Resilience Matters

Flourishing in an Era of Extremes

Edited by

Laurie Mazur

A publication of the Island Press Urban Resilience Project

About the Urban Resilience Project

Over the last three decades, Island Press has published seminal works on resilience, ecosystems, and sustainable urban design. As our cities confront turbulent times, much depends on how resilience is defined and implemented. Seeing an opportunity to shape that outcome, Island Press launched the Urban Resilience Project in 2015, with the support of The JPB Foundation and The Kresge Foundation.

The project's goal is to advance a holistic, transformative approach to thinking and action on urban resilience in the era of climate change, an approach grounded in a commitment to sustainability and equity. We bring together leading thinkers with a broad range of expertise to generate and cross pollinate ideas. And we share those ideas in a variety of media—books, articles, op-eds, interviews, webinars, educational courses, and our annual compilation journal *Resilience Matters*.

For more information, and to find out how you can get involved, visit www.islandpress.org/URP

About the JPB Foundation

The JPB Foundation's mission is to help people who have been denied power to build it, so they can change unjust systems and create a more democratic, inclusive, and sustainable society. The Foundation supports initiatives that aim to create enduring and significant changes, often on a large scale and operates through a lens of diversity, equity, and inclusion, endeavoring to understand the views of all.

About the Kresge Foundation

and its environment program

The Kresge Foundation is a private, national foundation that works to expand equity and opportunities in America's cities through grant making and social investing in arts and culture, education, environment, health, human services, and community development, nationally and in Detroit, Fresno, Memphis, and New Orleans. In collaboration with its partners, Kresge helps create pathways for people with low incomes to improve their life circumstances and join the economic mainstream.

Kresge's Environment Program helps cities combat and adapt to climate change while advancing racial and economic justice. The program's vision is that people in cities are protected from the short- and long-term impacts of climate change because their communities have transitioned to renewable energy, prepared for climate impacts, and elevated equity as a priority to ensure that everyone shares in the benefits. The foundation advocates that cities address climate change mitigation and adaptation concurrently; elevates the leadership, inclusion, and influence of people of color, people with low incomes, and equity-focused organizations in climate change-related decision-making; and builds the capacity of municipal staff, urban practitioners, and community leaders and fosters connections between and among them.

About Island Press

Since 1984, the nonprofit organization Island Press has been stimulating, shaping, and communicating ideas that are essential for solving environmental problems worldwide. With more than 1,000 titles in print and some 30 new releases each year, we are the nation's leading publisher on environmental issues. We identify innovative thinkers and emerging trends in the environmental field. We work with world-renowned experts and authors to develop cross-disciplinary solutions to environmental challenges.

Island Press designs and executes educational campaigns in conjunction with our authors to communicate their critical messages in print, in person, and online using the latest technologies, innovative programs, and the media. Our goal is to reach targeted audiences—scientists, policymakers, environmental advocates, urban planners, the media, and concerned citizens—with information that can be used to create the framework for long-term ecological health and human well-being.

Island Press gratefully acknowledges the support of The JPB Foundation and The Kresge Foundation, without whose partnership this journal would not be possible.

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Introduction

Making a Way in the Age of Extremes

Laurie Mazur

It's not a stretch to say that we live in an age of extremes. 2023 was—by far—the hottest year since humans have been keeping records; scientists say it was the hottest in 100,000 years. The signs are everywhere: from the Southwestern heat dome that smashed 2,300 temperature records over the summer, to the hellish wildfire in that incinerated Maui in August. We have entered what UN Secretary General Antonio Guterres calls "the era of global boiling."

Our politics are boiling, as well. Extremist ideologies are on the rise, and American democracy faces nearly unprecedented threats. Governing bodies are paralyzed as Americans sort themselves into not just different political parties, but separate realities.

And yet, in this dire and polarized moment, so many people are rising to the great environmental and moral challenges of our time. They are working to mitigate climate change by bending the curve of greenhouse emissions downward. They are adapting to the warming that is now inevitable, by safeguarding human health and communities. And they are fighting to make sure that no one is left behind—that the ravages of climate change do not worsen existing inequities. Some of that hopeful, life-affirming work is captured in these pages.

Here, you can see how the Biden administration's historic climate investments are making their way to communities hit hardest by inequity and climate change (page 134). You can learn how one nonprofit is helping grassroots groups navigate the bureaucracy and land federal dollars (page 118), and how foundations are bringing solar to lower-income communities (page 89).

Much of this inspiring work is led by residents of low-income communities of color on the frontlines of the climate crisis. For example, "Finding

climate solutions in communities instead of labs" (page 5), shows how local groups are taking the lead in addressing extreme heat and flooding—shaping policy to serve the most vulnerable. Other hard-hit communities are turning to "unbuilding" and green infrastructure to protect residents from rising floodwaters (page 44).

Solutions are not in short supply. We already know how to build homes that conserve water (page 93), how to protect the elderly from climate change impacts (page 10), and how to rebuild more resilient communities after disaster (page 13). What we need is the will to deploy these solutions at scale, and fast.

African Americans have long spoken of the need to "make a way out of no way." Born of painful necessity, the phrase reminds us that there is always room for constructive action. Read on to see how others are "making a way" in this challenging moment.

SECTION I

Climate Adaptation, Climate Justice

Finding Climate Solutions in Communities Instead of Labs

Laurie Mazur

Originally published July 24, 2023 in Environmental Health News

People living in Miami's low-income neighborhoods knew it was dangerously hot. Whether they were waiting for a bus, working construction, or merely trying to sleep without air conditioning, they knew the ever-rising temperatures posed a threat to their health and well-being.

That's why Catalyst Miami, a community-based nonprofit, made extreme heat a top priority. But when Catalyst organizers took their concerns to the local government, they received a Catch-22-like response: officials didn't have data on extreme heat, so they couldn't address the problem.

Catalyst Miami set out to collect the missing data. Partnering with local universities, volunteers placed heat and humidity sensors throughout the community, at bus stops and other places where people were suffering in the heat.

Their findings were stunning: temperatures were often 30 degrees Fahrenheit higher than those announced by the Weather Channel. Official measures of temperature are taken in a breezy spot at the airport—where no one is waiting for a bus.

It's a problematic approach to climate change and health. Too often, analysis and problem solving takes place removed from real people's lives, while problems at the ground level are misunderstood or ignored.

Catalyst Miami, and many other community-based nonprofits, are working to change that.

A community-led approach to extreme heat

Across the U.S., community groups are taking on the climate crisis from the ground up. Several are part of the Kresge Foundation's Climate Change, Health and Equity initiative, a joint effort of Kresge's health and environment grantmaking teams.

The initiative grew from the mismatch between those experiencing the worst effects of climate change and those devising solutions. "Due to generations of racist policies and practices, low-income communities and communities of color are most at risk from the health impacts of climate change," Shamar Bibbins, a senior program officer in Kresge's environment program, said. "But they are often excluded from the policymaking table. That's a problem because it's members of the community who are closest to the problem and they have the experience and expertise to co-create effective and equitable solutions."

The first step is to ask community members what they are experiencing. Catalyst Miami surveyed local residents and medical professionals about their top climate-related concerns. "We already knew it was going to be heat," said Catalyst Miami CEO Zelalem Adefris, "but the surveys confirmed what we'd been hearing for years."

In Austin, Texas, a group called Go Austin/Vamos Austin (GAVA) listened to community concerns and changed its mission in response. Originally founded to tackle the upstream causes of childhood obesity, GAVA's organizers pivoted after two devastating floods inundated Southeast Austin neighborhoods, where they're based. Realizing that climate change guarantees similar floods in the future, "we had no business continuing to work in these neighborhoods if we weren't going to take on these issues," said Carmen Llanes, GAVA's executive director. The group now has support from the Kresge Foundation's initiative to address health and climate issues defined by the community—including flooding.

Once community priorities are identified, residents can help documenting the problem. Many groups are partnering with universities to conduct citizen science efforts—like Catalyst Miami's heat sensor project—in which residents collect data to "groundtruth" other information sources. For example, GAVA worked with the University of Texas to compare NOAA's climate data to residents' lived experience. In New York City,

WE ACT for Environmental Justice, another Kresge Foundation grantee, launched the Harlem Heat Project in 2016, partnering with researchers, media and residents to measure heat inside apartment buildings. More recently, WE ACT members surveyed the city's cooling centers to understand how well these places are serving residents.

Climate injustice

As these citizen science efforts show, the view from the bus stop is different from that of policymakers in air-conditioned offices. It's not just that environmental conditions are different on the ground; it's also about the conditions in people's lives. "The people who are most vulnerable to climate impacts are often coping with chronic illness, housing insecurity, financial insecurity, job insecurity— on top of systemic and institutional and interpersonal racism," said Sonal Jessel, WE ACT's director of policy. "People are dealing with bundles of hardships."

Those hardships intersect and compound sometimes in deadly ways. "On really hot days, people don't turn on their air conditioners because then their bills get too high and they can't pay them," said Jessel. "So, people die in their homes. Or they end up having to be hospitalized for heat stroke." A recent study confirmed that New Yorkers found dead in their homes from heat either didn't have air conditioning on or lacked air conditioning altogether.

Moreover, the legacy of redlining and other racist policies has left Black and brown neighborhoods more vulnerable to climate impacts. Crowded with polluting industries and deprived of parks and green spaces, these neighborhoods are hotter and more flood-prone than their wealthier, whiter counterparts.

Those intersecting hardships call for solutions that address the real conditions of residents' lives. "You can't assume everyone has air conditioning or can afford to turn it on," said Adefris of Catalyst Miami. "You can't assume everyone works in an office." That's why grantees involve residents at every stage of problem solving—from identifying priorities to devising solutions.

It's an approach that differs markedly from typical planning processes, said Ucha Abbah, climate resilience project manager at GAVA. Usually, planners will announce a project and solicit public comments, "but they

only want to hear from the community about one specific thing," Abbah said. "An equitable process involves the community at every step, from inception to implementation."

Climate solutions that work for everyone

This more-equitable approach is getting results. In Miami, data from the heat sensor project helped spur the appointment of the nation's first chief heat officer, who is charged with developing and deploying a comprehensive action plan for extreme heat. Catalyst Miami successfully advocated for opening the committee's meetings to the public: "There were around 50 participants in every single meeting," said Adefris, "and people talked about the issues and the solutions they would recommend. Our community is full of solutions."

Now being implemented, Miami's extreme heat plan includes measures to keep people cool in their homes—by retrofitting public housing with efficient air conditioning units, for example—as well as protections for outdoor workers and efforts to expand the tree canopy.

In New York City, WE ACT helped win a program that distributes free air conditioning units to low-income households throughout the city. And WE ACT is fighting for the state's energy assistance program to subsidize utility costs for air conditioning in the summer, as well as for heating during the winter.

In Austin, GAVA won funding for infrastructure improvements to reduce flooding in long-ignored, flood-prone neighborhoods in South Austin. The group also advocates for equitable investments in the city's tree canopy and green spaces. And GAVA's climate navigator program trains residents to anticipate, prepare for, and respond to flooding and other climate shocks and stressors.

Deeply rooted in their communities, these grassroots groups bring important and overlooked perspectives to climate challenges and solutions. And their approach—taking on the climate crisis from the ground up—has multiple, far-reaching benefits.

Consider, for example, those Miami residents exposed to dangerous heat while waiting for the bus. Solutions to their predicament include more-frequent bus service as well as investments in shade trees and structures. The

benefits—better transit; a greener, cooler city; lower healthcare costs—accrue to everyone.

While solutions made by and for the most privileged leave too many people at risk, "the solutions that work best for the most vulnerable people in our community are the solutions that are going to work for everyone," said Adefris.

Older People Suffer the Most in Climate Disasters. We Need to Plan and Prepare for That.

Danielle Arigoni

Originally published October 4, 2023 in Governing

The summer of 2023 was a wake-up call on climate change. We may remember it for the deadly wildfire in Maui, but that was just one of the nation's major climate-fueled disasters of the year. Phoenix withstood a monthlong stretch of 110-plus-degree days. Canadian wildfires raged, bringing code-red air quality to the northeastern U.S. And torrential rain caused widespread flooding in Vermont.

As of early September, the nation had logged 23 disasters that each caused more than $1 billion in damage, surpassing the 2022 total of 18 such disasters and far outpacing the previous average of just eight per year.

While the growing number and severity of climate disasters endanger everyone, the threat to lives is particularly acute for the fastest-growing group of Americans: older adults. In Hurricane Katrina (2005), for example, people over 60 accounted for two-thirds of the 1,300-plus fatalities. In California's Camp Fire (2018), 85 percent of those who died were people over 60; in the winter storms in Buffalo, N.Y. (2022), it was 63 percent. The trend line remains virtually unchanged across disasters over the last nearly 20 years, reflecting our nation's failure to sufficiently prepare for this new climate reality.

Leaders can no longer effectively plan for climate resilience without considering the aging of the population. A hundred years ago, people over 65 represented one of every 20 people in the U.S.; today they account for one in six. In about 10 years, there will be more people over 65 than under 18 in the U.S.

These intersecting trend lines underscore the need for a new vision of resilience in the face of climate change and for action by local, regional and state leaders to plan for that future.

To protect the safety and well-being of older adults in climate-fueled disasters, leaders must begin by acknowledging the realities and the needs of our over-60 population. While many are able-bodied, financially secure and independent, others are not. Many older adults live with health conditions that present mobility challenges both inside and beyond the home. The vast majority, 96 percent, reside in their homes, not in congregate settings. And older adults typically outlive their ability to drive by seven to 10 years, becoming dependent on friends, family or public transit, which is problematic in times of emergency.

Others lack the income to stockpile supplies or weatherize their homes, much less repair damage after a disaster—particularly the 15 percent of older adults who live at or below the poverty line. In addition, one in nine people over 65 experiences dementia, Alzheimer's or other forms of cognitive decline, which can impact their ability to assess and mitigate risk. And many do not use the Internet in the home or smartphones routinely, limiting access to information, online registration systems and social media that serves as a real-time community discussion forum.

We can build a more resilient future if leaders anticipate—and account for—the challenges facing older adults. That means creating more dense, resilient, affordable and accessible housing through incentives like zoning change, better building codes and public funding. This would help address the housing needs of older adults, while fostering the social connectedness that helps protect people and ultimately save lives.

A resilient future for all also requires more alternatives to driving, in the form of accessible public transit with sheltered bus stops, as well as walkable and bikeable routes. This would help meet the daily mobility needs of older adults and provide redundancy in times of emergency.

And it is critical that local leaders design and implement communication systems and an array of community-based supports, such as home health aides trained to anticipate the climate-related needs of their patients, to ensure that timely information and help reach older adults.

Local, regional and state leaders understand that complex problems require partnership among many disciplines and across public and private sectors. Achieving climate resilience for an aging nation is no different, presenting critical roles for utilities, health-care providers, advocates for the aging and emergency managers.

Some communities are leading the way by centering the needs of older adults in their planning efforts. During the COVID-19 pandemic, for example, Washington, D.C., officials realized that they needed multiple modes of communication to reach older adults, so they piloted the AlertDC program, which provides emergency updates to residents through email, phone and text. In Austin, Texas, service agencies increased coordination to help older adults access emergency help. San Francisco boosted the preparedness of older residents and people with disabilities by planning for the evacuation of people with mobility challenges from multistory buildings.

What does tomorrow bring? More of the same, likely: More intense weather events. More disasters in which older adults die at twice or three times the rates of other age groups. That is, unless communities and the leaders who serve them commit to a vision of climate resilience that truly accounts for the needs of older adults and centers their needs and voices in planning efforts.

Disaster Recovery Efforts Can Serve More Than One Goal

Elizabeth Sawin

Originally published July 15, 2023 in The Messenger

In the aftermath of last week's floods, my home state of Vermont faces a daunting path to recovery. Flooding damaged homes and businesses. Roads and bridges washed out, and communities have been cut off from the rest of the state. Vermont has walked this path before, after Tropical Storm Irene, and we are not alone in facing a recovery now. As the climate crisis deepens, more places will be spending more time in recovery mode.

Recovery isn't just a difficult task. It's also one with lasting consequences. Rebuilt infrastructure will—hopefully—stand for decades to come. Over its lifetime, it will influence climate resilience, carbon emissions, health, well-being and social equity.

Because infrastructure has such a broad influence, the process of recovery has the potential to meet multiple goals at once. A "multisolving" recovery would get a region up and running quickly while also protecting climate and biodiversity, increasing community well-being and preparing for future shocks.

Multisolving makes sense in Vermont, a land of famously frugal small farmers. If you can accomplish multiple goals for the price of one, why wouldn't you?

But multisolving may sometimes require more time and more cooperation across silos. That may feel hard to justify in the face of urgent needs like housing people or opening bridges. If Vermont's 2011 recovery from Irene is any guide, there will be a strong pull to the path of least resistance—reproducing our pre-storm status quo.

Urgency is justified, of course. People do need roads and bridges open to get to work, school, grocery stores and hospitals. But Vermont has already done some good multisolving in the past. We, along with communities facing recovery around the world, could do more of it.

When Irene hit, conserved wetlands protected the town of Middlebury from the brunt of flooding, saving millions of dollars in potential damages. That's climate resilience. Restoring wetlands also protects biodiversity, improves water quality and promotes recreation. With a multisolving approach, Vermonters could make restoring marshes and wetlands part of recovery.

Those of us who lived through Irene remember that long before the Federal Emergency Management Agency (FEMA) trucks rolled in, small businesses and community-based organizations were providing relief to Vermonters. Grocery stores became cell phone charging stations. I remember the local brewery that opened up access to its water filtration system to those who needed clean water. My local food pantry coordinated to have me and hundreds of other volunteers clean out basements and sort donations.

A similar web of mutual assistance is already springing into action in response to the recent flooding. This is homegrown climate resilience. It's also multisolving. This civic muscle provides benefits year-round, not just once a decade in a climate emergency. During the current recovery, we could multisolve by investing in the service organizations at the heart of our communities. We'd be boosting our capacity to respond to shocks while also increasing everyday well-being.

Vermont pioneered other multisolving solutions in the aftermath of Irene. One innovation was the "Irene Cottage." That was a rollout of energy-efficient housing on high ground to replace less efficient housing destroyed in the flooding. Irene Cottages combined recovery, climate resilience and climate protection into one package.

A multisolving recovery in Vermont could go further. It could upsize culverts for added climate resilience. Rebuilt bridges could include lanes for pedestrians and cyclists, aligning with Vermont's Climate Action Plan, which calls for more walking and cycling.

We can also look beyond Vermont for examples of what a multisolving recovery might look like.

After a devastating tornado in 2007, the town of Greensburg, Kan., rallied around a vision of a green recovery. Today Greensburg is powered by renewable energy. It has an energy-efficient school, library, medical center and city hall. It saves money on fuel and electricity. Greensburg shows that the need to recover can be a chance to rethink our approach as well.

The specifics of a multisolving recovery will look different in every place. In a coastal area, it might include living shorelines. In a city, it might involve increasing the tree canopy or making homes more energy efficient.

Whatever the specifics, a multisolving recovery would ensure that every dollar and every hour of investment serves more than one goal. It would design for the future that's coming, not the past we once knew. It would expand the idea of recovery to include nature and community, as well as bridges and roads.

Time is short, and the urgency is real. How can we seize the multisolving opportunity while still moving quickly? That's something we will need to learn in the coming years. But there are prototypes we can learn from.

Vermont's Irene recovery created silo-crossing networks that still exist or could be revived. For instance, Irene Cottages grew out of a partnership among a foundation, a housing group and a network of social service organizations.

After Irene, Vermont's governor appointed an Irene recovery officer. In this flooding recovery, a similar position could be charged with aligning recovery with the state's Climate Action Plan, as well as our goals for nature and community well-being. The effort could take lessons from other examples of governing with a multisolving lens, like Massachusetts' new office of Climate Chief or the Biden administration's Justice40 Initiative.

There are as many ways to multisolve as there are places to try it. The point isn't perfection. It's to set out to recover quickly but mindfully, capturing as many co-benefits as possible along the way.

How Can We Keep People Safe in a World of Deadly Extreme Heat?

Mark Rupp

Originally published July 26, 2023 in The Messenger

As we slog through another sweltering summer, we've seen headlines this week, stating, "World swelters in record-breaking heat," "Ocean heat around Florida is 'unprecedented,'" and "One-third of Americans under heat alerts."

In a world transformed by climate change, heat waves have grown more frequent and long-lasting.

Extreme heat is the deadliest of natural disasters—killing more Americans each year than any other extreme weather event, including floods, hurricanes and tornadoes. Among those most adversely affected by extreme heat are communities of color, children and seniors. Yet, even among vulnerable groups, most heat-related deaths are preventable.

That's why Congress is reviewing bipartisan legislation that would define extreme heat as a "natural disaster," allowing Federal Emergency Management Agency (FEMA) to mobilize resources and save lives during deadly heat waves.

FEMA should have the authority to respond to the full range of disasters, including heat waves. But it is far better—and more cost-effective—to be proactive. Many states and localities are investing in adaptation strategies *before* climate crises strike.

No single agency or government can singlehandedly address climate threats. But a whole-of-government approach—with contributions and collaboration among federal, state, local and tribal governments—can effectively protect people, infrastructure and nature.

Local governments have led the way in designing extreme heat plans that can be activated when temperatures soar. For example, Washington, D.C.'s Heat Emergency Plan is activated when the heat index reaches 95 degrees Fahrenheit. Then, cooling centers are opened to serve district residents and visitors.

Miami-Dade County and the City of Phoenix have even appointed chief heat officers to focus exclusively on coordinating local government agencies as they plan and respond to extreme heat events.

States are also developing extreme heat plans to mobilize state resources, work with their local governments and tribal nations, along with engaging the public. For example, California issued a far-reaching Extreme Heat Action Plan last April. New York and New Jersey are in the process of developing plans, gathering individual state agencies' input, and directly engaging with residents and disadvantaged communities. Other states like Minnesota and Kansas have developed extreme heat tool kits.

States are also finding creative ways to address heat and its effects on particularly vulnerable people. For example, Oregon and Massachusetts requested and received waivers from the federal Centers for Medicare and Medicaid Services to allow their Medicaid programs to provide cooling systems and air filtration units for Medicaid recipients.

At the federal level, in 2015, the Obama administration established the National Integrated Heat Health Information System (NIHHIS). NIHHIS "builds societal understanding of heat risks, develops science-based solutions, improves capacity, communication, and decision-making to reduce heat-related illness and death." Today, NIHHIS is centrally housed at Heat.gov, providing access to tools and information for other levels of government and the public at large.

