

ERIC COREY FREED

 @ericcoreyfreed

DIRECTOR OF SUSTAINABILITY
CANNONDESIGN





CANNONDESIGN

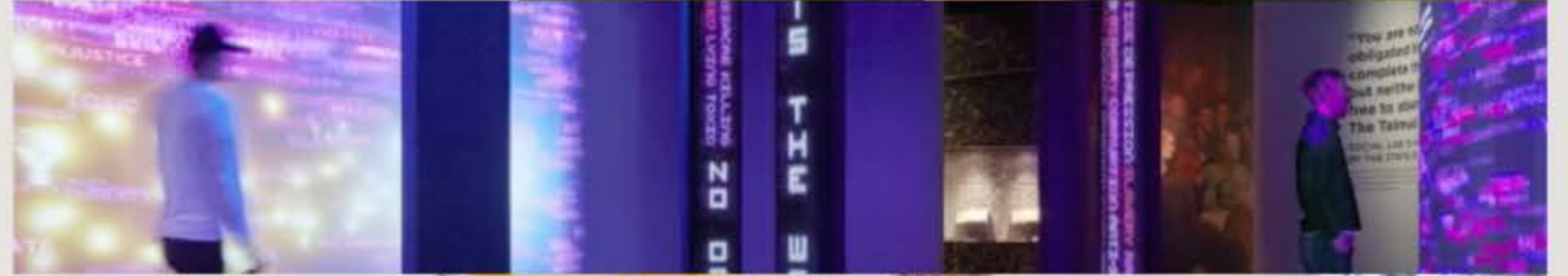
→ Planet 2100



→ Healthier Humans



→ Equity Now



→ The Big Rethink



→ Future Economies



→ Chasing Discovery





Planet 2100



[VIEW
SOURCE](#)

JUL 1, 2023

World hits record land, sea temperatures
as climate change fuels 2023 extremes



WE FAILED.





HEINZ
ESTD 1869 ESTD
HANCH
HOT SAUCE PIQUANTE + RANCH

HEINZ
ESTD 1869 ESTD
WASABIOLI
WASABI + GARLIC AIGRE À L'AIL
Flavour
Aigreur

HEINZ
ESTD 1869 ESTD
TARCHUP
TARTAR SAUCE TARTARE + KETCHUP

**The
Economist**

Wargaming European energy

What will Lula do?

