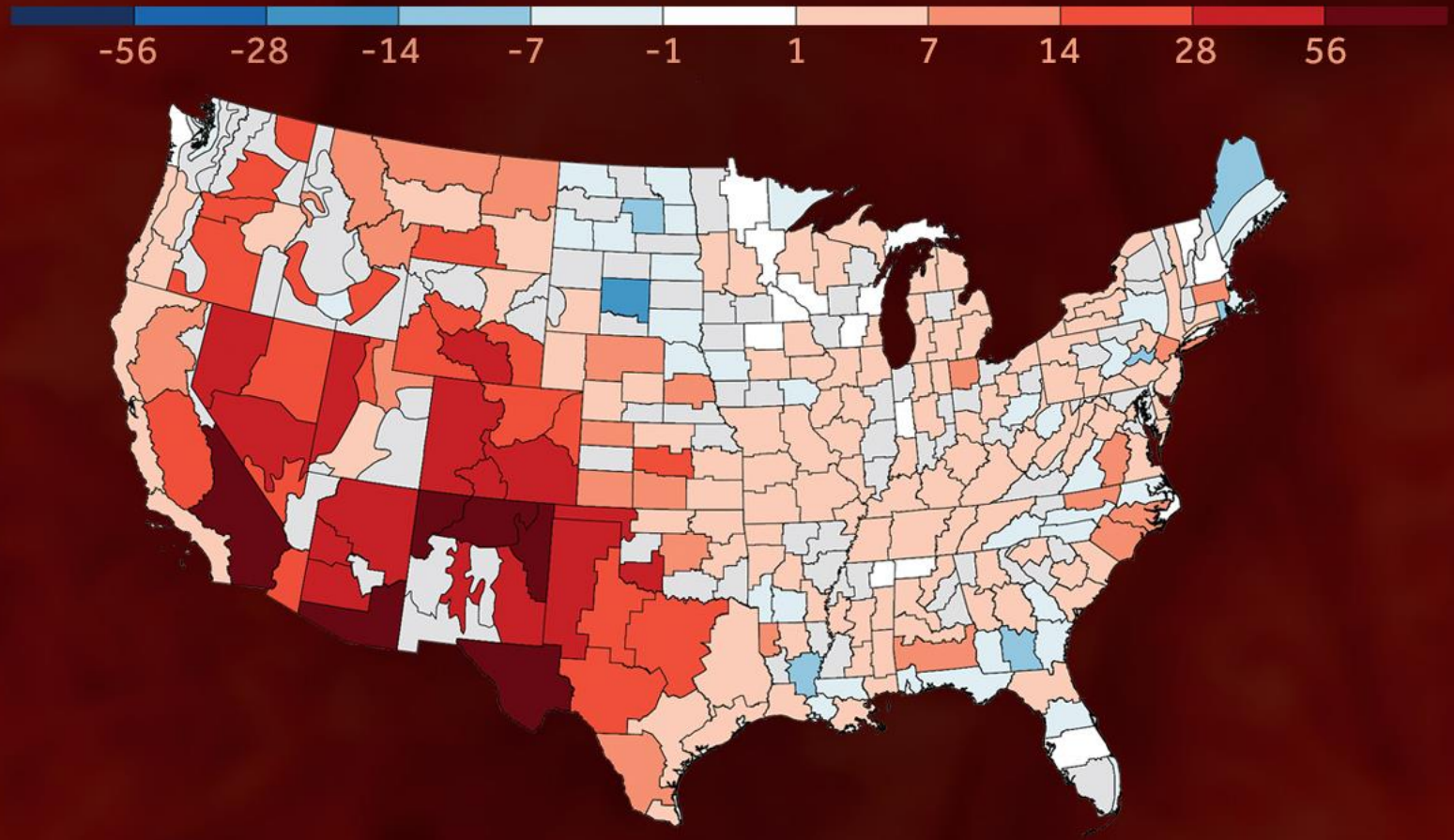


https://www.climatecentral.org/climate-shift-index

CLIMATE CENTRAL

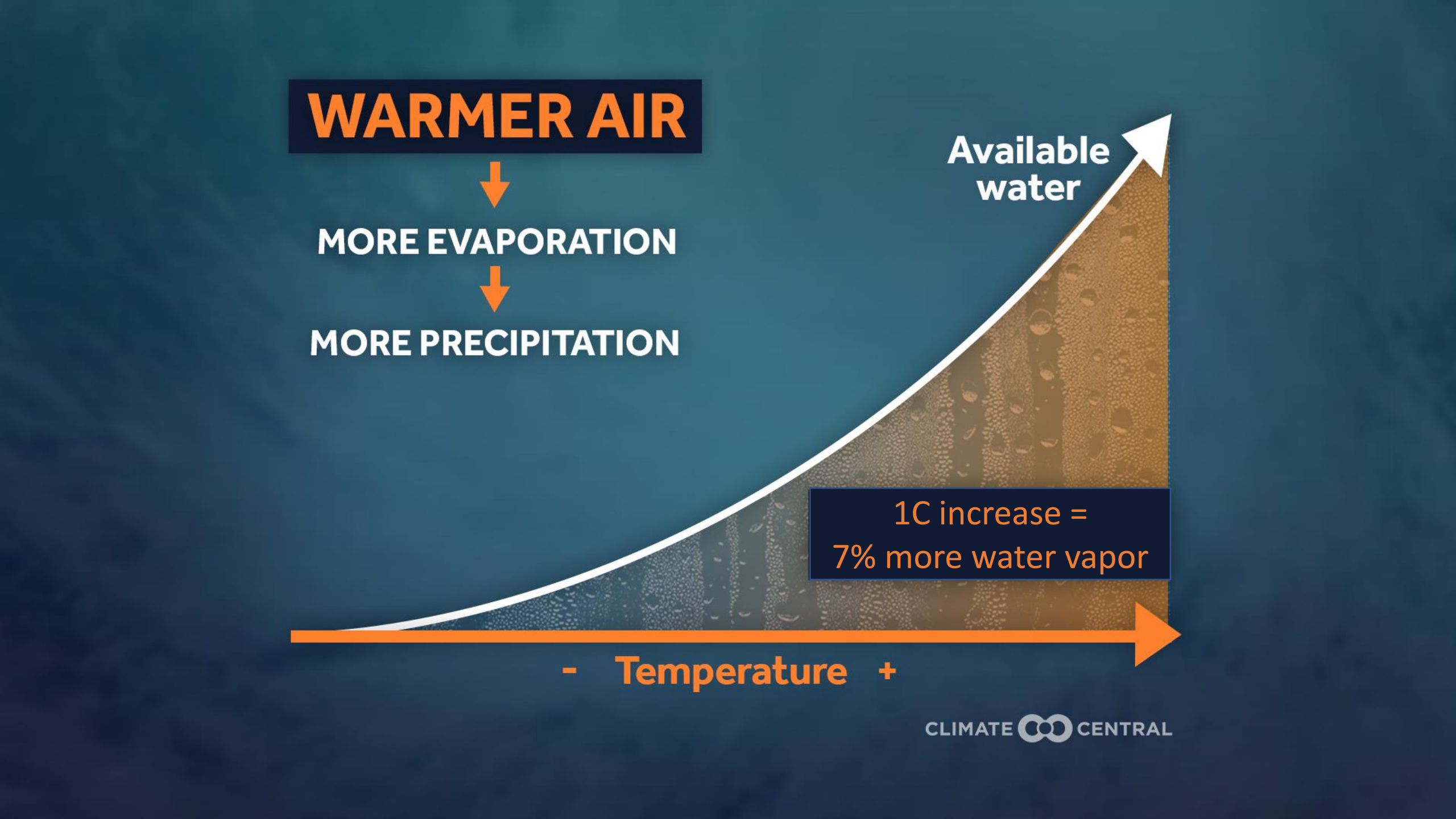
CHANGE IN FIRE WEATHER DAYS

Change in annual hot, dry, windy days, 1973-2023



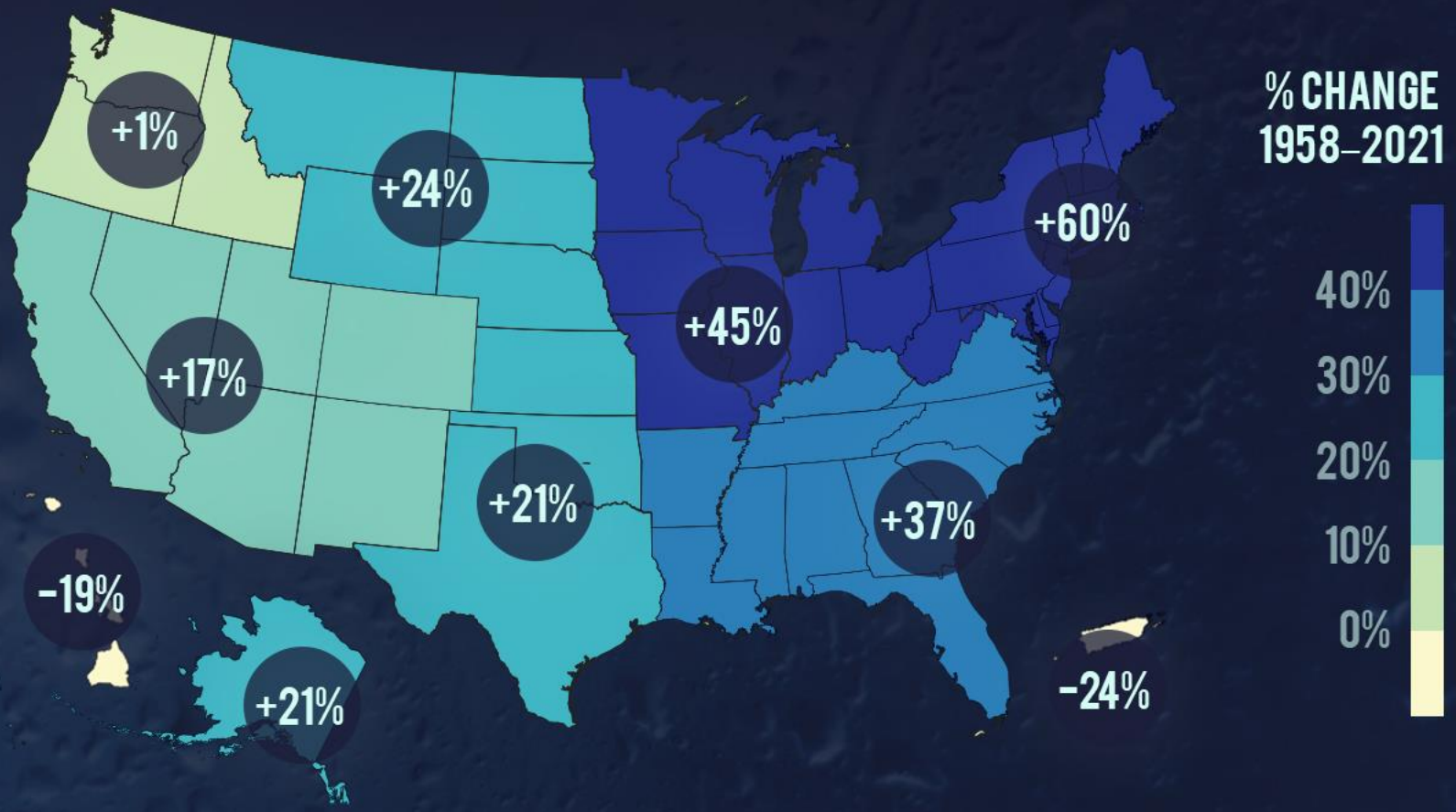
Change in average annual days (1973-2023) at/above fire weather thresholds in at least two hourly observations per day.
Source: NOAA/NCEI Local Climatological Data (LCD)

CLIMATE CENTRAL


WARMER AIR
MORE EVAPORATION
MORE PRECIPITATION
Available water
1C increase =
7% more water vapor
- Temperature +
CLIMATE CENTRAL

HEAVIER DOWNPOURS

Change in precipitation on heaviest 1% of days

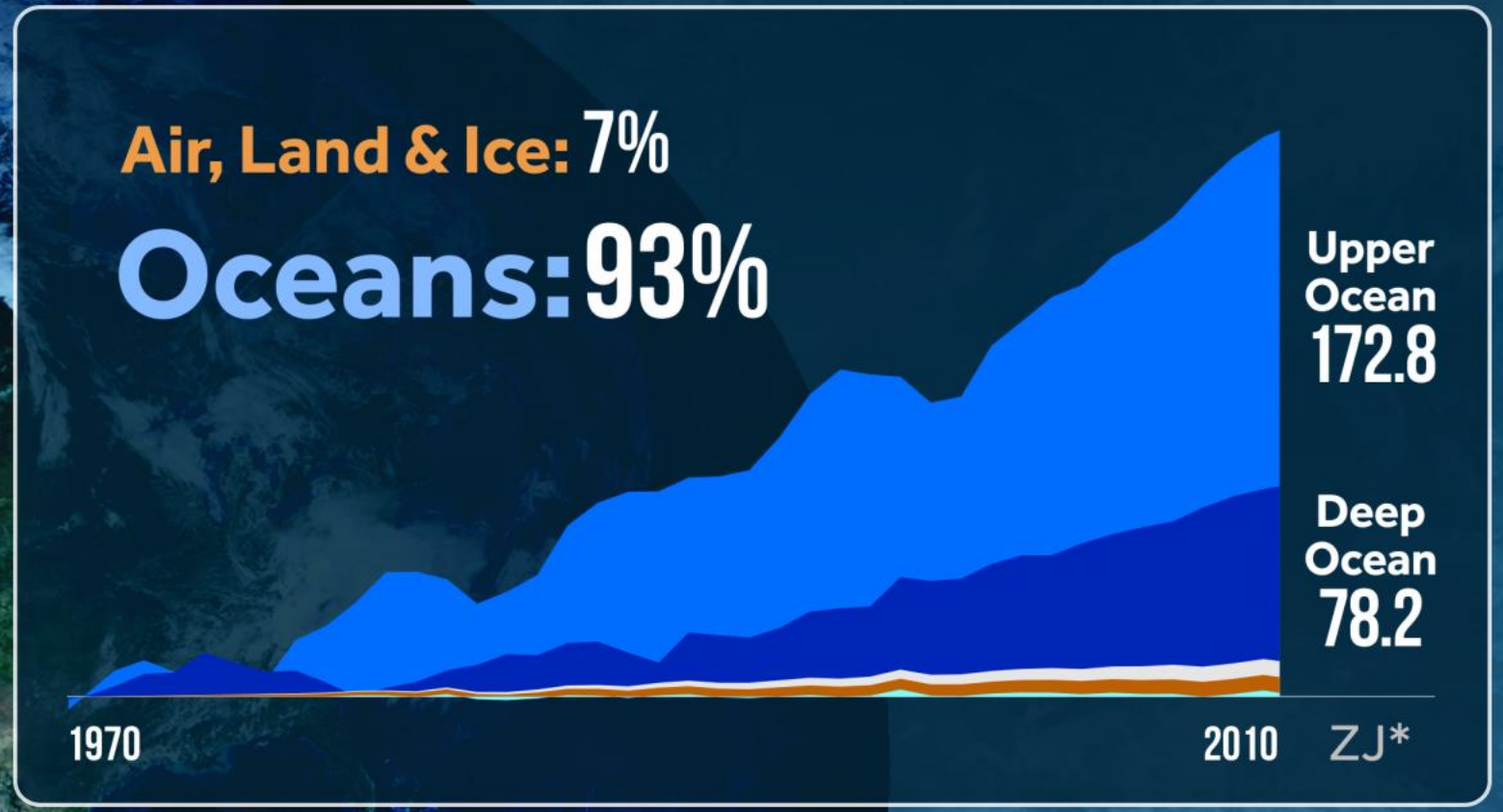


Change in total precipitation falling on the heaviest 1% of days, 1958–2021.
Source: USGCRP, 2023: Fifth National Climate Assessment.

