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Climate Justice on an International Stage: Prelude to COP28 and Implications for Industry

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ESI – Air Practice Leader

Session Chair: Chris Whitehead – ESI, Air Practice Lead

- 16+ years of environmental compliance experience
- National CAM for multiple large industrial clients
- Qualified Environmental Professional and Certified Environmental Systems Manager
- M.S. – Environmental Management and Policy – American University
- Certificate – Sustainability Program Management – M.I.T.
- Published numerous times on environmental justice, climate impacts, and offshore wind project development
- BOD – CDRA, Editorial Board – AWMA, Member of the NOWRDC Research and Development Advisory Group

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ESI Consulting and Technical Services

Environmental Impact Statements	Phase I & II Environmental Site Assessments	Due Diligence Reviews
Litigation Support	Regulatory Negotiations	Ecological Services and Permitting
Soil & Groundwater investigations	Contaminant Delineation	Groundwater Monitoring & Modeling
	Air Quality Permits, Monitoring & Modeling	

- Certified Small Business Enterprise (SBE) in New Jersey
- Offshore wind planning and permitting
- Compliance Plans (SPCC, RCRA, other)
- Stormwater/Wastewater Permitting
- Treatment, Storage and Disposal Facility (TSDF) Audits
- Facility Audits
- Indoor Air Quality Evaluations
- Workplace/Process Hazards Assessment
- TSCA Compliance
- Environmental Risk Assessment
- Environmental Oversight

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What is it

Climate Justice

Climate justice is the recognition that climate change will not affect everyone equally. People who are young, poor, marginalized and living in developing countries are among those least responsible for the world's greenhouse gas emissions, yet they will tend to feel the worst effects of global warming and climate change.

https://www.raconteur.net/climate-crisis/cop26-glossary-climate-change

CODE Climate Risk Framework

	High Likelihood of Hazard	Low Likelihood of Hazard
Low Capacity	*High Risk* Communities that have poor infrastructural and financial capacity and face high likelihood of exposure to climate-related hazards.	*Medium Risk* Communities that have low likelihood of exposure to climate-related hazards but also low infrastructural and financial capacity.
High Capacity	*Medium Risk* Communities that have strong financial and infrastructural capacity and relatively high threat of exposure to climate-related hazards.	*Low Risk* Communities that have strong financial and infrastructural capacity and face low likelihood of exposure to climate-related hazards.

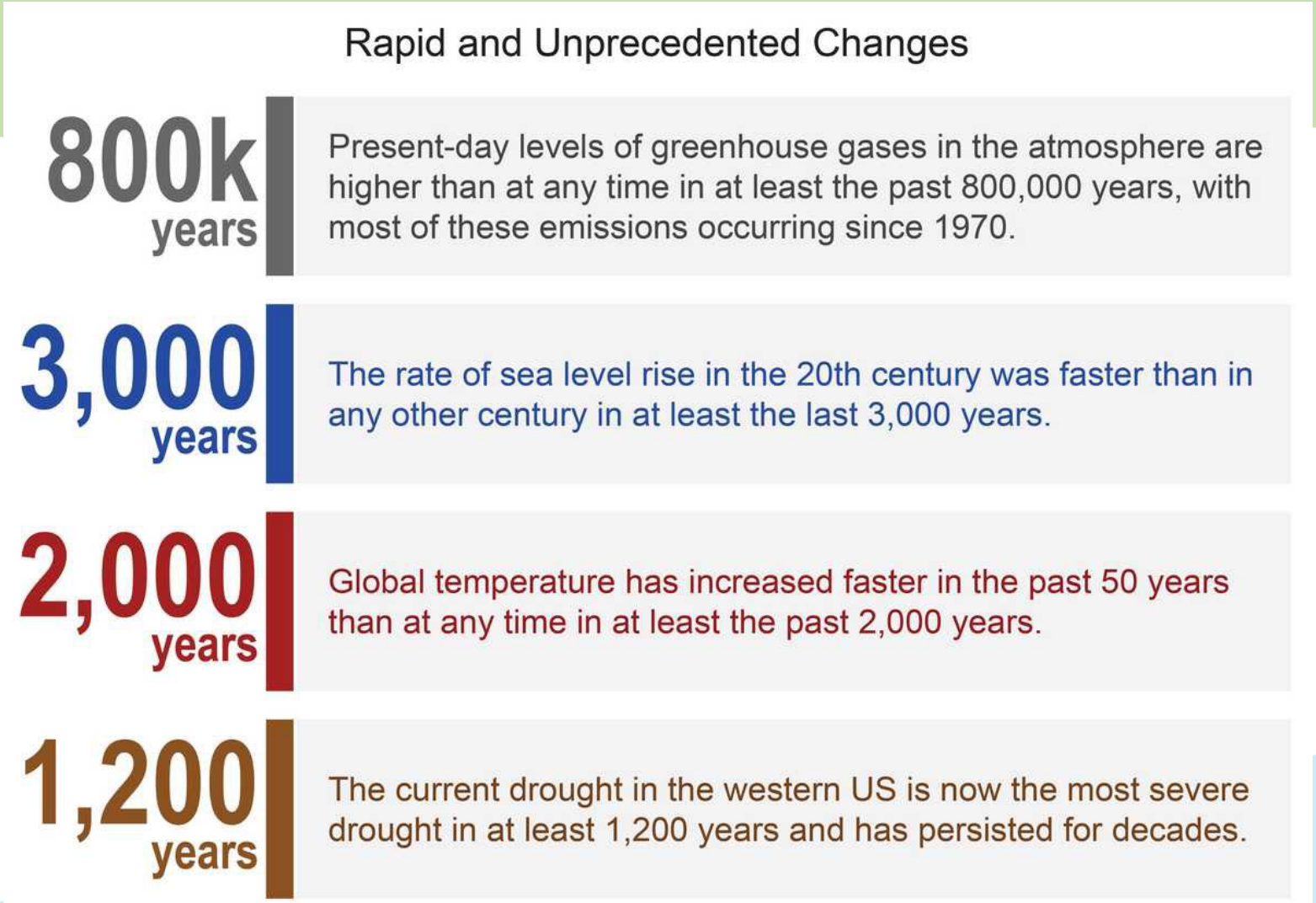
Source: Center for Open Data Enterprise (CODE) Briefing Paper, June 2021, Data for Climate Risk Assessment in Vulnerable Communities