Big tech falls to earth

China's Taiwan-ready generals

NOVEMBER 5TH-11TH 2022

SAY GOODBYE TO 1.5°C

Why climate policy is off target

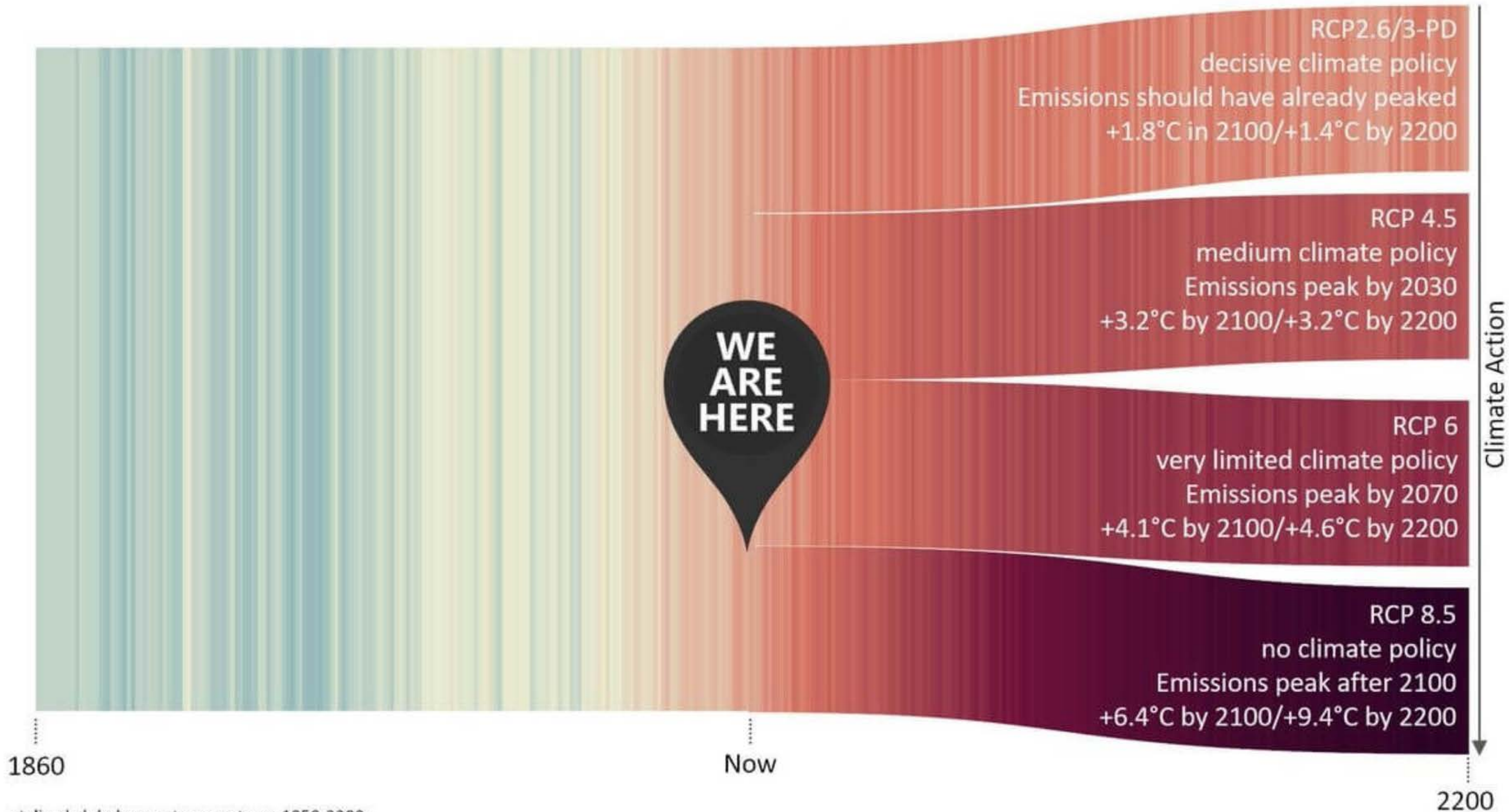




MAY 17, 2023

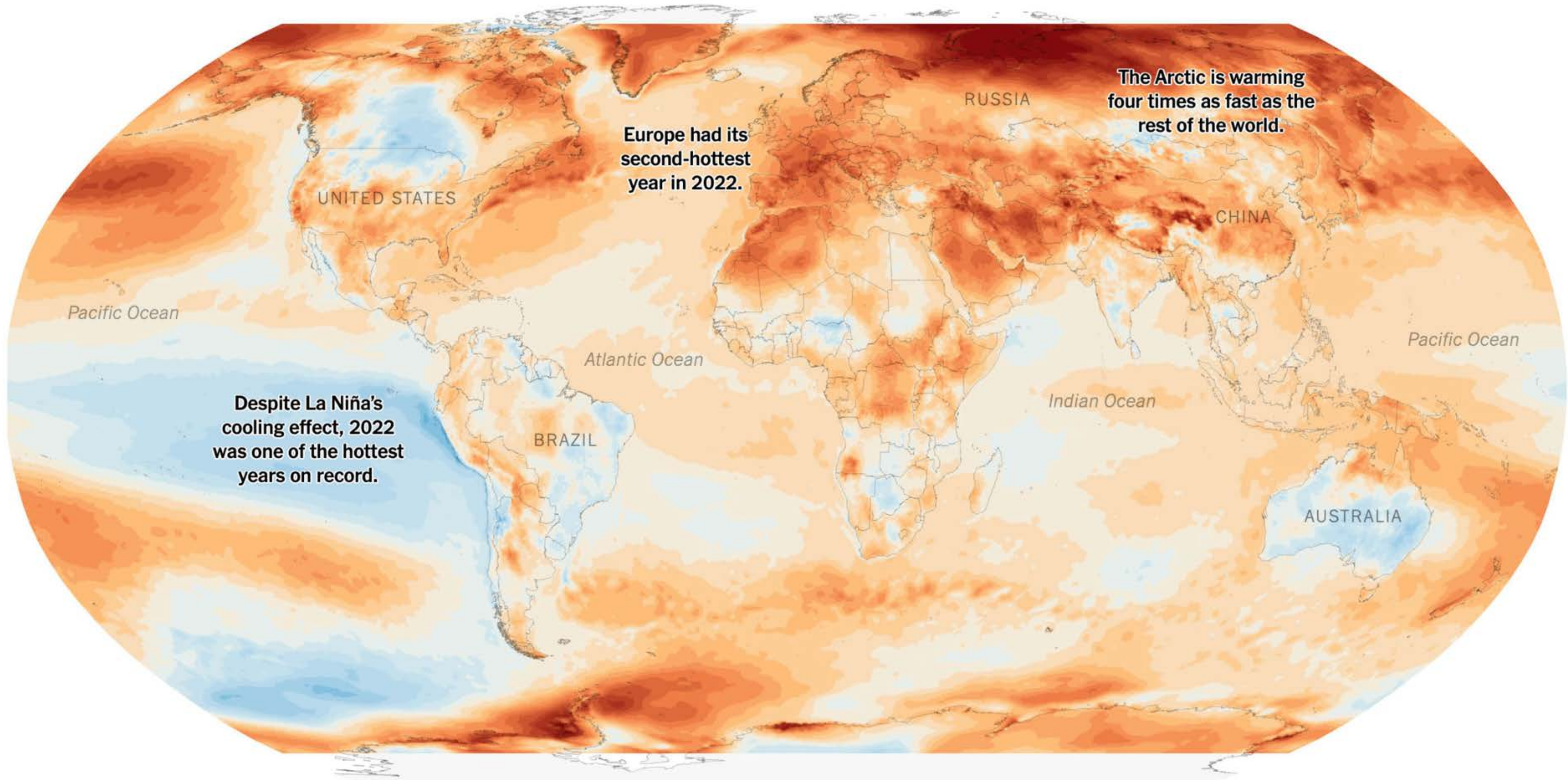
World likely to breach 1.5C climate threshold by 2027, scientists warn

the
guardian



stylised global mean temperatures 1850-2200;
design by @alxrdk based on warming stripes from @ed_hawkins