CLIMATE CENTRAL

Where's the Heat?

Earth's Accumulated Energy



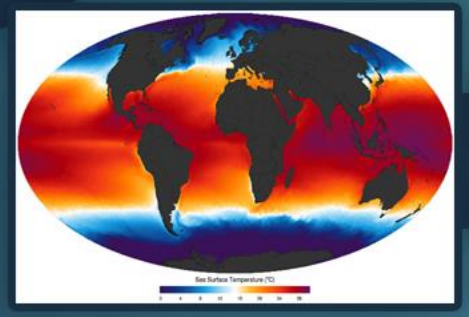
*Accumulated Heat Energy Measured in Zettajoules

Source: Climate Change 2013: The Physical Science Basis (IPCC) Chapter 3

CLIMATE CENTRAL

HURRICANES & CLIMATE CHANGE

What we know



Warmer water = more fuel

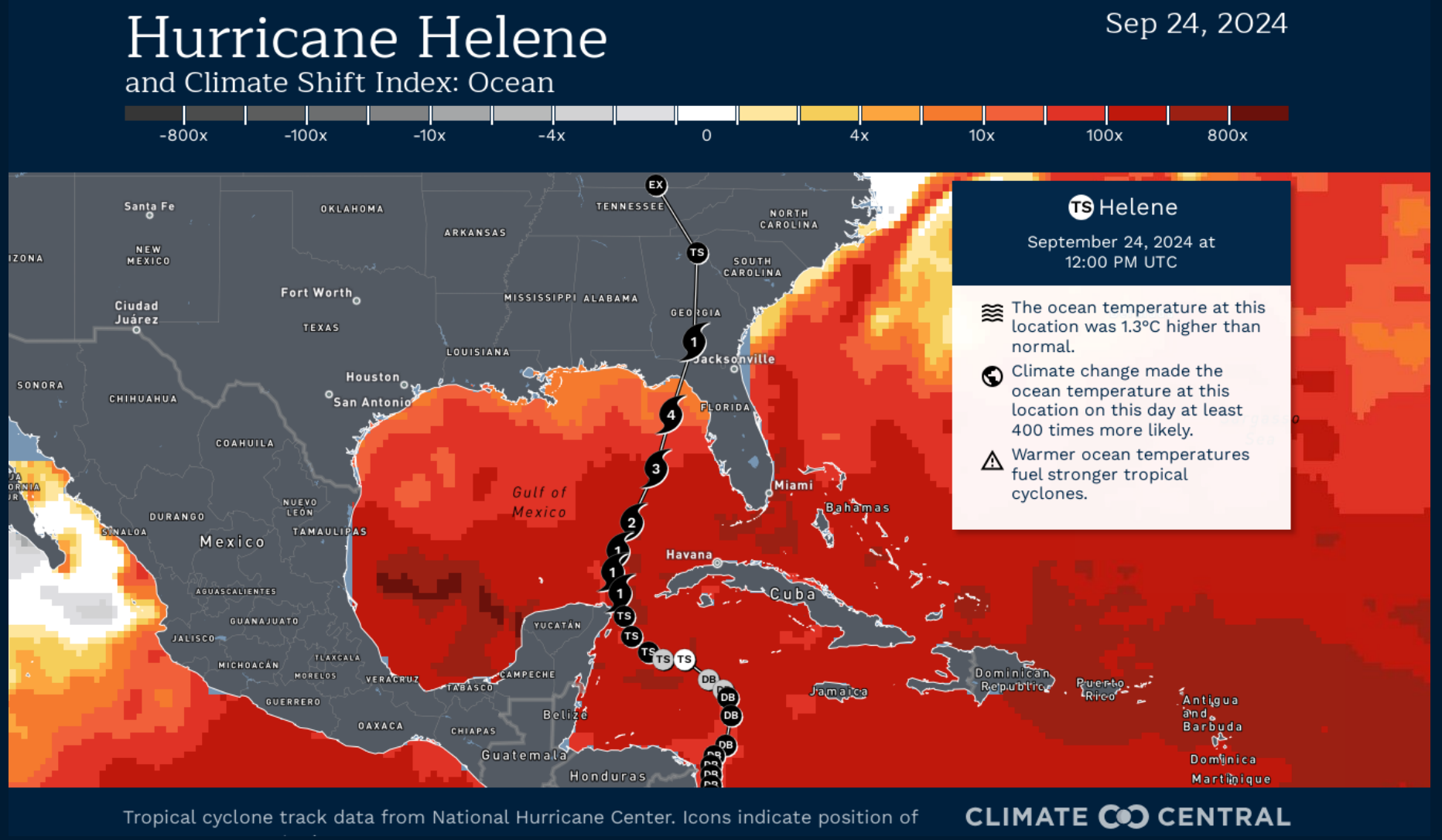
Heavier rain

Higher storm surge

from rising sea levels

CLIMATE CENTRAL

Helene: record warm water 300-500x more likely because of climate change



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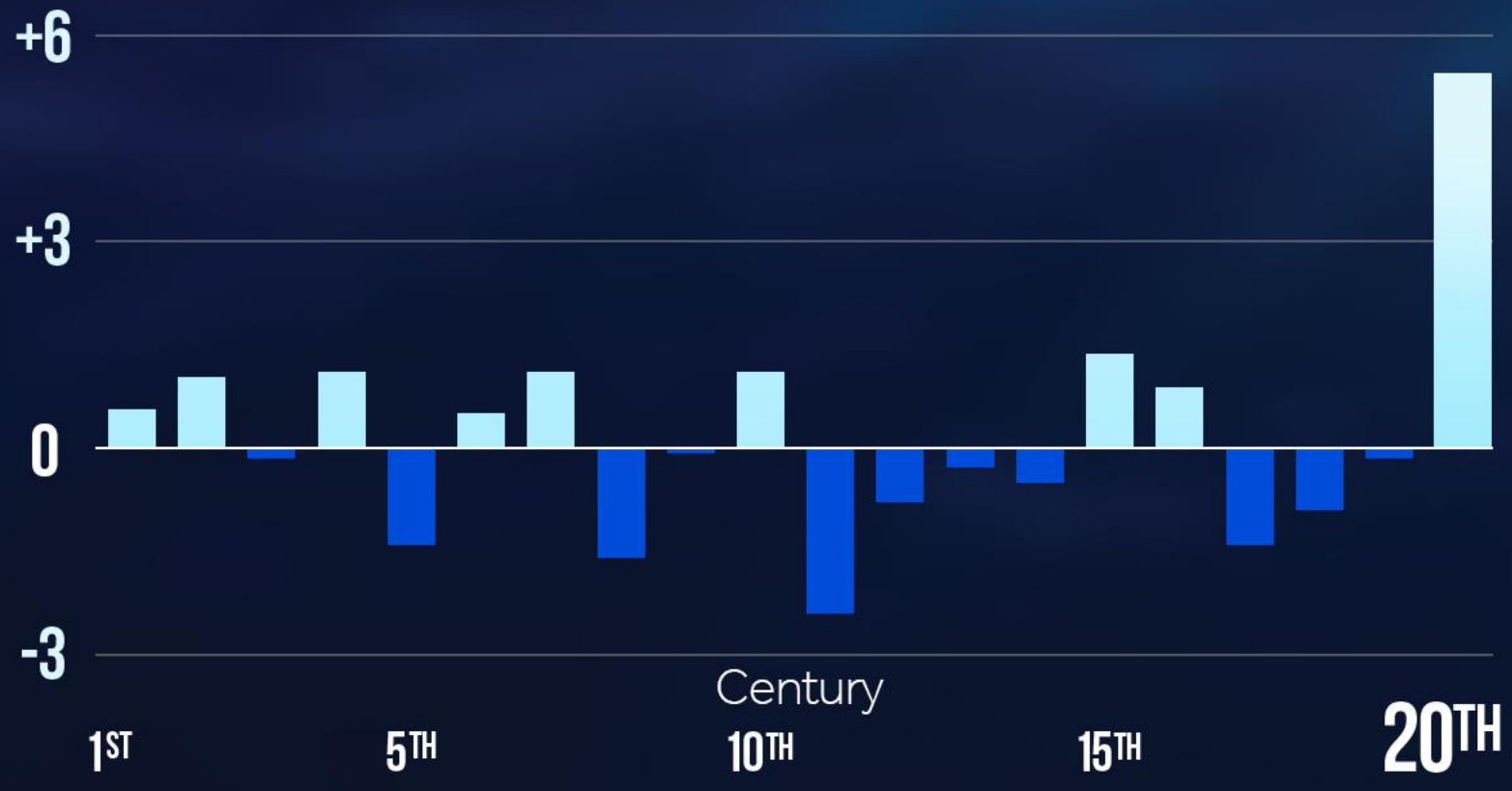
SEA LEVEL RISE
BY CENTURY

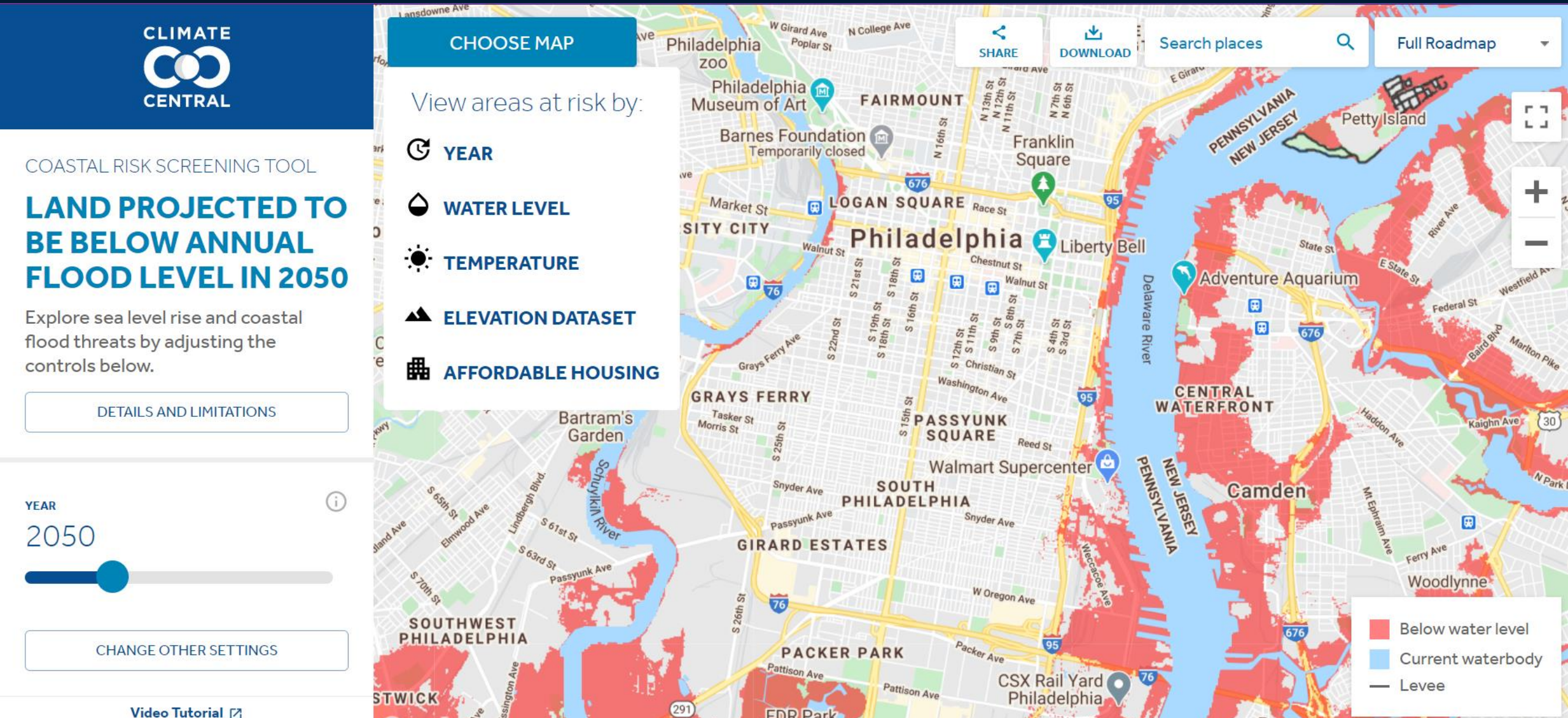


Central reconstruction shown
Source: Kopp et al. 2016 (PNAS)

CLIMATE CENTRAL

Surging Seas

Sealevel.climatecentral.org



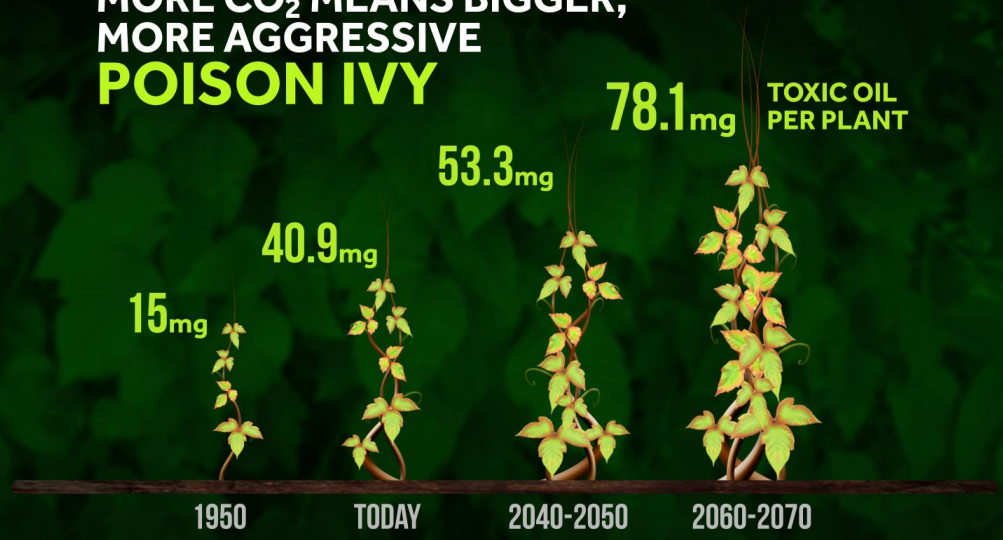
MORE MOSQUITO DAYS

Annual days suitable for mosquitoes

Mosquito days: 50-95°F, relative humidity >42%
Source: Yamana and Eltahir (2013); gridMET