Current Distribution of Socially Vulnerable Populations in the Coastal Counties of the Contiguous U.S.

Region	Low Income (% population)	Minority (% population)	No High School (% population)	65 and Older (% population)
Contiguous U.S. Coast	32	39	13	15
Northwest (Detroit)	26	29	8	15
Northeast (Philadelphia)	26	44	12	15
Southeast-Atlantic	36	51	12	18
Southwest (Los Angeles)	30	63	17	14
Southern Great Plains	37	67	20	11
Southeast-Gulf	35	33	12	20

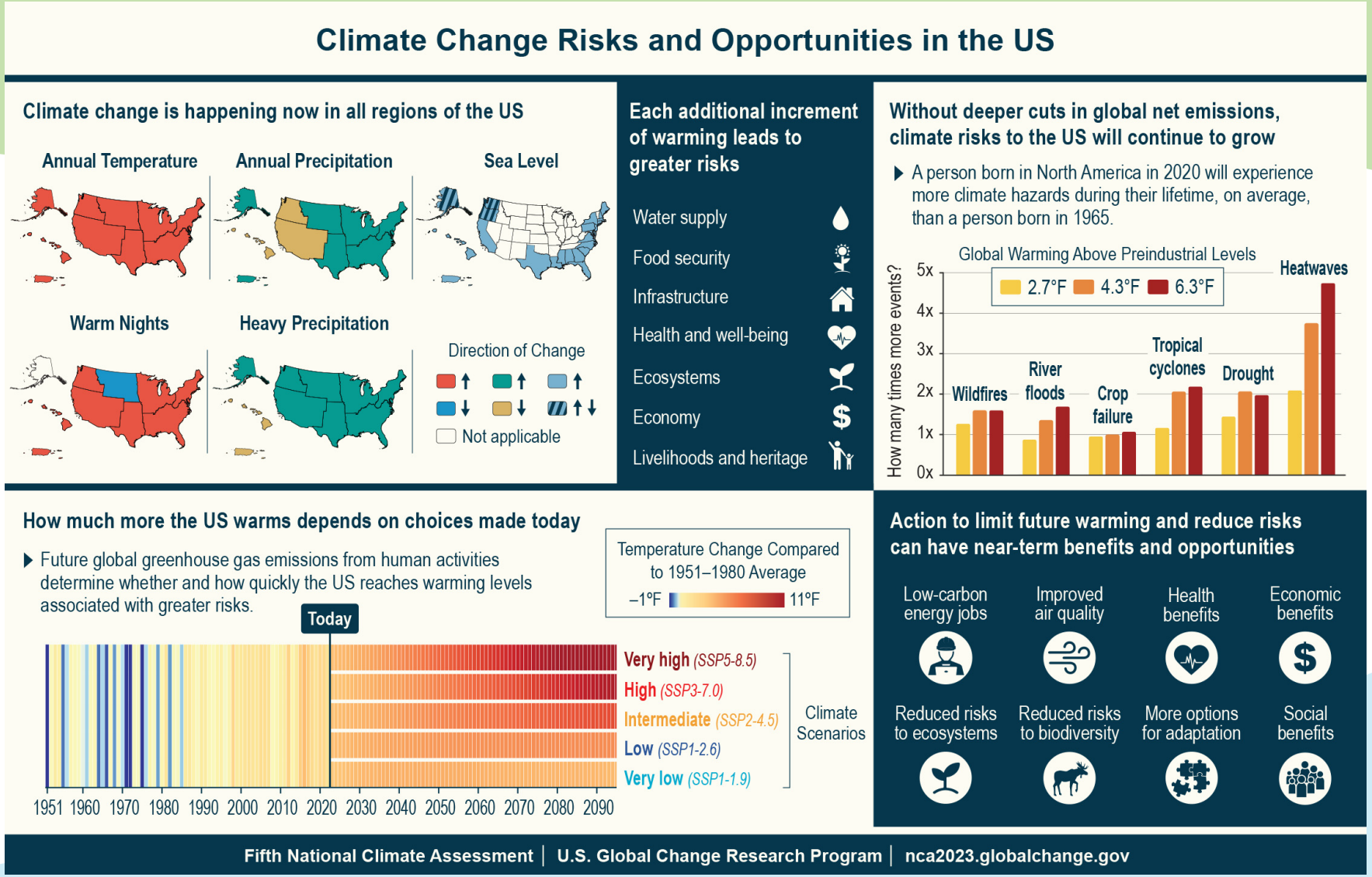
Source: Center for Open Data Enterprise (CODE) Briefing Paper, June 2021,
Data for Climate Risk Assessment in Vulnerable Communities

Alarm Bells Should Be Blaring



Source: Fifth National Climate Assessment (NCA5), https://nca2023.globalchange.gov/

Climate impacts vary by geography



Source: Fifth National Climate Assessment (NCA5), https://nca2023.globalchange.gov/