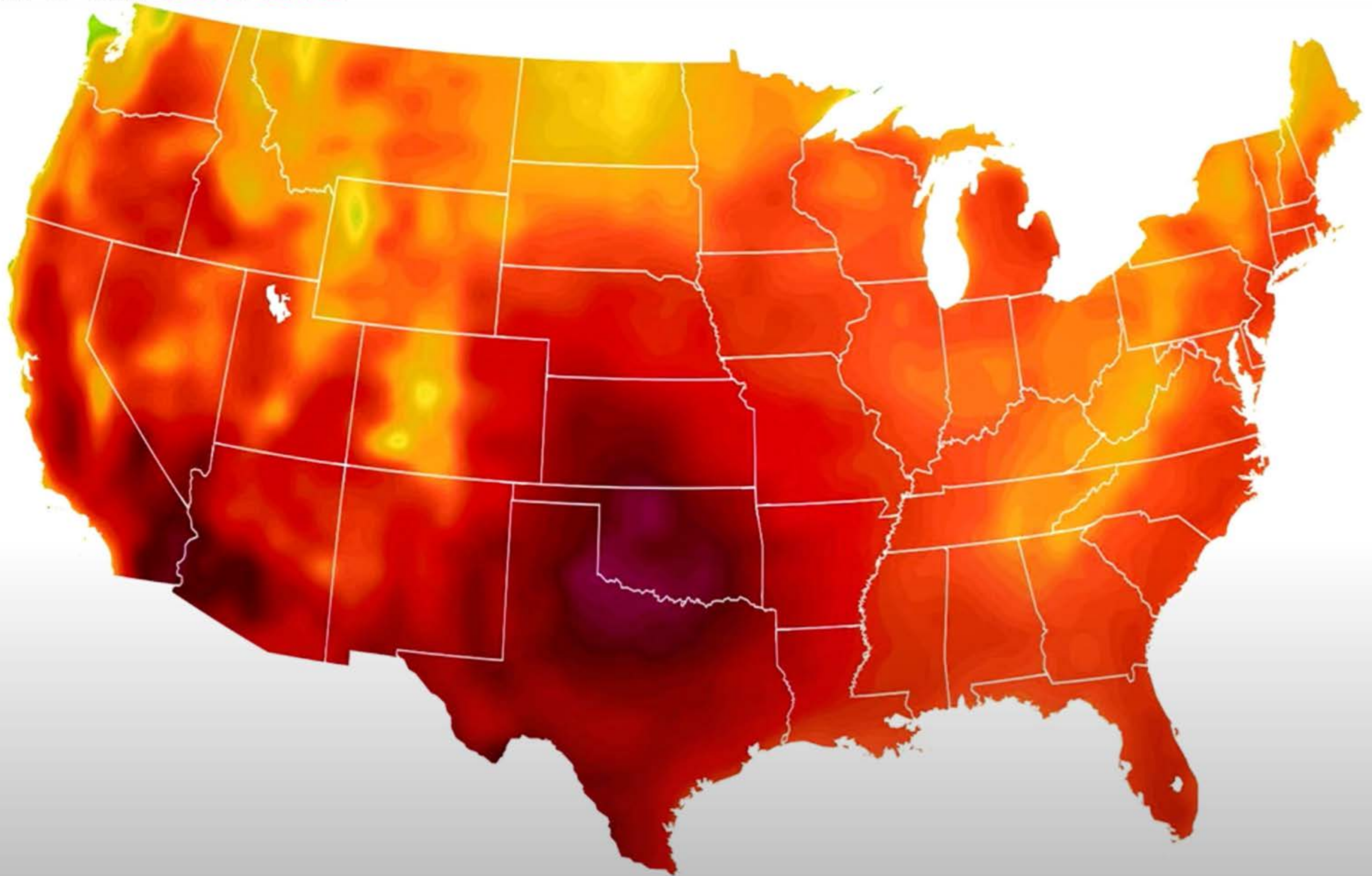
Last 8 years were **hottest on record.**



Extreme weather impacts increasing.



We are all at risk.





MAY 17, 2023

Heat Will Likely Soar to Record Levels in Next 5 Years, New Analysis Says

The New York Times

kids born today...