Building on that foundation, the Biden administration is now driving a whole-of-government approach to addressing extreme heat. With Executive Order 14008, President Biden created the National Climate Task Force, which includes a Working Group on Extreme Heat coordinated through the Department of Health and Human Services, the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA). Together these agencies work to understand all

of the federal government's assets and capabilities—and vulnerabilities—when it comes to addressing extreme heat.

And, importantly, the bipartisan Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA), are providing federal agencies with greater resources to help states, local and tribal governments adapt to extreme heat and build resilience to its impacts.

For example, IIJA expanded funding by $500 million over five years to the Low-Income Home Energy Assistance Program (LIHEAP) program. Managed by the states and tribes, LIHEAP helps low-income families and seniors afford energy bills in the winter as well as in summer when air conditioners and fans are needed most.

Both of the new laws provide the U.S. Department of Agriculture with resources for tree planting that can create shade canopies—and EPA's Green Streets program allows State Revolving Fund resources to support tree planting and greenscapes. IRA provides the Department of Housing and Urban Development with $1 billion to make affordable housing more climate resilient. And just last week, the Biden administration issued an IRA funding opportunity through NOAA to create virtual health centers to help every level of government respond to heat and other climate health threats.

With the promise of more extreme heat across the United States, it is critical that cities, counties, states, tribes and the federal government work in concert together. Every level of government has authorities, capacities and resources that, together, can keep people safe in a hotter, more dangerous world.

Community Care in a Troubled World

Laurie Mazur

Originally published September 19, 2023 in Earth Island Journal

Back in 2019, in what we now fondly remember as The Before Times, *Earth Island Journal* published a conversation I had with scientist Susanne Moser. That article, "Despairing about the Climate Crisis? Read This," went somewhat viral. It offered new ways to think about hope and a vision of the better world we could build from the wreckage of climate change.

So much has happened since then.

I wondered if recent events—including the pandemic and our partial reckoning with systemic racism—had changed Moser's thinking about the climate crisis. So I reached out again and sought her help navigating the psychological demands of this fraught moment.

Moser has a unique perspective on these issues. She understands what we are up against on climate: Her long resumé includes stints at the Union of Concerned Scientists and the National Center for Atmospheric Research, as well as academic postings at Harvard and Stanford universities. She was a pioneer in thinking about climate change adaptation back in the early 1990s, before that was a thing. She has long advocated for more active collaboration between scientists and policy-makers. And she helped shape the field of climate change communication.

Today, in addition to advising governments, nonprofits, foundations, and others on climate adaptation, resilience, and transformation, Moser spends a lot of time thinking about climate and mental health. Her Adaptive Mind Project focuses on making sure that those who work on the frontlines of climate change have "the psychological skills, capacities, and peer and institutional support to effectively and compassionately face the challenges of a rapidly, continually, sometimes traumatically and profoundly changing world."

During our conversation, she emphasized the importance of tending to ourselves and each other during crisis, the need to work toward meaningful community engagement, and why it's so critical that we question who we are at this moment in time. Here's what she had to say.

LM: It's been an eventful three years. Fallout from the pandemic, in particular, has reshaped so many aspects of society. Has it had an impact on how you think about climate change?

SM: Yes, it's been a rough few years for so many. One thing it showed is that we can respond to a recognized crisis very quickly and with drastic actions. So, we could do the same if we took the climate crisis seriously enough. But the pandemic also showed that it takes agreement to come together on a global threat, as well as perseverance, a sustained focus. Only then will we succeed in minimizing harm. When we don't agree, we limit our collective capacity.

For me, that has solidified a particular focus to the work that is most needed now. I have never been interested in just the technical aspects of the climate crisis, whether it's mitigation or adaptation, but I'm very much interested in the social, the human, side of climate change. That is where we will make or break it.

LM: Say more about the social side.

SM: The climate adaptation field is shifting into a more routinized, professionalized, technologized era. We're getting a lot more lawyers, engineers, and financiers into this space. Which is one indication that adaptation is becoming the norm—out of sheer necessity.

But we're in danger of forgetting that what holds communities together in crisis and through difficult shifts is the social fabric, our ability to see ourselves as dependent on and interdependent with others. We cannot lose what so many of us have been emphasizing for years: the need to work toward social cohesion, justice, and meaningful community engagement.

So, when people ask me, "What can I do?" I say, "What do you *like* to do?" They might tell me that they are involved in a garden club or a knitting circle or a food pantry, or some other way to give to their community. I say, "Do that." They may feel it's not helping with climate change, but it does: It builds and maintains community and that builds resilience.

Another thing that came out of the stresses of the pandemic is that people began to talk a lot more about mental health. There's a lot more recognition in the climate community that people need to tend to that part of themselves. So, a lot of my work has moved into building psychosocial support for climate professionals in this prolonged emergency.

LM: What does that entail?

SM: It starts with building the skill for self- and community-care, so you don't burn out—which is unfortunately a big and growing problem in our field. It also means building the skills to be with others who are in distress. If you work in this area, you have to do public engagement where you are facing people who are scared or traumatized, and worried and angry with you, because who else is there to be angry with?

And so, those working on climate change need what I call the adaptive mind: basically, the skills to deal with constant, traumatic, and transformative change. The transformative part is the master frame, because what are we going through—the polycrisis, the collapse—is not the end of the process. Many things must end now: all the "-isms;" chauvinism and patriarchy; racism; anthropocentrism; and all the ways we marginalize and diminish the worth of far too many people and Earth itself. It is very difficult work; it involves a lot of grief. None of us happily or easily give up our identities. It's a descent from the height of hubris. And then we have to go and grapple with what's worth keeping and from there, build something new. The adaptive mind work is trying to help people go through that process, and to lead others through it.

LM: Also, since we spoke last, the horrific police murder of George Floyd—and so many others—re-energized a move-

ment for racial equity in the US and around the world. That movement has reverberated through the culture, including the climate and environmental movements. I'm interested in your perspective on how that's played out, and whether we now have a more equitable climate movement as a result.

SM: Well, we haven't undone centuries of White supremacy in just a few years. But many organizations are asking, "What should we do? What should we no longer do? What needs to happen now?" That reckoning is more serious in many places where it wasn't before, or where it was only performative. That is no longer feasible. I can completely understand the impatience and skepticism of many people of color who feel like, *Where have you been for the last 400 years?* But at least some of it is now happening. There is a tide building. And we have made some important strides in the adaptation field.

LM: Does that affect prospects for action? For centuries, we have "outsourced" all kinds of impacts to vulnerable communities. And for some privileged folks, there's less urgency about addressing the problem if it is affecting marginalized groups. So, does the attention to equity broaden the coalition? Does it increase the sense of urgency?

SM: Yes, but only when we have the willingness and ability to be in difficult dialogues together. If you're just adding on a few people and moving on with the same agenda that you pursued before, then you run into trouble pretty quickly. But when adaptation spaces become transformative spaces, when we begin to grapple with and address the deeper causes of why communities are underserved, when we look at the values and beliefs and resulting structures that limit who gets to be at the table, and therefore, why we only made certain types of decisions—then we can see the shift.

We need to be in a different process together. For many, outreach or engagement is still a checkbox, and it can't be anymore. We have to get skilled at this, and fast! We have to become knowledgeable about the systems that keep people in vulnerable places. That means broadening the agenda. If you're

working on climate justice, you'll want to bring in housing, transportation, social services, and so on. As someone recently said to me, "Too many things are broken and we don't have the time, money, or energy to fix them one by one." The sooner we see that and solve them together, going as far upstream as we can, the better.

LM: To play devil's advocate, there are also those who look at that expanded agenda and say, we just don't have time to do all of this. We need to focus like a laser on reducing emissions. What do you say to those people?

SM: Wendell Berry said it best: "The situation you're in now is a situation that's going to call for a lot of patience. And to be patient in an emergency is a terrible trial."

We are in a terrible trial. But in times like this there is no quick fix, no Band-aid.

There's a story about a guy sitting by the side of a river who sees someone floating in the river, nearly drowning, and he jumps in to save him. Then he looks up and there comes another one nearly drowning in the river and he jumps back in. Saves him too, but more and more people come floating down the river, and more people come to help save them. Eventually, someone says, "Hey, let's go upstream and see who's pushing all these people into the water." That's the work that is called for now: going upstream to prevent the things going wrong that are beyond our capacity to deal with. When we address the root causes, we tend to solve multiple downstream problems at once, so what we think we don't have time for, actually saves time.

This is not to dismiss the people who are in triage mode, pulling people out of the river. We need them, and we need the people working upstream, and we need people who connect the dots between them.

LM: In our last conversation, you talked about the many different kinds of hope. What kinds of hope are sustaining you in this moment?

SM: Yes, if you recall, I introduced a spectrum of hope. On one end, there's the passive, *Oh, somebody else will take care of it*, kind of hope. *It's all going to turn out fine and I don't have to do anything to help*. That to me is not a realistic, nor a sustaining, hope, and it's certainly not how I want to live my life. I'm not a good bystander, I guess.

On the other end of the spectrum is radical hope, where you move to an unknown future and don't even know how to get there, but you are willing to show up for all the difficult conversations on the way. Those conversations involve grappling with the existential questions we now face. That is the place I like to work. Usually, we find plenty to cry about there, but also something to be joyful or laugh about. Both help us to go on and do the work that needs to be done.

It's so critical that we name the existential crisis that we're in. It's existential both in the identity sense—of questioning who we are and what makes us human and who we want to be at this time. But it's also existential in a very physical sense. And for many people, these questions are not new because they've been put at the margins forever. But for many of us who have enjoyed a lot of privilege, these questions are new, and therefore uncomfortable. That is the grappling that we must do. This is the work of our day, and if we succeed, we will be adaptive and persist as a better society, and as a species. If we don't do that work, we're just moving the deck chairs on the Titanic. And we know where that ended.

LM: Let's go with persisting.

SM: Yes. But that means we can't look away from the hard realities that confront us. And we can't ignore that we live in deeply interconnected systems. In the climate context, we now better understand things like tipping points, thresholds, and irreversibility. While many say that all adaptation is local, we are beginning to understand that if something bad happens in a faraway country, we're not shielded from that. Some virus got loose in China and look what happened!

The same is true with climate impacts. So, we're starting to get that we're not separate. It comes to us, unfortunately, in this very painful way, that we're deeply interconnected. What's true is that we've always been interconnected and we've just ignored that; we lived as if that's not true. And now we have to relearn it. We must become conscious of the web that we're woven into—the natural and the social. We have to work with and for the continuation of the web as a whole, instead of our own little strand. It's a very new way for most of us to think, but there are people who have thought and lived that way for generations, and they must be at the table to share their wisdom to help the rest of us come to grips with the nature of reality.

LM: In a society where loneliness is an epidemic, perhaps there's comfort in that connectedness.

SM: Exactly! We actually can't fall out of that web. For better and worse, we're deeply connected with each other, and the Earth.

LM: We can't fall out of the web, but we could take it down with us. But let's not end on that note!

SM: I agree. But look at it another way: The fact that we're connected to everything is ultimately our salvation if we are smart enough, and humble enough, to accept and act on it.

This interview has been edited for clarity and length.

On Climate Change Adaptation, Consult the Original Experts: Indigenous People

Marcos Moreno

Originally published June 15, 2023 in The Hill

This spring, the Northeast and Midwest saw record-breaking heat. California's recently ended drought was the worst in more than 1,200 years. And temperatures topped 110 degrees during the Pacific Northwest's now infamous 2021 heat dome, with more than 250 heat-related deaths documented.

As climate change advances, drought and extreme heat plague vast areas of the country. While the Biden administration has taken important steps to address climate change, a key group has been left out of the conversation: Indigenous people.

The original Americans—particularly those of us from the desert southwest—have a millennium's worth of knowledge to offer on heat and drought mitigation practices, as well as lessons on overall sustainability. The administration should seek to establish a formalized relationship between the National Climate Task Force and Indigenous Nations of America.

My people (Yaqui/Hiaki/Yoeme) historically roamed the area between northern California and the Mexican Yucatan. However, most of our population is concentrated in the Sonoran Desert regions of Arizona and Mexico. This is an ecosystem that we and other groups managed to sustainably cultivate for thousands of years, despite annual rainfall often not exceeding 12 inches.

I was born and raised on tribal lands. My youth was steeped in teachings from community leaders and elders about connectedness and stewardship of the desert we call home. And while many of these teachings took me years

to fully understand, I quickly learned to value water as sacred and finite—an easy task when days in triple-digit temperatures outnumber days of rain.

Today, having lived away from my tribal community for more than a decade to train as a scientist and physician and studying environmental science, I have noted major knowledge gaps in the contemporary teaching of climate science. Indigenous knowledge could lend critical insight and perspectives on sustainability. In fact, the value brought to the table by the peoples who first cultivated and adapted to the Americas cannot be overstated.

In the southern Arizona deserts, where the intensity of direct sun prevents many plants from flourishing, Indigenous farmers adapted by planting crops in areas shaded by mesquite trees. The Zuni peoples of New Mexico, like many other tribes throughout the southwest, mastered the construction of adobe homes that stayed warm in winter and cool in summer.

The Tohono O'odham mitigated heat and water waste by using passive rainwater irrigation and selecting environmentally appropriate crops. This included desert-adapted vegetables such as the tepary bean, a high-protein legume suited to the desert thanks to leaves that fold to withstand direct sunlight.

The Haudenosaunee people's agricultural innovation of planting corn, beans and squash within the same plot, meticulously timed and ordered, created optimal conditions for the staples known as the "Three Sisters." Corn is planted first to provide shade and structure, followed by squash, whose large leaves further shade the ground, retain soil moisture, and prevent weed formation. Finally, beans are planted to provide nitrogen, fertilize the soil, and stabilize the plot structure by growing along the corn stalks. Completing the regenerative cycle, certain crops are allowed to die and return to the soil to replenish nitrogen stores and serve future generations. In addition to optimizing farm space, this method also conserves water.

These time-honored practices could inform climate adaptation today. And, by acting quickly, we can fulfill the promise of Deb Haaland's historic appointment as secretary of the Interior. Like many, I hoped that her status and personal connection would manifest more direct collaboration with Indigenous groups, but that has yet to materialize.

One step in the right direction would be to allow Haaland to broker formalized collaboration between the National Climate Task Force and tribal nations such as her own Laguna Pueblo peoples. Collaboration with the National Council of American Indians, which has a committee dedicated to climate change, would be another way to bring the perspectives and voices of Native people to the national stage.

Failure to include Indigenous perspectives in climate action risks further silencing of Native American voices, a history we should not repeat. We should act now, while we still have the time, support and people in place to do so.

Climate Change and Soil Loss—The New Dust Bowl?

Heather McIlvaine-Newsad

Originally published October 9, 2023 in Environmental Health News

In May, seven people died and 37 were injured when a rare dust storm caused a 72-vehicle pileup on Interstate 55 in Illinois.

For many in the scientific and agricultural communities, the dust storm harkened back to the devastating Dust Bowl of the 1930s. Recent climate patterns in Illinois are not unlike those in the 1930s, with prolonged dry spells during the critical growing season, combined with high winds that carried the dry soil aloft.

And, as in the 1930s, farming practices are part of the problem. Large-scale, conventional farming focuses on intensive single crop production, mechanization, and depends on fossil fuels, pesticides, antibiotics and synthetic fertilizers. While this system yields high production levels, it also contributes to climate change, pollutes air and water, and depletes soil fertility.

When agricultural operations are sustainably managed, they can preserve and restore critical habitats, help protect watersheds, and improve soil health and water quality.

Pesticides and soil degradation

Central Illinois is home to some of the richest farmland in the nation; its endless fields of corn and soybeans are a marvel of modern agribusiness. Industrial agriculture originated in the 1960s when petrochemical companies introduced new methods of intense chemical farming. For farmers, the immediate effect was a spectacular improvement in agricultural production, hailed as the "Green Revolution." However, we are now seeing the downside of industrial agriculture on a global scale.

One downside is massive soil erosion and degradation. According to a 2020 report by the Union of Concerned Scientists, every year, U.S. croplands lose at least twice as much soil to erosion as the Great Plains lost annually during the peak of the Dust Bowl. Worse, our farms could lose an additional 28 billion tons of soil by 2035 and 148 billion tons by 2100—about 300 years' worth at the rate at which soil naturally forms.

Much of that eroded topsoil ends up in waterways and lakes and—eventually—in the Gulf of Mexico. And that soil is laden with nitrogen fertilizer and pesticides used to keep pests and weeds at bay. Excess nitrogen in the waterways results in algae blooms that choke out the oxygen and deplete aquatic life.

Climate change impacts and causes

Moreover, soil loss contributes to climate change. As soil degrades, it loses its ability to store carbon. In colder climates, like those found in central Illinois, where decomposition is slow, soils can store—or "sequester"—this carbon for a very long time. Degraded soils return carbon to the atmosphere in the form of carbon dioxide (CO2), the main greenhouse gas causing climate change.

While agriculture can be a cause of climate change, it can also suffer from it. Climate impacts vary by region, but a hotter planet means changes in agricultural production, impacts to soil and water resources, and health challenges for farmworkers and livestock.

Alternatives to industrial agriculture

So, while it is obvious that climate change disrupts agriculture, a $19 billion per year industry that is one of the state's largest economic drivers, there is no simple solution. Industrial agriculture is dependent on chemicals and is highly mechanized and energy-intensive, favoring large corporate farmers with sufficient capital, thus forcing most of the traditional single-family farmers with smaller holdings to the sidelines. All levels of government also influence what a farmer decides to grow, where a farm can be located, how products are transported and processed, how a commodity is traded, and the price the farmer might receive for her or his crop.

There are alternatives to industrial agriculture, which are easier on the land. These include ecologically oriented farming approaches, including organic

farming, permaculture, regenerative farming and sustainable agriculture. In recent years, the term "agroecology" has increasingly been used as a unifying term, referring to both the scientific basis and the practice of an agriculture based on ecological principles.

Agroecology includes practices like no-till farming and double cropping. The practice of cover cropping holds great promise, not only for preserving soil, but for enhancing it naturally, with less fertilizer—and for trapping carbon that would otherwise be released to the atmosphere. Yet, in Illinois less than 5% of farmed acreage is cover cropped—in part because it is considered economically risky and does not receive strong support from the U.S. Department of Agriculture.

Nearly a century ago, misguided farming practices collided with climatic change to create the economic and social devastation of the Dust Bowl. This spring, the skies darkened again with soil turned to dust; a somber warning. By embracing agroecological practices, we can save our soil, stabilize the climate, and prevent a new Dust Bowl.

Hawaii Wildfires Expose Need for Resilience in a Polycrisis World

Joseph Fiksel

Originally published August 24, 2023 in Context

The destruction of the Hawaiian town of Lahaina by the Maui wildfire is only the latest indication that our communities are unprepared for what some call a "polycrisis"—a rare convergence of multiple forces that results in a disaster. Lahaina residents have always lived in the shadow of an active volcano, but no one anticipated that a wildfire would be magnified by a freak windstorm, and that the town's communication systems and water supply would fail to respond properly.

This tragedy could have been lessened by greater attention to *resilience*: the capacity to survive, adapt and flourish in the face of turbulent change and uncertainty. Animals and plants are resilient, especially the micro-organisms that have colonized our planet. Humans are unique among all species, having created a complex global economy built on miraculous technologies. But just how resilient are we?

In a volatile and tightly interconnected world, businesses and communities have become less resilient to unexpected crises. The threats emerge from the broader *systems* in which we operate—economic, political, and environmental. During the 20th century, humans generally flourished, creating wealth and populating the Earth at a rapid pace despite frequent conflicts among nations and tribes. Yet lately, global turbulence and uncertainty have caught up with us. We are ill-equipped to face an array of daunting challenges, mostly of our own making.

Disasters like the Lahaina fire are wake-up calls that reveal these systemic challenges. The COVID-19 pandemic was a stark lesson about our vulnerability to rapidly mutating viruses that spread across the globe, causing disease and disrupting commerce. Climate change acts as a threat multiplier, intensifying fires, hurricanes, floods, and heat waves. Meanwhile, our

single-minded pursuit of economic growth has degraded key ecological assets, including soil, water, forests, and biodiversity.

Cascading risks

The World Economic Forum recognizes that extreme events can often cascade to cause more adversity, leading to a polycrisis. For example, climate change is jeopardizing supply chain continuity and food production, especially in poorer countries, and the Ukraine conflict has only exacerbated this problem. The results include lower economic growth and greater inequalities between rich and poor, which in turn can lead to social and geopolitical conflicts. These conditions dampen hopes of global collaboration on greenhouse gas reduction, creating a vicious circle.

How can government and business leaders respond to these challenges? It may not be possible to estimate or predict cascading systemic risks in interdependent global networks. However, it is possible to improve resilience, by adopting a strategy of embracing change rather than struggling to preserve "normal" operations.

Rather than simply "bouncing back" from crises, a resilient organization will "bounce forward" by sensing threats, adapting to new conditions, and improving its responsiveness to surprise events. This requires long-term thinking, increased agility, consideration of systemic risks, and learning from the collective experience of others.

A key concept is "inherent" resilience, which goes beyond adding layers of protection or redundancy that usually incur extra costs. Resilience can be woven into the design of key assets and procedures, thus offering "no regrets" in the absence of disruptions. An example is promoting a "circular" economy, which eliminates waste by recovering and recycling valuable materials or energy that were traditionally discarded. This approach not only increases self-sufficiency, but also can reduce purchasing costs, cut pollution, and improve sustainability.

'Systems thinking'

In the case of a community like Lahaina, there are various measures that might have protected the town from unforeseen disasters. Systematic anticipation of threats and dangerous scenarios could have avoided complacency among emergency responders. Improved infrastructure systems, including power, water, monitoring, and warning capabilities

could have reduced fatalities and property damage. Thoughtful landscape design possibly could have helped to protect against wildfires, volcanic eruptions, floods, and other hazards. Public officials could have tried to integrate resilience thinking into their planning, not knowing what shape the next disaster might take.

Resilience will inevitably become more critical, since environmental and social pressures are increasing while industrial technologies are rapidly evolving. For example, the business landscape is being transformed by the "fourth industrial revolution" or Industry 4.0—a new wave of innovation based on artificial intelligence and "smart" systems. These changes promise to increase human productivity, but the potential hidden consequences include cybersecurity threats, disruption of traditional jobs, and exacerbation of income gaps between rich and poor.