CLIMATE CENTRAL

MORE CO_2 MEANS BIGGER, MORE AGGRESSIVE POISON IVY

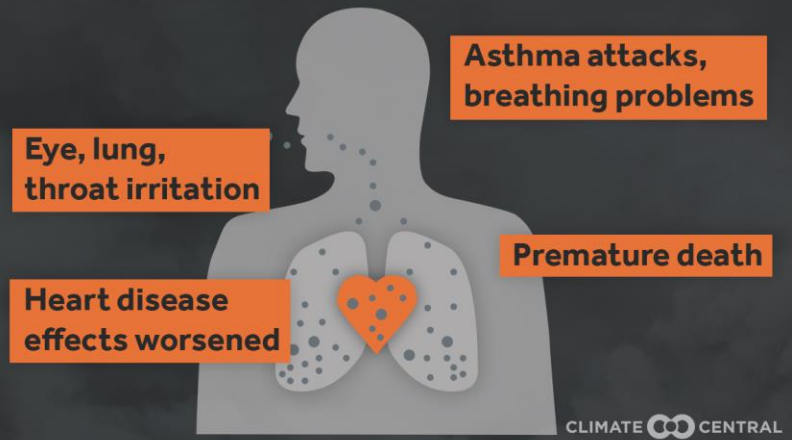


Average per plant in Ziska (2007) lab study

CLIMATE CENTRAL

WILDFIRE POLLUTION HARMS HEALTH

Fine particle ($PM_{2.5}$) effects



CLIMATE CENTRAL

LONGER GROWING SEASON = LONGER ALLERGY SEASON

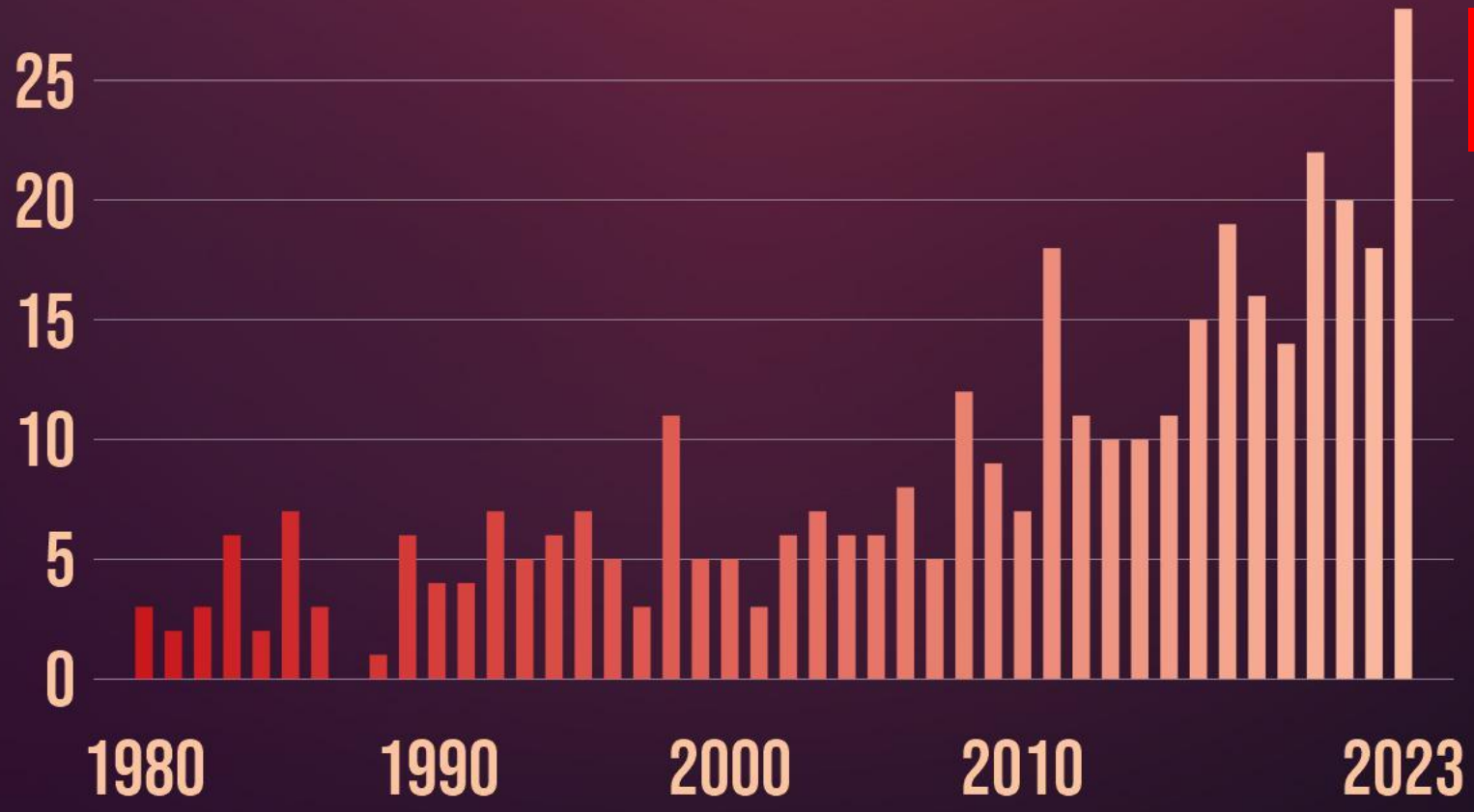
Freeze-free season (days)

Freeze-free season = consecutive days between the annual last and first occurrence of 32°F (min temp)
Source: RCC-ACIS.org

CLIMATE CENTRAL

U.S. BILLION-DOLLAR DISASTERS

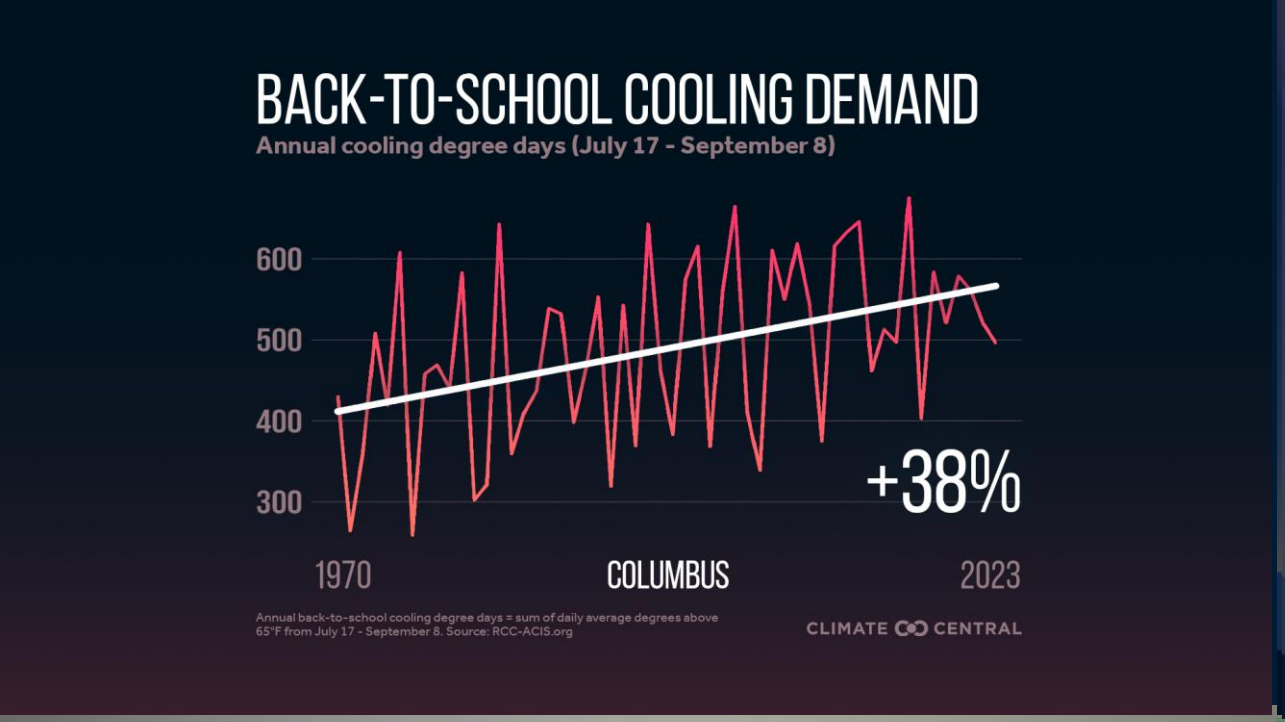
Annual number of events

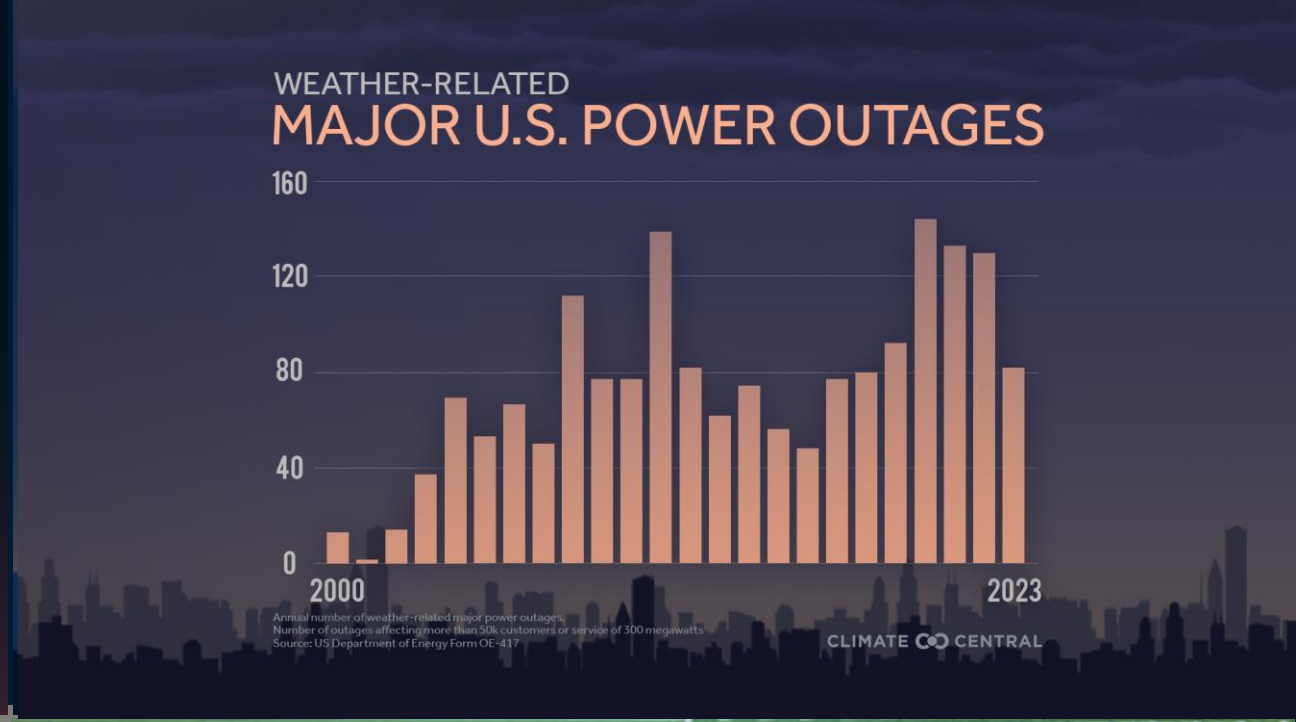


2024:
27 events

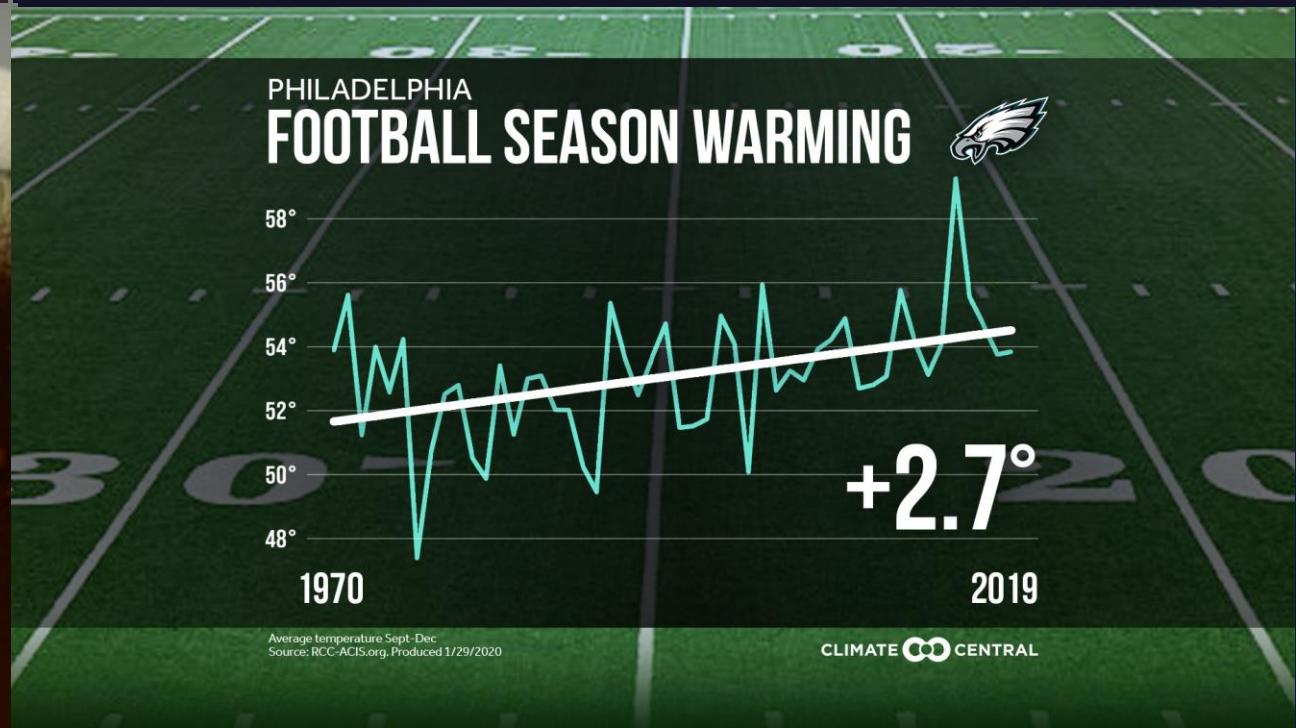
No disasters in 1987. Data as of 1/9/2024.
Source: NOAA/NCEI

CLIMATE CENTRAL


BACK-TO-SCHOOL COOLING DEMAND
Annual cooling degree days (July 17 - September 8)
600
500
400
300
+38%
1970
COLUMBUS
2023
Annual back-to-school cooling degree days = sum of daily average degrees above 65°F from July 17 - September 8. Source: RCC-ACIS.org
CLIMATE CENTRAL


WEATHER-RELATED
MAJOR U.S. POWER OUTAGES
160
120
80
40
0
2000
2023
Annual number of weather-related major power outages.
Number of outages affecting more than 50k customers or service of 300 megawatts
Source: US Department of Energy Form OE-417
CLIMATE CENTRAL


TROUBLE BREWING
BARLEY
HOPS
WATER
Climate Change is Impacting the Key Elements in Beer
CLIMATE CENTRAL


PHILADELPHIA
FOOTBALL SEASON WARMING
58°
56°
54°
52°
50°
48°
+2.7°
1970
2019
Average temperature Sept-Dec
Source: RCC-ACIS.org. Produced 1/29/2020
CLIMATE CENTRAL

Weather • Food–Land and Sea • Water

Health • Economy • Racial & Social Equity

Infrastructure–Buildings, Roads • Energy • Transportation

Coastal Flooding, Changing Oceans • Shifting Ecosystems

Shifting Seasons • National Security • Migration • Tourism

Sports, Recreation • Ways of Life

CLIMATE CENTRAL

Our Future is Our Choice

Resources

CLIMATE CENTRAL

Climate Shift Index Alert • November 18, 2024

Analysis: Climate Change-Driven Ocean Warming Intensifies Record November Typhoon Activity in the Western Pacific

For the first time on record, four named tropical systems were simultaneously active in the Western Pacific Ocean in November: Typhoon Yinxing, Typhoon Toraji, Super Typhoon Usagi, and Super Typhoon Man-Yi. Man-Yi was the strongest and most influenced by ocean temperatures boosted by climate change.