heat waves

7x



wildfires

2x



droughts

3x

STAR TREK



THIS

**MAD
MAX**



NOT THIS





GS2-1

Climate Change
S350-1^U

BS8-1

Permafrost
S490-1^U

BS2-1

Melting Moment
S430-1^U

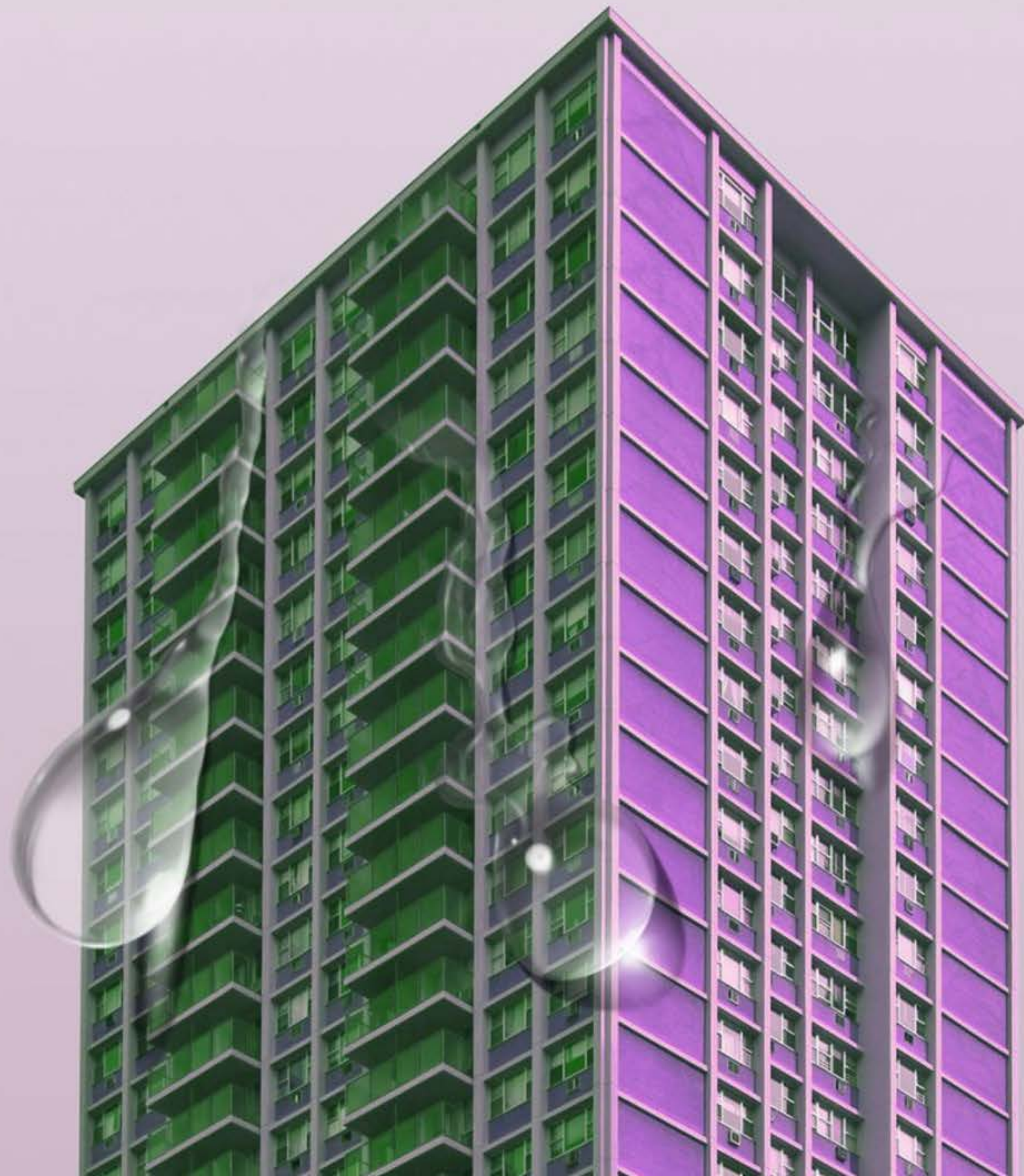


Color of
the Year
2023

PANTONE®

™

End of Days Orange





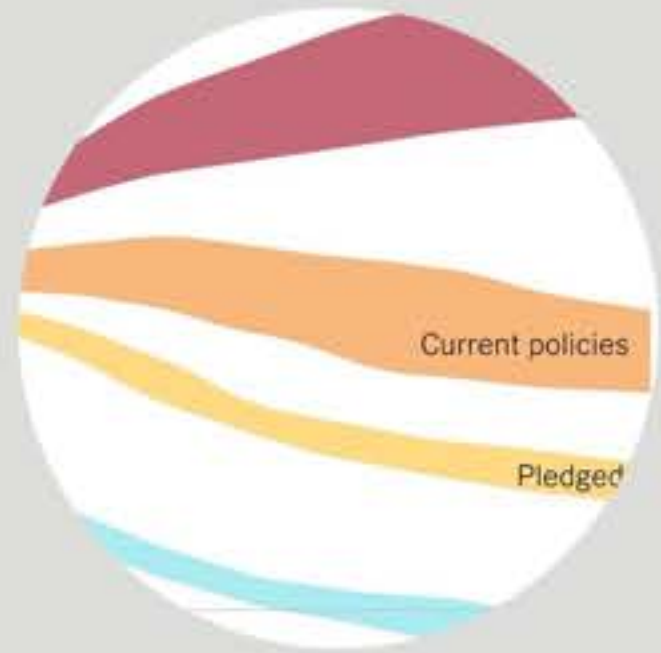






Everyone has a plan to reduce **carbon.**

Sustainability has a new **urgency.**



**CARBON
COMMITMENTS**



**CARBON
REGULATIONS**



**CLIMATE
RISKS**



**MATERIAL
SHORTAGES**



**RESILIENCY
NEEDS**

A man in a black jacket and dark pants stands on a stone ledge, looking down at a handrail mounted on a stone wall. The handrail is a simple, curved metal bar. The wall is made of large, rectangular stone tiles. The scene is outdoors, with a concrete step visible in the foreground.

The world needs
REDESIGNING.

stress levels decrease

emotional

higher productivity

career

stronger concentration

social

better test scores

academic

improve cognitive function

physical

boost to happiness

spiritual

increased profitability

financial



zero carbon



zero waste



zero water



zero energy



zero toxins

The Grand Challenges.

13 challenges

ENERGY

ENERGY

PROCESS

PROCESS

NEXT GEN

NEXT GEN



The Grand Challenges.

13 challenges

ENERGY

**Produce
More than
Consumed?**

**Zero Carbon
Structure?**

**Zero without
Offsets?**

**Store
More than
Needed?**

PROCESS

PROCESS

NEXT GEN

NEXT GEN

The Grand Challenges.

13 challenges

ENERGY

Produce More than Consumed?

Zero Carbon Structure?

Zero without Offsets?

Store More than Needed?

PROCESS

Full Electrification without fossil fuels?

Sterilization without fossil fuels?

Refrigerants without GWP?

Construction without Waste?

Finishes without Carcinogens?

NEXT GEN

NEXT GEN

The Grand Challenges.

13 challenges

ENERGY

Produce More than Consumed?

Zero Carbon Structure?

Zero without Offsets?

Store More than Needed?

PROCESS

Full Electrification without fossil fuels?

Sterilization without fossil fuels?

Refrigerants without GWP?

Construction without Waste?

Finishes without Carcinogens?

NEXT GEN

Phase Change Materials?

High Performance Skin?

Living Surfaces?

Water Reuse?



Infrastructure as **asset**.



Nature as amenity.



Diversity as **opportunity.**

PLAY

Travel as amenity.

PARKING



PARKING
SPECIAL
ALL DAY
SAT. & SUN.
\$6. FLAT
RATE



Energy as **income.**



Project as **incubator.**



Resiliency as **strength.**



Materials as **legacy.**



Building as **seed.**



Modular as community.



Focus first on the
outcomes and benefits

(the WHY, not the WHAT)

Change Your Mindset:
Abundance, not Scarcity

(vibrancy)

**Does Your Solution:
Create More Problems?**
(than it solves)

Think In Terms of:
Systems

(not as parts)

Ask Yourself, what is the:
Good Enough Solution?