To adapt successfully in the future, we will need to adopt a broader "systems thinking" mindset, focusing on fundamental forces that threaten our future prosperity. It's complicated but necessary on the turbulent, entangled planet that we inhabit.

How Goat and Cattle Grazers Can Help Our Urban Areas Get 'Fire Smart'

Robert Searns

Originally published December 6, 2023 in The Messenger

In December 2021, after weeks of little precipitation, a dry wind blasted through the Denver area. A fire started—the exact cause unknown—in the prairie grasslands just southeast of Boulder, and gusts up to 100 mph quickly fanned the flames into a conflagration. Called the Marshall Fire, its flames quickly incinerated more than 1,000 homes, causing $2 billion in damage.

Since then, we've seen similar conflagrations on nearly every continent, including blazes in Canada, Greece and Algeria. On the Hawaiian island of Maui, a firestorm claimed nearly 100 lives in August, making it the deadliest U.S. wildfire in more than a century.

In the wake of these catastrophes, people inhabiting what is known as the "wildland-urban interface" are advised to be "fire smart" by cleaning up brush, trimming vegetation and taking other measures to protect their homes. My own community in Colorado is mowing a 10-foot-wide swath along the edges of its open spaces next to backyards to resist fire.

While these measures may afford some protection, it's likely they offer a false sense of security. Increasingly, wildfires at the urban edge, fueled by vast expanses of unmanaged dry grasses and ferocious winds, have become far more powerful and harder to contain with traditional fire-smart practices. Consider that during the 2023 Canadian wildfires, burning embers jumped across rivers to ignite communities on the other side. It's time for more robust solutions.

One such solution emerged in the aftermath of the Marshall Fire. The City of Boulder Open Space and Mountain Parks Department is using targeted grazing to reduce flammable vegetation and provide more effective

buffers between open grasslands and adjacent communities. The grasslands are grazed mostly by cattle owned by ranchers, who typically pay a fee to use the land. The program includes "grazing events" during fire-prone months that steer cattle to strategic areas, creating wide buffer zones near adjacent neighborhoods.

Andy Pelster, the department's Senior Manager of Agriculture and Water Stewardship, said in an interview that grazing can both support local agriculture and reduce fire risk. Based on observed fire behavior, he says grazed grasslands burn less intensely, making fires easier to fight. There are other benefits as well: Grazing sequesters carbon as the chomped grasses regrow and absorb CO2. Grazing is also a way to promote grassland health and control invasive species without harmful chemicals.

Boulder is not alone. In California, the Ojai Valley Fire Safe Council launched a community-supported grazing program that includes a "goat superhighway" servicing a 225-square-mile area. Other communities in California and Nevada are exploring the pros and cons of prescribed grazing.

Of course, there are challenges, including costs and, in some places, regulatory constraints—though, considering the growing climate-driven wildfire threat, the benefits will likely outweigh the costs and challenges. Targeted grazing may also get a boost from new technologies like virtual fencing, which uses GPS-activated collars to contain livestock—a much cheaper alternative to building and maintaining miles of barbed wire fence.

While targeted grazing is one promising new tool for wildfire management, it can also be paired with the time-honored concept of greenbelts. Originally envisioned in the 1890s by Sir Ebenezer Howard, greenbelts were first proposed to contain urban sprawl by creating a ring of preserved rural lands around England's larger cities.

Today, cities from London to Toronto to Seoul have embraced the greenbelt concept, though, in some places, development interests are encroaching on these conservation spaces. Perhaps our new understanding of their fire-suppression benefits will help save and expand green spaces around cities. Besides serving as firebreaks, these lands can serve as accessible public recreational areas. And who wouldn't enjoy seeing cattle or sheep grazing out in the fields while hiking?

Climate change demands workable resilience strategies with broad appeal. While it is imperative to curb CO2 emissions, that is a multi-decade endeavor that requires engagement of global-scale powers-that-be. Meanwhile, we also need grassroots, practical adaptation strategies. And, in the face of the growing and deadly wildfire threat, local measures to reduce the risk of wildfires are urgently needed.

Targeted grazing, which can be implemented quickly and cost-effectively, can help. And there is a synergistic aspect of pairing fire mitigation with greenbelt conservation that strengthens the case for both. By setting aside interconnected landscapes where city meets countryside, we can not only protect our communities from fires, but absorb and store stormwater, provide wildlife habitat and migration routes and preserve green spaces. Why not establish interconnected, grazed open spaces around the edges of cities, linked by grand loop trails that connect these spaces for recreation, fire management and grazing access? In this way, we can keep our cities safer and healthier in a hotter, more fire-prone future.

Lowering the Death Toll in Natural Disasters

Kyria Stephens

Originally published April 12, 2023 on Medium

In my hometown of Buffalo, New York, a deadly blizzard on Christmas weekend left more than 40 people dead. Across the country, torrential rainstorms in California claimed at least 20 lives. From deadly ice storms in Austin to wind chills of -36 degrees in Boston, weather-related events are putting more and more lives at risk.

With extreme weather on the rise due in part to climate change, we must find ways to limit the death toll, which often disproportionately affects people of color and low-income residents.

In my role as Director of Inclusion and Community Initiatives for the Buffalo Niagara Medical Campus—an organization that has worked to improve equity for 20-plus years—I have thought a lot about how we can save lives during natural disasters. Here is some of what I have learned:

Empower community leaders
In the Buffalo blizzard, many community members jumped into action. A Black barbershop owner opened his door to dozens of people in need. Bangladeshi immigrants set up warming shelters, rescued stranded motorists and went door-to-door checking on people. As one local resident wrote on Twitter, perhaps we should "give mosques, temples, and churches a generator, cots, and a snowmobile to get to people." Community groups and religious organizations know what the neighborhood needs and can often respond more efficiently than the government—so let's make them part of the solution.

We are all in this together
Mother Nature doesn't discriminate. The California storms have affected people experiencing homelessness in tents along riverbanks, residents

of a town where the average home costs $5 million, and everyone in between. While low-income residents may not have as many resources to help them get through a disaster, we must recognize that everyone is at risk, and act accordingly.

Ego doesn't help

At one point during the Buffalo storm, elected officials were arguing about whether the city or county could do a better job clearing the snow-clogged roads. But the residents—thousands of whom had been without power for days—didn't care. They just wanted to be able to drive to a friend's house for heat, or to the grocery store for food. Putting egos aside to coordinate efforts can speed up the planning, response and recovery.

Design for the future

Many of the people who died in California were in cars trapped by rising floodwaters. Climate change leads to warmer air, which holds more moisture and can increase the intensity of storms like the ones in California. While climate change affects everyone, its impact (e.g., flooding, heat waves, etc.) is often disproportionately felt by lower-income people, which is why it should be a critical factor in designing more equitable cities. Be proactive, because climate change will have a monumental impact on your city.

Use what works

When Buffalo's sidewalks were still covered with snow days after the blizzard, some residents wondered why we couldn't be more like nearby Rochester, New York, which plows nearly 900 miles of sidewalks for residents after big storms. Elected officials and community leaders should talk with their peers in similar communities, and use proven strategies and plans.

We may not be able to stop future storms. But by following these lessons and focusing on the entire community with an equity-based approach, I truly believe that we can save more lives.

On Juneteenth, Lessons From the Past Can Guide Our Climate Future

Denise Fairchild

Originally published June 19, 2023 in Common Dreams

On June 18, 2021, The Biden-Harris Administration signed Senate Bill 475 (S.475), the National Independence Day Act, which proclaimed Juneteenth a federal holiday. The president defined it as a day to "commemorate the past; celebrate the emancipation of the formerly enslaved; and remind us of our capacity to "heal, hope and emerge in new ways."

Juneteenth can be all that and more. The formerly enslaved African Americans who celebrated the first Juneteenth have much to teach us about living within, surviving, and overcoming the ills of an extractive economy that depletes and commodifies our human and natural resources. It's a lesson with new urgency and relevance in the era of climate change.

The origins of Juneteenth and its commemoration are very particular to African Americans. Considered the oldest African-American holiday, it celebrated the news of emancipation of enslaved Africans in Galveston, Texas, two years after the signing of the emancipation proclamation. There are similar Emancipation Day celebrations in Columbus, Mississippi (aka (8ofMay), Western Kentucky (aka—8thofAugust) Washington, D.C. (April 15) and elsewhere. These are joyous celebrations of freedom. But there can—and should—be more to Juneteenth than barbecues and music festivals.

As a national holiday, Juneteenth must be relevant to all Americans. It can provide a platform for all Americans to remember and lift up our ancestors, their wisdom and their ways of living under harsh circumstances. With that wisdom, we can rebuild a culture and civic infrastructure to withstand the ongoing disruptions to our natural, built, political, economic, and social environments.

Juneteenth tells a cultural story of resilience, family reunification, mutual aid, educational uplift, community building, collective economics, "commoning" and stewardship of the land. These values and ways of living were indispensable for the formerly enslaved to overcome daily hardships, for thriving in a resource-limited world, and for building new communities and new possibilities after emancipation. We celebrate Juneteenth today because of the struggle then and now to build a cooperative and communal culture. "It took a village" to overcome the challenges.

Black-owned cooperatives were one way to do so. *Collective Courage*, by Dr. Jessica Gordon Nembrand, documents over 160 legally incorporated Black-owned cooperatives since the mid-1880s. These coops were a way to survive, to provide family security and prosperity, and create stable, lasting systems for housing, food, and land conservation. African Americans also created self-sufficient communities: Maroon communities, built by runaway slaves, and Freedman settlements, built by formerly enslaved Africans after emancipation. While many of these towns—such as "Black Wall Street," the Greenwood district in Tulsa, Oklahoma; Rosewood, Florida; and Wilmington, North Carolina—were torched and their Black residents were run out of town, hundreds still exist.

Building community resilience was clearly born out of necessity, but more importantly, it was grounded in a shared African cultural ethos of Ubuntu, meaning, "I am because you/we are." Ubuntu uplifts our oneness and recognizes that well-being flows from caring relationships with each other, our community, and nature. Ubuntu maintained us through enslavement and reconstruction, and while somewhat eroded over time through assimilation into western culture, it is finding a resurgence. The cooperative spirit of Ubuntu is central to the Juneteenth story, and provides a way forward in this new era of climate, political, economic, and social disruptions.

While the African-American experience of slavery is singular, this cultural ethos is not unique to African Americans. There are similar stories by those who lived the legacy of the Trail of Tears, the Holocaust, Japanese internment, the potato famine, immigration, wars and political oppression, as well as racial, gender, and religious discrimination and persecution. Juneteenth affords Americans the opportunity to take pride in our unique and common history of resistance and resilience, to remember the communal values and behaviors of sharing and care, and to restore and carry

forward these principles and practices. These cultural values and lifeways are essential for mitigating and adapting to climate change.

The Climate Connection

Now more than ever, America needs a climate breakthrough. Our solutions are predominantly technological in nature: greening our buildings, cars, and transit systems, fuel sources and communities—Scope 1 and 2 emissions. These measures are important and necessary, but insufficient. Most emissions come from the massive, global supply chain of material extraction, processing, and distribution, powered by underpaid (if not enslaved) labor, to feed consumer demands.

If we are to mitigate and adapt to climate change, we need to resist the market demand for massive production and conspicuous consumption. We need new economies that are localized, generative, and cooperative. We need community energy, food, and housing systems. We need to restore the commons.

This, in turn, requires a major cultural shift. The western, Cartesian philosophy of "I think, therefore I am" spawned an ego-centered, utilitarian belief system that has us on the brink of environmental, social, and economic disaster. This culture of individualism and materialism is driving a global economy that reveres mass production, mass consumption, massive waste and massive wealth accumulation from the privatization and extraction of the commons. The paradigm is both unsustainable and unjust.

Surviving and adapting to climate change in a resource-limited world demands more than new technologies to decarbonize our economy. It compels us to rethink how we live with each other and nature. It calls us to ferret out the root causes of our current crisis and fashion alternatives to systems of extraction and degradation of our natural and human resources.

Ubuntu is one such alternative. It reminds us that we can't thrive if the planet is dying. We can't thrive without community. It recognizes that humans are part of a larger and more significant relational, communal, societal, environmental, and spiritual world. It is the belief in a universal bond of sharing and being responsible for the gifts and limits of nature. It is the foundation of building the society that protects the well-being of people and planet.

Similar beliefs and practices are found in Native American, East Asian and other cultures, such as Kapwa in Filipino cultures. These are the cultural roots to mitigate and adapt to climate change and to create the social capital to withstand the resource competition that has bitterly divided our nation.

Juneteenth Call to Action

On Juneteenth, we should clearly celebrate the emancipation of the formerly enslaved and call out the continued struggle for freedom, voting rights, economic opportunities, and more. But this holiday is also an opportunity to remember and honor the ancestors on whose shoulders we stand. By uplifting their wisdom and ways of being, we can envision—and build—alternative economies and lifestyles grounded in an ethos of interdependence, cooperation, and respect for nature. Let's use Juneteenth to build the political will and community action to do this.

Just as MLK Day is a day of service, let's make Juneteenth "Heritage Day"—a call to action to reclaim, and celebrate our legacy and cooperative traditions, and to strengthen the bonds of collective struggle and community resilience—past, present and future—that we share.

How 'Unbuilding' Can Help Weather Climate Disasters

Laurie Mazur

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Waters are rising everywhere, it seems. Earlier this year, storms flooded communities from California to Missouri. In the Upper Midwest, heavy snowpack melted during an unseasonable warm spell, inundating towns along the Mississippi River. And the city of Fort Lauderdale, Florida, found itself underwater after more than 2 feet of rain fell during an eight-hour period in April.

There's more where that came from.

In a warming world, we can expect ever more devastating floods. That's because a warmer atmosphere can contain more water vapor, which can mean more precipitation. As warming ocean water expands and glaciers melt, sea levels also rise, with grim implications for those who live along the coast.

How can communities prepare for all that water? For decades, we have tried to protect communities in flood plains with more building: seawalls, levees, concrete river channels and pumping stations.

This concrete and metal infrastructure is important, but the next wave of development needs to be about "unbuilding"—using plantings and landscaping to turn low-lying areas from gray funnels to green sponges. This approach favors waterfront parks, rain gardens and other natural features that soak up floodwater before it backs up into streets and basements.

This nature-based work—also called green infrastructure—is happening all over the country, and the world. Often, it is led by residents of color, who in the U.S. have borne the brunt of past flooding and received less federal aid after disasters.

Furthering that work, dozens of community organizations have become part of a network, the Anthropocene Alliance, or A2, that helps local groups implement green solutions to flooding.

The partnership has proven fruitful for many.

"A2 is a small organization but we have in our ranks many brilliant community leaders," says Harriet Festing, A2's executive director. "That means we can do big things together, like prove that green infrastructure can both mitigate climate change and produce safer, healthier and more enjoyable urban spaces."

Transforming the Waterfront

Unbuilding can serve multiple purposes in lower-income communities, which often have less green space than their wealthier counterparts. That's certainly true in New York City's South Bronx, a heavily Latino, Black and immigrant neighborhood that is also part of the poorest congressional district in the U.S. Largely encircled by three major highways, the area hosts four polluting "peaker" power plants, multiple waste-transfer stations and distribution warehouses that bring polluting truck traffic. Not coincidentally, the South Bronx has been home to high rates of asthma and premature death.

Sitting at the confluence of the East and Harlem rivers, the South Bronx is also vulnerable to flooding. In 2012, Superstorm Sandy brought a waist-high deluge. But the area's waterfront also offers tantalizing possibilities for natural beauty and recreation in a community that could benefit greatly from more green space.

"The polluting facilities, the vulnerable waterfront and the lack of open green space all dramatically reduce the quality of life for people living in this neighborhood," says Arif Ullah, executive director of the nonprofit advocacy organization South Bronx Unite. "It also determines in a large way what kind of life a child can have."

Today, much of the South Bronx waterfront is a forbidding industrial zone, warding off residents with barriers like highways and barbed wire. A plan from the Army Corps of Engineers has threatened to worsen those conditions with construction of an on-land seawall.

Neighborhood residents have a better idea. South Bronx Unite has developed a community-envisioned plan for the waterfront, one that Ullah says includes "open, green spaces that community members can use, that also serve as a meaningful defense against flooding and help mitigate pollution."

The community plan previously won the backing of an advisory committee to the state Department of Environmental Conservation and garnered recognition from the New York City Department of Parks and Recreation. Now, all it needs is funding.

For South Bronx Unite—and many other community groups with good ideas—this is the hard part. Navigating the maze of public and private funding opportunities, each with its own requirements and mountain of paperwork, is daunting. A2 is helping South Bronx Unite raise funds for pre-development work, so the waterfront plan will be "shovel-ready" and able to attract major funding.

Keeping It Green

Sometimes the best way to prevent flooding is to protect green space that already exists. In Newark, New Jersey, another A2 member, the Weequahic Park Association, is working to restore a 311-acre park designed by the Olmsted Brothers firm—a legacy of Frederick Law Olmsted of Central Park fame—at the turn of the last century.

Anchored by an 80-acre lake, Weequahic Park is a green island in an ocean of concrete. Hard by Newark airport and a busy container port, the park is surrounded by heavy—and polluting—industry. The mostly low-income Black and Latino neighborhoods near the park face multiple environmental assaults. Fumes from constant truck traffic contribute to high childhood asthma rates in Newark, as well as elevated cancer risks.

These neighborhoods, too, are vulnerable to flooding. Once a vast expanse of wetlands bordering Newark Bay, the area around the airport is now covered by hard surfaces that cannot absorb floodwaters. So heavy rains mean swamped cars and waterlogged basements. And, given the city's concentration of industrial facilities, those floodwaters can be contaminated with toxic chemicals.

The Weequahic Park Association was founded in the 1990s by neighbors concerned about the park's disrepair. They succeeded in making

improvements: replacing dead trees, preventing shoreline erosion and adding recreational amenities. But there is still much to be done. The park's lake hides deep layers of sludge from nearby industrial sites; visitors are not supposed to boat and eating fish caught in its waters is not recommended.

Despite its degraded state, the park serves a vital function for the people of Newark. "During the pandemic, parks and green spaces became a sanctuary," says Wynnie-Fred Victor Hinds, the Weequahic Park Association's executive director.

Hinds sees an even bigger role for Weequahic Park as climate change unfolds. She describes the park as a "resilience hub"—a reference to critical infrastructure that reduces the harmful impacts of climate change while providing respite and recreation. The park's forested areas can absorb floodwaters and clean the air; its cooling shade can mitigate the urban heat island effect.

Hinds and her neighbors have developed an expansive plan for the park's future. Dredged and cleaned, the lake could again support boating, healthy fishing and other aquatic life. Native trees and pollinator gardens would nourish beneficial insects and wildlife.

"The park could be a conservation laboratory," Hinds says, "where experts and community scientists could study the ecosystem and find solutions to flooding and other problems."

Hinds and other members of the association are now working with A2 to raise funds to make that vision a reality.

Amplifying Community Voices

Preparing for a hotter, wetter future starts with admitting a problem exists.

"But in the Southeast, you have quite a number of folks who are climate deniers," says Omar Muhammad, executive director of the Lowcountry Alliance for Model Communities in North Charleston, South Carolina. "That leads to planning for the built environment that doesn't account for climate impacts."

In Rosemont, a predominantly Black community within Charleston, those impacts have arrived. For years, residents have waded through flooded streets after heavy rain, and the problem was getting worse. But local officials remained unconvinced and unconcerned.

"Historically, decision-makers tend to pay attention to areas that speak up, that demand a response from their government," Muhammad says. "Communities that do not have that elevated voice—like Rosemont—get left out of the conversations, they get left out of the decision-making. And when a disaster happens, it's, 'Oops, we forgot about them.'"

To help solve that problem, LAMC deployed a tactic known as "photovoice"—encouraging residents to document conditions with their cellphones, then presenting those photos and stories to Charleston's mayor and chief resilience officer.

"Within days, the community got a response from the city of Charleston, asking, 'How can we help?'" Muhammad says.

That exchange netted a $100,000 commitment from the city to help Rosemont develop a community-led resilience plan. Next, LAMC and its partners worked with A2 to raise an additional $300,000 from the National Fish and Wildlife Foundation and the National Oceanic and Atmospheric Administration, with the goal of identifying and implementing green infrastructure projects to curb flooding in the area.

Possible projects include a living shoreline that restores the marshland that once soaked up storm surges, as well as rain gardens and rain barrels on private property that collect water and slowly release it back into the system without overwhelming it.

And though it's partnering with experts like hydrologists and landscape architects for the Rosemont project, LAMC is not relying solely on the opinions of experts.

"We want to put in place solutions that are long term, that are sustainable, that address the issues that the community is identifying," Muhammad says. "For that to work, our residents must be involved at every point of the project."

To that end, LAMC has created community advisory boards that center residents' voices and lived experiences.

"This leads to the type of solutions that the community will embrace," Muhammad says.

In Rosemont—as in the South Bronx and Newark—the push for "unbuilding" and green infrastructure comes from communities on the front lines of the climate emergency. Long ignored and underinvested, these neighborhoods are coping with legacy pollution and the fresh threat of climate impacts. They are getting organized and speaking up. And they are devising plans that aim to remedy long-standing injustices while building a greener, more resilient future.

Climate Change Is a Growing Risk for Older Women

Danielle Arigoni

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When forest fires roared through Carpinteria, Calif., in 2017, 88-year-old Nadine Demalleville had just five minutes to evacuate the mobile home where she lived alone with her beloved cats. The former nurse relied on a wheelchair and had no way to get herself to the emergency shelter 20 miles away. Were it not for a neighbor who stepped in to help, Demalleville would likely have perished in the fire. Instead, she arrived safely at the shelter with a lunchbox full of medications but little else.

As climate change fuels ever-deadlier disasters, it may seem that no one is immune to the wildfires, storms and heat waves that plague our baking planet. While this may be true, some are more threatened than others, and older women like Demalleville are among those most at risk.

Older adults represent a significantly disproportionate share of deaths associated with climate-fueled disasters. Consider the lives lost in the Lahaina wildfires in Maui this summer: of the 89 casualties identified by Maui officials, 73 percent were among people over 60 years of age.