Climate Matters • November 13, 2024

2024 Winter Package

Winters have warmed by 4°F on average across 235 U.S. cities since 1970. Warmer, shorter winters have lingering effects on health, water supplies, and agriculture throughout the year.

Climate Matters • November 5, 2024

COP29: Global Climate Conference

COP29, the global climate conference, starts

Partnership Journalism • November 5, 2024

Drought, record warmth fuel historic wildfire risk in N.J.

https://www.climatecentral.org/climate-matters

WeatherPower

Create a graphic forecasting daily wind or solar electricity generation in your media market.

For a state graphic, select a state.

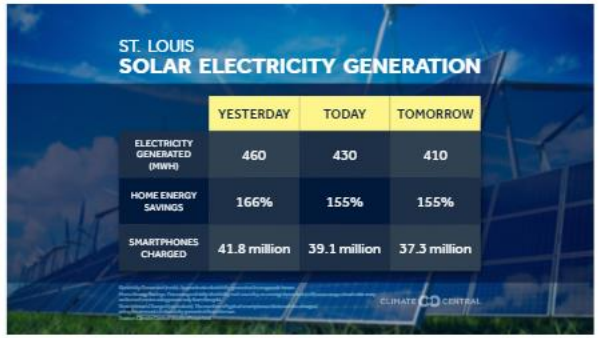
For a local graphic, first select a state, then click button for media market, county, or congressional district.

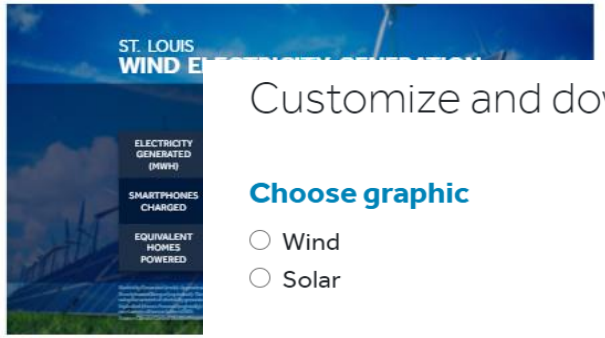
Missouri

State | Media market | County | Congressional district

St. Louis, MO

WeatherPower.climatecentral.org





Customize and download a production-ready forecast graphic:

Choose graphic

- ○ Wind
- ○ Solar

Choose background

- ◉ Wind/solar image
- ○ Black
- ○ Transparent

☑ Include title

Choose Days (columns) (up to 3)

- ☑ Yesterday
- ☑ Today
- ☑ Tomorrow
- ☐ Saturday
- ☐ Sunday
- ☐ Monday

Choose Equivalencies (rows) (up to 3 per graphic) ⓘ What do these mean?

- ☑ Electricity Generated (mwh)
- ☐ Equivalent Homes Powered (locally)
- ☑ Home Energy Savings (solar only)
- ☐ Power Index (0-10 scale)
- ☐ CO2 Avoided (tons)
- ☐ Car Miles
- ☐ Trees Planted
- ☑ Smartphones Charged
- ☑ Equivalent Homes Powered (regionally; wind only)

Download Graphic

Thank you!

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CLIMATE CENTRAL

The state of climate action

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University of Maryland, College Park
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EESI Briefing, January 29 2025

Outline

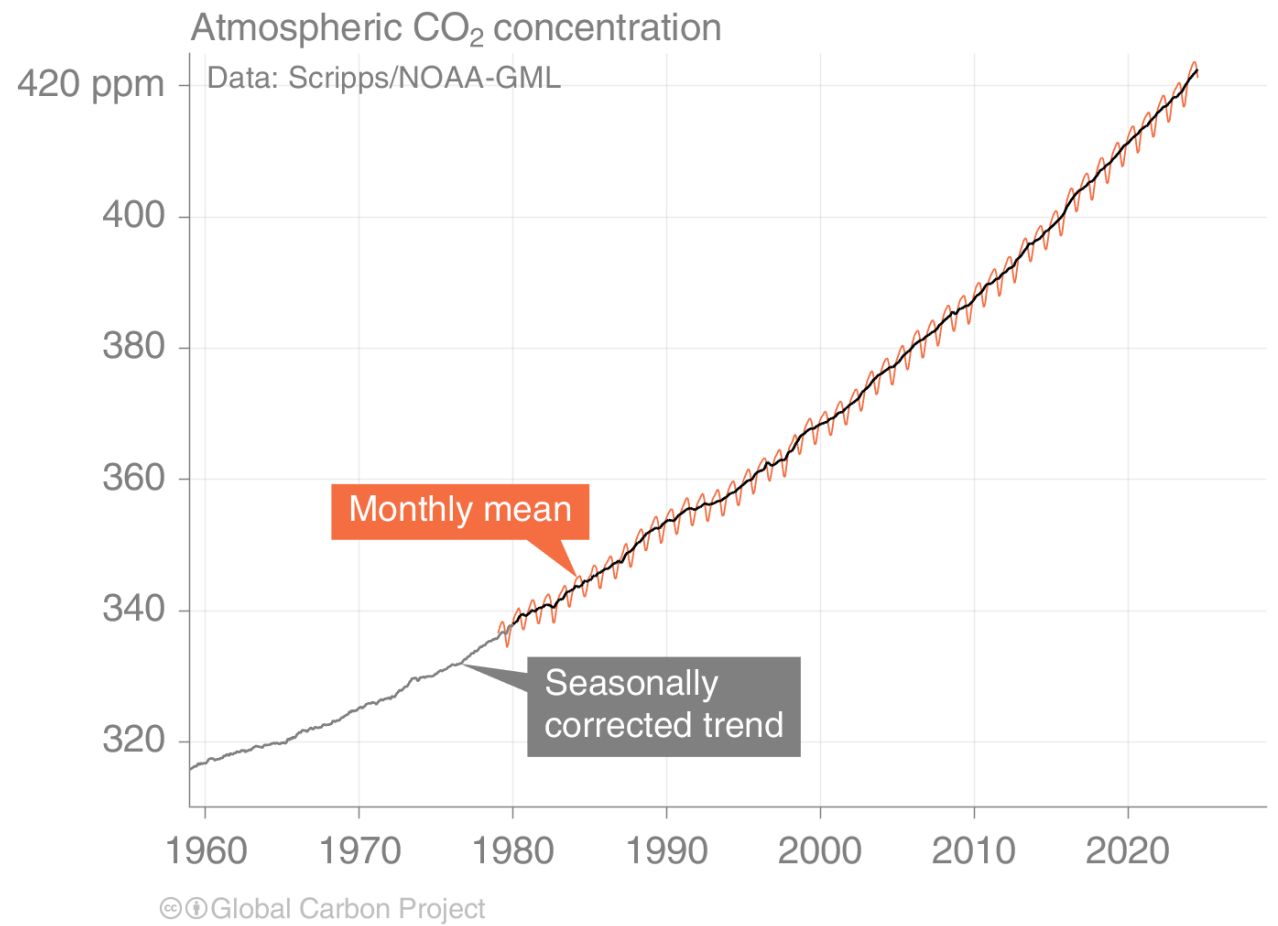
- Emissions
- Mitigation
- Adaptation
- Finance
- Key take-aways

Sources

- Global Carbon Project
- UNFCCC Global Stocktake – synthesis report of the Technical Dialogue
- IPCC AR6
- UNEP Emissions Gap Report
- UNEP Adaptation Gap Report
- CPI State of Climate Finance
- Climate Action Tracker

Atmospheric CO_2 concentration continues to increase

The global CO_2 concentration increased from ~277 ppm in 1750 to 422.5 ppm in 2024 (up 52%)

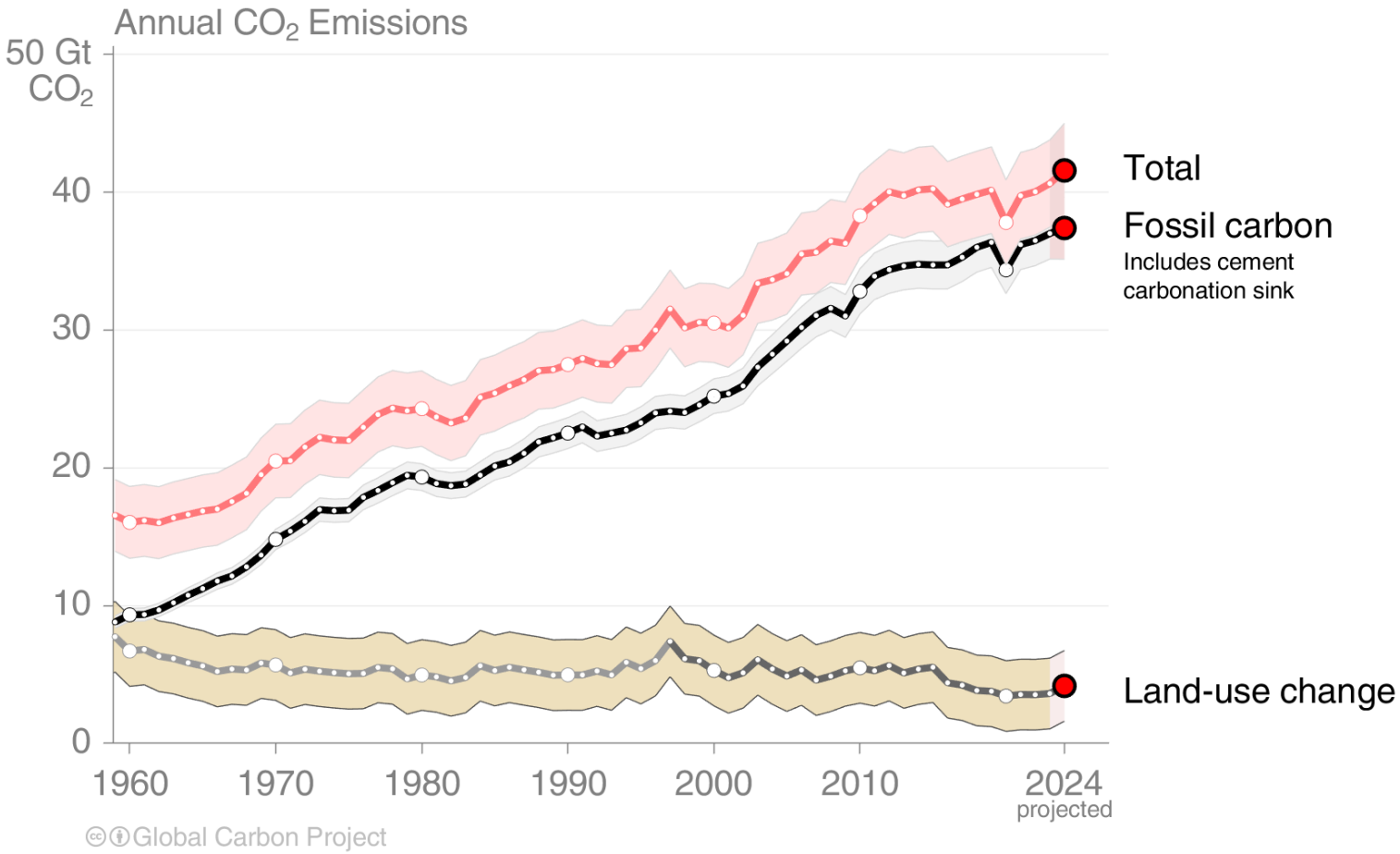


Globally averaged surface atmospheric CO_2 concentration. Data from: NOAA-GML after 1980; the Scripps Institution of Oceanography before 1980

Source: NOAA-GML; Scripps Institution of Oceanography; Friedlingstein et al 2024; Global Carbon Project 2024

That is because global emissions continue to increase

Total global emissions, projected to reach 41.6 ± 3.2 $GtCO_2$ in 2024, 51% over 1990
Percentage land-use change: 42% in 1960, 10% averaged 2014–2023

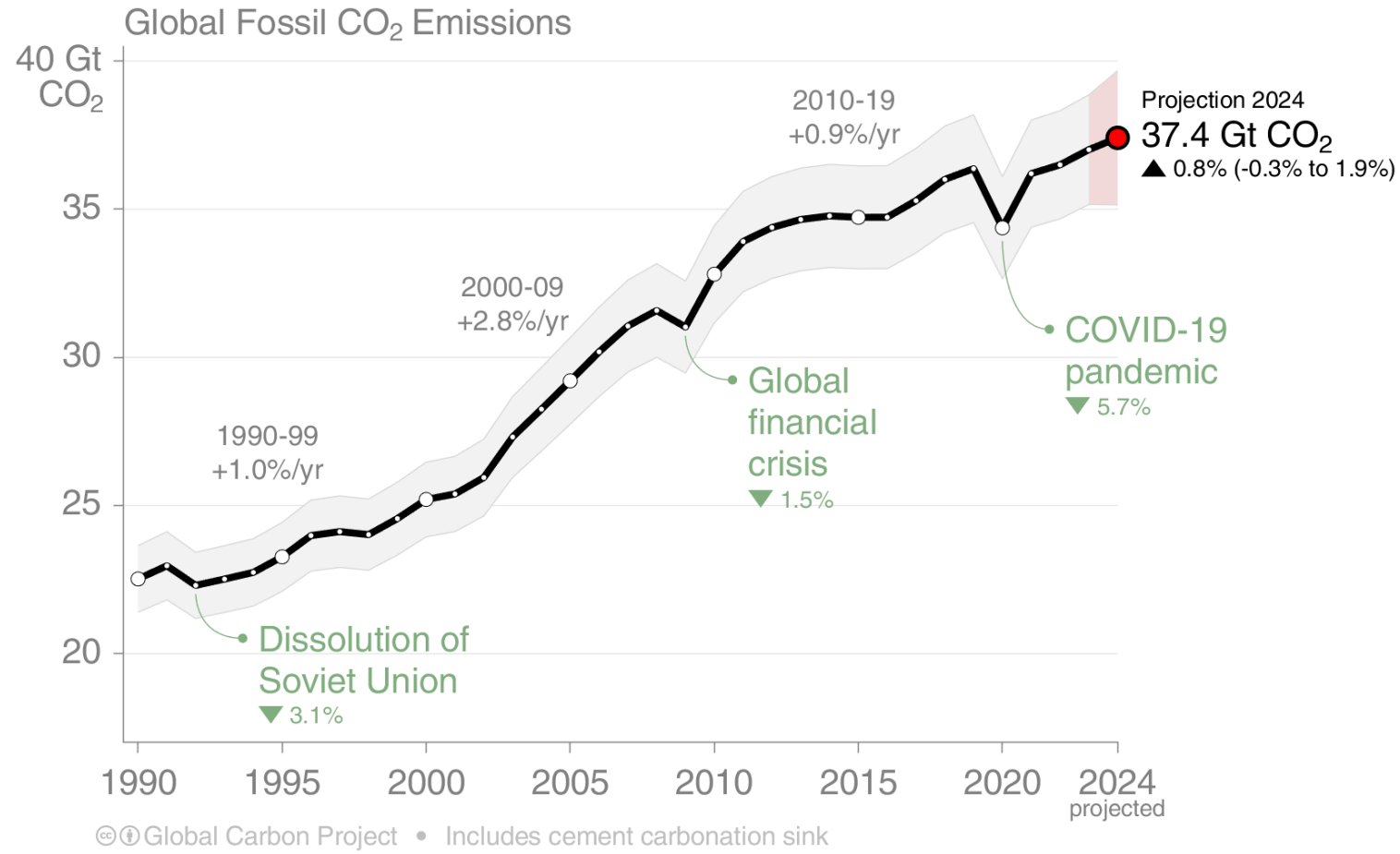


Land-use change estimates from four bookkeeping models, using fire-based variability from 1997
Source: Friedlingstein et al 2024; Global Carbon Project 2024