COP - Key Terms

- Loss and Damages
- Adaptation vs Mitigation
- Afforestation and reforestation
- Carbon border adjustment mechanism
- Carbon capture (CCS, CCUS)
- Carbon footprint
- Carbon intensity
- Certified Emission Reductions (CERs)
- CO2e
- Climate Reparations
- Global Stocktake
- Greenwashing
- Energy Transition
- Tipping Points

https://www.raconteur.net/climate-crisis/cop26-glossary-climate-change

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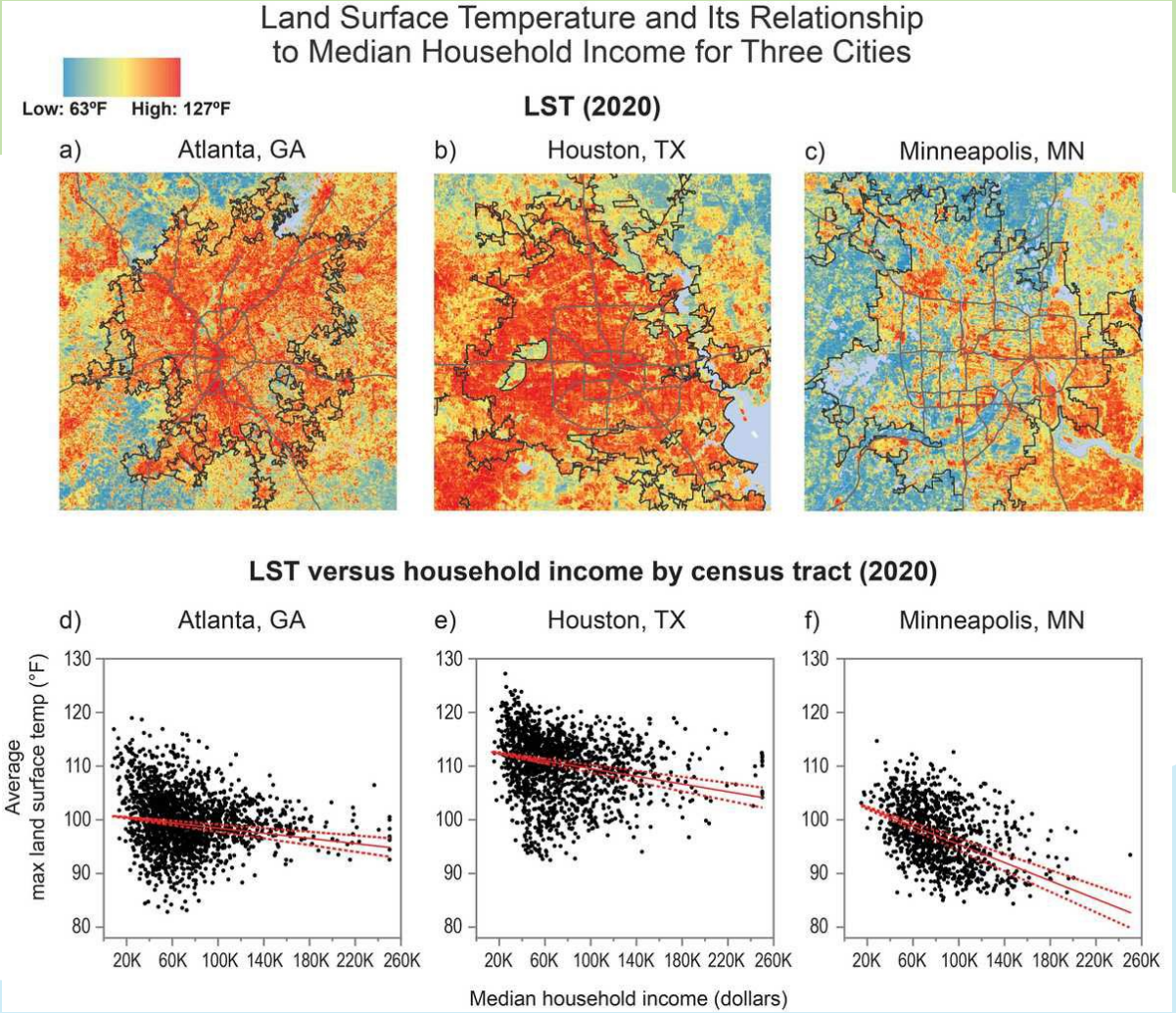
Urban Heat Island (UHI) Effect

On average it is hotter in cities than in suburbs or undeveloped areas.