(80%, not 100%)

Explore:
Time Shifting

(extend the useful life)

Are You Being?:
Unrealistic with
Expectations

(Liability of Reliability)

**Seek to Design Out:
Inherent Waste**

(ongoing costs)

Change Your Perspective: **Scale Jumping**

(district > one off)

Change Your Tastes:
Natural Over Synthetic

(biology > chemistry)

Change Your Usage:
Restore + Repair

(not new + replace)

Every Building is a:
Material Depot

(with material value)

ALL THESE
BENEFITS

FREE
Materials

FREE
Energy

FREE
Money

FREE
Processes

FREE
Influence

ALL THESE
BENEFITS



FREE

Materials

Wood, Concrete, Steel
Reuse / Resale
Deconstruction
Supports Local Economy
No Dumping Fees

FREE

Energy

FREE

Money

FREE

Processes

FREE

Influence

ALL THESE
BENEFITS



FREE

Materials

Wood, Concrete, Steel
Reuse / Resale
Deconstruction
Supports Local Economy
No Dumping Fees



FREE

Energy

BioGas
Solar PV
Wind
Carbon Offsets
Heated Air/Water

FREE

Money

FREE

Processes

FREE

Influence

ALL THESE
BENEFITS



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Wood, Concrete, Steel
Reuse / Resale
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FREE

Energy

BioGas
Solar PV
Wind
Carbon Offsets
Heated Air/Water



FREE

Money

179D Tax Rebate
Utility Rebates
Power Purchase Agreements
Leasing / Lease to Own
Inflation Reduction Act Funds

FREE

Processes

FREE

Influence

ALL THESE
BENEFITS



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179D Tax Rebate
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FREE

Processes

Acoustics
Ventilation
Infection Control
Dust Control
Maintenance

FREE

Influence

ALL THESE
BENEFITS



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Materials

Wood, Concrete, Steel
Reuse / Resale
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Supports Local Economy
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BioGas
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179D Tax Rebate
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FREE

Processes

Acoustics
Ventilation
Infection Control
Dust Control
Maintenance



FREE

Influence

Living Laboratory
Integrated Curriculum
Alignment with ESG Goals
Staff Retention / Loyalty
Data + Measurement