Global Fossil CO_2 Emissions

Global fossil CO_2 emissions: 37.0 ± 2 $GtCO_2$ in 2023, 66% over 1990

Projection for 2024: 37.4 ± 2 $GtCO_2$, 0.8% [-0.3% to +1.9%] higher than 2023



Uncertainty is ±5% for one standard deviation (IPCC "likely" range)

Effects of COVID and the financial crisis were visible, but short-lived

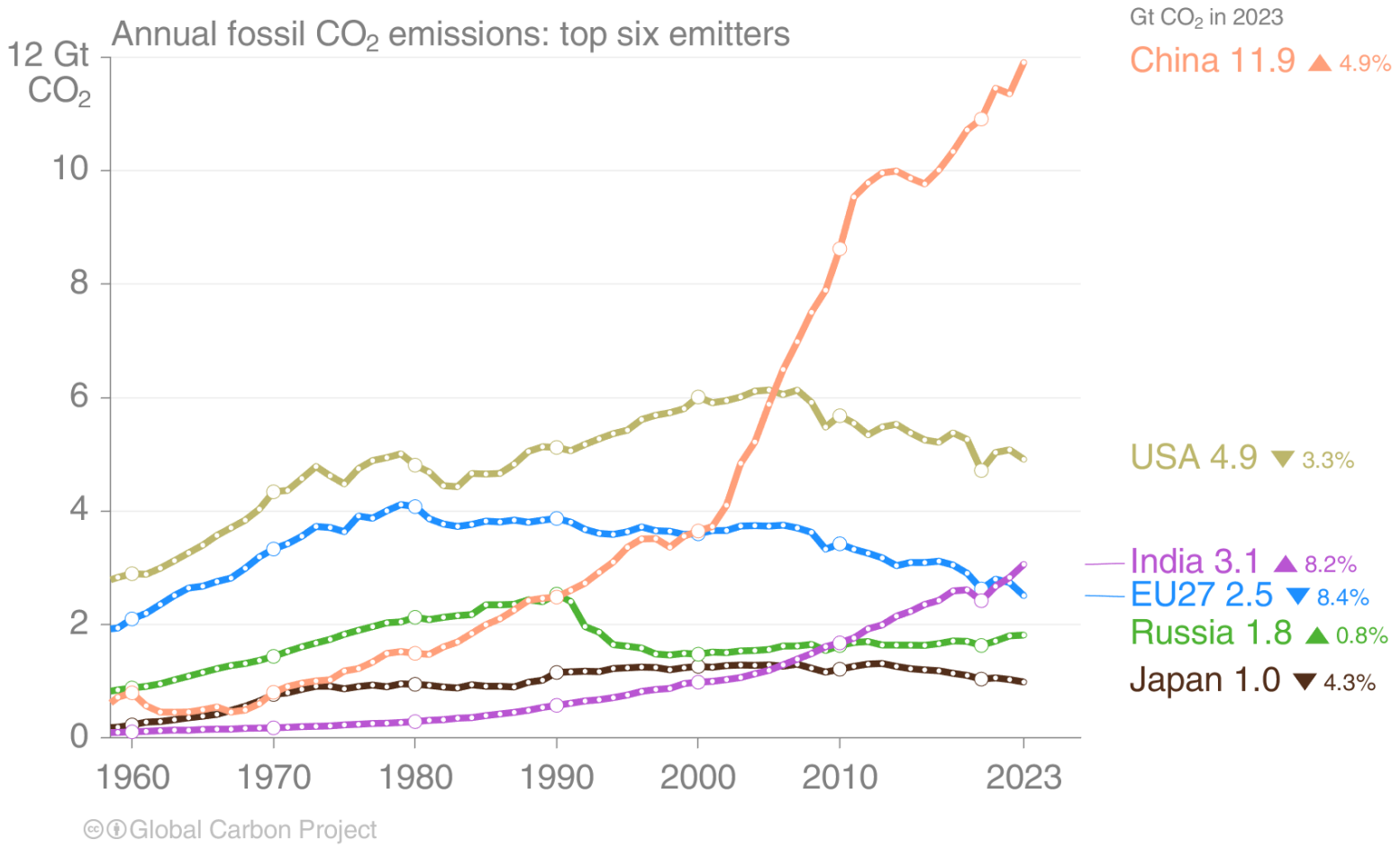
The increase has slowed, but not peaked yet

The 2024 projection is based on preliminary data and modelling. The global total includes a cement carbonation sink of 0.8 $GtCO_2$.

Source: Friedlingstein et al 2024; Global Carbon Project 2024

Top emitters: Fossil CO_2 emissions to 2023

The top six emitters in 2023 covered 68% of global emissions
China 32%, United States 13%, India 8%, EU 7%, Russia 5%, and Japan 3%

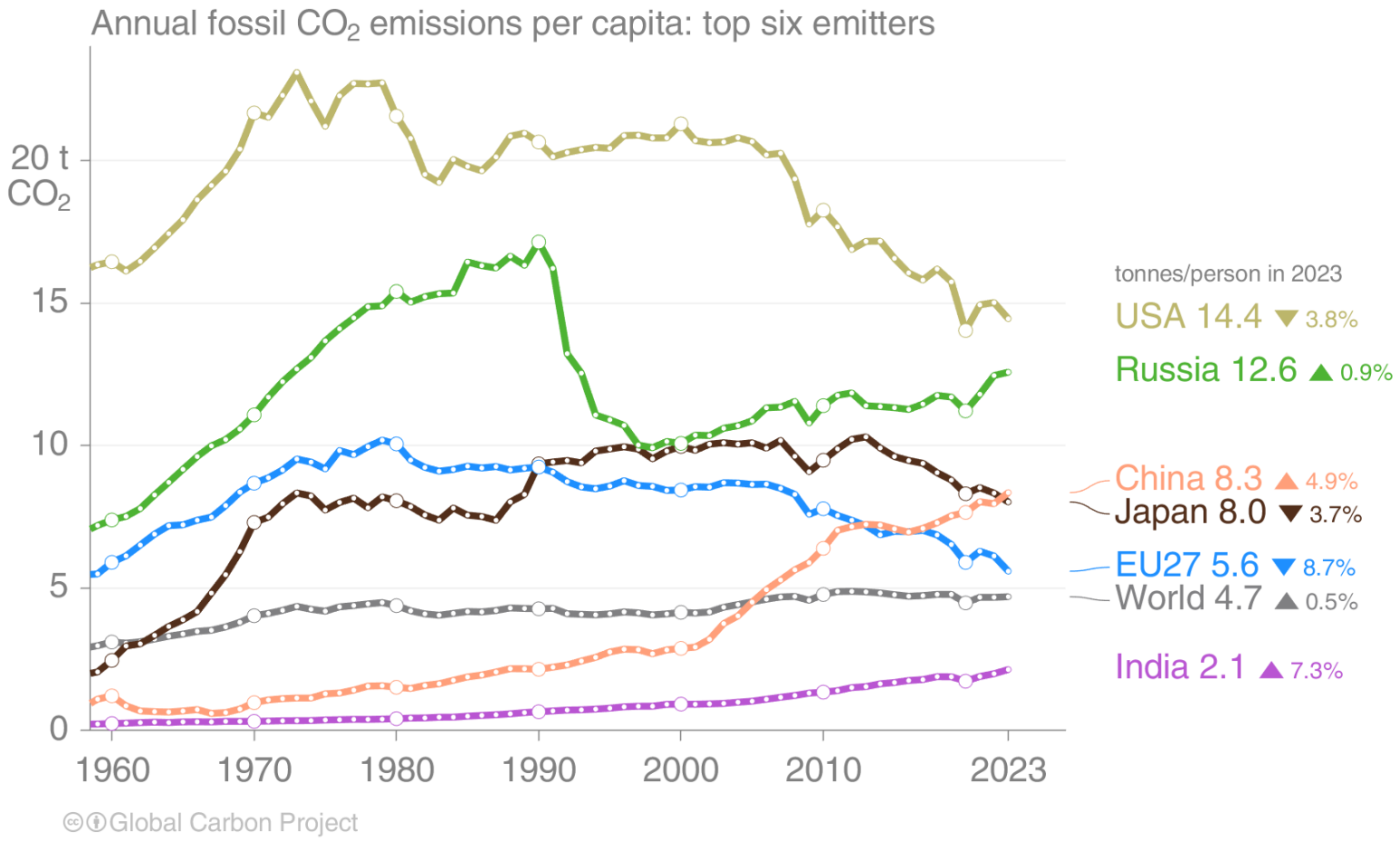


The G20 account for almost 80% of global emissions

International aviation and maritime shipping (bunker fuels) contributed 3.0% of global emissions in 2023.
Source: Friedlingstein et al 2024; Global Carbon Project 2024

Top emitters: Fossil CO_2 emissions per capita to 2023

Countries have a broad range of per capita emissions reflecting their national circumstances

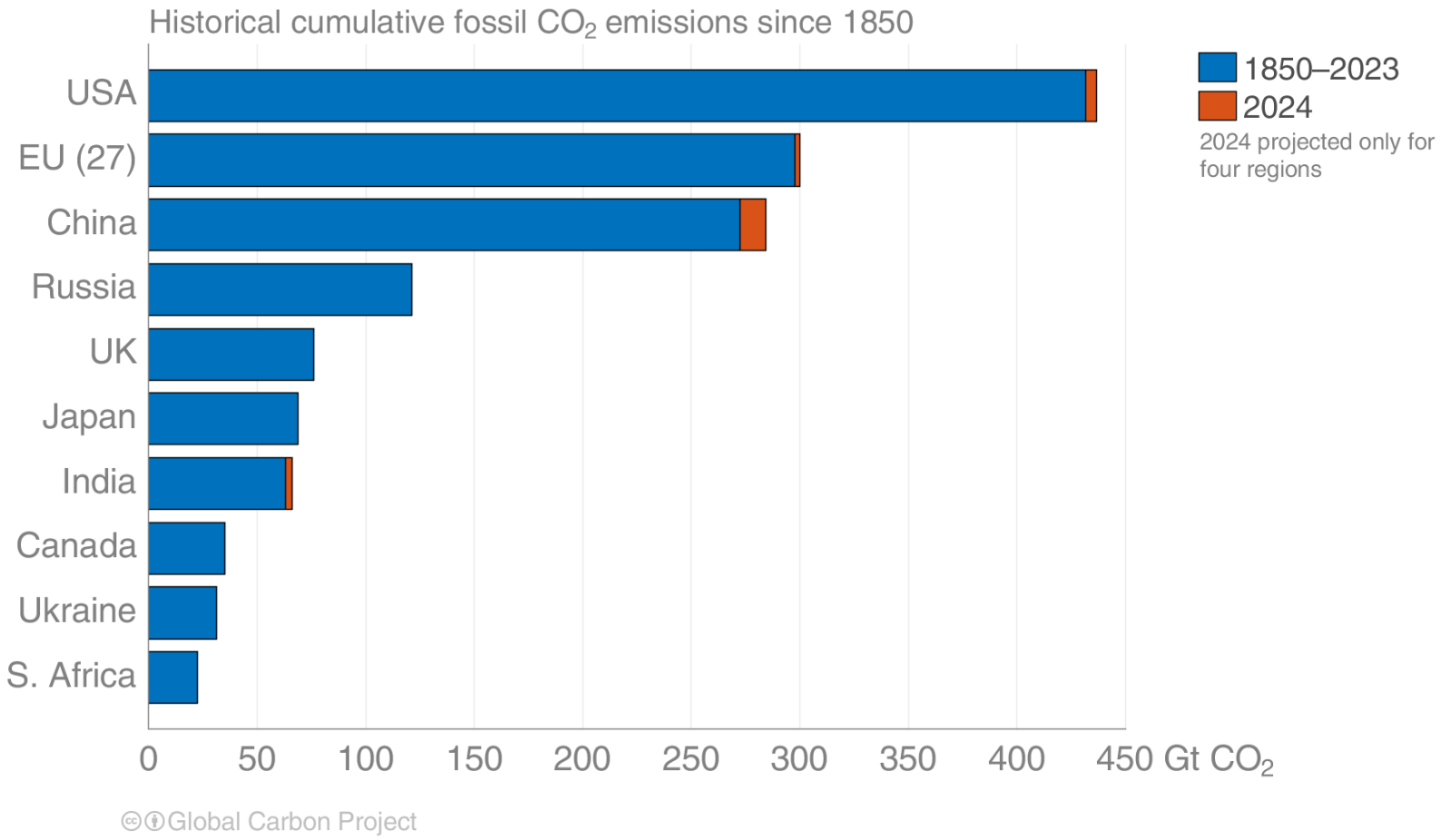


International aviation and maritime shipping (bunker fuels) contributed 3.0% of global emissions in 2023.

Source: Friedlingstein et al 2024; Global Carbon Project 2024

Historical cumulative fossil CO_2 emissions

The USA and EU have the highest accumulated fossil CO_2 emissions since 1850, but China is a close third.

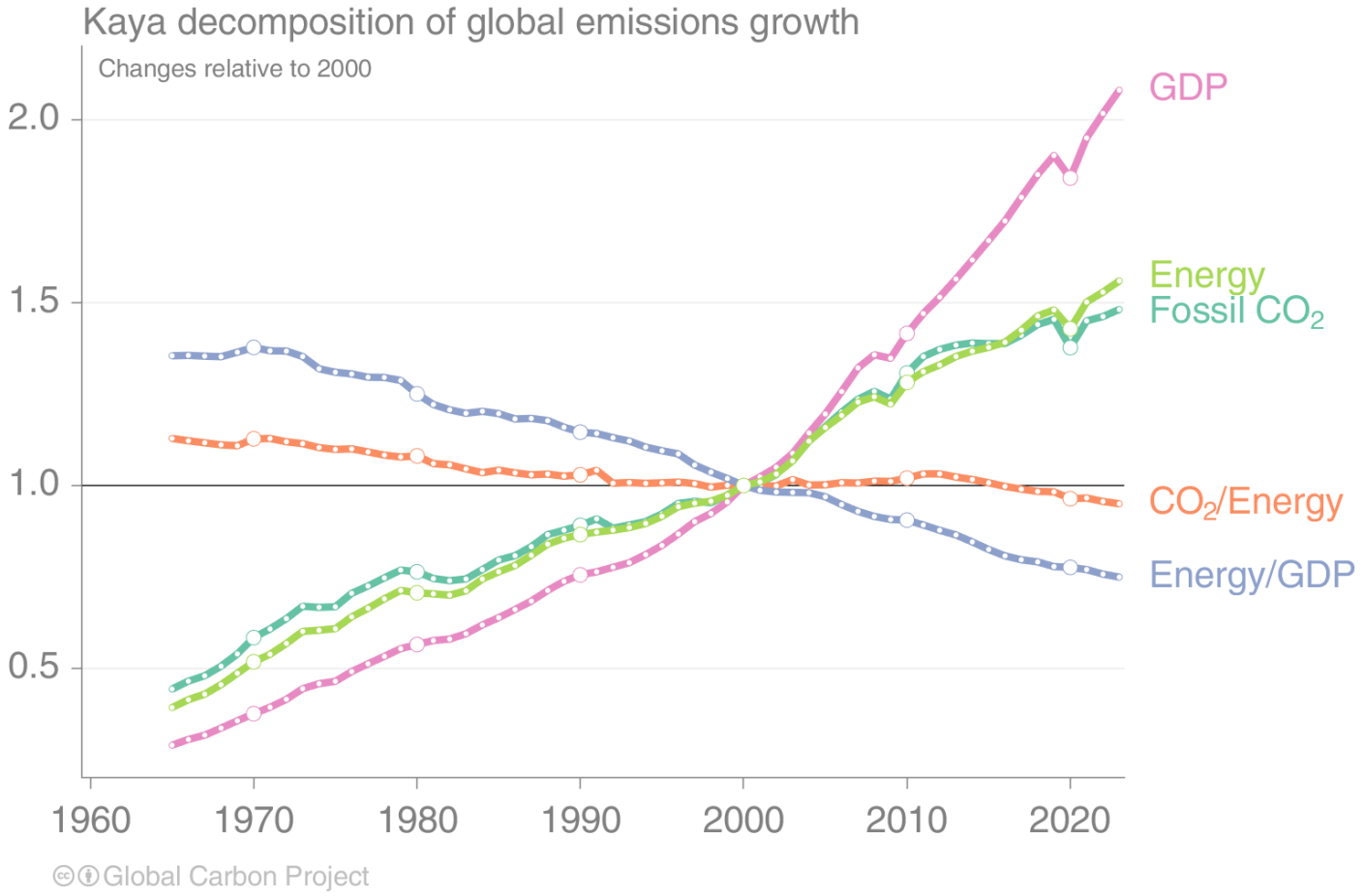


Calculated using territorial emissions.