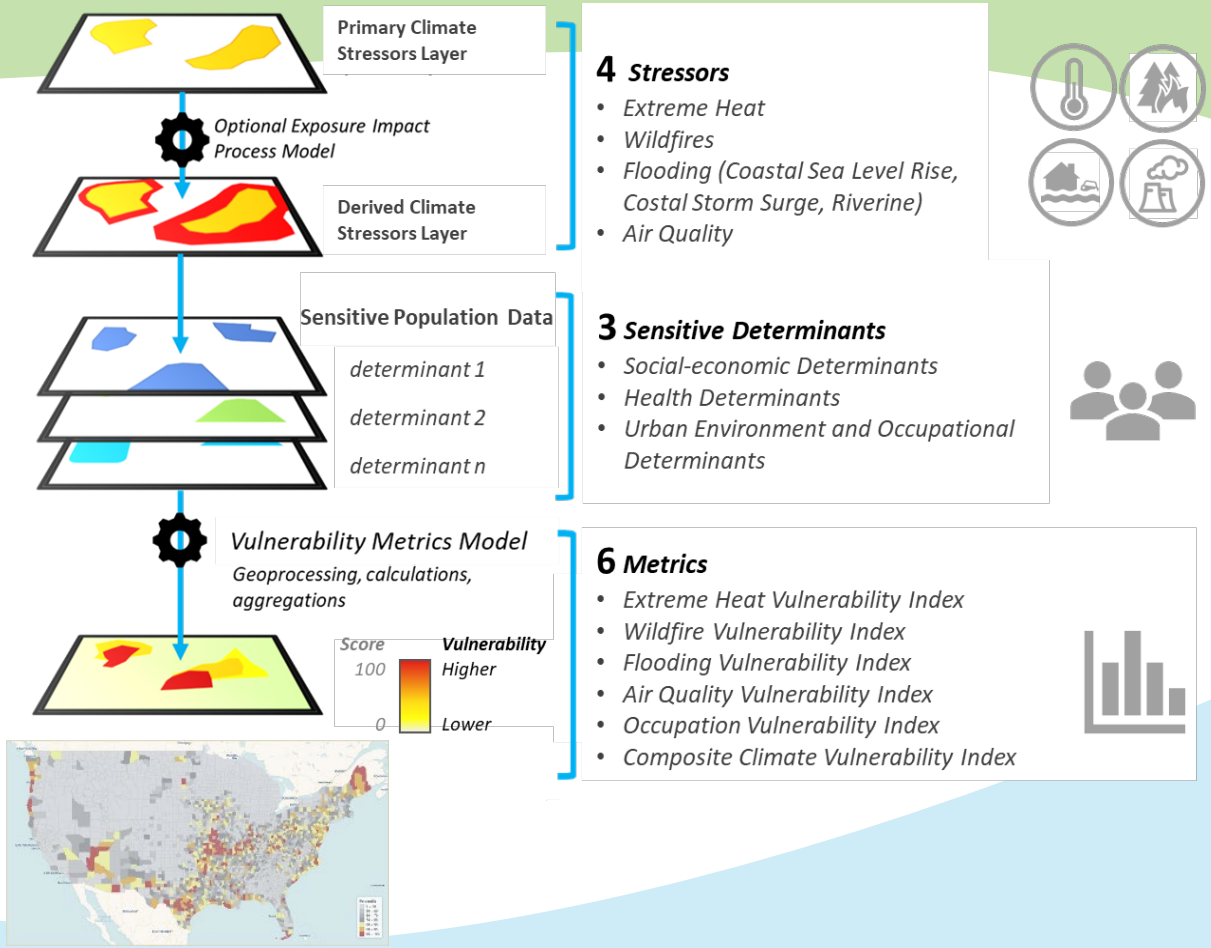
Paved/Built areas retain heat longer than green spaces and lead to higher overall temperatures but also much higher nighttime temps.



Source: Fifth National Climate Assessment (NCA5), https://nca2023.globalchange.gov/

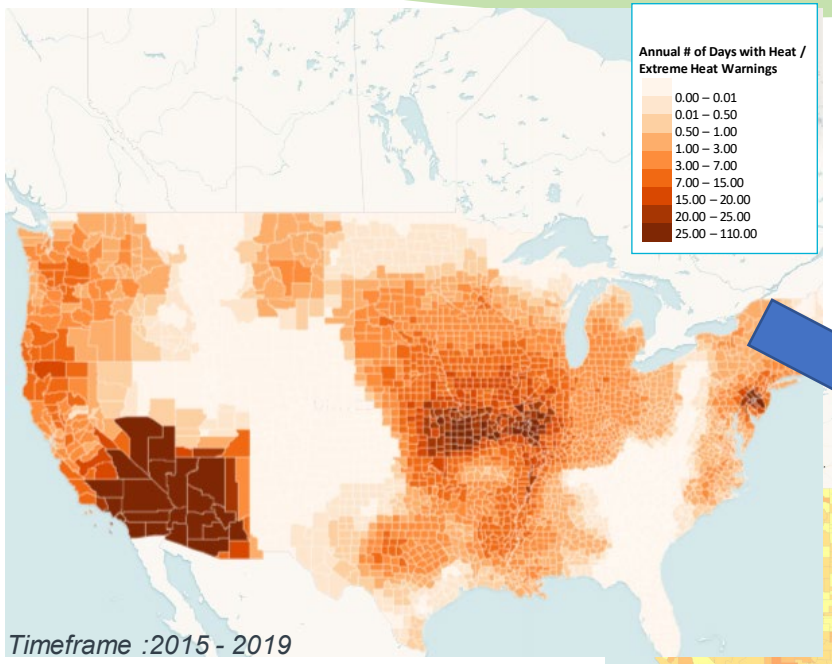
Work in Progress: Mapping Social Vulnerabilities to Climate

- Developing new vulnerability indices
  - Extreme Heat, Wildfire, Flooding, Air Quality, Occupation, Composite
- Method combines exposure (climate stressor data) and sensitivity (social and other determinants).
- Which counties have higher risk to Extreme Heat according to their demographic characteristic?
- Where is the largest population at risk to Extreme Heat?