That figure is tragically consistent with other disasters across the U.S. over the last 20 years. In the aftermath of Hurricane Katrina in 2005, 70 percent of those who died were over 65. In 2021's Winter Storm Uri and 2022's Hurricane Ian, two-thirds of the casualties were among people over 60. When Hurricane Maria swept Puerto Rico in 2017, 100 percent of the "excess deaths" caused by the storm were among older adults.

Why are older adults—especially older women—more vulnerable? Part of the problem is that emergency planners are ill-informed about our needs. For example, while many emergency management plans address the needs

of elderly residents of nursing homes or assisted living facilities, they don't address the overwhelming share of older adults who live at home in the community, often alone.

Just 4 percent of older adults live in congregate facilities like these, and older women are even more likely to live alone. Outside of congregate facilities, one in three women over 65 lived by themselves in 2020, compared to one in five men of the same age. When planning efforts focus solely on mitigating risk for people in group-living facilities, older women living alone are unaccounted for, and their needs are left unmet.

In the U.S., there is an assumption that everyone can and will drive—to evacuate in an emergency, to seek out a cooling or warming center in extreme weather, or to stockpile food and groceries to prepare for a disaster. But whether for reasons of cost, capability, or choice, nearly one in five older adults do not drive. More than a third of women over 75 do not drive, making them dependent on public transit, friends, or family for mobility. Without a focus on creating safe, viable and affordable transportation alternatives for people who don't drive, older adults and people with disabilities are forced to identify solutions for themselves, leaving them at greater risk.

Older adults and women also use the internet differently—and less frequently—than other ages, requiring that local leaders utilize a varied approach to disseminating preparedness information, warnings and other critical information. In 2021, roughly one-quarter of the people who reported that they do not use in-home internet were people over 65, and a slightly higher ratio of women than men (of all ages) said the same.

The well-documented financial plight of many older women further compounds their climate-related risk. The ability to tap into savings is often essential to cover the costs of temporary evacuation, to modify one's home to withstand weather-related risks or to fix the damage caused by previous disasters.

Increasingly, heating and cooling costs are unaffordable for older adults on a fixed income. Here, too, older women are at greater risk, because they receive 20 percent less in Social Security benefits than men. Nearly half of adults aged 55 through 66 have no retirement savings, and this figure is higher for women. Unless they can tap needed funds to prepare for and recover from disasters, many older women will continue to live in homes

in need of repair, or in conditions that exacerbate underlying health risks.

So, what we can we do, as older women—and what should we demand of our communities—to reduce our risk from climate disaster?

First, we can insist that local and state leaders proactively consider age and abilities when they devise emergency response and climate resilience plans. It is critical that leaders understand the financial, mobility, and communication needs of older adults well before a disaster strikes.

Second, we can take proactive steps to make our needs known, by signing up for a "special needs registry" that allows residents to state the type of support they may need in times of disaster. If such a registry doesn't exist in your community, encourage local leaders to start one.

Third, we can undertake and support efforts to make our communities more climate resilient. That means retrofitting homes to be more energy efficient and better able to withstand extreme conditions. It also requires widespread commitment to transportation and communication systems that work better for older adults, particularly those who don't drive or who lack home internet.

These interventions will not eliminate the growing climate crisis. But they can make communities more resilient in the face of future climate changes and reduce the disproportionate risk that older women—and all older adults—currently bear.

Nadine Demalleville was fortunate to make it through the fire that consumed her community. We shouldn't have to rely on luck to survive climate disaster.

SECTION II

Sustainable, Equitable Communities

Share the Road

Alison Sant

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If you've taken a city bike or electric scooter for a spin, used a ride-hailing app, ridden public transit, or even walked on an open street, you've experienced "shared mobility." Shared mobility maximizes the limited space on city streets by making the ways we get around more efficient, right-sized, on-demand, and—you guessed it—shared.

Sharing our roadways is a custom we have forgotten for nearly a century. Today, as much as 30 percent of the land area in American cities is dedicated to roads, parking, and other automobile infrastructure.

But car-centric mobility has come at a huge cost. Cars eroded our common experiences and our common spaces as vehicles began to dominate our streets. Although nearly 92 percent of U.S. households have at least one car, they're a costly investment: around $12,000 a year. Even worse is the human toll: 46,000 people died on U.S. roads in 2021.

It hasn't always been this way. City streets were once shared spaces for walking, biking, transit, and the occasional automobile. Into the 20th century, Americans resisted automotive dominance of their roadways and demanded safe streets. They had reason to: In Fighting Traffic, Peter Norton observes that before the car, pedestrians ruled the streets—crossing them at will, using them as places to play and gather.

Today, shared mobility aims to recreate that reality.

Shared mobility offers to reallocate the geometry of the street. A single car lane can only move 1,600 people per hour; a two-way bike lane can transport 7,500 and a transit lane 25,000 people in the same square footage. On a sidewalk, 9,000 people can brush past each other in an hour. Each shared car removes as many as 15 private automobiles from the road. One parking spot can support a charging station for 8 shared

bikes. Shared mobility frees up space for residents to take bicycles, scooters, or buses—practical choices, given that most trips taken in cities are less than three miles.

Benjamin De La Peña, CEO of the Shared Use Mobility Center, emphasizes the need to find the right tool for the right trip. To go a few blocks or a quarter mile, "you can walk," he says. "If it's longer than that, or you're a little tired or you're a little older, but you can still balance, then you can use bikes and scooters. Or, for an even longer trip you can use public transportation. All of those options should be available rather than assuming a full-time vehicle is useful for everything."

U.S. cities can learn from the global south, where "abundant and frequent transportation options are provided in a decentralized way," says De La Peña. This "popular transportation" includes rickshaws, jitneys, tuk-tuks, and matatus–fleets of two-, three-, and four-wheeled vehicles that whisk travelers to their destinations.

Ideally, shared mobility is also electrified. Much attention has gone to electrifying private cars as a climate solution, but electrifying shared ride-hailing vehicles can reduce approximately three times as much carbon. In 2021, shared bike and scooter trips offset about 54 million pounds of carbon dioxide emissions by replacing car trips. And it's cost-effective: $1 million spent on a charging network for 120 EVs could electrify 650 shared bikes and scooters. That's why advocates argue that funds from the Bipartisan Infrastructure Law should go to electrifying shared mobility.

Most importantly, shared mobility must be abundant. "To the person waiting for the bus, it doesn't matter whether that's an electric or diesel bus, if it only comes once an hour," says De La Peña.

Electrified or not, shared mobility is growing. By 2030, consumer spending on shared mobility globally could reach $1 trillion. Uber alone is investing in peer-to-peer car-sharing systems in the U.S., fleets of electric rickshaws in Delhi, and bus-on-demand in Cairo.

"We have created a world, especially in wealthy countries, that is very, very car-centric," says Shin-pei Tsay, Global Head of Cities and Sustainability at Uber. "The future necessarily needs to be much more people-centered, much more multimodal, and much more compact…people need a basket

of mobility options to choose from and know that if they were to leave their car at home, they could seamlessly get through a city."

Tsay describes shared mobility as a solution for cities where public transit does not provide enough options. "Shared mobility can be nimble; it uses the infrastructure that is already there and fills in the gaps around the edges of an entire system." Ride-hailing can serve as a kind of mobility insurance: "They miss the bus. They know they can take a ride hail, even if it's really late at night."

In the United States, mobility options are especially relevant as transit agencies are reducing service amid pandemic-era declines in ridership and a looming fiscal cliff. Patterns of work and commuting have shifted dramatically since 2020, drawing fewer people into central business districts. This makes fixed structures of transit, with their reliance on farebox revenue, badly suited to current mobility demands.

But not all modes of shared mobility are equal. Although ride-hailing reduces the need for parking, it has increased congestion in cities as drivers log more than 40 percent of their miles without passengers. Ride-hailing may also discourage some from walking, biking, and taking transit.

Even more dystopian are driverless vehicles. San Francisco is one of the first cities in the country to test Autonomous Vehicles. In August, the California Public Utilities Commission voted to allow Waymo and Cruise unlimited expansion of their AV fleets in San Francisco. By August, about 550 robotaxis roamed the city's streets.

A study by Missy Cummings at George Mason University shows that AVs are less safe than human drivers. In fact, robotaxis are four to eight times more likely to be involved in non-fatal crashes than human-driven cars. Incident reports in San Francisco catalog stalled cars blocking buses and bike lanes, failing to yield to pedestrians, driving into oncoming traffic, or interfering with fire trucks and other emergency responders. Among the most disturbing was a hit-and-run with a human driver who crashed into a woman in a crosswalk, launching her into the path of a Cruise which ran her over and stalled on her leg. The company's vehicles were suspended from San Francisco and California streets as a result, and by late October the cars were pulled from roadways nationwide.

Michael Smith, a member of the direct-action group Safe Street Rebel, says: "AVs are a step in the wrong direction." With 20 pedestrians killed every day in 2022, he believes the solution is not more cars, but fewer of them. Smith describes the rollout of robotaxis in San Francisco. "All of a sudden, all these robot cars started appearing…It's not like anybody voted for them or there was any public discussion about them." Several Safe Street Rebel members saw robotaxis paralyzed in intersections. To indicate that a car was stalled, they put traffic cones on the cars' hoods. In this way, they discovered that "coning" these cars disables them. To reset the car, a company employee must remove the cone and reboot it. "We thought, 'Hey, we should really highlight this, and in a funny way, in order to get attention to the situation,'" says Smith. It worked: "Coning" quickly became a meme.

Smith is no Luddite: he studied robotics and has decades of experience in the transportation sector developing app-based systems like NextBus and Swiftly. But Smith is convinced that AVs are not ready for the road. Moreover, AVs contribute to congestion, are inaccessible to wheelchair users, and could eliminate low-wage jobs for drivers, exacerbating economic disparities. Accordingly, Smith says the billions being spent to develop robotaxis could be put to better use by investing in public transit, walking, and biking.

Ultimately Smith believes that AV's will not replace private automobiles, they will just add driverless ones. For now, the Safe Street Rebel coning campaign has helped San Franciscans feel they can make a difference in their own city, even one dominated by the tech industry. As Smith says, "Sometimes you just need to go and do something yourself and get it done."

Today, we are at a metaphorical crossroads as autonomous vehicles and electric cars promise a new, improved "motordom." In one direction is the status quo, electrified and roboticized. In the other is a future that draws inspiration from the past.

Tsay hopes cities extend the gains made during the pandemic, with slow and open streets offering an opportunity to "be more inclusive and deal with historic inequities." She also sees it as an opportunity to do more to limit GHG emissions and create green streets to manage flooding and heat. "The public right of way can be part of an entire system of climate mitigation while being very people-centered."

As De La Peña observes, "The pandemic laid bare all of our assumptions of how you structure society, and the built environment." In a time of emergency, we needed flexibility. "The more chaotic things become, the more adaptive you need to become…And that includes the use of our streets." He sees great potential in redirecting the trillions of dollars spent on cars to reimagine mobility as a utility—one that is invested in, regulated, and available whenever you need it.

In short, De La Peña says, "The status quo is not working." The solution is simple: share.

ADUs Can Help Address the Lack of Housing. But They're Bad Urban Design.

Travis Beck

Originally published October 5, 2023 in Next City

Cities across the U.S. and Canada have embraced Accessory Dwelling Units (ADUs), also known as "granny flats," as a means to quickly address severe housing shortages. Implemented at scale, however, ADUs are a bad urban design solution. They disrupt the neighborhoods they are intended to preserve and can limit, rather than create, social opportunity.

I know because I have lived in one such neighborhood.

Lack of housing availability and rising prices have created a crisis for low- and middle-income Americans. Of the many available statistics, consider just one: At the end of 2022, Moody's Analytics reported, a median-income household renting an average-priced apartment qualified as rent-burdened.

In this context, ADUs offer many advantages. Defined by the American Planning Association as smaller, independent residential dwelling units located on the same lots as stand-alone single-family homes, ADUs can be relatively quick to construct. They reduce sprawl and lower development costs by adding housing where utilities, roads, schools and services already exist. They address housing affordability both by creating more rental units and by generating income for the homeowners who rent them out. They provide opportunities for multi-generational households by allowing adult children living at home to step up from their childhood bedrooms, aging parents to move in with their grown children (hence "granny flats"), or families of choice to assemble themselves.

The unspoken advantage for communities permitting ADUs as a housing strategy, however, is that they delay the day of reckoning with the land-use policies of the last century. Rather than give up the miles and miles of single-family housing that comprise so much of the nation's sprawling metropolitan areas, the hidden logic suggests, we can just tuck more people into them. In doing so, we preserve the twin American dreams of home ownership and neighborhood life.

But tucking more people into the backyards and former garages of a single-family neighborhood preserves the dream of homeownership for only a segment of the population, cuts off access to neighborhood life for the rest—and puts everyone in an uncomfortable arrangement.

Living in a neighborhood full of ADUs, as I have done in Santa Cruz, California, is an unsettling experience. This is due to the very nature of their design: ADUs are the secondary unit on a property and are usually located in the back of the lot, often accessed through a gate.

This arrangement creates two parallel neighborhoods. One is a front-facing neighborhood of homes with front yards and front porches where residents might spend time and say hello to passersby, front doors you can knock on if you need the proverbial cup of sugar or are taking the kids trick-or-treating, and opportunities for all the casual neighborly interactions that build community. The other is a secondary neighborhood with no obvious street frontage, limited opportunities for neighborly relationship building, and design-enforced isolation.

Because it is harder to know the backyard tenants, they seem like perpetual strangers. Is that person we see from time to time going through the gate an unmet member of the front-facing family we know, a regular visitor, a vacation rental guest, or a neighborhood resident? Because tenants tend to turn over more frequently than property owners, the question repeats itself before the previous one is fully resolved.

The property owner, the one with the power and greater financial means, most frequently lives the front-facing life in the neighborhood. Their tenant lives the unseen life behind. Financial inequality is expressed spatially and then reinforced as differential access to the social networks of the neighborhood. It is an undemocratic arrangement.

There are better ways to add density while building opportunity and the community life of neighborhoods. One is to embrace the other options within the toolkit of what is sometimes called "gentle" density: duplexes, fourplexes, small apartments and townhomes facing the street. Please, no sideways townhomes strung along a private drive in a once-spacious lot. With these options, two or more residences can fit on an existing lot, equaling or bettering what ADUs provide. Affordability can emerge from the variety of housing types and ages in a transitioning area. These building types put the residents of each unit on an equal footing. Importantly, by being front-facing, they also create equal access to the life of the neighborhood.

This is the approach taken by some pioneering jurisdictions. Minneapolis, for example, ended single-family zoning effective January 2020, allowing the construction of duplexes and triplexes on all residential lots. Oregon passed legislation in 2019 requiring cities with populations above 25,000 to allow construction of duplexes, triplexes, and fourplexes on all residential lots. And California's 2021 Senate Bill 9 allows the construction of duplexes on residential lots and the splitting of sufficiently large lots into two parcels, effectively allowing four housing units to be built in place of one.

So far, these reforms have led to only modest numbers of the newly permitted housing types being built. This slow uptake suggests that the inertia of the single-family neighborhood—due to whatever combination of market preference, the lifecycle of individual properties, or the parcel-by-parcel obstacles of small lots, mature trees, and other site constraints—may not be so easily overcome.

So while allowing gentle density is part of the solution, more direct measures may also be necessary to address America's housing shortage.

A more direct approach is to build intensively in areas where it makes sense—downtowns, town centers, key transit nodes and along major thoroughfares. This type of density can boost housing stocks in bigger increments and create access to rentals and real estate equity at lower price points, especially where affordable housing requirements apply. It also promotes a lively community built around interactions in common spaces—the street, public gathering places and neighborhood businesses.

Cities need to take action to address housing shortages and declining affordability. Rather than pursue the seemingly easy option of permitting more ADUs, they should use the familiar built forms of denser neighborhoods to create housing and community for more of the population at the same time. That's good planning and good urban design.

Cool Your 'Microclimate' in an Ever-Hotter World

Robert D. Brown

Originally published August 7, 2023 in The Messenger

July was the hottest month in recorded history, and climate change promises more steamy summers to come. While we can—and must—bend the curve of greenhouse gas emissions to minimize climate change, a certain amount of warming is now inevitable. As temperatures rise, a few simple strategies can keep your corner of the planet a bit cooler.

The field of microclimatic urban design studies how the design of outdoor environments modifies prevailing conditions to make them feel cooler. The field asks two questions: What elements of the atmospheric environment affect the amount of heat a person experiences? And which of these elements can be modified by the way a place is designed?

A person's experience of heat is affected by air temperature, humidity, wind, sunshine and radiated heat. Air temperature is often the first thing people think of when they consider how hot it is. But, unless we are indoors with the air conditioning on, there's little we can do to change the air temperature.

Of course, we've all stepped into the shade after walking on a hot sunny street and immediately felt much cooler. Counterintuitively, it isn't a change in air temperature that makes the difference. If you carefully measure the air temperature at chest level on a hot sunny day, you might have a reading of, say, 95 degrees and you will probably feel very hot. When you move into the shade you immediately feel much cooler, but if you measure the air temperature, you'll find it is still very close to 95 degrees. The reason you feel cooler is that you are no longer bombarded with solar radiation. So, although air temperature is very important, it is not one we can modify in our personal environments.

There are, however, three elements that can both have a large effect on comfort and can also be modified by the design of the environment. You can use this list to adjust your own environment in such a way as to reduce the amount of heat you receive and increase the amount of heat you lose.

First, provide the right kind of shade in the right location. Some species of trees provide much denser shade than others. For example, a Horse Chestnut provides a heavy shade, while a Honey Locust provides a very light shade. Solid overhead structures provide the most complete shade. The right location for shade is a place where you might want to spend time outside, and where it is often very hot and sunny.

Second, find "hot spots" and take actions to make them cooler. A typical hot spot is a dark-colored, hard surface. For example, it could be a west-facing wall or an unshaded asphalt parking area. These kinds of surfaces will absorb a lot of sunlight, get very hot, and they will radiate heat in the same way as a radiator or fireplace. These surfaces can be cooled in many ways, including by growing a vine on the wall, planting a tree that will shade the surface, painting the surface a lighter color, or spraying it with water.

The third thing to do is to identify the direction that the wind typically blows from during hot weather. In my home in Bryan-College Station, Texas, very hot weather is typically accompanied by a southerly wind. Once you know the wind direction, make sure that you don't block it from passing through your space. Make sure there is a way for the wind to move into as well as out of your spaces.

These same principles can be applied at the neighborhood scale, say in a local park or residential streets. They can also help reduce the urban "heat island effect." If lots of people design little urban "cool Islands" in their yards and neighborhoods, the cumulative effect might just start to cool down the whole city.

Climate change guarantees even hotter summers in the future. But we can create our own *local climate change*—and in the process, make our living environments more pleasant and safer.

It Takes a Village to Get Rid of Lead Service Lines

Laurie Mazur

Originally published February 28, 2023 in Illinois Municipal League Review

Dante Sawyer had a problem. As manager of the Village of Hazel Crest, a working-class suburb south of Chicago, Sawyer suspected that many homes in his village had lead service lines. Those lines could be leaching lead, a potent neurotoxin, into residents' drinking water. It has long been known that lead poisoning causes devastating health and developmental effects—especially in children.

Hazel Crest is not an outlier. Although the Safe Drinking Water Act banned the use of lead service lines in 1986, some 11,000 communities across the country still have them in place. More than half of Americans rely on drinking water that exceeds the lead level recommended by the American Academy of Pediatrics to protect children from lead poisoning.

Today, half of American children under the age of six have lead in their blood. The problem is even worse in majority African American communities like Hazel Crest. A 2013 study found that Black children's blood lead levels were twice as high as those of white kids. Neighborhoods with older homes (again, like Hazel Crest, where half of homes were built before 1970) are also at risk.

The need to get rid of lead service lines is clear. But the process and the price tag can be daunting—especially for cash-strapped municipalities still reeling from a global pandemic. However, as Hazel Crest discovered, much can be accomplished with the right team and the right approach.

In 2022, Hazel Crest won a commitment of $4 million in principal forgiveness loans to begin replacing the village's 2,700 lead service lines. The keys to Hazel Crest's success include robust community support and pro bono assistance from nonprofit organizations.

Assessing the Problem, Applying for Funds

Solving a problem starts with understanding its scope. That's why Hazel Crest worked with two nonprofits—the Metropolitan Planning Council (MPC) and the Center for Neighborhood Technology (CNT) to estimate the number of lead lines in the community. By analyzing building records and demographic data, MPC and CNT were able to predict the number of lines and identify residents with the greatest risk.

Relying on community members to "ground-truth" the inventory of lead service lines, Hazel Crest residents, armed with graphics and instructions, reported the material of service lines from inside their homes, which was particularly helpful where lines were marked as "unknown" in city records.

The next step was to apply for funding. Right now, there are ample resources available for lead service line replacement, including federal funds distributed through State Revolving Funds (SRFs) as well as funds from the American Rescue Plan Act and the Infrastructure Investment and Jobs Act (also known as the Bipartisan Infrastructure Law), which earmarks $15 billion for addressing lead in drinking water.

But navigating the maze of agencies and applications can be hard for understaffed municipalities. As a result, disadvantaged communities received less than 30% of SRFs over the last decade, according to research by the Environmental Policy Innovation Center (EPIC).

Fortunately, Hazel Crest was alerted to available funding by the village's consulting engineer. In 2019, federal legislation authorized states to transfer funds from Clean Water to Drinking Water SRFs for the purpose of removing lead lines. And the next year, the Illinois Environmental Protection Agency earmarked nearly $108 million in principal forgiveness for lead service line replacement projects. "At that time, the supply of funds was greater than the demand," says Jonathan Flowers of Robinson Engineering. "Dante had the foresight to say, 'Let's go ahead and apply for this money.'"

Securing Community Support

Hazel Crest's application included the survey of lead lines conducted by MPC and CNT, as well as demographic data and a plan for implementation. Most importantly, the application showed strong community support for the project. To secure that support, outreach to homeowners'

associations and other civic groups was conducted and a public hearing for residents was held. The village board of trustees also passed a resolution stating their commitment to replace lead lines, prioritizing homes with children and other vulnerable residents.

In June 2022, the Village of Hazel Crest received word that it is on the state's list to receive $4 million in loans to remove lead service lines. The loan carries a maximum 20-year term, with interest rates set annually at one-half the bond market rate. Loans are to be repaid by water system revenues but are eligible for up to 100% of the costs to be forgiven by the State of Illinois. Because the $4 million will cover only the first phase of the $30 million project, Hazel Crest has applied for multi-year funding from SRFs, which is now being replenished with funds from the Bipartisan Infrastructure Law.