Campus as a
Living Laboratory



Placemaking
+ Landscaping



Regeneration
+ Living Infrastructure



Mobility
+ Transportation



Diversity, Equity
+ Inclusion



Resilience
+ Adaptability



Energy
+ Emissions



Waste
+ Circular Economy



Health
+ Wellbeing



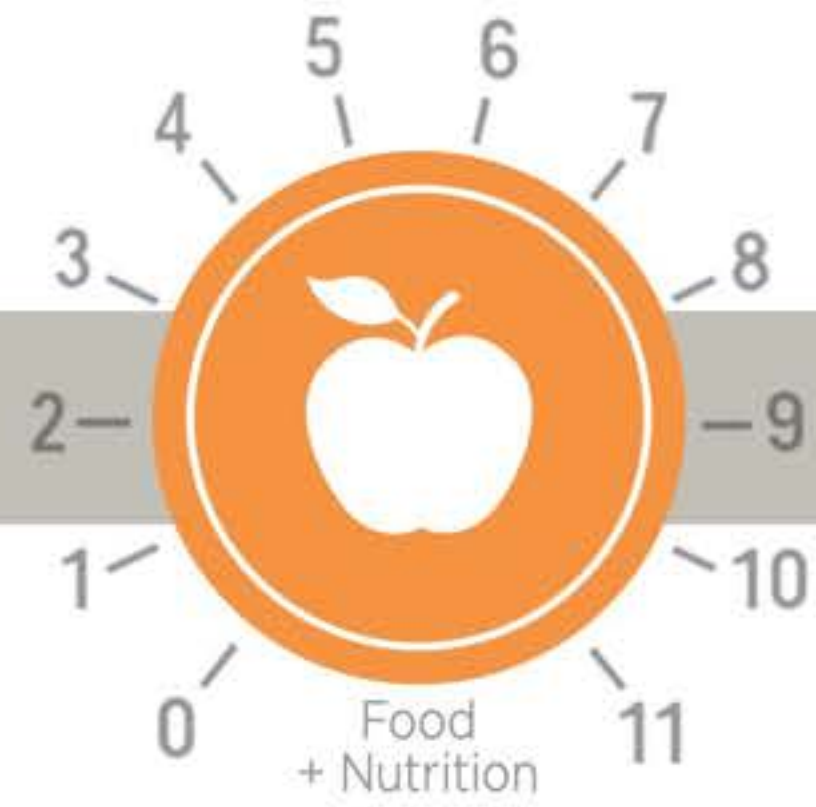
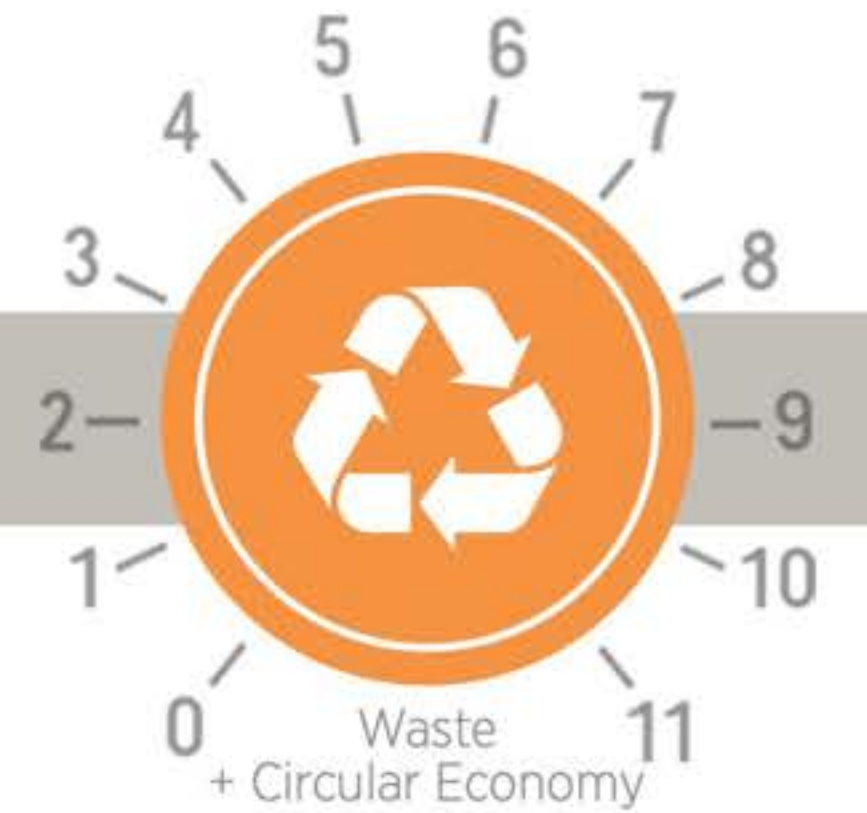
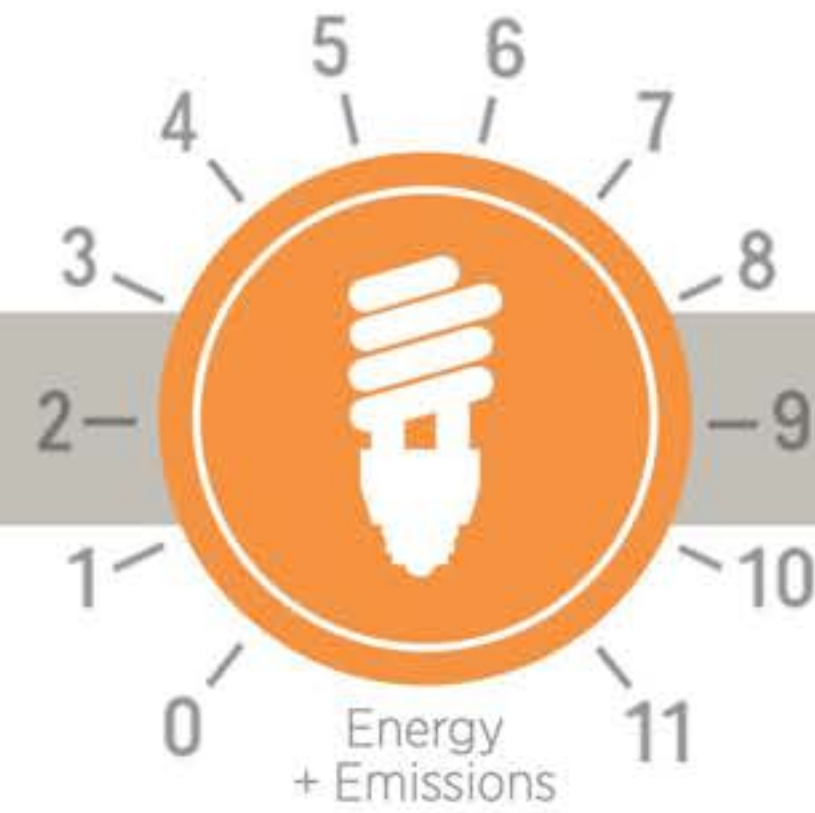
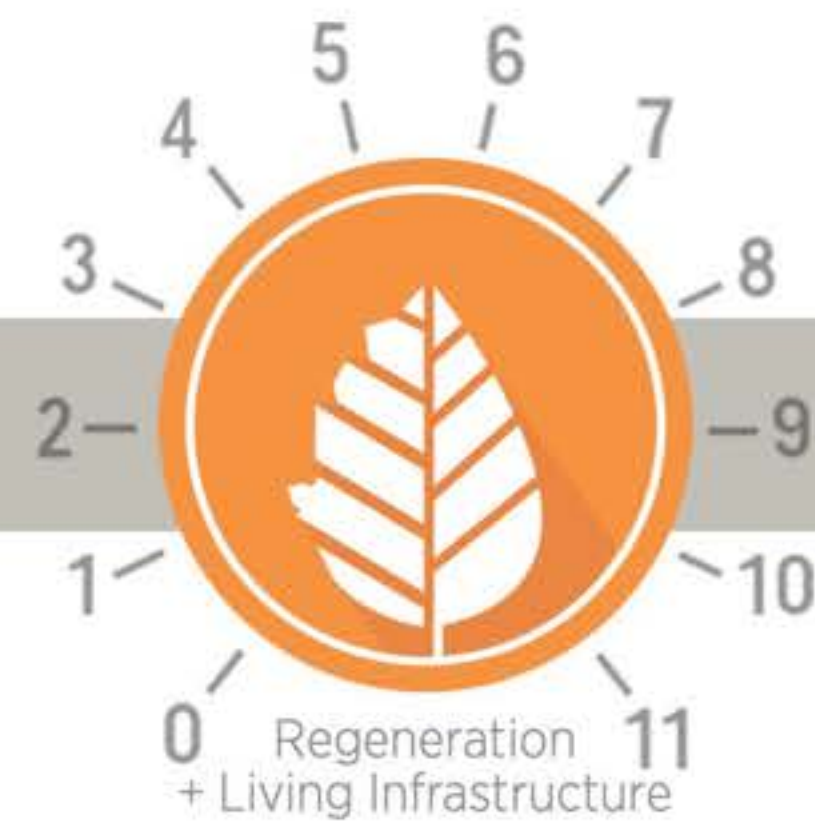
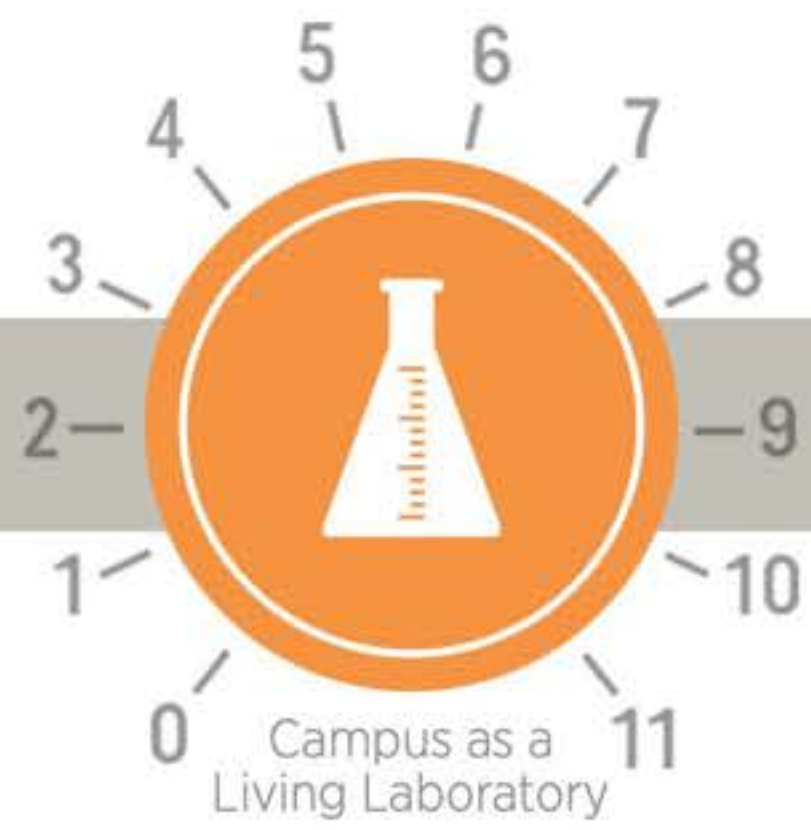
Food
+ Nutrition