Work In Progress: Extreme Heat Vulnerability

Stressor – Heat Advisories



Timeframe :2015 - 2019

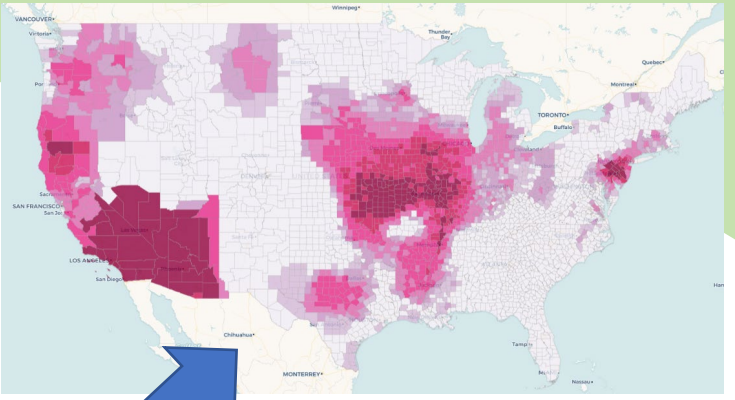
Note: Of 2,694 counties have one or more heat warnings b/w 2006 and 2020, 2,334 counties (86.6%) have one or more heat warnings b/w 2015-2019

Which counties have higher risk to Extreme Heat according to their demographic characteristic?

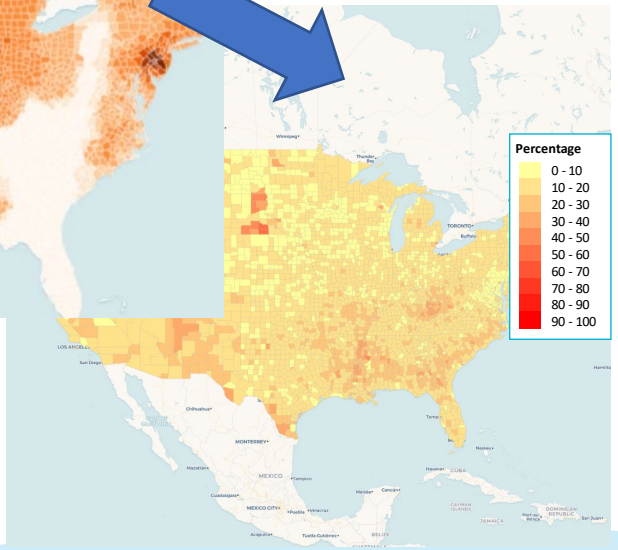
Where is the largest population at risk to Extreme Heat?

Exposure – Sensitivity, Social Determinants

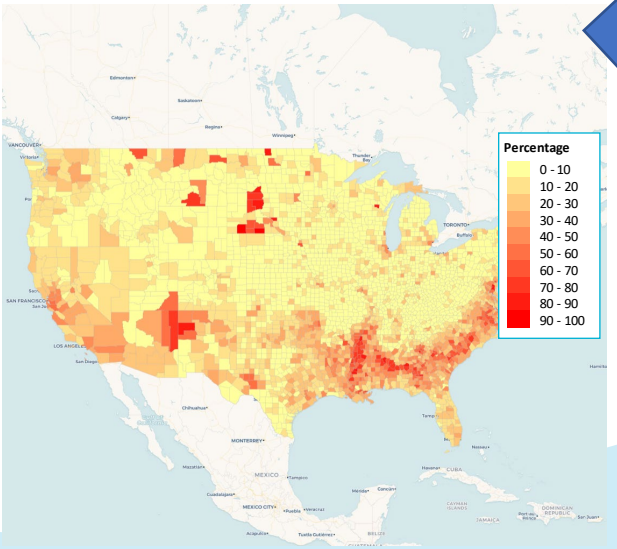
Extreme Heat Vulnerability Index - (EHVI)