The next step is to get bids for the replacement work and launch the project. Here, too, community engagement is key. Village staff is reaching out to residents in priority areas and working with EPIC and another group, WaterPIO, to communicate the benefits of lead line removal. They are also partnering with Robinson Engineering and the Center for Geospatial Solutions to develop a public-facing dashboard on their program.

Advice for Others

Reflecting on Hazel Crest's success so far, Sawyer offers advice for other municipalities saddled with lead service lines. "First, start by galvanizing your elected officials—your mayor, your board of trustees," Sawyer says. "Educate them about the issue and why it should be prioritized over other urgent items."

Second, "Be direct and transparent with the community about what's taking place." In the wake of the Flint, Michigan, water crisis, revelations about lead in drinking water can induce panic and distrust. Sawyer says it's important to "provide residents with information, show them the data you have, and communicate with them about the steps you are taking to make sure that the water is safe."

And third, "Make sure you have the right team at the table." That can mean supplementing city resources with pro bono assistance from nonprofit organizations. Groups including MPC, CNT and Blue Conduit can assess the scope of the problem by conducting an inventory of lead

service lines. For help with funding sources, EPIC has created a Funding Navigator that helps utilities serving disadvantaged communities secure SRFs and other public funds for water infrastructure.

In other words, it takes a village to remove lead service lines. Lead in drinking water presents an urgent public health problem; mitigating the problem is a complex and expensive undertaking. But, as Hazel Crest has shown, it can be done—with determination, community support and an assist from nonprofit partners.

Battery-Equipped Appliances Could Make Resilience Ubiquitous

Shelley Hudson Robbins

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The clean energy transition calls us to electrify everything, and to do so equitably. At the same time, we need resilient power to keep refrigerators, lights, and critical medical equipment running during ever-more-frequent power outages. This, too, is an equity issue, since outages are more common in underserved communities.

Traditional battery storage is one way to keep the power on when the grid goes down. Another is developing right under our noses, in the form of battery-equipped appliances. I call it "stealth storage."

Last November, a California startup called Channing Street Copper Company introduced an induction cooktop equipped with a 4-kilowatt-hour lithium iron phosphate battery. The battery boost means the stove can be installed in a home with a 110-volt outlet (as opposed to the 220 or 240 volts usually required for an induction cooktop). And it cleverly includes an extra outlet so that other appliances can tap into the battery.

The battery-equipped stove may seem like yet another high-tech toy for wealthier consumers. But, in an interview with Dave Roberts of *Volts*, Channing Street's chief scientist Steve Calisch described the battery in the cooktop as a "Trojan horse"—a way to introduce battery storage into households via ordinary items such as stoves and refrigerators. Indeed, built-in batteries could someday be as common as the microchips now embedded in so many products.

Media coverage of battery-equipped appliances has mostly focused on their load-shifting powers: For example, a grid-tied stove can store energy during the day when solar is powering the grid and release it after dark or when

demand spikes. But stealth storage can do so much more. Importantly, it can build resilience in the communities that need it most.

Imagine this scenario: A low-income family includes an elder with COPD who depends on a portable oxygen machine. When a massive storm hits the community, the power goes out. Fortunately, a community program replaced the family's old range with a battery-equipped induction stove. The stove's battery can be tapped to run the oxygen machine, keeping the family member home and out of the emergency room. A 4-kilowatt-hour battery can run the refrigerator for a few days. It can charge cell phones, run a fan if the weather is hot, or a small efficient heater if it's cold. And of course, the battery can power the stove. By keeping these critical items running, a vulnerable family avoids a major disruption—saving resources and lives.

Now imagine that the stove, the refrigerator, and the water heater all have small batteries, which would all be available to lend their charged power to other needs during a blackout. The result: a super-distributed, resilient network of backup power.

If this seems far-fetched, consider the now-ubiquitous microchip. Who remembers when telephones did not contain computer chips? Televisions? Cars? The chip, formerly known as an integrated circuit, was invented in 1958 by Jack Kilby at Texas Instruments (and also independently invented six months later by Robert Noyce, who went on to co-found Intel).

At first, computer chips made complex things smaller, faster, and cooler; eventually they allowed connection to the internet, which was "born" in 1983. Fast forward a few years, and computer chips have now enabled the "internet of things," such as smart thermostats, heat pump water heaters, and HVAC systems. These innovations play an important role in the transition from fossil fuels by allowing appliances to shift energy demand away from peak times that require the firing of the dirtiest power plants on the grid, called "peakers." Chip and internet technology are now advancing at blinding speed to allow some traditional consumer items to play a role in the clean energy transition.

With some help from the federal government, battery-equipped appliances could do the same. In fact, development of the Channing Street stove was funded, in part, by a Department of Energy effort. More federal support could help bring costs down for battery-equipped appliances.

As importantly, the federal government can prioritize deployment of battery-equipped appliances in the low-income communities and communities of color where resilience is needed most. The upfront cost of adding traditional battery storage has historically been a significant hurdle for low-income households. These include both soft costs associated with installation (electrical wiring, permitting, etc.) as well as the cost of navigating local building and fire codes.

In the *Volts* interview, Calisch points out that battery-equipped appliances tackle these cost issues: Battery storage is installed in a factory setting, which decreases cost while increasing quality control, and specialized installation is not required at the residence. Affordable battery storage can also reach renters more easily, helping to solve the landlord-tenant disincentive problem that results in under-investment in energy efficiency and clean energy technologies for rental properties.

If the cost of battery-equipped appliances is brought down quickly and dramatically, stealth storage can soon become as ubiquitous as computer chips. That could be good news for vulnerable communities in an increasingly disaster-prone world.

We Can't Build Our Way to Net Zero

Patrice Frey and Vincent Martinez

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Renovations recently outpaced new building construction in the U.S. for the first time—great news for those concerned about climate change. The building construction industry is responsible for a hefty 13% of energy-related emissions.

Reusing our existing building stock can help us avoid significant environmentally-costly new emissions, while also providing opportunities to reduce building operating emissions through energy upgrades. It's estimated that reusing and retrofitting existing buildings can save between 50-75% of the carbon that would be expended by constructing a similar building.

This new trend in building and infrastructure reuse, driven primarily by dramatic increases in the cost of building materials, contrasts significantly with America's longstanding love affair with chucking out old buildings in favor of new ones. In total, we typically demolish more than a billion square feet of built space in the United States every year, the equivalent of 20% of the built area in New York City. This means that in the next 10 years, we'll demolish (and rebuild) the equivalent of New York City…twice. In addition to those teardowns, we abandon many buildings. Though estimates are imprecise, it's believed that, across the U.S., as many as 19 million buildings sit vacant.

Yet our appetite for space is enormous. It's estimated that we build between four and six billion square feet of space, between residential and commercial development, in the U.S. each year. But the climate impacts of all that building—including emissions from materials manufacturing and new infrastructure—receives far less attention than it should.

It's true that the lion's share of energy-related emissions from the building sector (27%) come from the operation of buildings, so the 13% of

emissions from construction seem less significant in comparison. While we unequivocally cannot meet our carbon reduction targets absent efficiency upgrades to and electrification of existing buildings, we also cannot build our way to net zero. The carbon impacts of new construction present a significant and underrecognized barrier to meeting our carbon-reduction targets, specifically because of our failure to think about the timing of those emissions.

When assessing the best way to cut emissions in the building sector, we must think not just about how much carbon we reduce—but when those reductions happen. Since greenhouse gasses accumulate in the atmosphere and we have limited time to reduce these emissions to stave off the worst impacts of climate change, immediate carbon reductions have more value than reducing carbon at some later date in the future.

Herein lies the challenge for new buildings. The carbon released into the atmosphere from producing and transporting building materials and from the construction process is immediate.

The architectural firm Goody Clancy recently led rehabilitation work at the Alan and Sherry Leventhal Center at Boston University, converting the former Hillel House into a new admissions center. Using the new Carbon Avoided Retrofit Estimator (CARE) Tool developed by Architecture 2030 and colleagues, the architects found significant emissions reductions associated with the renovation of the building compared to demolition and new construction.

The firm assessed three scenarios over a 15-year period: do nothing, reuse the existing building with key modernizations and efficiency improvements, or demolish the old building and replace it with a new building.

The first scenario—maintaining the status quo—is the clear climate loser, as the building continues to emit carbon through operations at a higher rate than either the rehabilitation or new construction scenarios. But perhaps counterintuitively, reusing the existing building (even if not as energy-efficient as a new build) would emit far less carbon over 15 years than a new, considerably more energy-efficient building. That 15-year assessment period represents roughly the time period in which we have to achieve to meet Paris Agreement targets.

When emissions from the Boston University project are graphed over 15 years, we can clearly see the higher short-term carbon emissions under the new-construction scenario. As climate scientists are quick to remind us, in this near-term period we must do everything we can to bring down emissions.

The analysis performed with the new CARE Tool is consistent with many other studies conducted over the years, with typical findings that it will take 10-80 years for replacement buildings to achieve a lower carbon impact than the rehabilitation of existing buildings.

The science is solid, and the data are clear: Reusing and retrofitting existing buildings is vital to achieving significant emissions reduction targets. The question is no longer whether to reuse what we can, it's how to do it.

Many barriers to building rehabilitation remain, not the least of which is the difficulty of financing these critical projects. This is particularly true in communities of color, where systemic barriers to lending remain, and in disinvested rural areas where underlying market conditions make the economics of adaptive reuse difficult and there are relatively few lenders.

We must develop creative financing strategies to make building reuse happen more efficiently and at scale. Allowing new federal Greenhouse Gas Reduction Funds to support building reuse and retrofits, the improvement and expansion of historic tax credits, and making permanent the New Markets Tax Credit program are among the many policy advancements needed to help better leverage our existing built assets in the climate fight. We don't have a moment to waste.

The Shift to Using More Electricity Will Change How Affordable Housing Is Built

Kimberly Vermeer and Walker Wells

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As the planet warms and heat waves, hurricanes, and wildfires become more intense, there's a growing demand to curb climate-changing greenhouse gas emissions. Residential and commercial buildings, which produce about one-third of all U.S. emissions, are a ripe target for carbon reduction.

That's why in a few short years policymakers and building designers have gone from pushing energy efficient design and products—which saved folks money—to targeting carbon emission reductions, even if it costs more in the long run. This paradigm shift is rapidly changing expectations for the development and operation of affordable housing.

One way to reduce carbon emissions is to go all-electric. This means moving away from burning fossil fuels—to heat homes, cook meals, and dry clothes—to using electric-based appliances and systems. The process of replacing the systems and technologies that use natural gas, coal, or oil is called "electrification," and while this move can help the environment, it does raise cost concerns for developers and creates challenges for housing operations and maintenance. Electrification can also potentially raise utility costs for residents and increase the demand for electricity from dirty power plants.

State and local laws, as well as federal policy changes, have driven the move from energy-efficiency to carbon reduction, and in many jurisdictions, electrification is now encouraged or even required. The recently passed federal Bipartisan Infrastructure Law and Inflation Reduction Act (IRA) accelerates the shift by providing resources to address increased costs and

technical challenges. The IRA, for instance, contains billions of dollars in subsidies to address climate change, and the Biden administration's Justice40 Initiative earmarks 40 percent of these resources to traditionally underserved communities and affordable housing. (As much as $25 billion is allocated to affordable housing and low- and moderate-income communities, to be administered through the U.S. Department of Housing and Urban Development, the Department of Energy, and the Environmental Protection Agency, according to a recent policy brief by the National Housing Trust.)

These new requirements and incentives will change the way housing is designed and built in the U.S. But the shift to using more electrical-based systems means that affordable housing practitioners face a steep learning curve, a daunting new vocabulary, and new metrics for assessing building performance. What are some of electrification's benefits and challenges, and how can we move forward?

A Shift from Energy Efficiency to Carbon Reduction

Typically, energy use in buildings is described in terms of *energy use intensity*—the BTUs used per square foot per year. For years this metric was the basis for energy modeling for new buildings and the way to measure energy use in existing buildings. While we must continue to design deeply energy-efficient buildings, we are also being asked to measure our buildings' *carbon emissions intensity*, or CEI, calculated as tons of carbon emissions per square foot per year. The best way to reduce CEI is to electrify our buildings, while supporting efforts to transition the grid to clean energy.

State and local action is accelerating this shift by establishing carbon reduction targets aligned with the Paris Agreement. California's 2022 Title 24 Energy Code and the Massachusetts 2050 Decarbonization Roadmap are two examples.

In California, the 2022 update to the energy code strongly encourages all-electric design—with heat pumps for space and water heating—and expands requirements for photovoltaic panels and battery storage systems. The 2022 Energy Code also requires that new developments with gas lines and appliances "future-proof" the buildings by providing extra electrical capacity to easily convert from gas to electric.

In Massachusetts, the 2021 Act Creating a Next Generation Roadmap for Massachusetts Climate Policy expanded municipalities' ability to implement stricter local energy codes and set carbon emissions reduction targets. It also codified investment and development review standards for environmental justice communities. This year, another bill passed that allows local communities to prohibit new natural gas hookups in future developments.

Municipalities are also starting to require that affordable housing owners and developers address carbon emissions intensity. For instance in Boston, as of 2021, the city has incorporated net-zero emissions requirements for affordable housing developments seeking city funding, while the 2022 Building Emissions Reduction and Disclosure Ordinance update requires that all building owners report energy use and carbon emissions intensity, and meet carbon emissions standards that reduce to zero by 2045.

Energy and carbon benchmarking ordinances differ by municipality, creating new challenges for affordable housing owners. In California, Tom White, associate director of building performance and sustainability at Eden Housing, describes the challenge he faces as an asset manager of more than 12,000 units of affordable housing.

"Eden Housing has properties in many municipalities. We are having to keep track of varying requirements to measure and report on building energy and water usage and facing different target dates for reducing carbon emissions and achieving net-zero carbon goals. Oakland's City Council has committed to all buildings in the city being all-electric and efficient by 2040. The San José City Council passed a resolution aiming for a goal of carbon neutrality in San José by 2030, and there are varying energy reach codes in over 50 local jurisdictions across the state," White says. "We have to address building conditions before we electrify. As an affordable housing provider, it's been especially challenging since these greenhouse gas reduction goals have only recently come with some funding to pay for implementing them. Retrofitting old buildings includes window replacements, added insulation, and improved ventilation."

White says he's hopeful that funding in the Inflation Reduction Act will provide much-needed resources to meet California's targets.

Electrification: Changing How We Design and Build

As we move toward all-electric buildings, affordable housing designers,

installers, and maintenance teams are learning how to navigate this new terrain. In practice, electrification means that the systems for heating and cooling will most likely be air-source heat pumps, and hot water will be generated by heat-pump water heaters. (Heat pumps pull heat from the cold outdoor air and transfer it indoors, and in warmer months, pull heat out of indoor air to cool the home.) Electric cooking will be the norm, and more municipalities will require that electric vehicle charging stations be included in new construction. This increase in electrical usage will require larger house service panels and, in some instances, larger transformers.

In Boston, an affordable housing project wrapping up design illustrates the disruptive effects of the shift from energy efficiency to carbon reduction. For previous projects, Nuestra Comunidad Development Corporation, a local nonprofit developer, chose a central hot water system with a high-efficiency gas boiler combined with a roof-mounted solar thermal preheat system. But the city required 100 percent electrification for the organization's new project. This requirement, while not a surprise, created a challenge for the team because it meant changing to heat-pump water heating, a technology that was unfamiliar to the owner and the design team.

Heat pumps generate hot water at a slower rate than gas boilers, so instead of 1 boiler for the 44-unit project, the all-electric system required 9 interconnected heat pumps to meet the building's expected electrical load. That, in turn, requires more roof structure to support the extra tanks, and increases the overall electric load. Operations are affected too: Property management staff must learn different maintenance protocols. It's a learning curve for everyone.

Some early adopters are not waiting for mandates. Nonprofit developer Community Corporation of Santa Monica wrapped up an electrification rehab project earlier this year and expects to complete two new, all-electric construction projects by the end of 2022. These early case studies are part of Community Corporation's strategy to decarbonize its entire 90-property portfolio. Tara Barauskas, the organization's executive director, says, "I always feel like it's good in life to stretch yourself outside of your comfort zone. We just put all our efforts towards delving into how we can create the most green, affordable housing we can." Both projects feature central hot water systems, with one using a single large heat pump and the other using several smaller heat pumps that operate in series

depending on demand. Large storage tanks address the slower rate of hot water production and can serve as a thermal battery by generating and storing hot water when energy costs are low.

Electrification and Equity

While the need to reduce greenhouse emissions is clear, the economics of electrification are fuzzier and raise important equity concerns. Clean-energy conversions may reduce carbon emissions, but they may also increase energy costs. In many markets, electricity costs more than natural gas. When residents pay their own utility bill, how equitable is the transition to all-electric if their energy bills go up?

In California, White of Eden Housing says residents in coastal and Bay Area communities pay for their own electricity, and cooling retrofits will increase their electricity bills unless those costs can be offset by on-site solar electricity.

In Boston, electricity costs are higher than natural gas prices, says Andre Jones, Nuestra Comunidad's senior real estate project manager. With so many unknowns about the potential cost changes its new all-electric development, Nuestra Comunidad decided to keep the apartment heating, cooling, and hot water on the common meter charges, rather than transferring this risk to residents.

With uncertainty about whether increased costs or savings will result from electrification, owners are reconsidering long-held assumptions about how to split utility costs and structure utility allowances. (In affordable housing developments where residents pay for utilities, utility allowances lower a resident's overall rent.)

Another concern: Electrification will increase demand for power from the grid, but the grid is not yet fully clean or renewable. The oldest and dirtiest power plants, known as "peakers," are often located in environmental justice communities. Becky Schaaf, senior consultant at the Vermont Energy Investment Corporation, notes, "One of the trickiest things about the grid impacts conversation is not just how much emissions take place, but where and when they take place…It's about: are you adding load at times when you're going to need to be using dirty peakers? So, it's not just overall emissions on average, but actually where and when your load is being added."

Moving Forward with Electrification

New technology and rapid change may seem a bit overwhelming. So here are our top five recommendations for how affordable housing developers and designers can make the most of the shift to electric:

1. Get tuned in to funding opportunities.

2023 will be a big year for programs to start rolling out. Get on the mailing lists for your state energy office and the major policy organizations that are tracking program implementation, such as the National Housing Trust and the American Council for Energy-Efficient Economy.

2. Build the right design team.

Electrification requires a higher level of expertise in system requirements and in understanding design implications. Having an experienced team, or design team members who are willing to dig into the details to create the best solution, is essential.

3. Use an integrated design process to daylight key issues and opportunities early.

As described earlier, electrification forces multiple changes to established design assumptions. Identifying these needs early helps to ensure that the right systems are selected and effectively integrated into the overall design. (Guidance on the integrated design process is provided in Chapter 2 of the *Blueprint for Greening Affordable Housing*.)

4. Take advantage of financial and economic benefits.

Electrification requires reconsideration of costs on common versus tenant meters and a fresh look at utility allowances. Energy savings from new technology may not be reflected in the standard utility allowances and analysis may show that owners are better off keeping costs on the common meters, while staying within the regulated rent and income thresholds.

5. Just get started!

Let the project be the teacher and start incorporating electrification strategies, using available pilots and incentive programs. Learn by doing: Install some equipment in one or two properties, learn what it takes to plan and implement, and see how it works. You'll be better prepared to move quickly when the big money starts to flow.

Sustainability Can (And Must) Be Beautiful

Sandra Lubarsky

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On a road trip to Friesland in the north of Holland, my friend Ans pulled off the highway to admire the much beloved belted bovines grazing in a field. In this part of the country, the barns are as beautiful as the houses and the cows are prized as much for their good looks as their milk. Lankenvelder cattle seem dressed for a black-tie affair, with a white cummerbund separating the dark expanse of fore and hindquarters. In earlier centuries, wealthy landowners liked the pattern so much they bred pigs, chickens and rabbits to replicate it. P.T. Barnum put the cows on exhibit in his circus. Affection for these handsome creatures runs strong and Ans made it clear that this was a sight deserving of aesthetic appreciation.

Further down the road we passed an outcropping of sleek, silver wind turbines that generate renewable electricity for this part of the country. Ans was equally passionate in her appraisal: "I really hate those things," she declared. "They're so ugly."

Ans' reaction to the turbines reminded me of an interaction years before between David Orr, a leader in the sustainability movement, and one of my colleagues, an art historian. Orr had given a lecture on sustainability and education, focused on the pedagogical power of the built environment. Most campus buildings, Orr argued, convey our confidence in an unending supply of natural resources, our romance with industrial efficiency, and our judgment that the natural world is not important to the world of work and study–all messages that run counter to sustainability.

As the visionary behind the Oberlin Center for Environmental Studies, one of the first zero discharge, green buildings on a college campus—now

recognized by the U.S. Department of Energy as a milestone building of the 20th century—Orr has been enormously influential in reconceiving campus architecture. His lecture was inspiring and persuasive. But in the question-and-answer period, my art historian colleague raised her hand, stood up, and accused Dr. Orr of having built an ugly building.

It was an unsettling moment. Here was a building with photovoltaic panels and passive solar heating, recycled carpeting and waterless urinals, a living machine that purified water for reuse, and sophisticated monitors that provided real-time feedback for tracking energy consumption. None of this impressed my colleague or lessened her discontent with the steel and glass structure that conveyed the all-too-familiar frost of modern design. In her comments I heard echoes of my Dutch friend's dismay with the cold and mechanical wind turbines of Holland.

I struggled with this exchange for many years, fully convinced by Orr's expansion of pedagogy to the design of campuses and classrooms, but like Ans and my colleague, disappointed that green architecture largely accepts the tropes of industrial design. And then I stepped back and realized they were pointing, in different ways, to the same problem.

Orr articulated what Ans and my colleague knew intuitively—that the built environment is neither mute nor unbiased. It speaks volumes about dominant social values. They were united in objecting to design that contributes to our alienation from the world. Using the language of carbon footprint, zero waste, and grey water systems, Orr challenged architectural assumptions of endless resources and detachment from the natural world. Ans and my colleague advocated for buildings and structures that are charismatic in the original meaning of the word (*kharis*), fostering "grace, beauty, and kindness." All were passionate that human-fabricated constructions should honor and encourage the flourishing of life.