Source: Friedlingstein et al 2024; Global Carbon Project 2024

Historical trends in emission drivers: GDP, Energy demand, Energy supply

Relative decoupling of economic growth from CO_2 emissions is happening, and has been on-going for a while – driven mostly by improved energy intensity (Energy/GDP) and, recently, carbon intensity of energy (CO_2/Energy)



GDP: Gross Domestic Product (economic activity)

Source: Friedlingstein et al 2024; Global Carbon Project 2024

Conclusions of the Global Stocktake Technical Dialogue with regard to Mitigation

1. Global emissions are not in line with modelled global mitigation pathways consistent with the temperature goal of the Paris Agreement, and there is a rapidly narrowing window to raise ambition and implement existing commitments in order to limit warming to 1.5 °C above pre-industrial levels.

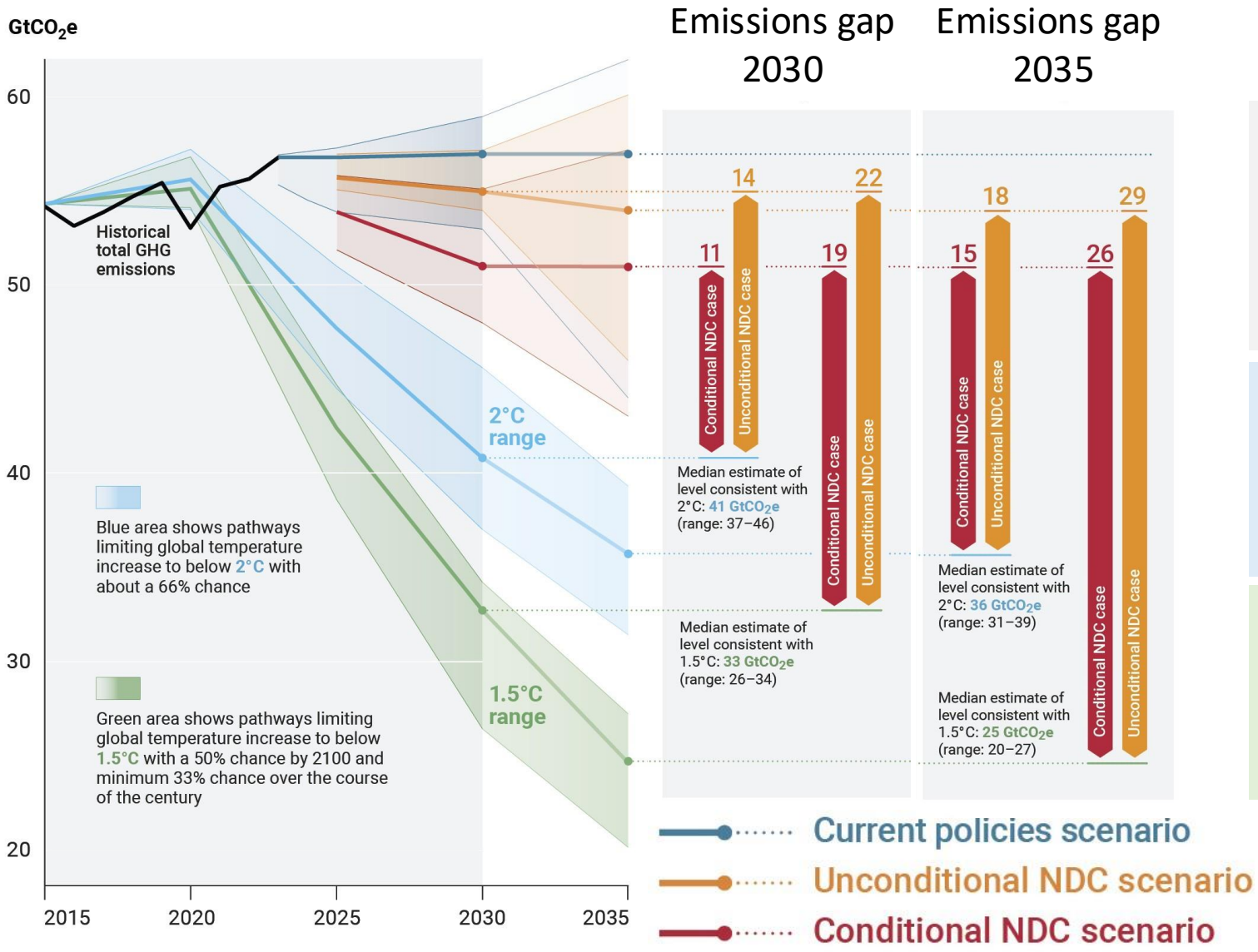
2. Much more ambition in action and support is needed in implementing domestic mitigation measures and setting more ambitious targets in NDCs to realize existing and emerging opportunities across contexts, in order to reduce global GHG emissions by 43 per cent by 2030 and further by 60 per cent by 2035 compared with 2019 levels and reach net zero CO2 emissions by 2050 globally.

3. Achieving net zero CO2 and GHG emissions requires systems transformations across all sectors and contexts, including scaling up renewable energy while phasing out all unabated fossil fuels, ending deforestation, reducing non-CO2 emissions and implementing both supply- and demand-side measures.

4. Just transitions can support more robust and equitable mitigation outcomes, with tailored approaches addressing different contexts.

5. Economic diversification is a key strategy to address the impacts of response measures, with various options that can be applied in different contexts.

There is a large gap in ambition for reducing emissions



Unconditional and **conditional** NDCs reduce 2030 emissions by 4% and 10% respectively, relative to 2019 levels

Reductions required to align with 2°C pathways:
2030: 28%
2035: 37%

Reductions required to align with 1.5°C pathways:
2030: 42%
2035: 57%

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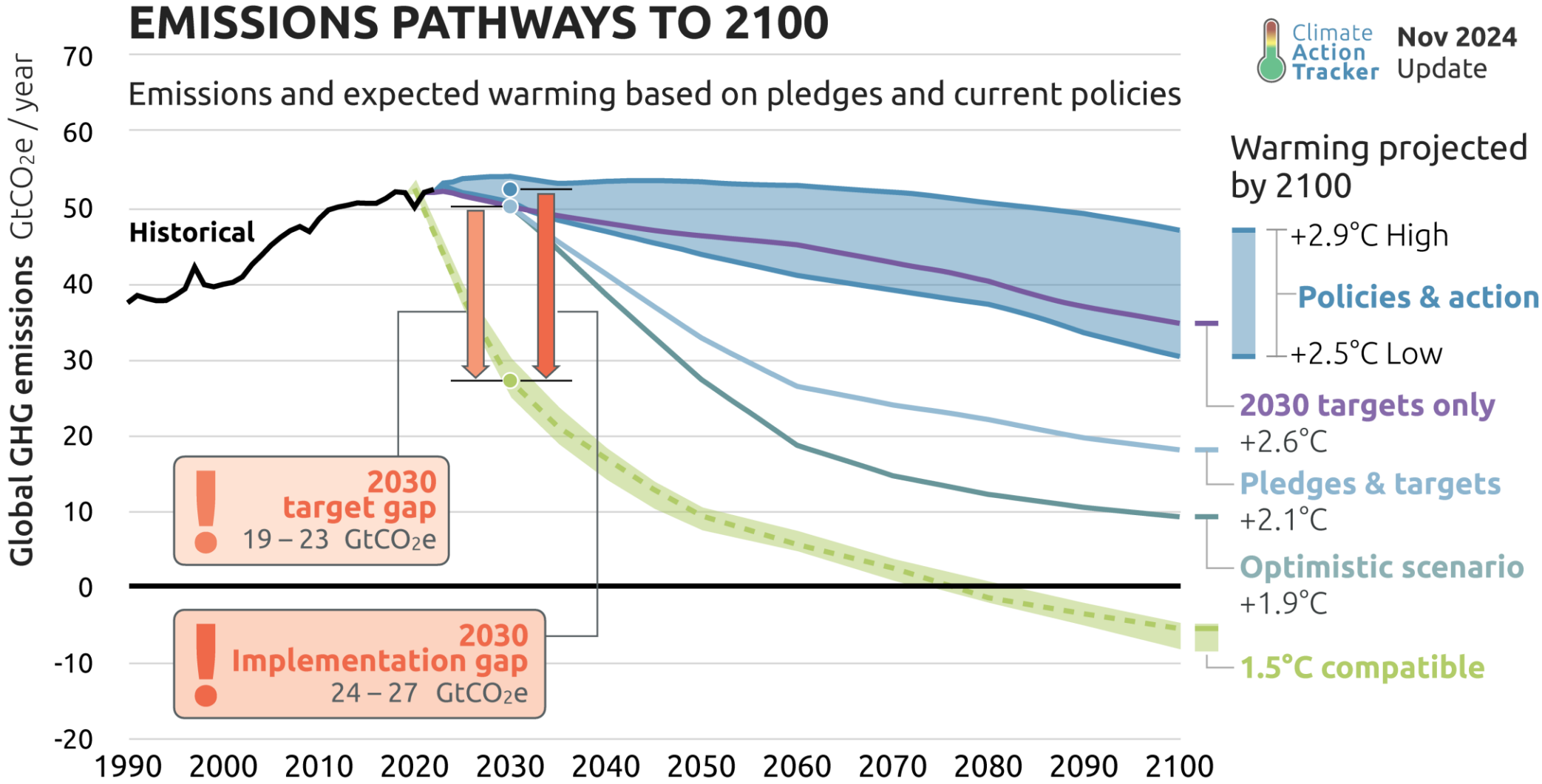
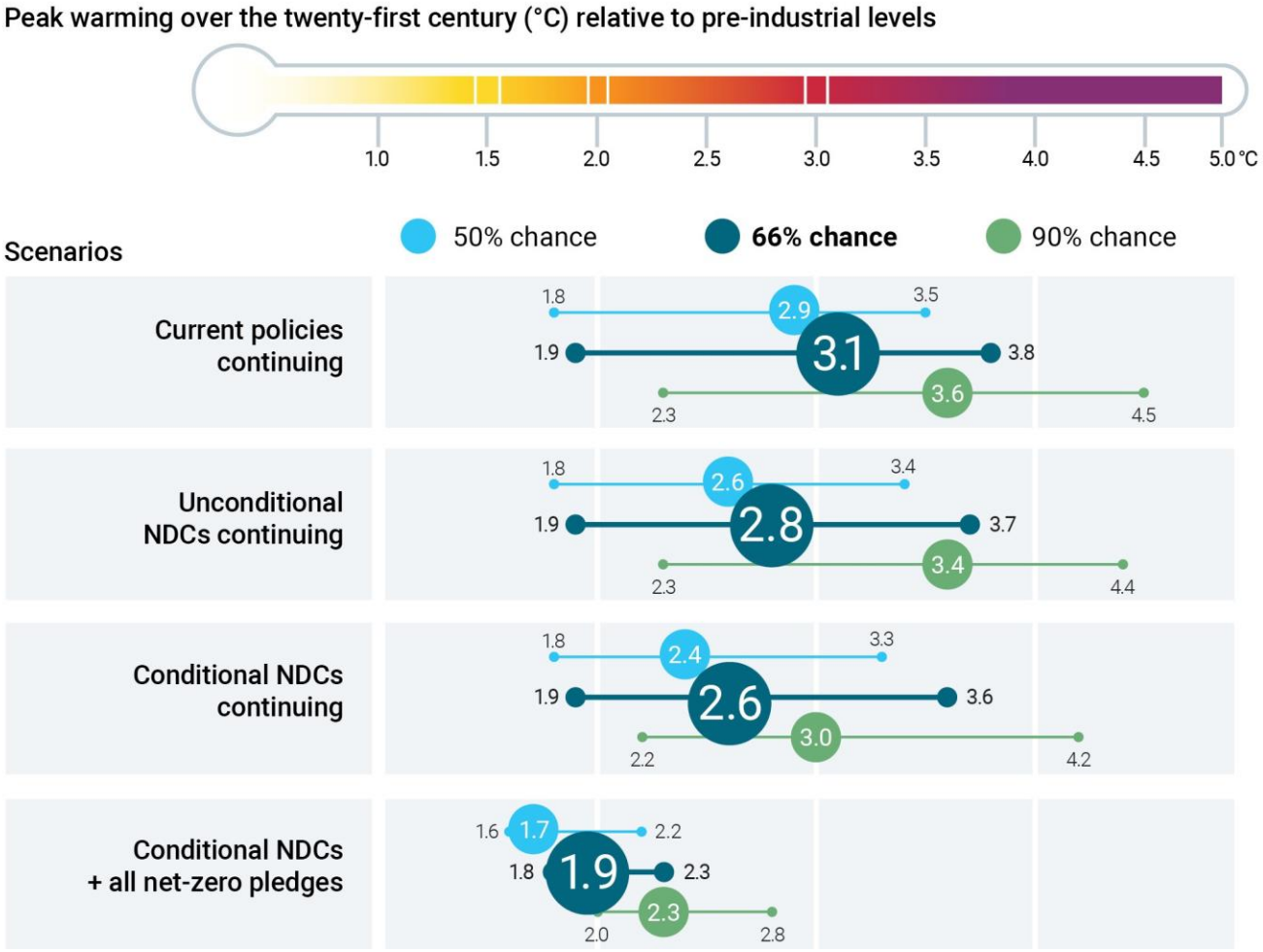

EMISSIONS PATHWAYS TO 2100
Emissions and expected warming based on pledges and current policies
Climate Action Tracker
Nov 2024 Update
Global GHG emissions GtCO2e / year
70
60
50
40
30
20
10
0
-10
-20
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
Historical
2030 target gap
19 – 23 GtCO2e
2030 Implementation gap
24 – 27 GtCO2e
Warming projected by 2100
+2.9°C High
Policies & action
+2.5°C Low
2030 targets only
+2.6°C
Pledges & targets
+2.1°C
Optimistic scenario
+1.9°C
1.5°C compatible