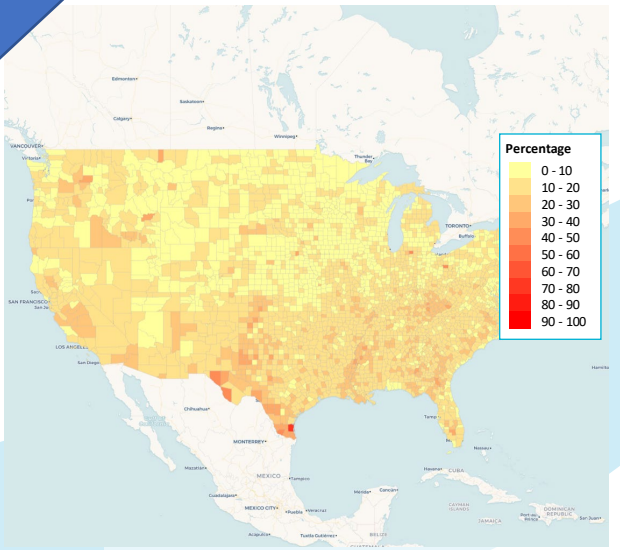
Timeframe: 2015-2019



% population in poverty



% non-white population



% population with high school education or less

Source Data – American Community Survey (ACS) 5-Year Estimates 2005-2019

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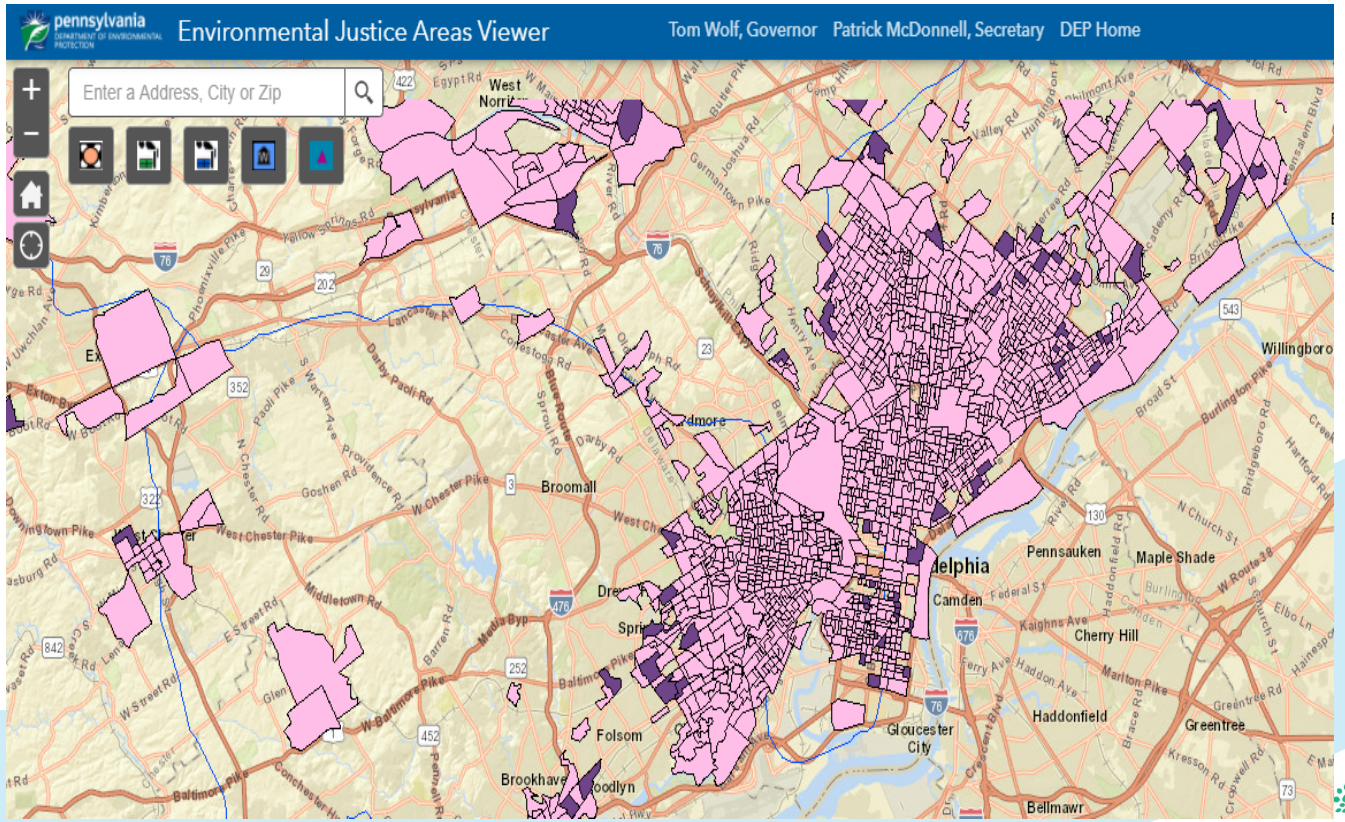
Average Annual Temperatures Associated with Global Warming of 2°C and 4°C

Projected Delta related to 2°C and 4°C, (EPA, 2021)

City	Delta at 2° C increase	Delta at 4° C increase
Philadelphia, PA	Between 3-4°C	Between 3-4°C
Detroit, MI	Between 3-4°C	Between 6-7°C
Los Angeles, CA	Between 1-2°C	Between 4-5°C

Relative to the 1986 and 2005 baseline period

Philadelphia, PA – EJ Areas



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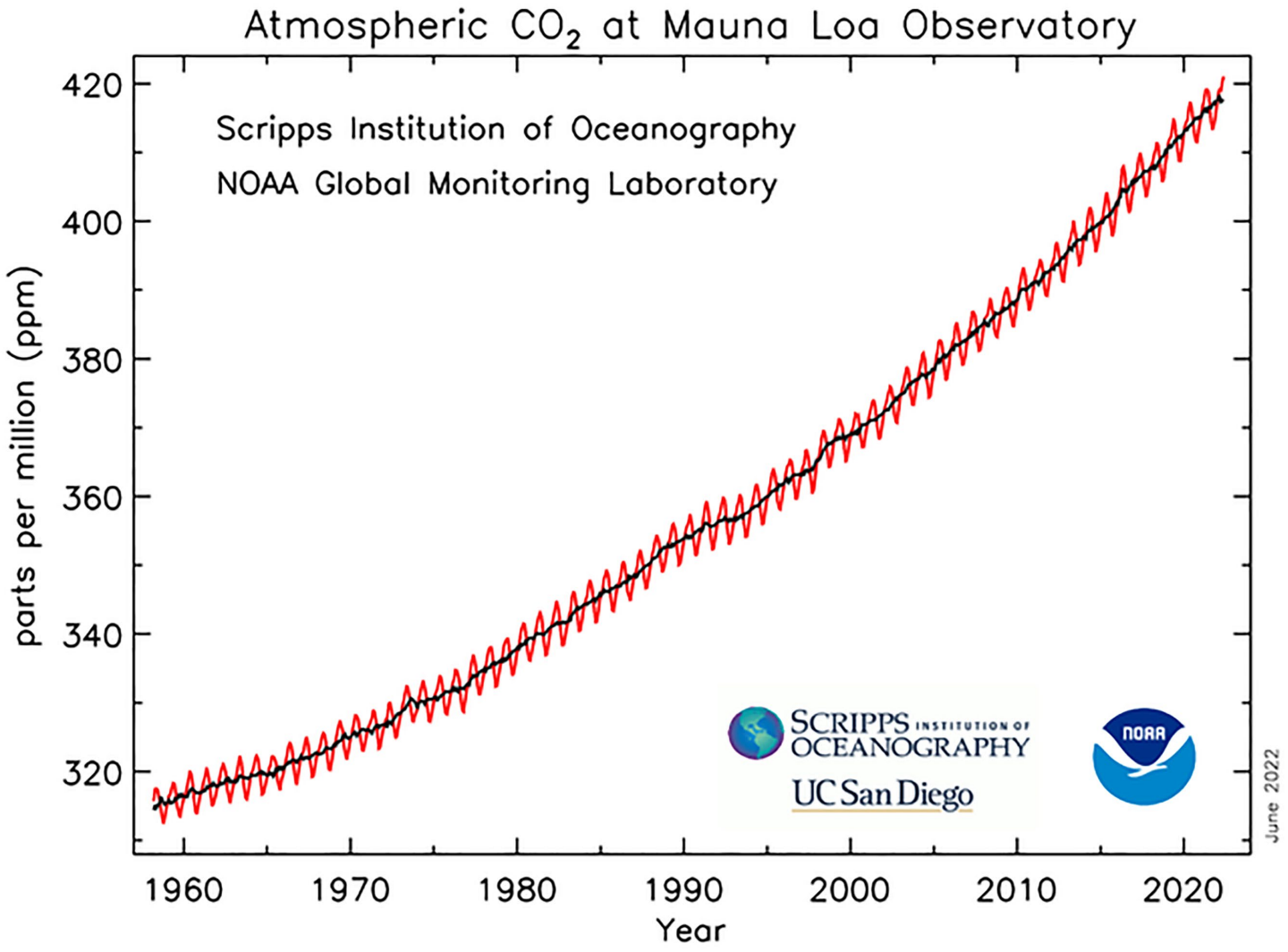
Atmospheric CO2 (ppm)