But they also talked past each other in an important way, epitomizing one of modern philosophy's most perilous legacies: the disunion of aesthetics and ethics. Beauty and goodness share a long bloodline but since Kant in the 18th century, they have come to be thought of as separate values, descriptive of unique sets of acts and artifacts. It is a bifurcation whose consequences were made clear in the judgments about wind turbines and sustainable buildings. Ans and my colleague paid attention to the aesthetic appearance of the design without consideration of its ecological

good sense. In this, they accepted a cheapened form of beauty as mere surface and style. And yet, I know for sure that neither of them would overlook the ugliness of a pollution-belching building or a blood diamond or a carpet knotted by the fingers of young children.

Beauty is more than skin deep precisely because its task is to increase vitality. To become aware of the slow violence behind the production of so much of the glitter of modern life—and to be repelled by it—is to realize the kinship of aesthetics and ethics, beauty, and goodness. Cruelty, exploitation, environmental destruction—all forms of ugliness—are foe to beauty. "In the largest sense," wrote David Orr in *The Nature of Design*, "what we must do to ensure human tenure on the earth is to cultivate a new standard that defines beauty as that which causes no ugliness somewhere else or at some later time."

But it is also the case that sustainable design has been almost entirely consumed with solving technical challenges, focused primarily on energy efficiency, waste reduction, material techniques, and resource use. Rarely has beauty been a criterion. The habitual disregard of aesthetics that characterizes the modern worldview goes unchallenged—even by those engaged with rethinking many of the basic premises of modernity. Beauty continues to be treated as incidental or as an afterthought—or simply not considered at all. And yet, as architect Lance Hosey boldly declared in *The Shape of Green*, "If design is to act like nature, it should take our breath away."

To fulfill the vision that sets the practice of sustainability in motion—the vision of life coordinating with life in ways that ensure the flourishing of life—ethics and aesthetics must be reintegrated. They are not separate endeavors but part of the same effort to support life. Their antagonist is ugliness, understood in its root form as that which inspires fear, loathing, and dread—in form or action. It is anything that dissipates life, whether by expropriation or neglect. Sustainability is a process and goal that moves in exactly the opposite direction, away from the narrowing and deadening and toward enriching the extraordinary phenomenon that is life.

We need a way of thinking that supports this aim, one that overcomes the false separation of beauty and goodness and that makes it possible to speak meaningfully about shared values, one that holds sustainability to a standard that exceeds efficiency and preservation. We need a worldview

that actively promotes beauty. Without it, sustainability cannot fill its lungs. The consequence could be a world in which no one feels at home.

As billions of dollars pour into public coffers to rebuild our nation's infrastructure, the conversation between Orr and my Dutch friend takes on heightened relevance. In the next five years, bridges, overpasses, airports, and seaports will be rebuilt. Wind and solar facilities will be erected. Risk mitigation projects will inscribe large swaths of land–forests, watersheds, and coastlines. Mega-networks of energy, water, and transportation will extend across state lines and bioregions. Will we build in ways that take our breath away? Or will we silence the need for a landscape that gives voice to beauty, allowing a thin economy of efficiency to override the desire to build places we want to live?

Future generations will experience the American landscape differently than our generation.

"The worst thing we can do to our children," wrote the scientist Rene Dubos, "is to convince them that ugliness is normal."

We Mythologize Highways, but They've Damaged Communities of Color

Ryan Reft

Originally published January 19, 2023 in The Washington Post

Last year, Transportation Secretary Pete Buttigieg unveiled new efforts to address the problematic racial legacy of interstate highway construction, dedicating $1 billion to "reconnect cities and neighborhoods racially segregated or divided by road projects." Buttigieg's efforts were quickly assailed by critics who lamented the "wokefication" of the interstates.

But with the interstate system turning 67 years old this year, it is important to understand its many troubled legacies, including those that Buttigieg has pledged to address. Although planners knew early on that the interstates could disproportionately harm urban communities of color, officials made policy choices that cemented stark racial divides—and the creation of mythic lore surrounding the freedom of the open road worked to obscure them.

In 1956, President Dwight D. Eisenhower signed the National Interstate and Defense Highway Act, making the interstate system a reality.

Created in the era of Cold War competition, the construction and engineering of the system came wrapped in scientific language that obscured its impact. Engineers, planners and others deployed technical and scientific jargon that not only established the interstates as the height of modernity and a necessary step for the nation's present and future, but also helped shield the system's architects from criticism. They could explain away issues and counter criticisms with technocratic arguments beyond the reach of most protesters of the time.

Unprecedented in its size and scope, the law imposed new design standards that emphasized greater flow, wider freeway lanes, as well as larger and more complex interchanges. And from 1958 to 1966, the project was the largest source of federal funding to the states.

But while earlier state and urban highways had snaked around older communities, the 1956 act favored straight lines that sliced through neighborhoods. In the two decades following its passage, nearly 1 million people lost their homes to highway construction.

Non-White residents and homeowners were disproportionately affected by this massive displacement. Discriminatory federal housing policies such as redlining, alongside racism at the local level, had denied people of color from obtaining cheap, federally-subsidized mortgages for single-family homes. The result was the creation of booming, nearly all-White suburbs, while populations of color lived in segregated, crowded, often urban communities with declining housing values and conditions—the exact neighborhoods that planners, engineers and politicians targeted for highway construction.

The impact felt by Black and Latino urban residents—including community destruction, the loss of housing in an already stratified and segregated market, deprivation of generational wealth and exposure to unending environmental hazards—is frequently blamed on "urban renewal" and corrupt urban politicians rather than on planners or engineers.

In truth, planners knew from the beginning that the interstates threatened communities of color living in urban areas. In 1958, for example, the Sagamore Conference—convened by the Highway Research Board and attended by top federal, state and municipal officials, academics and civic leaders—issued a report that clearly noted the perils of highway construction. It warned of widespread displacement, with low-income, non-White and elderly residents facing the "greatest potential injury." Yet the type of highway construction that the report warned about proceeded across the nation.

This initial awareness of the problems that interstate construction could, and eventually did, cause was soon erased from institutional memory—first in internal policy briefs in the mid-1970s and later in official Department of Transportation histories that did not acknowledge how officials failed to prevent the highways' unequal impacts.

The results were devastating. For example, in Montgomery, Ala., during the 1950s, Sam Englehart—an innovator in political gerrymandering—punished civil rights activists by running the new highway through West

Montgomery, home to Rosa Parks, E.D. Nixon and others. In Chicago, Mayor Richard J. Daley used highway construction funds to build the Dan Ryan Expressway, isolating the city's Black communities and cauterizing White communities from integration.

I-94 tore the historically Black community of Rondo in St. Paul, Minn., in two, while in Los Angeles, the construction of the East Los Angeles Interchange displaced thousands of Latino families, robbed Boyle Heights and East Los Angeles of green space and saddled remaining residents with countless environmental dangers.

These practices became the norm for the Interstate Highway System, shaping the physical and cultural reality of the United States at a great cost that persists today. Over the past 30 years, some 6,300 families were displaced by the nation's 22 largest highway expansion projects.

For decades, policymakers have inadequately addressed these issues wrought by highway construction. In 1966, when what historians call the "freeway revolts," erupted, lawmakers attempted to mollify citizen protests with the creation of the Department of Transportation to provide greater oversight for construction.

They also passed laws such as the National Environmental Protection Act of 1969. New legislation helped communities prevent construction, but this advocacy failed to include non-White homeowners, who lacked the political leverage and financial reach to challenge such efforts, particularly in the courts.

Nor has historic-preservation legislation, often enacted alongside environmental laws, protected historically Black and Latino communities from the interstates. Of the 95,000 sites on the National Historic Register by 2020, only about 2 percent addressed the Black experience. "The dominant narrative of the freeway revolt is a *racialized* story," writes historian Eric Avila of this earlier era of resistance.

Popular stories celebrating highways, as well as their centrality to the lives of many Americans regardless of gender, race and ethnicity, have stymied a more accurate understanding of the interstates' impacts.

Even before the 1956 Act, Americans—including Black Americans—had already embraced the automobile as a vehicle for greater freedom

and opportunity. The existence of the *Green Book*—an annual travel guide published from 1936 to 1964 that provided information for Black motorists regarding lodging, food and other information to ensure safe travel—testifies to the systemic racism of the country's transportation networks, and despite its obvious limits, the freedom and opportunity it enabled.

Popular culture highlighted the freeway's passage to freedom and opportunity. Jack Kerouac's 1957 novel *On the Road* established one of the first and most lasting testaments to the promise of the open road, a story that graphed easily onto the interstate reality that followed.

During the 1960s, writer Joan Didion famously referred to driving Southern California highways as "secular communion."

Popular songs also firmly established the highway as a symbol for freedom, such as Bruce Springsteen's 1975 hit, "Thunder Road," with its lyrics, "These two lanes will take us anywhere. We got one last chance to make it real."

In 1971, Supreme Court Justice Lewis Powell even observed that "losing one's driver's license is more serious for some individuals than a stay in jail."

While exceptions to this narrative exist, too, of course, the vast majority of popular depictions of highways in American culture have represented them as conduits of freedom, community and economic success.

Historian Sarah Jo Peterson and planner Steven Higashide advocate for "truth and reconciliation" carried out, in part, by existing institutions such as the Transportation Research Board, the utilization of preexisting clusters of University Transit Centers and a congressional commission to investigate the damages wrought by the construction of interstates. "If we have any hope of avoiding future injustices, we have to fully understand the past," notes Higashide.

Deconstructing the myth behind the creation of the Interstate Highway System, unwinding the overly simplistic narratives that have defined the interstates and putting forth ideas for the future serve as the first steps in understanding this history. The next will be to rectify it.

Here's How Foundations Are Bringing Solar to Lower-Income Communities

Greg Horner and Vero Bourg-Meyer

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The rooftop solar industry is booming, but far too few lower-income Americans are benefiting as a result. It's a "modern version of redlining," according to Joe Evans of the Kresge Foundation. Now an increasing number of charitable foundations are stepping up to redress that injustice, using a range of approaches to bring the benefits of solar to the communities that need it most.

Thanks to foundations, more than 300 solar panels were installed in the Hopi and Navajo Nations in Arizona, creating jobs and providing reliable electricity to health centers, schools and other community buildings. A former coal mining area in West Virginia became a hub of solar development, with a comprehensive solar job-training program. Dozens of Wisconsin nonprofits received free solar panels, accelerating their shift to clean energy and boosting enthusiasm for solar in their communities. And 24 U.S. health centers in areas at risk for natural disasters developed solar systems with battery backup to supply power when the grid goes down.

The strategies and structures that enabled these projects varied widely. A recent report from the Clean Energy States Alliance, based on work funded by the U.S. Department of Energy, presents eight models that foundations are using to support solar and solar-plus-storage development in low- and moderate-income communities—each with a different combination of tactics, partnerships and financial approaches. These models include:

- Cost-reduction strategies, such as grants, regrants and donations of solar panels

- Market-building and financial-access strategies, such as loans, loan guarantees and equity investments

- Demand-side strategies, such as technical assistance funds and capacity-building programs

Foundations often maximize their impact by focusing not on rooftop solar for individual homes, but on solar installations for community-serving institutions such as health centers, affordable housing, senior centers and schools.

Here are some of the models foundations are using and example projects they've undertaken.

Donating solar panels
The Wisconsin-based Couillard Solar Foundation provides nonprofit organizations with solar panels. By purchasing panels directly and donating them to each grantee, Couillard achieves economies of scale from bulk purchasing, which lowers the overall cost of projects. "If someone came and asked for a bottle of water, you could give them a dollar to buy a bottle, or you could go buy 100 bottles at a much lower cost per unit," said Sam Dunaiski of Renew Wisconsin, which manages Couillard's grant programs.

To amplify the foundation's impact, the solar panels come with other support, including small grants for project development costs, technical assistance, and help raising funds for remaining project costs.

Providing loans to project developers
The Kresge Foundation made a loan to Collective Energy, a for-profit project developer focused on solar and solar-plus-storage projects at federally qualified health centers that provide services in low-income communities. The developer maintains ownership of the solar array, and sells the electricity to the end user at a lower cost than utility power, through a power purchase agreement. This results in both savings and a resilient power system for the grantee, with no upfront costs or risk. Kresge's loan to Collective Energy reduced the cost of capital for the projects, catalyzed other investments, and created a revolving loan fund that supported multiple projects.

Technical assistance funding
The Surdna Foundation partnered with The Kresge Foundation to provide grant funding to nonprofit organization Clean Energy Group to launch

a technical assistance fund to help community organizations evaluate the potential for solar-plus-storage installations at critical community facilities in underserved communities. This fund has provided over $1 million in technical assistance awards over the past nine years, supporting nonprofits, affordable-housing developers and providers, and others serving low-income communities, environmental justice communities, and communities of color.

"Resilient power is essential to supporting community-based organizations in their efforts to maintain critical services through a power outage—but it also can result in economic returns and set a precedent for investment in, and local ownership of, clean energy resources in underserved communities," said Marriele Mango of the Clean Energy Group.

Regranting

The Bezos Earth Fund provided major funding to The Solutions Project, a regrantor or intermediary with the capacity to distribute relatively small grants to grassroots organizations in low- and moderate-income communities. While The Solutions Project's outgoing grants were unrestricted, many of the grantees used the funding for solar projects, including Soulardarity in Michigan, PUSH Buffalo in New York, and Thunder Valley Community Development Corporation in the Lakota community in South Dakota.

The regranting strategy is available to funders and donors of all sizes as a way to support grassroots solar development, build energy independence and support climate resilience. Critically, it allows large foundations to outsource the deep engagement and administrative tasks entailed by working with myriad small nonprofits, putting their funds to work in a more localized way.

Capacity building

The Honnold Foundation, which is focused on bringing solar to frontline communities, provided multi-year unrestricted grant funding to the nonprofit project developer Native Renewables. The funds were used to develop off-grid solar projects in the Navajo and Hopi Nations, creating new financial structures to keep the cost of solar within reach, as well as providing job training and leadership development. Native Renewables is an Indigenous-led organization with a mission to bring solar power to 15,000 homes and to educate Native communities about renewable

energy. By providing an unrestricted grant, the Honnold Foundation used a trust-based philanthropy model, empowering Native Renewables to determine how the funding was used while also supporting the group's capacity and leadership.

During the grant period, the Honnold Foundation launched its Levine Impact Lab to provide capacity building to its grantees. The lab offers a broad suite of resources and assistance tailored to nonprofits' needs.

"Solar isn't the end, it's the means to the end," said Kate Trujillo of the Honnold Foundation. "And that end is community development and a community thriving with using their own solutions. So oftentimes that looks like a solar installation plus some job training, plus some education, plus some maintenance training, all of these things that are layered on top of one another."

Like many other energy-saving and wealth-building opportunities, solar power has not been equally accessible to all Americans—but thanks to foundation initiatives like these, that's starting to change.

Conserve Water, and Keep Building Water-Wise Homes

Brock Smethills

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Here in Colorado—and throughout the Western states—two crises are bearing down on us. First, there's the deepening megadrought: The last two decades have seen the driest conditions in the last 1,200 years. We're also experiencing an epic housing shortage. With supply lagging demand, U.S. home prices have soared by nearly 90% over the last decade, and the dream of homeownership is receding for many.

Now those crises are colliding. Concerns about water supply have led some Western jurisdictions to halt the construction of new homes, further aggravating the housing shortfall. Across the Front Range, water is likely to be the key limit to growth in the coming decades. We can build new wind and solar farms, but we can't make more water.

We do have options, however. We can change the way we build, so that our homes and neighborhoods sip—rather than chug—finite water resources. That means mainstreaming the use of water-efficient fixtures and appliances and –importantly—reusing water to extinction and rethinking our lawns and landscaping. And it means adjusting incentives for builders and homeowners to manage demand for water.

My family company is showing that it can be done. Sterling Ranch, the 3,400-acre master planned community we are developing in Douglas County, currently uses around half as much water as comparable jurisdictions in the Denver region.

Early in the planning process, we learned that, unlike the rest of the county that our development is located within, groundwater underlying the property would not be available for use by Sterling Ranch. That forced us to get creative—proving that scarcity is the mother of invention. For

example, we launched Colorado's first and only municipal-scale rainwater harvesting pilot site project. In this way, we plan to eventually obtain over 70% of the development's water from renewable sources, like rainwater and snowmelt, and reuse water rather than solely relying on the area's shrinking supply of groundwater.

We are also finding new ways to deliver conventional water infrastructure. Dominion Water and Sanitation District manages the wholesale water and wastewater infrastructure for Sterling Ranch, as part of a broader regional coalition called the WISE Partnership (which stands for Water, Infrastructure and Supply Efficiency). WISE reduces infrastructure costs by sharing water assets among cities, districts, and water suppliers—reducing costs for everyone, including our residents.

We have also deployed cutting-edge technology to meet our ambitious water conservation goals—as recommended by the Urban Land Institute's *Water Wise* report. Indoors, that means efficient, low-flow fixtures and appliances. And our firm partnered with Siemens to deliver smart utility management throughout the community, including residential dual-meter water systems that differentiate between outdoor and indoor water consumption. Indoor use is priced lower than outdoor use, since indoor use is reusable in Colorado. Residents know outdoor water is expensive, so they use less of it.

To help residents use less outdoor water, we worked with the Denver Botanic Gardens to design beautiful, drought tolerant landscaping. New homeowners are not allowed to plant a full yard of waterthirsty grass; instead, we offer a palette of 150 native dryland plants. As my father, Harold Smethills, is fond of saying, the idea is to "use grass as a throw rug instead of a carpet."

To water those "throw rugs" without wasting a drop, we put in Rachio smart irrigation controllers, which tie irrigation to evapotranspiration data from nearby weather monitoring stations and alert users about leaks. Empowered with information technology and smart systems, Sterling Ranch residents are embracing sustainable lifestyles and helping the development not only meet but exceed our water management goals.

At the same time, we sited Sterling Ranch in an area with lots of preserved open space and hundreds of miles of trails. That access to green space

means residents are less dependent on their yards for a little slice of nature. The bounty of green space also enables us to build Sterling Ranch more densely than many comparable developments, which conserves water and other resources.

In a hotter, drier future, there may well be places we should not build. But there are many more places where water-wise building practices can allow for continued growth and affordability. Adopting those strategies makes good sense for business, for homeowners, and for the planet.

Developers Can Use Social Infrastructure to Build Climate Resilience

Gautami Palanki

Originally published August 28, 2023 in Next City

As climate disasters and challenges multiply, what makes a community resilient? One answer might surprise you. Social connections—the myriad ties that link people and communities together—can speed recovery and even save lives in a crisis.

The good news is that we can build communities that actively nurture those connections, by creating social infrastructure: places for people to gather and interact.

The power of connection is well known. When a deadly heat wave hit Chicago in 1995, some of the city's most disadvantaged neighborhoods had the lowest mortality rates—lower, even, than Chicago's wealthiest enclaves. What those neighborhoods had in common were dense social networks—block groups, church clubs and neighbors who checked on the most vulnerable. A study in Boston last year similarly found residents who were more connected with their neighbors, religious communities and coworkers were also more likely to know about resources and services for extreme weather.

The built environment can encourage (or thwart) the formation of such networks. Connections flourish when people have places to interact and connect, including public parks, libraries, community gardens, or "third places" like coffee shops and hair salons.

Some developers have been building such social infrastructure for decades, from FDR's Depression-era Greenbelt towns to the master-planned communities of the 1960s and the new urbanism that took root in the 1980s.

But the need for social infrastructure takes on new urgency in the era of climate change. And real estate developers have an opportunity—and a responsibility—to cultivate social connection in the places we build.

I lead sustainability strategies at Howard Hughes, a developer and owner of several master planned communities—including Downtown Columbia in Maryland, The Woodlands in Texas, and Summerlin in Nevada—that are market leaders in creating social infrastructure. In all Howard Hughes developments, residents have access to parks and green space within a quarter-mile of their homes. And residences are clustered around a village core that includes commercial space, schools, health care and entertainment venues. Moreover, those parks and other amenities are open to the broader community—extending the webs of social connection beyond the developments' boundaries.

Earlier this year, I myself moved to The Woodlands from the East Coast. On my short nine-minute commute through tree-lined parkways and scenic views of lakes, I often think of the positive transition for me and my family to a community that celebrates sustainability, inclusivity and transparently invites everyone to participate. In just a few months, we have met our neighbors in the park in our neighborhood, celebrated the Indian holiday of Holi at the Hindu temple and enjoyed fine art in The Woodlands Waterway Arts festival.

For residents like myself, the benefits are clear: a vibrant community with ample opportunities to connect. But I know first-hand that there are benefits for the developer, as well. High-quality public realms and socially oriented spaces add value to neighborhoods, helping make these developments among the best-selling communities in the U.S.

The amenities that nurture social connections can do double duty during a crisis. Common areas with backup power can provide shelter and refuge during a storm. And green spaces—parks, plazas and courtyards—can lower the temperature and provide places to cool off on hot days. Waterfront parks with berms or levees can serve as walking or biking trails, while also providing protection from storms and flooding. These well-loved community assets provide co-benefits that pay dividends before, during and after a disaster.

Fundamentally, the success of a real estate development depends on the health of its wider community. This is especially true in the context of

climate change: Even the most resilient building can't create value if its surroundings lose vibrancy in the face of repeated climate impacts.

That means that developers, investors, managers and owners have a critical interest in mitigating climate hazards. We also have the tools to do so. Social infrastructure is a proven strategy to mitigate hazards and, in turn, protect the value of our portfolios.

Social infrastructure is important in market-rate developments like mine. It is even more important in historically underinvested communities. As the Urban Land Institute's 2021 *Environmental Justice and Real Estate* report explains, low-income and Black, Indigenous and people of color (BIPOC) communities in the U.S. are the hardest hit by climate risks. They are disproportionately impacted by flooding and can be up to 20 degrees Fahrenheit hotter than wealthier neighborhoods, because of public disinvestment in green space and tree canopy.

These neighborhoods have the most to lose in a changing climate—and the most to gain from social infrastructure that protects residents in times of crisis.

Across the U.S., in underinvested neighborhoods and affluent planned communities, real estate developers have a critical role to play in building climate resilience. By cultivating social infrastructure, we can create vibrant, valuable neighborhoods that keep residents safe and connected in a hotter, more dangerous world.