Immediate action matters for temperature projections



- Temperature projections based on the conditional NDC scenario are 0.5°C lower than those based on existing policies
- Only under the most optimistic scenario do temperature projections get closer to the Paris Agreement goal

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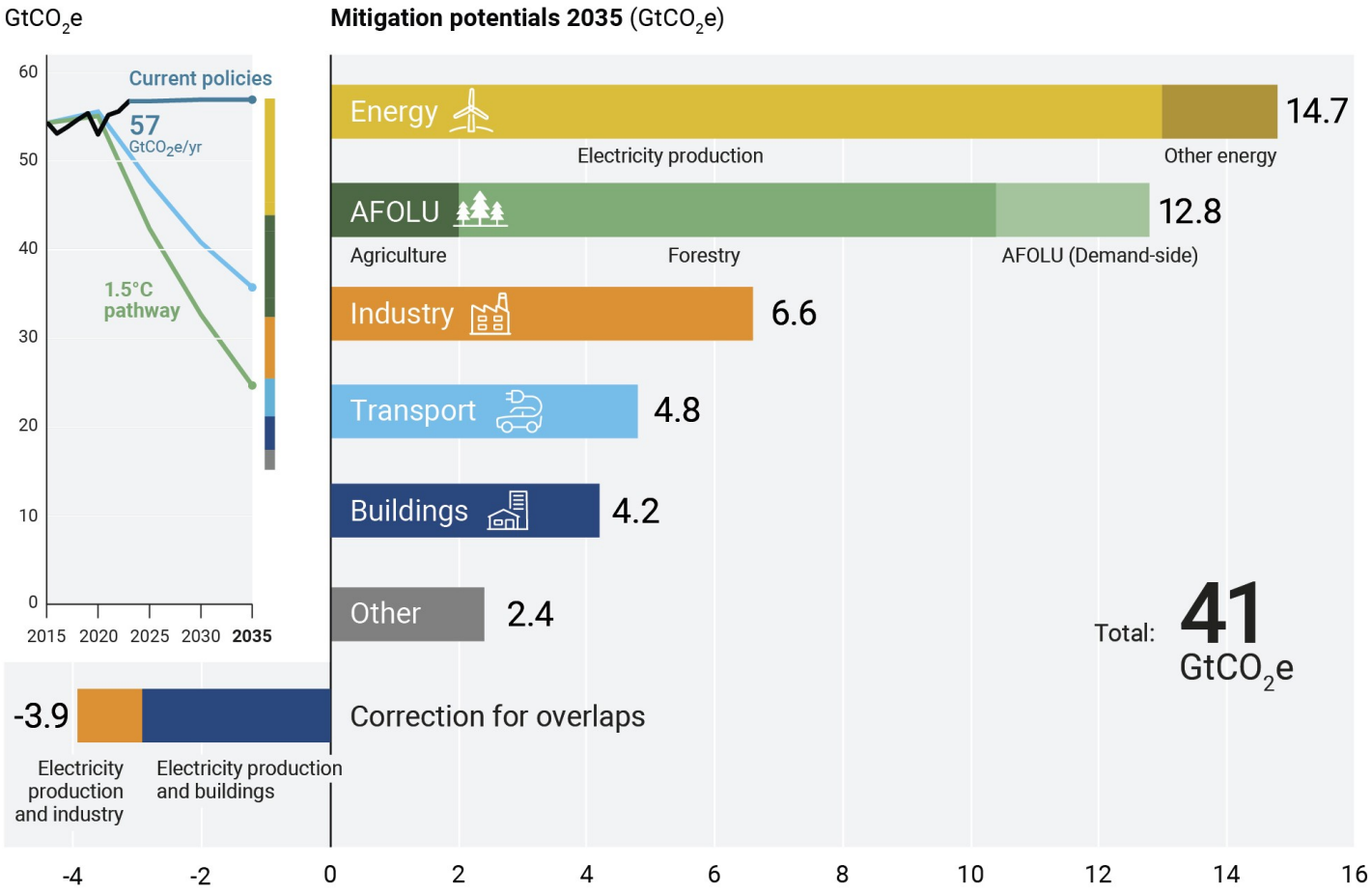
It is technically feasible to bridge the emissions gap



- Total mitigation potential about twice what is required for 2°C-alignment and about 30% above 1.5°C-alignment requirements for 2030 and 2035
- Options in wind, solar PV and forestry alone account for about half the potential
- Demand-side and efficiency measures, and electrification and fuel switching in buildings, transport and industry sectors important
- Realizing the potentials requires overcoming persisting challenges and massively boosting policies, support and finance

Note: techno-economic mitigation potential at costs <US$200/$tCO_2e$
Half of the total potential available at costs <US$20/$tCO_2e$

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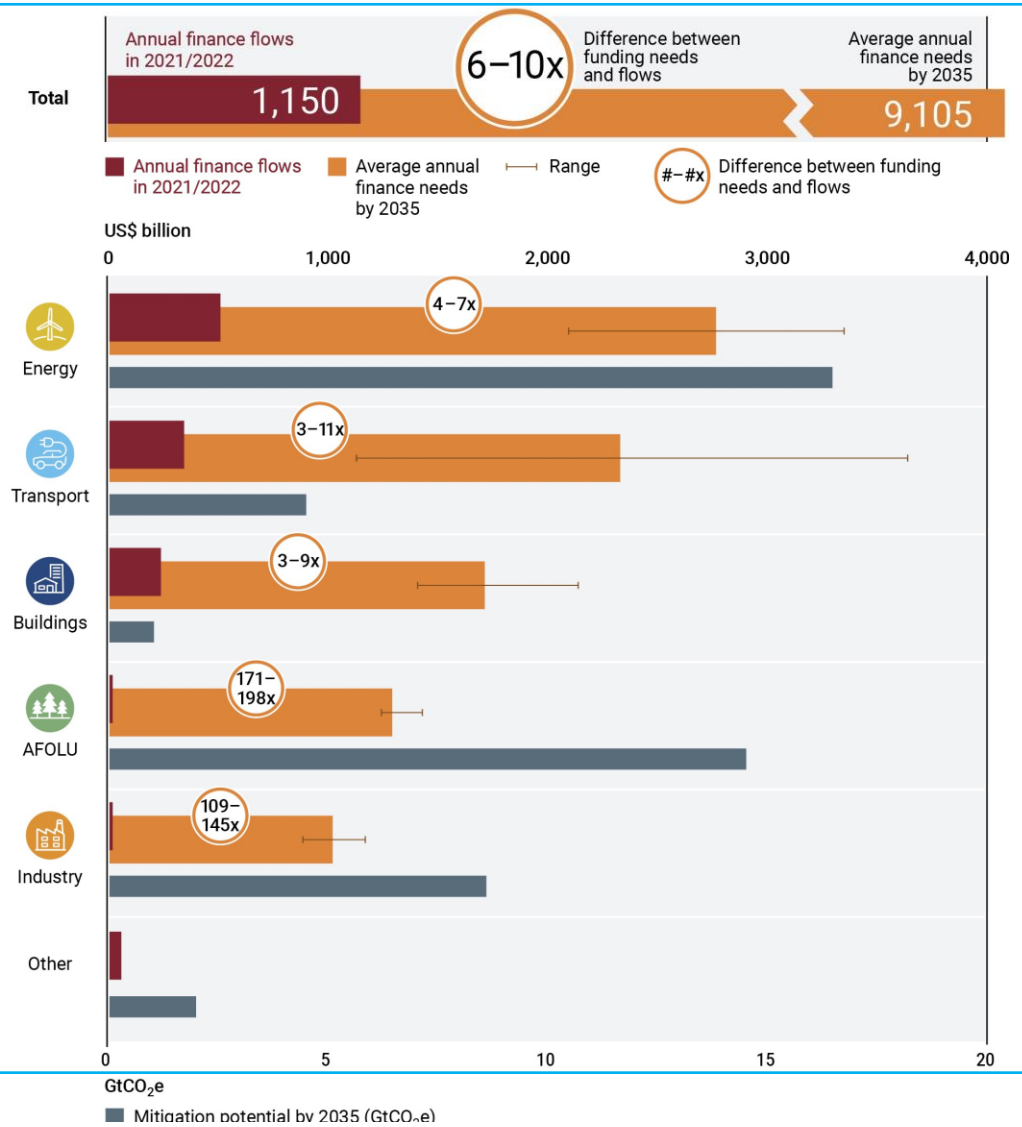
At least a sixfold increase in investment required for 1.5°C alignment



- Only US$0.9 trillion to US$2.1 trillion annually would be incremental, manageable within the US$110 trillion global economy
- Large differences between funding needs and flows across sectors and geographies
- A shift in investment patterns, directing international funding towards emerging market and developing economies (EMDEs) outside of China is essential.
- Next NDCs: EMDEs can detail the means of implementation needed, including international support and finance to achieve ambitious NDC targets for 2035

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Conclusions of the Global Stocktake Technical Dialogue with regard to Adaptation

1. As climate change threatens all countries, communities and people around the world, increased adaptation action as well as enhanced efforts to avert, minimize and address loss and damage are urgently needed to reduce and respond to increasing impacts, particularly for those who are least prepared for change and least able to recover from disasters.

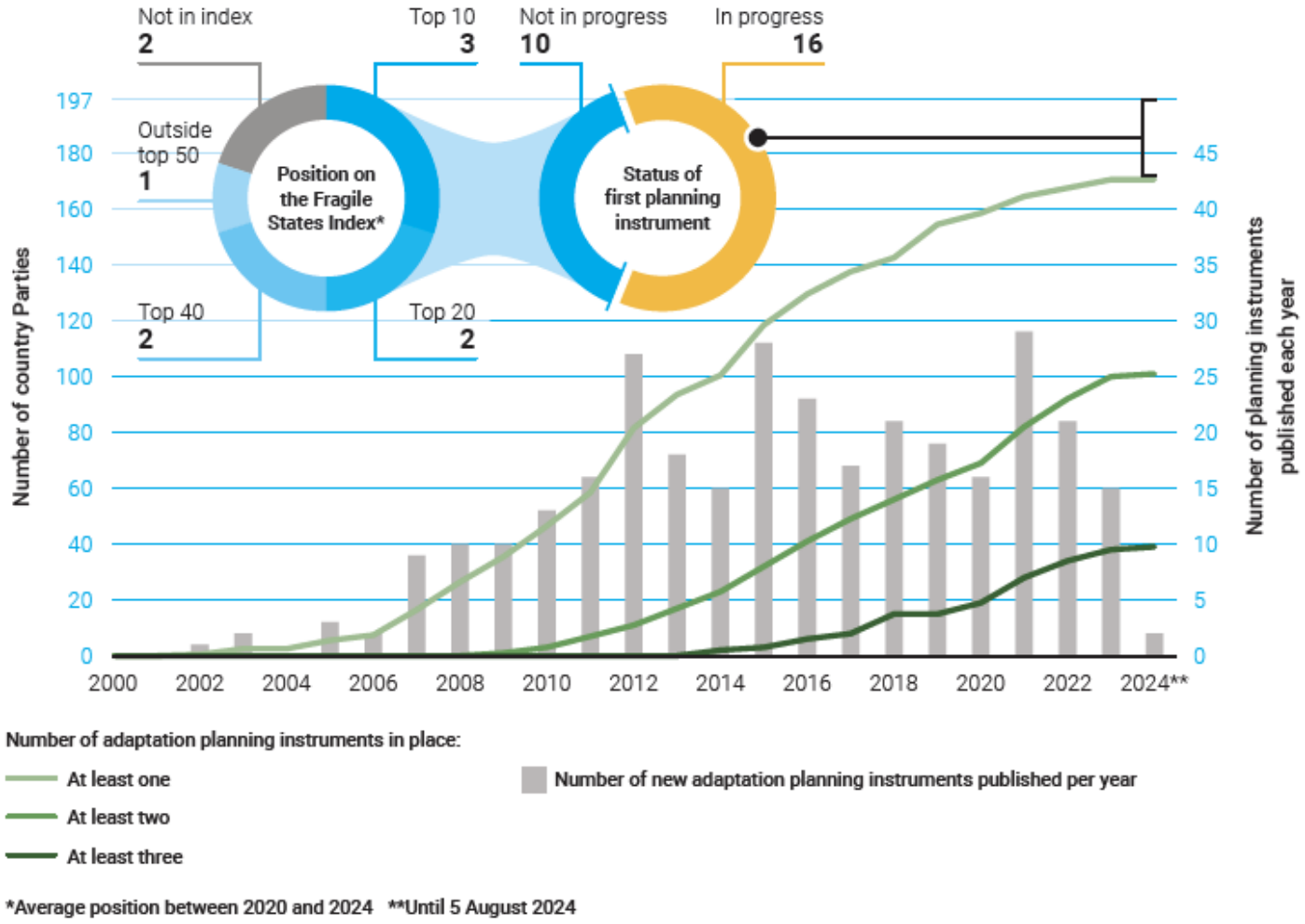
2. Collectively, there is increasing ambition in plans and commitments for adaptation action and support, but most observed adaptation efforts are fragmented, incremental, sector-specific and unequally distributed across regions.

3. When adaptation is informed and driven by local contexts, populations and priorities, both the adequacy and the effectiveness of adaptation action and support are enhanced, and this can also promote transformational adaptation.

4. Averting, minimizing and addressing loss and damage requires urgent action across climate and development policies to manage risks comprehensively and provide support to impacted communities.

5. Support for adaptation and funding arrangements for averting, minimizing and addressing loss and damage need to be rapidly scaled up from expanded and innovative sources, and financial flows need to be made consistent with climate-resilient development to meet urgent and increasing needs.

Countries are undertaking national adaptation planning



- 87% of countries have at least 1 national adaptation planning instrument.
- 50% countries have 2 or more national-level instruments.
- Reaching some countries without a national planning instrument will be hard.
- Potential effectiveness of adaptation planning is mixed.
- Alignment of NAPs and NDCs needs to be improved.