Beauty
+ Vibrancy



Building Design
Standards



Immediate (<6 mos)

6 months – 2 years

2 – 5 years

5 – 10 years

10+ years

Reach Goals



Campus as a Living Laboratory



Placemaking + Landscaping



Regeneration + Living Infrastructure



Mobility + Transportation



Diversity, Equity + Inclusion



Resilience + Adaptability

Empty box for planning actions in the Immediate (<6 mos) timeframe.

Empty box for planning actions in the 6 months – 2 years timeframe.

Empty box for planning actions in the 2 – 5 years timeframe.

Empty box for planning actions in the 5 – 10 years timeframe.

Empty box for planning actions in the 10+ years timeframe.

Empty box for planning actions to reach goals.

Targets

Indicators

Baseline

Future Targets

Strategies

Funding



Campus as a Living Laboratory



Placemaking + Landscaping



Regeneration + Living Infrastructure



Mobility + Transportation



Diversity, Equity + Inclusion



Resilience + Adaptability





**Ohlone College
Net Zero Energy**







An architectural rendering of the Resnick Sustainability Resource Center at the California Institute of Technology. The building is a large, multi-story structure with a prominent glass facade that reveals the interior levels, including a central atrium with a staircase. The building is illuminated from within, creating a warm glow against the twilight sky. The foreground shows a grassy area with silhouettes of people walking and trees. The overall atmosphere is modern and sustainable.