Social Capital Builds Resilience—and Planners Can Build Social Capital

Christopher Holtkamp

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When Hurricane Ian hit North Port, Florida last year, residents were trapped in flooded neighborhoods. Rather than waiting for emergency crews, boat owners used their personal craft to rescue stranded neighbors and bring in supplies for those who stayed behind. Last month, when the Gray Fire blocked roads in Washington state, one resident loaded his neighbors onto his pontoon boat and sailed them to safety.

Neighbors who know one another are more likely to help each other before, during, and after a disaster strikes. Most will call this being a good neighbor, but there's a formal name for it: social capital. Defined as networks that enable collective action, social capital can mean the difference between life and death in a disaster. Fostering social capital is a necessary element of resilience planning because it increases the capacity of residents to respond to and more quickly recover from a disaster.

Innumerable stories have been written about the loss of community, the lack of neighborliness, and the growing atomization of society and culture. These stories decry the impact on crime, quality of life, and economics, but we should also discuss the effect on natural disaster response and recovery.

Low social capital is correlated with lower access to information, such as evacuation orders, as well as reduced access to resources to respond to and recover from a disaster, exacerbating the impacts. As we continue to see population growth in vulnerable areas, conventional approaches to hazard mitigation are insufficient for the challenges our communities face. Planners and emergency responders are recognizing that building social capital must be part of the holistic response to growing threats from natural hazards.

Social capital is grounded in networks, relationships, and trust. In high social capital neighborhoods, people are more likely to receive communication and information that enables them to respond more effectively to a disaster. Additionally, residents will be more likely to return and reinvest in their neighborhoods.

For example, West Street Recovery began as an informal effort to recover from Hurricane Harvey in a Houston neighborhood. Committed residents helped during the immediate aftermath to clean up homes and, over the long term, invested in rebuilding. The informal group became a non-profit that has contributed to response efforts during the COVID-19 pandemic, urban unrest, and Winter Storm Uri.

Finally, the networks and relationships that define social capital can create access to resources that can benefit recovery as well. Connections to civic organizations, local businesses, and local politicians can all create opportunities for investment and assistance in the recovery process. After a disaster, there are enormous demands on these entities. Having connections can make a difference in how much attention a community may receive. It may be an unfortunate fact to acknowledge, but it is sometimes who you know that can make a difference.

If we recognize the importance of social capital in building resilient communities, what is the role of planners in this effort? Social capital cannot be created through top-down initiatives; it must be created at the grassroots level. However, there are practices for creating an environment within which social capital can develop.

One approach is to build more walkable communities. This contributes not just to neighbors knowing one another, which increases the likelihood of assisting one another during a disaster, it also fosters more trust and connection, which means people are more likely to get important news and information to respond to a disaster more effectively.

Too often, the low-income and marginalized communities most impacted by disasters are those least engaged in community decision-making. This also contributes to lower responsiveness to official communication and outreach, leaving these populations less informed about potential disasters. Planners have a responsibility to engage those communities, making every effort to connect and build meaningful relationships. The first step is

identifying individuals who can help introduce us to those communities and establish the necessary trust to begin building connections.

It can be done. In Paris, local officials are working to create 'super neighbors' through a grassroots effort to build connections at the neighborhood level. The idea is that these informal connections create capacity within the neighborhood to respond during crises such as urban unrest, heat waves, and other disasters. This is especially important in marginalized communities where connections are often lacking and can become the foundation for improving trust and communication.

When we think of preparing for natural disasters, it is easy to overlook the role of community in effective resilience planning. We tend to focus on things like infrastructure, emergency services, and government capacity while overlooking the enormous resources of family, friends, and neighbors. By strengthening neighborhoods, we can create safer, more resilient communities with greater capacity to respond to, and recover from, the growing threat of natural disasters.

Nonprofit Affordable Housing Developers Navigate Troubled Waters

Eric Anthony Johnson

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The pandemic and its aftermath brought extraordinary hardships to low-income Americans including job losses, illness, and crippling inflation. Now, those same hardships are taking a toll on the nonprofits that house and support low-income families. As a result, some of those nonprofits may be forced to abandon their missions at a time when their work is needed more than ever.

As president of one of those nonprofits, Minneapolis-based Aeon, I see these challenges firsthand every day.

First, many of our residents are in distress. Low-income Americans were most likely to lose service-related and low-wage jobs during the pandemic. Many got sick or lost loved ones on whom they depended. And, like Americans in every socioeconomic group, our residents have struggled with mental health and addiction problems during this difficult time.

During the pandemic, the government and nonprofits stepped up to help. The federal eviction moratorium and rental assistance was a lifeline for millions. Nonprofits like Aeon raised contributions to fund rent relief for those who fell through the cracks while helping residents access health and social services.

Now, we face a perfect storm of financial, economic, and logistical challenges. Federal assistance has expired, but many of our residents still struggle to pay their bills. Despite our efforts to keep rent increases to a minimum, our organization faces a massive backlog of unpaid rent. Housing courts are overwhelmed, stalling eviction cases. With most residents who are subject to eviction typically owing up to a year's worth of rent, we are consistently running on a deficit.

On top of all this, costs have skyrocketed. Property tax and insurance have increased by 30 percent a year in some areas. Overall maintenance and capital improvement costs are soaring. And some previously minor cost categories—such as security—are growing exponentially. Financial losses and cash-flow problems make it harder for nonprofit housing developers to obtain financing, maintain properties, and support a healthy portfolio that attracts investors and residents.

Because nonprofit housing organizations work on very tight margins, dwindling revenue and rising expenses have hit especially hard. To stay afloat, some are resorting to unsustainable emergency measures, such as draining reserves. Others rely on cash advances from parent organizations, which are quickly exhausted. These are short-term fixes for long-term problems, however, as higher costs become the new normal.

If these problems continue unabated and unchecked, the broader social impact will be devastating. Evictions will continue to rise and many tenants will face homelessness due to a lack of housing options. People with complex needs will lose stability and social support. County and state public assistance resources will be strained to the breaking point. And nonprofit affordable housing organizations, like Aeon, will lose the ability to uphold our mission while preserving and developing new properties. Some may sell off existing properties, accelerating the conversion of affordable homes to market-rate and luxury housing.

How can nonprofit housing groups weather the storm and fulfill our mission? First, we can realign our organizations to adapt to change and disruption. We can establish multiple streams of revenue through our real estate development processes. We can plan for disruption by creating operating endowments that allow us to pivot in a crisis. We can cultivate allies and safeguard our reputations by maintaining full transparency with staff, boards, and community stakeholders.

Nonprofit affordable housing organizations play a vital role in our nation's housing ecosystem, providing homes for low-income and hard-to-house populations who are not served by market-rate developers. Today, as we face a nationwide crisis in affordable housing, and a parallel surge in homelessness, our role is more important than ever. But we are navigating troubled waters. The problems we face will not be easy to solve, but the first step is to name them. Only then can we work together to devise solutions.

Queens' 34th Avenue Shows What Open Streets Can Do for People

Alison Sant

Originally published April 14, 2023 in City Limits

Around 2 p.m. on a school day, thousands of students spill onto 34th Avenue in Jackson Heights, Queens. As local resident Jim Burke describes, they start small at first, as elementary schoolers end their day, and then the children get taller as 2 p.m. turns to 2:20 and 2:40, with middle and high school ending. The street is a crush of kids playing, parents socializing around café tables at pick-up, uniformed students walking in packs down the street, and on bikes, scooters, and skateboards. This is just a normal school-day afternoon on this Open Street.

Burke's apartment faces 34th, and he is one of the Open Street's founders and champions. I met him for a walk on a cold morning in late February. Despite the weather and school holiday, the avenue was packed. We could hardly walk a few steps without someone saying hello to him in Spanish or English. Neighbors stopped their power walks to show him a picture they took of the moon setting over the street or a hawk they spotted in a nearby tree. There is a chorus of birdsong on 34th Avenue that creates an avian soundtrack unimpaired by the din of traffic.

I met Burke's husband, Oscar Escobar, who hosts games of Peruvian Sapo on weekends and was volunteering on a Monday morning at the corner of 77th for the weekly La Tienda del Pueblo or "Village Shop" that distributes clothing and food donations. Burke waved across the planted median to a woman pushing a bike and walking with a friend. He commented that she teaches the regularly scheduled hula hoop classes on the street.

As the Queens chair for the local advocacy group Transportation Alternatives, Burke has long been interested in opening streets to people, not cars. The ongoing list of activities now hosted on this Open Street is a testament to how successful that project has been.

Between 76th and 77th Streets Monday-Thursday kids can jump rope, hopscotch, chalk the street, and play games after school. On Wednesdays, there are 9 a.m. Zumba classes on the corner of 94th, and people meet at 90th in the afternoons to practice English in ESL classes. There is a community walk Thursday mornings. In the warmer months, the weekends are even more crowded with people gardening in the median, picnicking on the street, musicians strumming to swaying dancers, and kids playing corn hole. There is a steady inter-generational flow of walkers, joggers, and bike riders. But this traffic moves slowly: slow enough for me to spot a toddler holding his father's hand and carefully aligning one foot after another on the concrete edge of the median to test his balance.

Compared with the local co-op courtyards with signs that limit activities, kids have free rein on the Open Street. Burke says, "This is first and foremost a micro-mobility corridor [a safe place to travel by bike or scooter], but it's also a place to throw a ball, to run, to make noise, to scream, to do all the things you can't do in private courtyards and private space and even some of our own public parks. We want people to do all of those things."

Burke grew up in the Bronx where kids would play games in the street. On hot days, they would open the fire hydrants for locals to cool off. He hopes that three years into this Open Street experiment, the children on 34th will get a taste of what he experienced growing up. The programmatic focus on kids has made them some of the Open Street's most enthusiastic curators. One middle-schooler named Alex organizes running races; another, Lillian, formed a group of grade-school friends to make street signs. There is even a 34th Avenue Community Choir started by Luis, a local high school student.

Unlike many Open Streets that rely on a Business Improvement District to sponsor them, 34th Avenue was co-developed by neighbors who program the street together. Burke credits Nuala O'Doherty-Naranjo as his co-founder. Like Burke, O'Doherty-Naranjo is a seasoned community organizer. They met when Burke was working on a campaign to stop the MTA from cutting bus lines to the neighborhood and O'Doherty-Naranjo was fighting to lower speed limits around local schools. They both delivered food to neighbors during the height of the COVID pandemic.

Today, Burke and O'Doherty-Naranjo are among the 17-person steering committee that organizes volunteers to help with programs and check

the barricades several times a day to keep people safe. They manage food vendors, organize activities and events, liaise with local schools, and apply for permits and funding. Many neighborhood residents contribute ideas for programs and dutifully help tend the street. Burke feels this is the reason the street works. He says, "We needed people to feel they had ownership because they do. It's their neighborhood."

Ownership is what has helped neighbors to feel invested in the 34th Avenue Open Street. However, it didn't start that way. In 2020, the city's official Open Street program closed several blocks of 34th with barricades and put officers on every corner, creating a presence on the street that Burke says, "felt more like a checkpoint than an invitation to occupy the street."

Jackson Heights is one of the densest neighborhoods in the city and, as home to many immigrants, one of the most diverse communities in the country. Locals are proud that 167 different languages are spoken there. There are shops with saris and gold necklaces in the windows. Restaurants serve fusions of Chinese, Thai, and Tibetan food. The neighborhood hosts an annual Pride Parade and has been home to the LGBTQ+ community for decades.

In the wake of George Floyd's murder, people didn't feel safe in this community. The neighborhood had some of the highest COVID death rates and less access to parks than most in the city. Yet people walked around 34th to avoid the police. Burke remembers, "At that time, the police were being called out by the media for various forms of brutality, so people were afraid of them." Just days after closing the street to cars, Mayor Bill de Blasio ended the city-run experiment saying, "folks just didn't show up."

But neighbors refused to let the car-free street go. They organized themselves as the 34th Avenue Open Streets Coalition and held a rally closing one block with homemade sandwich boards and chalk. They wore orange vests, invited people to use the street, and called the media. As Burke describes it, "The world did not end with the street staying closed. Cars just went past us, kids played, people danced, and we demonstrated to the city how you do an Open Street."

For the community of Jackson Heights, this Open Street has done far more than provide a safe space to be outdoors, it has brought them together.

Kids from different schools meet one another when they race down the street or play after school. Older people meet neighborhood kids as they help them make valentines.

Celebrating holidays from all over the world has allowed residents the opportunity to share their cultural traditions. Each year there are Halloween pumpkin patches, Día de Los Muertos performances, and a community Thanksgiving meal. The Colombian La Noche de las Velitas or "Day of the Little Candles" is celebrated with lanterns lining the median, Santa Claus visits the street for Christmas (with reindeer and elves), and a "Happy Noon Year" celebration lets kids ring in the coming year. Recently, on Martin Luther King Jr. Day, the local Glee Club led a march and for Chinese Lunar New Year the community took part in a lantern walk. Burke puts it simply, "We all know each other now."

34th Avenue was one of the 83 miles of Open Streets created in New York City during the COVID pandemic, and among the 157 municipalities in 35 states that closed streets to cars during the lockdown. Danny Harris, executive director of Transportation Alternatives, believes that these experiences, brought on by necessity, have made it easier for people to imagine new ways of using the public right of way.

"For more than 100 years, since the birth of the automobile, our cities and our world have prioritized inanimate objects over human beings, and we've seen that play out to disastrous impact. Then, you have these moments in time when people can see the world differently," Harris said.

Open Street experiments offer models for prioritizing people on city streets. As Harris observes, the pandemic "led to so many terrible things. It also led to a moment when, in Manhattan, you could hear birds outside your window or you could walk in the street, especially if you were an older adult or you had a kid."

Taken together, streets and sidewalks are New York City's largest public space. However, 75 percent of the city's 6,300 miles of streets are devoted to cars, including three million free parking spaces. Harris says, "Organizations like ours and others across the world, we've always been talking about how asphalt is an asset, and we squander it."

Since its inception, the 34th Avenue Open Street has shown how to utilize the public right of way for people. Since New York City made its Open Streets program permanent in April 2021, it has become the longest Open Street in the city. A one-block demonstration turned into a 26-block-long commons running between 69th Street and Junction Boulevard for 1.3 miles (or a 6,000-step loop if you are counting them on your exercise app). As a result, 34th Avenue saw a 12-fold increase in biking—the biggest recorded jump in the city.

On our walk, Burke and I veered away from the quiet of 34th street and walked down toward a whoosh of speeding cars and trucks running along Northern Boulevard. Although Burke's front windows look out to the street life on 34th Avenue, the back of his co-op building faces Northern Boulevard. He is sandwiched between two profoundly different New York streets. Northern Boulevard has been referred to as the "New Boulevard of Death," taking the mantle from Queens Boulevard. The street has the fifth-highest truck volumes of any major truck route in the city.

We approached the corner of Northern and Junction Boulevards. With three lanes in each direction, surrounded by two lanes of parked cars, it is easy to feel vulnerable. Yet kids on their way to Flushing and Queens High Schools have to navigate this terrifying road daily. We came across a laminated handmade sign with a collage of photos. In one corner is a picture of a young man, his brown eyes staring sweetly at the camera. In the grainy black and white photo next to him, a car is shown at night with its headlights glowing.

The sign reads in English and Spanish, "Reward $10,000 For Information regarding A FATAL HIT AND RUN." Next to the sign was a bouquet of silk flowers and a freshly wrapped rose carefully tucked among them. Burke explains that "There would always be flowers there and someone's name." Sadly, it is not always the same person.

The intersection of Northern Boulevard and Union Street ranks in the top 20 percent of most dangerous roads in the borough based on the number of fatalities and severe injuries due to vehicle crashes. As the transportation-focused publication *Streetsblog* has chronicled, many kids have been killed on Northern Boulevard in the last decade, including 3-year-old Jahir Figueroa, 17-year-old Ovidio Jaramillo, 9-year-old Giovani Ampuero, and 19-year-old Sara Perez.

According to Vision Zero NYC —part of a national campaign to eradicate all traffic fatalities—25 people have lost their lives on Northern Boulevard since 2009 (four in 2018), with too many injuries to count.

According to Transportation Alternatives, traffic violence seriously injures or kills a New Yorker every two hours. Queens alone saw 68 traffic fatalities in 2022. In New York City, being struck by a vehicle is among the leading causes of injury-related death for children from the time they can walk into adulthood. Sixteen children were killed on New York City streets in 2022.

National trends are similar, or worse: 46,000 people died on U.S. roads in 2021. Other countries have seen these numbers substantially decline during the pandemic, as cities around the world leveraged the decrease in driving to dedicate more space to safe walking and biking. But in the U.S., fatalities increased. Advocates are frustrated by the lack of public outrage.

"The sad reality is it doesn't matter who dies or how many people. You have more kids who died in New York than in any year since Vision Zero and that doesn't change things," Harris said. "You have celebrities, you have influencers, you have parents, children, clergy people, you have famous athletes. It truly doesn't matter. Even the person who was running for mayor against Eric Adams was hit by a car…It is not enough to change the fundamental conversation."

The conversation we should be having, he says, is not about how streets should serve cars but how they must serve people. Leah Shahum, the national director for Vision Zero, claims that the only way to achieve that goal, in New York and in cities across the nation, is to lower speeds and redesign streets.

As she explains, "The truth is that we know what works to help people move safely in their communities. It's not a mystery. We have the strategies, technology, and know-how to advance safe mobility for everyone, but we choose not to because speed and (perceived) convenience are prioritized over safety. We design our roads and vehicles, set speeds, and allow people to drive in ways that increase risk, especially for people outside cars."

"These are not accidents," she concludes, echoing the campaigns of parents whose children were killed on a routine walk to school or through their

neighborhood. "They are the predictable results of the priorities we've chosen and the systems we've designed for the past century."

Current rates of traffic violence in the U.S. resemble those in the Netherlands 50 years ago, where more than 3,000 people were killed on the streets each year—half of whom were 19 years old or younger. In Amsterdam, children and their parents took matters into their own hands by dragging barricades across the entrances to their streets and closing them to cars to create places to play.

The "Stop de Kindermoord," or "Stop Child Murder," movement ignited a transformation of the city's streets. The number of people killed on Amsterdam's roadways began declining in 1973 and has continued ever since. Today, only 21 percent of people use cars to get around Amsterdam, and 48 percent use bikes. The city is also on a path to remove more than 11,200 parking spaces by 2025 (1,500 per year). This newly liberated outdoor space is being used for expanding gardens, seating, and places for kids to play.

As Harris says, "We don't have to look at those cities and say, 'We need to be exactly like you,' but we should be learning from them."

New York City, where most people take transit or walk to work and more than half of households are car-free (in Manhattan it is more than three-quarters), is the ideal place to rethink the use of U.S. streets as public spaces. During the pandemic, Transportation Alternatives launched an ambitious campaign called 25×25, which would reclaim 25 percent of the city's streets for car-free uses by 2025.

The 25×25 challenge does not start from the top-down but is built by communities. Transportation Alternatives began by asking neighbors to collectively imagine what they would do with 25 percent of their roadway if it were freed up from cars–especially parked cars. As Harris said, "We wanted to understand how New Yorkers felt about their streets and what they were willing to give up."

With research showing that pandemic-era Open Streets were not equally distributed, Transportation Alternatives' tools are helping to prioritize neighborhoods that have not seen their share of street improvements. Their efforts aim to ensure that all New Yorkers can have access to more

green space, expanded tree canopy, better transit, safe streets and bike lanes, and generous spaces—like the 34th Avenue Open Street.

Over the course of thousands of stakeholder meetings, residents proposed kids' play areas, public bathrooms, bike parking, bus shelters, a place for trash collection, street trees, and places to sit. Across the board, there was a clear willingness to make trade-offs between parking and creating these new neighborhood amenities.

After participating in many of these gatherings, Harris recalls, "In New York, everybody has a dream…We all live in these tiny quarters. It became a moment for people to have that dream," and to develop a common vision with their neighbors.

The 25×25 challenge earned the support of Mayor Adams and more than 200 community partners including a coalition of unions, public health organizations, and economic, educational, environmental, and disability rights advocates. Today, Transportation Alternatives has outlined shovel-ready projects on streets in all five boroughs.

Plans include Queens' Northern Boulevard where the median, flanked by dedicated busways, would be transformed into a public green space with benches, tables, and a connection to the Flushing memorial. This space would include dedicated zones for school drop-offs and parking space for the NYPD so that sidewalks are not blocked by cars, and protected bikeways crisscrossing Union Street and Northern Boulevard to integrate this area into a protected bike network.

Transportation Alternatives has pushed 25×25 forward by creating what Harris refers to as "archetypes" of solutions, generated by communities and applied by demand. For example, the School Streets Toolkit, created with the tactical urbanist group Open Plans, is designed to simplify the process of applying for a school street, helping communities prioritize kid-friendly plazas for recess, outdoor learning, assemblies, and the rush of morning and afternoon pickups and drop-offs. It gives guidance to schools and their communities about how to implement, program, and maintain school streets.

Today, 34th Avenue is becoming a model for how to implement these approaches permanently. In the summer of 2022, the New York City

Department of Transportation built upon this community's successful efforts and invested in formal designs to improve the aesthetics and safety of the street's public spaces. In stakeholder meetings leading up to the official pilot project, there was some pushback to the Open Street, but ultimately the Jackson Heights community agreed on the common need to protect neighborhood kids.

As Burke says, "Even the detractors on 34th would say, 'What about the kids? Can we at least agree that in front of the schools, we can make it safe?'" Together, the community decided that giving up on-street parking spaces or a speedier roadway was worth it to ensure their children's safety.

New designs focus on neighborhood schools, diverting traffic from the street while planters and concrete benches block cars from "plaza blocks" where colored pavement, tables and seats delineate the areas outside schools. Bollards and chicanes snake traffic at slow speeds on shared blocks with signage providing clear direction to cross traffic. Neighborhood loading zones concentrate commercial trucks.

City officials hope that what is learned about these designs on 34th Avenue can be applied elsewhere as streets are redesigned throughout the city. The hope of reclaiming streets for people is perhaps closer than ever. In February, New York City was awarded more than $21 million in federal dollars as a part of the Safe Streets and Roads for All program under the Bipartisan Infrastructure Law, with funds targeted to communities that need them most.

The Adams administration seems to be making good on its promise to support 25×25 and the project to invest in public space. In the same month, Ya-Ting Liu, formerly a transportation advocate for Transportation Alternatives and the Tri-State Campaign, was appointed as the city's first-ever Chief Public Realm Officer.