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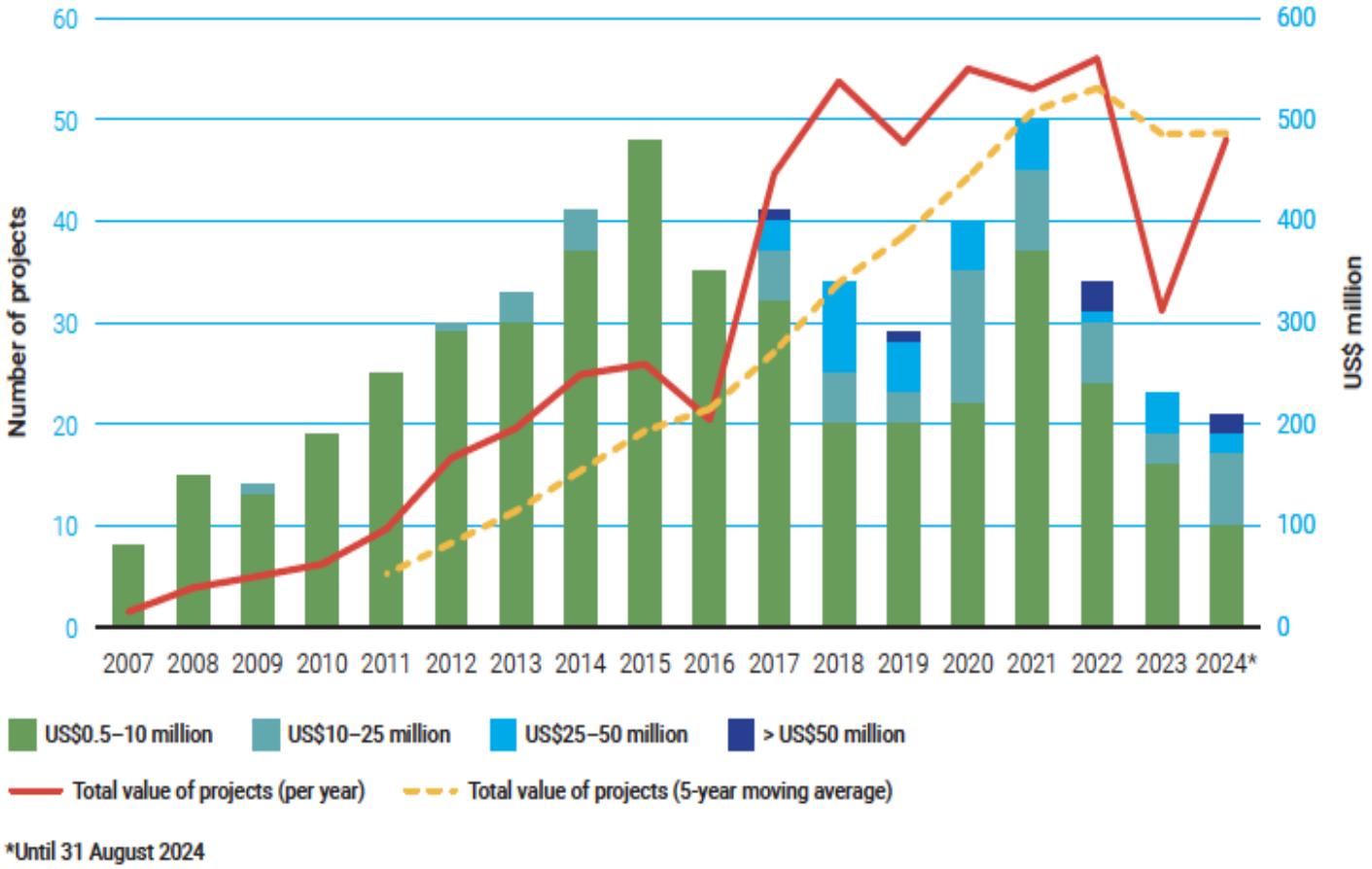
Countries must ramp up implementation to prepare for mounting climate impacts



- Adaptation actions largely on upward trend.
- Pace of implementation is slow.
- 50% of analysed projects rated not satisfactory/ likely unsustainable.
- Implementation of NAPs hampered by barriers.
- Adequacy and effectiveness of national adaptation response is insufficient.

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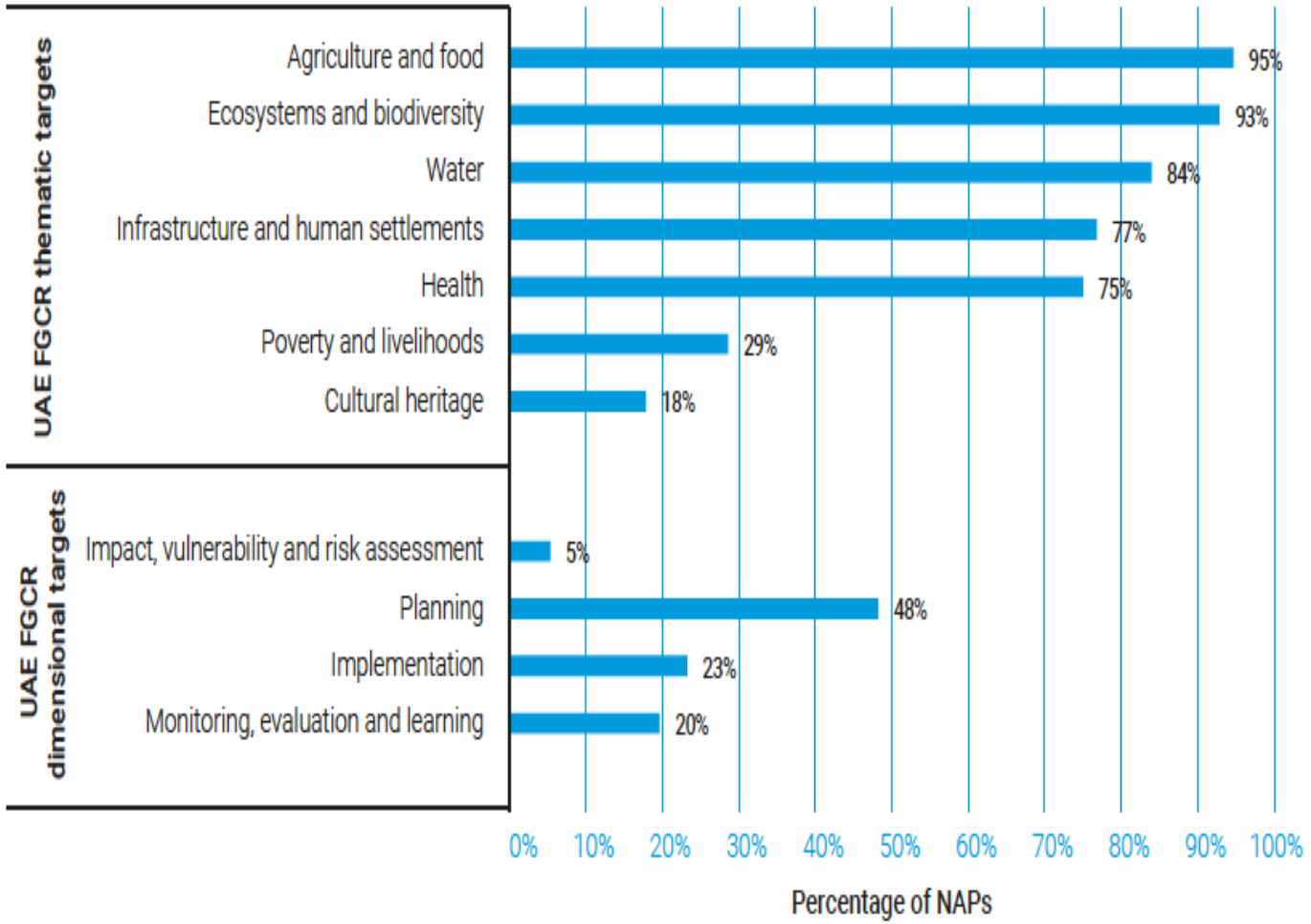
Increase adaptation efforts to reach 2030 targets of the UAE Framework for Global Climate Resilience (FGCR)



- UAE FGCR meant to track progress towards GGA.
- NAPs reference at least one thematic target and 1/3 refer to elements of dimensional targets.
- Information about future impacts, vulnerabilities and risks is uneven and needs to improve.
- Reaching global coverage of four dimensional targets by 2030 will require increased efforts.

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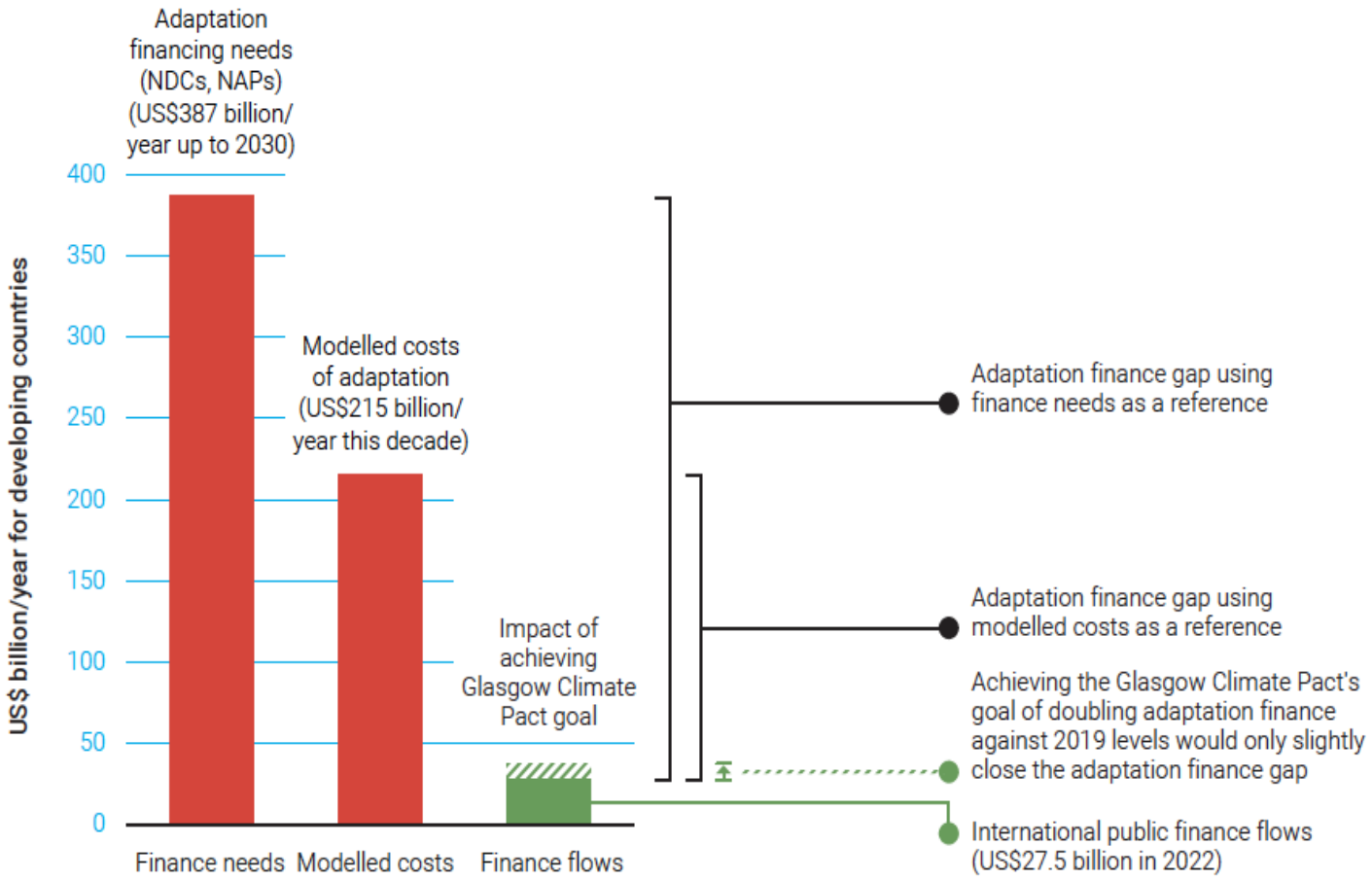
There is an enormous adaptation finance gap



- International public adaptation finance to developing countries reached **$28bn in 2022.**
- Progress towards Glasgow Climate Pact to at least **double 2019 finance flows** by 2025.
- Adaptation finance gap estimated at **$187-359 bn** per year.
- Reaching Glasgow Climate Pact goal would only reduce gap by about **5%.**
- Adaptation finance gap important in context of the New Collective Quantified Goal (NCQG) for climate finance

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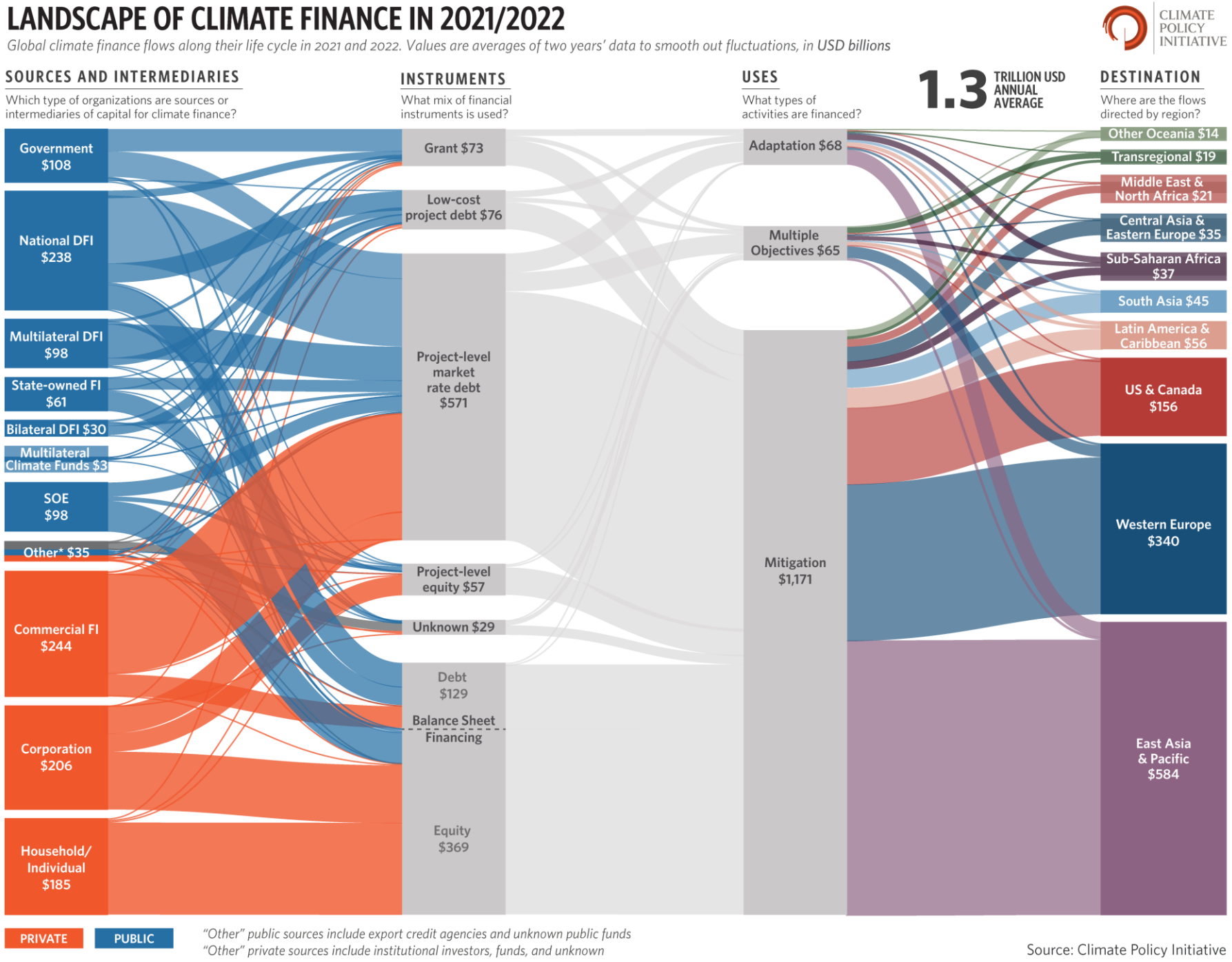

Most climate finance is:

1) Private
2) For mitigation and not adaptation
3) From and for developed countries and large emerging economies
4) Loans (or equity) and not grants

Key take-aways

- The global clean energy transition is well underway (and has been for a while); but is not fast enough
- Cumulative emissions matter – not just the net-zero year, but the peaking year and the rate of decline thereafter
  - Avoiding emissions better than removal – CO_2 removal is costly, risky and limited
- Achieving “well below 2 C” (the Paris Agreement target) is unlikely at current levels of ambition and action; likely warming is in the range of ~2.5 – 2.7 C
  - There is both an “ambition” gap (what countries pledge to do in their NDCs) and an “action” gap (what is actually achieved with regard to emissions)
- Adaptation & resilience are critical, but still lack attention and effort
  - Large opportunity cost of inaction – and benefits of anticipatory action
- There is a large finance gap for both mitigation and adaptation