Born: 1983
PPM: 342
Global Ambient Temp (°C) Delta from 1901-2000 AVG: 0.2
Philadelphia: 0.29

PPM (Today): ~420
Global Ambient Temp (°C) Delta from 1901-2000 AVG: 0.9
Philadelphia: 1.75

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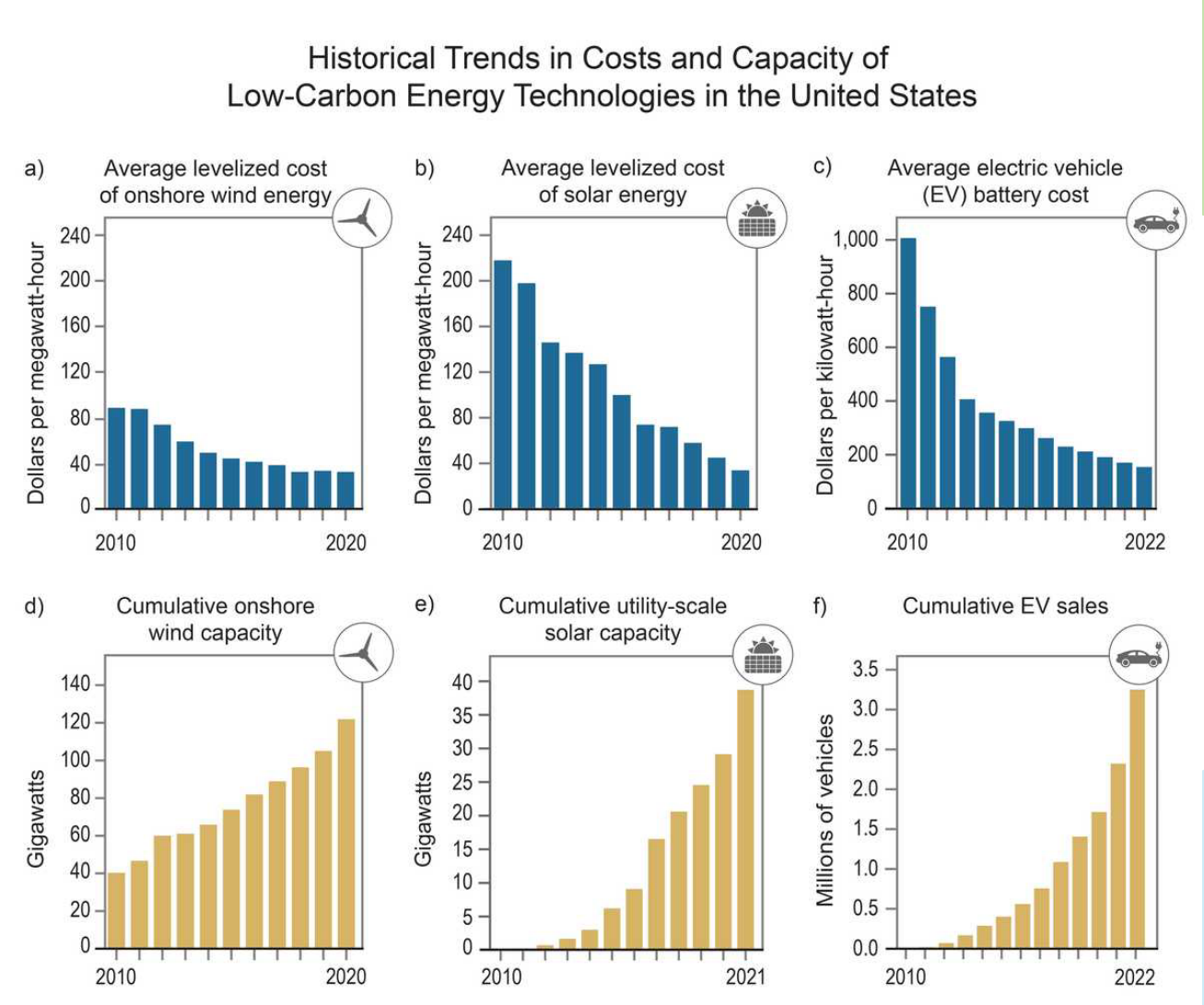
Renewable costs down and capacity up

As technologies and supply chains develop, costs come down.