California Institute of Technology

Resnick Sustainability Resource Center

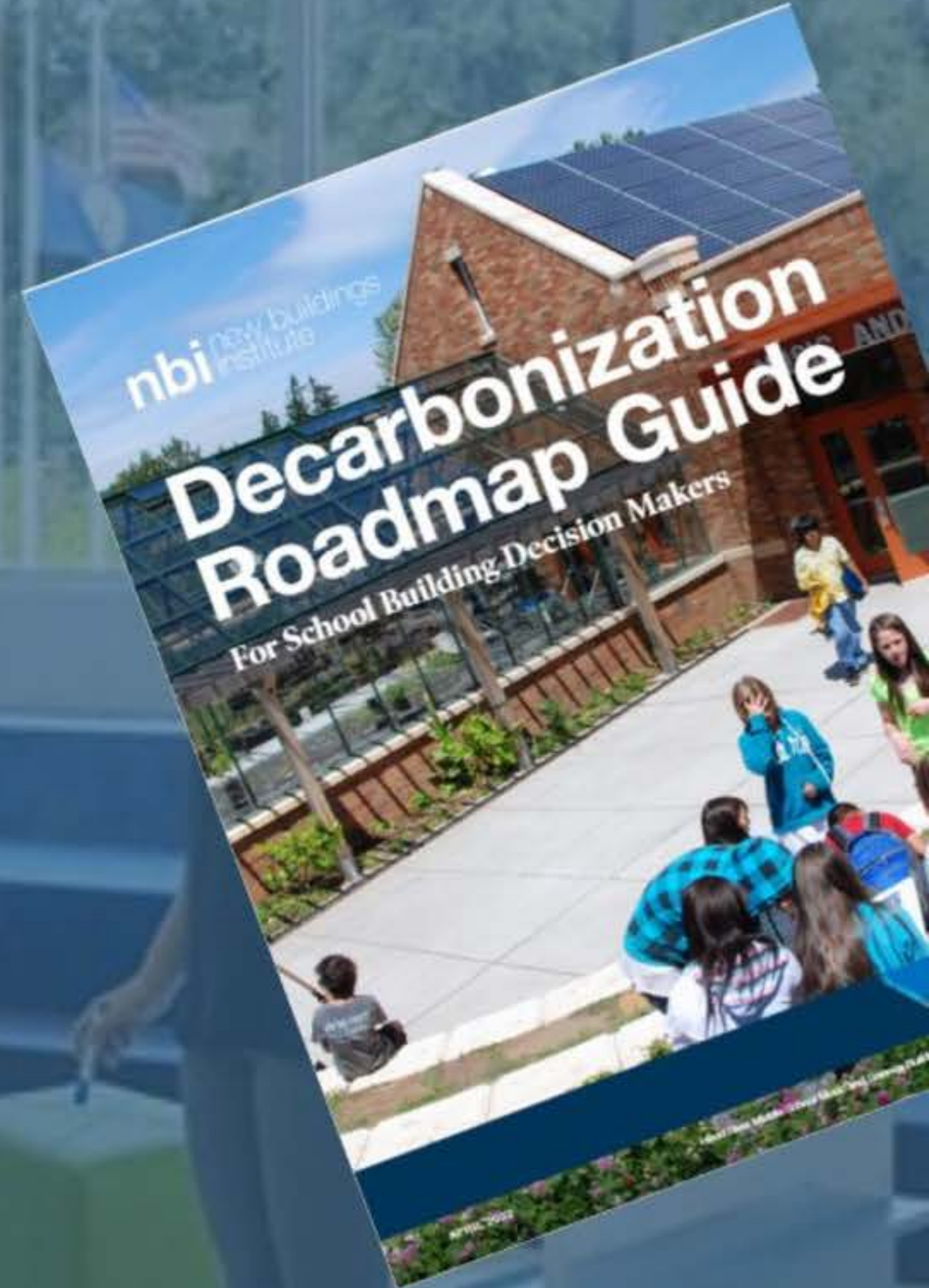
YAZDANI STUDIO OF CANNON DESIGN





Decarbonization Roadmap Guide for School Building Decision Makers

A new resource to help districts leverage funding for learning spaces that are better for people and the planet.





WILLIAM J WORTHEN
FOUNDATION

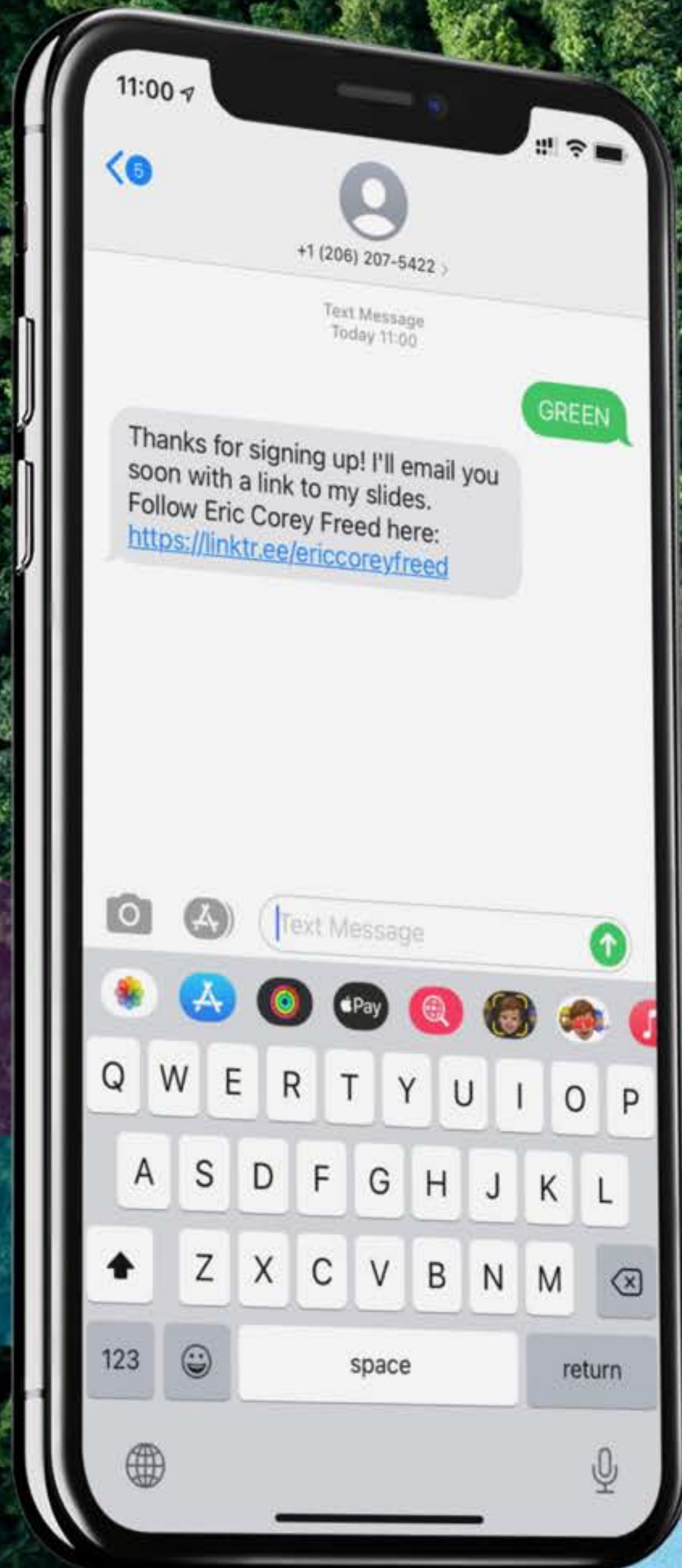


THE BUILDING DECARBONIZATION PRACTICE GUIDE

A Zero Carbon Future for the Built Environment

WorthenFoundation.org





text:

GREEN

to **206 - 207 - 5422**





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