

Using data to foster equitable and sustainable planning across communities





Energy

of US cities have achieved UN Sustainable Development Goal (SDG) 7: Affordable and Clean Energy¹



25% of US households face a high energy burden*, while

13% face a severe energy burden**



Water

11%

of US cities have achieved SDG 6: Clean Water and Sanitation

2m

But 2m rural Americans lack access to running water and basic indoor plumbing³





Waste

53%

of all households below the poverty level live near a Brownfield site (< 3 miles)⁵ vs 44% of the US population overall

Air pollution inequity⁶

Excess exposure compared with consumption:

- African Americans • Latinos
 - +63%

+56%



Ecosystems

12% of US land, and % of US waters are currently **protected**, vs the **goal of 30%** by 2030.



of the US's biodiversity hotspots are currently unprotected⁸

* (pay > 6% of income on energy bills)² ** (pay > 10% of income on energy bills)

56m Americans live in states with high levels of water stress⁴

• White Americans -17%

32%

Less than one third of recyclable material is captured by the US curbside recycling system⁷



Sustainability is the collective product of how we live and interact with the environment within our own communities.

Lower-income, marginalised communities and communities of color are disproportionately affected by environmental hazards, degradation, injustice and a changing climate.⁹

In the US, studies show people of color are more likely to:



Breathe in polluted air¹⁰

35% of African Americans and 27% of Latinos are exposed to high levels of fine particular matter, vs 19% of whites



Live near coal plants¹¹ 68% of African Americans live within 30 miles of a coal-fired power plant vs 56% of whites



Live near toxic sites

Neighborhoods hosting commercial hazardous waste facilities are 56% people of color (vs 30% elsewhere)







Action should center the needs of these frontline communities.

Frontline communities experience the "first and worst"12 consequences of climate change

Better data and technology can help close the equity gap in frontline communities

From deploying sensors to detect plumbing leaks in homes to using satellite imagery to track deforestation, data is central to measuring and optimising local resource use, allocation, planning and production.¹³



Sourcing energy

year saved

Kingston, NY estimates that investing in deep energy efficiency retrofits could save its most energy-burdened residents \$2,400/year in energy costs, significantly improving energy security.¹⁴

Managing waste

contamination

Tracking garbage truck routes via mobile apps in Atlanta increased route efficiency and helped officials track levels of contamination in recyclables, leading to a 50% reduction in contamination as well as other benefits for the city's communities.¹⁵

15%

Accessing

clean water

In 2013, Houston lost 15% of its water—15bn gallons—to leaking pipes in aging infrastructure.¹⁶

New sensor-based systems monitor water flow and facilitate optimised water pumping in cities' water systems, reducing stress and the amount lost to leakage, while improving the ability to **Protecting and** engaging local ecosystems

20k new trees found

San Francisco used a crowdsourced Urban Forest Map to document all trees in the city, which uncovered 20,000 more than previous estimates and 40,000 vacant sites for planting.

Together, the city's valuable arboreal infrastructure¹⁷:

✓ Conserves 12mkWh/year of energy

protect those most vulnerable to flooding and pollution.

- ✓ Filters 100m gallons of water
- ✓ Improves air quality
- Removes 19m lbs./year \checkmark of CO₂

Highlighting injustice, creating accountability and informing change

Putting data in the hands of frontline leaders can better inform local planning for a more sustainable, just and resilient future by helping to:



Repair the legacy of environmental harms



Create accountability and monitor improvement



Identify gaps in access and opportunity



Inform affordable and equitable resource allocation



Enhance efficiency and improve sustainability



Drive long term resiliency and preparedness

- Sustainable Development Solutions Network, "<u>The 2019 US Cities Sustainable Development Report</u>" (2019)
- ACEEE, "How High Are Household Energy Burdens?" (2020) 2
- US Water Alliance, "<u>Closing the Water Access Gap in the United States</u>" (2019) 3
- World Resources Institute, Aqueduct 3.0 Country Rankings (2019) 4
- EPA Office of Land and Emergency Management, "Population Surrounding 27,030 Brownfields Sites" (2020) 5
- Christopher W. Tessum et al., "Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure" (2019) 6
- The Recycling Partnership, "State of Curbside Recycling Report 2020"
- David Shiffman, "An Ambitious Strategy to Preserve Biodiversity" (2020) 8
- NRDC, "<u>A Roadmap for Frontline Communities</u>" (2019) 9
- 10 AJPH, "Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status" (2018)
- 11 NDRC, "Toxic Wastes and Race at Twenty, 1987—2007" (2007)
- 12 Ecotrust, "<u>Centering frontline communities in the face of climate change</u>" (2017)
- 13 UN, "Big Data for Sustainable Development" (n.d.)
- 14 NREL, "Equitable Clean Energy Transitions for Small Communities" (2020)
- 15 Stephen Goldsmith and Wyatt Cmar, "Getting Smart About Trash" (2018)
- 16 Laura Adler, "Come Drought or High Water" (2015)
- 17 Chris Bousquet, "<u>Map Monday: Urban Forest Map</u>" (2017)

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