As decarbonization progresses, ambient pollutant loads will also decrease if the electric grid can be updated, expanded and powered by renewable sources.

Carbon capture methods are planned around the country to abate existing large fossil sources.

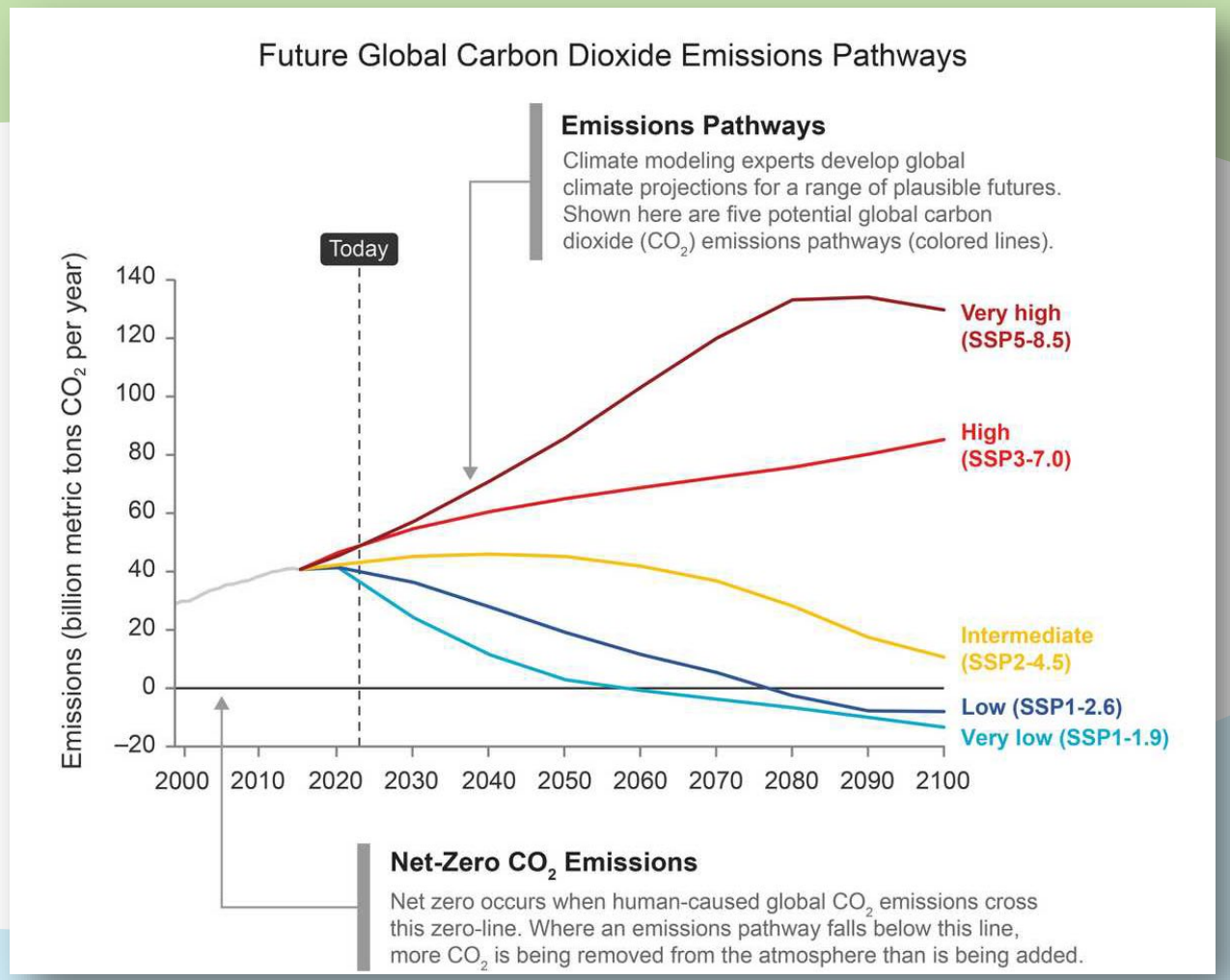


Source: Fifth National Climate Assessment (NCA5), https://nca2023.globalchange.gov/

What's Feasible by When?

1.5°C simply is not going to happen by 2030. We are on pace for more like 3°C.

Any warming that can be prevented sustainably will reduce environmental and public health impacts. Impacts start to pick up speed as warming progresses.



Source: Fifth National Climate Assessment (NCA5), https://nca2023.globalchange.gov/

How Companies Can Minimize Impact and Risk

- Regulatory advising on land use policies in affected areas
  - Example – NJ PACT Rules
- Supply Chain Impacts Analysis
- SEC Reporting – Scopes 1, 2, and 3
- Resiliency steps
- Efficiency upgrades
- Maximizing available funding from state, federal, private sources
- Improve your engagement and incorporate plans

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Contact Info

If you have any questions or comments about this presentation or about the Environmental Justice/Community Engagement movement in general, please contact Chris at:
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cwhitehead@esienv.com

Visit our Resource Page
for more information and a downloadable library of relevant Environmental Justice and Community Engagement resources.

For an overview of our other environmental consulting and remediation services, visit us at
www.esienv.com

ESI provides comprehensive professional consultation and field services to identify, prevent, and resolve environmental issues related to water, soil, air quality, and facilities.

With innovative technical skills and a clear understanding of our clients' goals, we effectively reduce or eliminate environmental impacts.

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