The majority of New Yorkers are in favor of Open Streets. Polling suggests 63 percent of voters support closing streets to cars, including 57 percent of car owners. And 84 percent believe creating places for kids to play in their neighborhoods is a good idea, even if it means giving up parking space.

Harris feels it is important for the City to set a high bar. He says, "If New York City can't do this in the largest city where the majority of households

do not own a car, what hope does Wichita have—or San Jose or LA?… New York has to get it right."

The 34th Avenue Open Street shows how urban roads can be repurposed to make a more livable city. Even more, it is an example of how communities must lead these efforts so that streets reflect a common vision for what communities care about.

When Burke envisions the future of 34th Avenue, he imagines the street "as a series of rooms." Near 85th where there are large mature trees, he pictures a quiet respite like a reading room. Near local schools, there could be play and climbing equipment, and up in the 90s, where neighbors have requested more performances, Mexican mariachi bands could take to the stage.

Burke's vision is not just for Queens, but for the future of streets throughout the city. He hopes for "an interconnected network of Open Streets throughout New York City that you could travel on by foot or by bike or by skateboard or by wheelchair," and adds, most importantly, "without ever getting hurt."

SECTION III

Policy and Funding

Black Women Are Under Attack: Here's How to Protect Our Sisters in the Movement

Anonymous

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We are mamas, daughters, sisters, and aunties. We are teachers, social workers, community organizers, and researchers. We are activists and changemakers, taking on the crucial social and environmental issues of our time. What we have in common is that we are Black women working to achieve a just society.

And we are under attack.

Today, one only has to read the latest headlines to see that hate and violence are on the rise in the United States. And Black women are disproportionately targeted, as a toxic brew of racism and misogyny saturates American life.

We know this from personal experience. We have been threatened—online and in person—with rape and murder. We have been stalked and surveilled, in our homes and on the street. Our online meetings have been "Zoom bombed" by hackers who fill our screens with pornography and horrific images of racial violence. Our names and addresses appear in social media and on hate-filled websites, with exhortations to do us harm. Our families, too, have been targeted.

Our calls for help have gone unanswered by the police, who have sometimes cared more about the "rights" of our tormentors than about our safety and well-being.

These incidents have caused us real and lasting harm. We have been forced to leave, and even sell, our homes. Gone is our sense of safety and peace. Our physical and mental health has suffered as a result.

And we are not alone. Living at the intersection of racism and sexism, the historic and systemic socio-economic circumstances of Black women mean that too often we have lower pay and less wealth than white people and men. As such, many of us lack the resources to cope with these threats. Many of us are carrying our households singlehandedly. We hold outsized responsibility in our families, communities, and organizations—formally or informally. We're more likely to be supporting a family member who has a chronic health condition, or to have a chronic health condition ourselves.

It's a lot.

We are deeply committed to the work we do. But, to keep doing that work, we need support from our communities, and from the institutions to which we give so much—including nonprofits, philanthropy, and government. So, here are our recommendations on how to bring a measure of safety and peace to the lives of Black women fighting for a better world.

Institute proactive privacy measures. Teach activists to engage proactive measures to protect our personal data. This includes using aliases on social media and being careful not to live-post one's location. As we have learned, once your data is out there, you can't get it back.

Provide professional in-person security. Few of us have security escorts, beyond volunteers who mean well but lack training. In a nation with more guns than people, some of us will need professional security. This is tricky because we don't want to turn comfortable spaces into militarized zones. At the same time, we must be able to protect ourselves.

Finance and facilitate relocation. Create a fund and a network of safe havens so that those under threat have the option of relocating temporarily or—if necessary—permanently.

Establish a comprehensive security case-management organization. Set up a one-stop shop for security services that are proactive, preventative, and responsive. This organization would have expertise in keeping us safe, individually and organizationally, by providing the services detailed above under one umbrella. This organization would be semi-internal to social justice movements and provide these services in a way that is in keeping with our principles and culture.

Cultivate peer-support communities. Having a good support system is critical. And connecting with others who have been targeted reduces isolation and enables us to learn from others' experience. One promising model is the Unicorn Fund, which "supports under-resourced grassroots leaders in the United States who face attacks for expressing their ideas, telling the truth, and taking a stand on the front lines of narrative change."

Strengthen and enforce internet regulations. As January 6 revealed, the internet is a largely unregulated incubator of violence and hate. We are wary of regulations enforced by the state or tech companies—institutions that have long upheld white supremacy—and we do not want to increase the surveillance we already experience. But it is past time for greater public accountability and stronger guardrails for online behavior.

Ensure the availability of mental health/healing justice resources. Being targeted impacts mental health. Not surprisingly, we are fearful and anxious; we may also feel guilt for potentially endangering others. Access to mental health services is essential to support coping. At the same time, mental health support is needed for some of the perpetrators of violence. Too often, people with mental health needs are weaponized by purveyors of hate.

Black women have long been the heart and soul of struggles for civil rights, environmental justice, and more. We will not stop or be silenced. But in this time of rising hatred and violence, support and protection for those who risk everything by speaking up is critical.

Together, we must stand up against hate and stand up for love.

Frontline 360° Is Helping Grassroots Groups Land Federal Dollars—and Building a Movement

Laurie Mazur

Originally published February 14, 2023 in Inside Philanthropy

It takes money to make money, as the saying goes. The same is true of *raising* money. Successful fundraising requires resources that are in short supply for many small, community-based nonprofits. That means many groups could miss out on new federal funding that is targeted to front-line, historically marginalized communities.

"We have such an amazing opportunity with federal funds coming from the Bipartisan Infrastructure Law, the American Rescue Plan and the Inflation Reduction Act," says Yeou-Rong Jih, program officer for the Kresge Foundation's environment program. "And there's an extreme lack of capacity on the ground to make sure that these funds go where they are needed most."

An initiative called Frontline 360° is building that capacity. Frontline 360° draws on a multi-partner collaboration to help community-based climate and environmental justice groups apply for funding and make best use of it when it comes. Launched by Anthropocene Alliance, Frontline 360° is a partnership of the Environmental Protection Network, Thriving Earth Exchange, the Community and College Partners Program and the Center for Applied Environmental Science.

Kresge is an integral backer of the effort, having funded the Anthropocene Alliance, where it's housed, since 2017. Other major funders include the Walton Family Foundation, the Water Foundation (an intermediary backed by several green funders), and Margaret A. Cargill Philanthropies, which all made six-figure grants in the past year or so.

By coordinating partners' services, Frontline 360° is achieving significant impact: Since 2017, the initiative has channeled more than $40 million in funding and technical assistance to climate and environmental justice communities across the U.S. More broadly, Frontline 360° is equipping those communities with the information and tools they need to create a more equitable, climate-resilient future. And by linking grassroots groups nationwide, the initiative is nurturing a powerful movement for change.

"I'm dealing with a hurricane over here"

Hilton Kelley was living in a FEMA trailer in 2017 when he got a call from Harriet Festing, Anthropocene Alliance's executive director. Kelley's hometown of Port Arthur, Texas, had been devastated by Hurricane Harvey.

"About 80% of the city was flooded," Kelley says. "We had three feet of water in our house, and all of our things were basically destroyed." A long-time environmental justice activist, Kelley had become an outspoken critic of FEMA's emergency response—and caught Festing's attention.

"At first, I was like, 'Give me a minute. I'm dealing with a hurricane over here,'" Kelley recalls. But Festing persisted, and soon persuaded Kelley to serve on the alliance's Leadership Council. Through that association, Kelley met residents of other flood-prone communities and learned how climate change compounds other environmental threats. "My work revolved around refineries and chemical plants, pushing them to reduce their emissions and their impacts on our community," Kelley says. "With Anthropocene Alliance, we started talking about how the flood waters wash contaminants into the community—in addition to the damage done by the water itself."

To assess those threats, Anthropocene Alliance connected Kelley and his organization, the Community In-Power and Development Association (CIDA), with a team of pro bono experts including the Thriving Earth Exchange, Army Corps of Engineers, Texas A&M University, Lamar University, the Climigration Network and Buy-In Community Planning. Fortified with surveys and simulations, CIDA developed a plan to minimize flood risk and relocate residents from vulnerable areas. Then Anthropocene Alliance helped CIDA write grant proposals to the National Fish and Wildlife Foundation, which netted more than $700,000 to make that plan a reality.

Wraparound services

These wraparound services—coordinating with partners to provide technical assistance, networking, fundraising and pass-through grants—form the core of what the alliance now calls its Frontline 360° initiative. Services include scientific expertise provided by the Thriving Earth Exchange and Center for Applied Environmental Science, legal and policy consultations by the Environmental Protection Network, connections to university support via the Community and College Partners Program, and legal support from university legal clinics.

Those services are offered to the alliance's 140 member groups, 84% of which represent low-income, Black, Latino, Indigenous and other marginalized communities. Three-quarters are led by women.

Camille Hadley of Melbourne, Florida, is among those leaders. Hadley started Little Growers, a youth-centered urban agriculture project, in 2016 to provide fresh food for her family and neighbors. Then, in 2017, Hurricane Irma tore through town, destroying her carefully cultivated community gardens. A board member told Hadley about the Anthropocene Alliance's small grants program; Hadley applied for, and received, $1,000 in emergency funds.

That small grant had a big effect. Like Kelley, Hadley found that connecting to other flooded communities broadened her perspective. "If one storm could wipe out our entire program, then we really had to be thinking about a whole nexus of issues," she said. "It's not just an issue of food security, it's an issue of environmental justice and climate change."

Through Frontline 360°, Hadley connected to the Women's Earth Alliance, where she learned about permaculture, storm water mitigation, and more. Hadley also partnered with Thriving Earth Exchange to study flooding issues in her community. "That data gave us the tools to fight with the city," says Hadley. "And it's allowed us to be educated and proactive versus reactive." Frontline 360° also helped Hadley raise more than $100,000 to conduct community outreach and engage neighbors in designing solutions. They're currently helping her submit a proposal to the National Fish and Wildlife Foundation for a $400,000 community planning grant.

Frontline 360° members learn from each other, as well as from technical experts. The group hosts a monthly National Leaders Forum; a listserv and

Facebook group; and working groups on mutual aid, assisted relocation and climate resilience planning. Through these channels, members share lessons learned, offer support and solidarity, and come to understand the larger context for their work.

In short, Frontline 360° not only helps grassroots groups raise money; it provides them with information and connections to make good use of those funds. That's what distinguishes this initiative from other efforts to fund grassroots work, says Amy Saltzman, program officer for the Walton Family Foundation.

"Their work to build capacity in community-based organizations is what's really powerful about their model," says Saltzman. "And it's what will endure beyond the scope of our support."

A bottom-up approach

Of course, challenging dynamics can arise when a national organization works with community-based groups. Grassroots groups have charged that national groups sometimes parachute in, misunderstand community needs, or worse, appropriate data and credit for their own purposes.

Yeou-Rong Jih of Kresge credits the team at Anthropocene Alliance for understanding and navigating those dynamics. Importantly, she says, "The Frontline 360° vision is not about building Anthropocene Alliance into a large, national-focused NGO. Their goal really is to empower local communities. They are really good at ensuring that there is equity and justice in the process of applying for these grants, that local leaders are consulted and deeply involved in these applications, so the projects meet the needs of communities."

As Hilton Kelley puts it, it's a "bottom-up approach." "They are talking to people on the ground who are literally dealing with the issues and surviving climate change."

That bottom-up approach applies to running the Anthropocene Alliance, as well. "Community leaders are at the table when decisions are made about how [the alliance] should function as an organization," says Camille Hadley. For example, Hadley was a founding member of the mutual aid working group.

"It was the leaders of the community groups who came together and said, 'This is how we want to fund mutual aid.'" She adds: "There's never a time when I don't know what's going on at every level of the organization—how much money we have, where it came from, exactly who it went to. There's no time when I'm in the dark."

Benefits for funders

The Frontline 360° model offers notable benefits for funders. Today, more environmental foundations are recognizing the dynamism and power of grassroots groups. But the challenges of funding at the community level remain.

"It's the same grantmaking process for us no matter the size of the grant," says Amy Saltzman of the Walton Family Foundation. "So for us, developing small grants with many community groups presents a real capacity challenge. This is one way we can reach a lot of communities that need support."

Frontline 360° also helps funders parlay a modest investment into substantial federal funding. Four-fifths of the $26 million in cash and direct support received by alliance members is from federal sources, including the National Fish and Wildlife Foundation, U.S. Army Corps of Engineers and the Department of Housing and Urban Development. Philanthropic funding made that federal support possible.

At the same time, Frontline 360° is building a national constituency for equitable climate action. That's especially crucial in red states that are home to powerful climate deniers. "Whether you believe in climate change or not, everybody believes in weather," says Saltzman. "And places that didn't used to flood are now flooding. It makes it very concrete when you point to how changing weather patterns are affecting people in the states where decision makers live."

Now that constituency is poised to grow. Recently, the Margaret A. Cargill Philanthropies awarded funding to the alliance to set up four Regional Centers for Resilience. Each center will be run by an existing community-based organization—including Hilton Kelley's group, CIDA. Each of the regional centers aims to recruit 15 new community leaders and link them up to technical assistance and grant funding.

It's an ambitious plan, and one that speaks to the scale of the need. "Community leadership is fundamental," says Jih. "For decades, we've been hearing about the need for a strong base of community groups that are empowered to do policy and implementation work. We need more funders in this space who are willing to invest in local capacity and local leaders, and support them as fierce fighters in their own right."

How 'Energy Democracy' Could Build the Grid of the Future

Susan B. Inches

Originally published November 27, 2023 in Governing

On Nov. 7, Maine voters considered a referendum that would shift ownership of the state's electric grid from foreign investors to local consumers. The proposal was soundly defeated, but it wasn't a fair fight.

The grass-roots group that put the referendum forward was vastly outspent by Maine's two investor-owned utilities. The grass-roots campaign had a budget of just $300,000 to educate the public on the benefits of a locally owned grid; the utilities spent close to $40 million to defeat the measure.

What the Maine campaign sought to achieve was a measure of "energy democracy," a term emerging over the last several years. Its advocates want more say in how our electric grids are managed, what investments are a priority and how customers are treated. But given the deep pockets and political power of investor-owned utilities, this transition will be difficult.

It hasn't always been this way. When most of the grid was built between the 1930s and the 1960s, it was owned by either municipalities or local private companies. In both cases, executives and managers were trusted members of the local community. They were accountable. And they were seen as heroes for bringing electric power to the rest of us.

Corporate takeovers during the 1980s and '90s changed that. The thinking at the time was that corporate investors would bring more capital to invest in the grid. Based on this, public utility commissions didn't hesitate to permit the sale of much of the grid to national and international corporations.

But in selling off the grid, they were making a big trade-off: Distant executives would no longer be accessible or accountable to local communities. Instead, they are accountable primarily to their corporate shareholders.

As a result, we've seen more power outages and rate hikes. We've seen major investments in profitable transmission lines, but little investment in updating and strengthening the grid to accommodate renewable energy. We've seen a decline in customer service. This is where we are today in most U.S. communities.

Energy democracy changes the status quo by embracing several principles:

- Public or collective ownership of energy infrastructure.
- Decentralization and strengthening of the grid to accommodate renewable energy.
- More public participation in policy and management decisions.
- Equitable governance of energy systems, taking into account race, geography and socioeconomic status.

Democratically run electric grids do exist today. This is because a number of electric grids across the country were never sold to corporate investors.

More than 2,000 U.S. communities get their power from a locally owned and managed utility. These utilities serve large cities including Austin, Nashville, Sacramento and Seattle. All of the state of Nebraska and many smaller towns and regions across the country also get their power from locally owned utilities. All told, 1 in 7 Americans receive their electricity from a locally owned grid.

The track record of locally owned grids is positive. They have consistently lower rates than investor-owned utilities. They are more reliable. And they have adopted renewable energy at a faster rate than the investor-owned utilities.

Today, climate action plans in towns, cities and states across the country call for clean energy fueled by wind, solar and hydro. Many of these plans also call for decarbonization and "beneficial electrification"—reducing the use of fossil fuels and electrifying transportation, businesses, and heating and cooling.

If all these things are electrified, the demand for electricity will greatly increase. To achieve local and state climate action goals, electric grids will need a significant upgrade. Increasing renewable energy means building new local transmission lines and upgrading circuits, switches and substations.

Locally and regionally owned utilities are in the best position to make the needed investments. Because their mission is to serve ratepayers, they can build what communities most want and need. And most can borrow through low-interest municipal bonds, making grid improvements affordable.

In contrast, investor-owned utilities operate in a regulatory system that incentivizes building large assets like centralized transmission lines. Meeting state and local climate action goals is not their priority; in many cases, meeting those goals is an added expense, reducing their bottom line.

The cost of capital is much higher for investor-owned utilities than for locally owned utilities. The difference in cost between municipal bonds at 3-5 percent interest and the combined debt and return on equity for investor-owned utilities of 8-12 percent amounts to billions of dollars in potential savings for ratepayers.

Several jurisdictions and regions have succeeded in taking back their electric grid from investor-owned utilities, notably Winter Park, Fla., and Long Island, N.Y. These efforts were long and costly. But the end results have been positive: Electric rates and power outages have been reduced.

Should our electric utilities be owned by distant shareholders? Should foreign entities make a profit on local electricity? Or should the electric grid be considered a part of the common good, owned by the people?

Policymakers and ratepayers have begun asking these questions. With climate change upon us, with the need to upgrade and build out our grid and with ever-rising rates, these times call for change. We know the road to get there will be hard. But we have a model for success in the locally owned utilities across the country.

Saying 'Yes' to Clean Energy Means Telling the Truth About Solar NIMBY-ism

L. Michelle Moore

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More communities are saying "not in my backyard" to clean energy projects. The Jefferson County Commission in Tennessee recently said "not now" to a new 250-MW energy storage project, passing a moratorium on permitting such projects until January 2024. Ten rural Ohio counties have banned new solar and wind installations under a state law that gives local jurisdictions the ability to stop renewable energy projects (though not new fossil fuel projects). And a study published by Columbia Law School's Sabin Center for Climate Change Law found that 228 jurisdictions across 35 states have enacted policies to restrict renewable energy projects.

Rising local opposition is threatening our clean energy future. Worse, this is happening just as funds from the Inflation Reduction Act—the biggest federal investment in climate and clean energy in U.S. history, and the biggest investment in rural power in a century—are hitting the street. How can we get from "not here" and "not yet" to a unified "yes here" and "now"?

There is no single source of the growing local opposition to clean energy projects. Some stems from an organized anti-solar campaign, including the efforts of activist groups with ties to fossil fuel interests. Misinformation is propagated across social media, including claims that solar panels will contaminate the soil or that lithium-ion batteries used for energy storage projects—the same type of batteries used in your cell phone—will cause fires and explosions.

Other more substantive concerns are rooted in the history of extractive economic relationships between rural and urban areas. Coal and other

fossil fuels have long been mined and extracted from rural communities, damaging landscapes and compromising human health, to power urbanization and industrialization that disproportionately benefited cities.

That history echoes in today's debates about clean power. Although less than 1% of the total landmass of the lower 48 states would be required to power the entire country with solar, deep concerns have emerged about the loss of agricultural land to energy production. Farmland—especially when it's located near transmission lines—is often the most inexpensive sites for utility-scale solar projects. While fears of our nation losing its ability to grow enough food to feed our people may be overstated, the local impact of prime farmland converted to a solar field is visceral—particularly when America is losing about 1.8 million acres of farm and ranchland per year, primarily to urbanization.

Agriculture includes timber farming, and there are important questions emerging about sacrificing productive timberland to produce energy. Sometimes, these questions pit one environmental group against another, with greenhouse gas emission reductions facing off against traditional conservation values.

Economic equity hangs in the balance, too. Many large-scale renewable energy projects located in rural areas provide clean power and savings to large corporations that back these projects through power purchase agreements, including projects covering thousands of acres here in Georgia. While the solar projects provide tax revenue to the counties in which they're located, local rural residents—often burdened with high poverty rates and high electricity bills—don't share in the savings. This disconnect between people, place and project are the product of state-based energy market structures—not willful economic exclusion, but the impact is the same.

A "Made in America" clean energy future can do better, by connecting the value of clean energy with rural values. Here's how:

First, thoughtful land-use planning benefits everyone. Solar developers can avoid prime farm-, timber-, or ranchland and incorporate those preferences into utility and corporate RFPs. Leading practices like agrivoltaic development, which pairs solar and agricultural land uses to the benefit of both, can result in more efficient energy and crop production. RFP tools, like Beyond the Megawatt, can inform local strategies.

Second, we can use applied research to improve deployment of clean energy technologies. This summer, Virginia Tech was awarded $3.4 million to study the environmental impacts of large-scale solar projects. The results of the university's work will help to define the best ways to build renewable energy across the state.

Finally, use community benefit agreements to develop shared goals that transcend any single project. The product of engagement between developers and local governments and community members, these agreements may include commitments to local hiring, job training opportunities, shared savings, and other innovative approaches to connect project economics to local priorities. Corporate leaders can also help drive local benefits through their purchasing decisions: Google recently leveraged a large-scale solar buy through Sol Systems to deliver energy efficiency upgrades for low-income households across North and South Carolina.

Today, we have a choice. We can fight out our differences in county commissions across the country—continuing the clean energy battle that has raged for decades in Congress. Or we can listen to each other's concerns and find new ways that urban clean energy demand can advance rural land conservation and community development priorities. As my husband always says, "There are three sides to every story: yours, mine, and the truth." Once we set aside the cynical misinformation campaigns, there's a lot of truth to the concerns rural residents across the country are expressing about what solar energy development may mean for their community and quality of life. Meeting in the middle and finding solutions together will lead to a better, and more unified, future for us all.

Funds Are Flowing for Decarbonization. Funders Can Make the Impact Equitable

Lottte Schlegel and Corrine Van Hook-Turner

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Antonio Díaz and Dawn Curtis share a common vision: a future when their neighbors are thriving in healthy, resilient homes, schools and workplaces, and benefiting from a green economy. Díaz and Curtis are also both part of Community Climate Shift, an initiative working for equitable emissions reduction and community-driven policymaking.

Begun by the People's Climate Innovation Center (Climate Innovation) and the Institute for Market Transformation (IMT), Community Climate Shift works to ensure that decarbonization of the built environment is led by—and meets the needs of—communities on the front lines of climate change.

"Immigrants and low-income communities of color experience the health impacts of the climate crisis first and worst," says Díaz, director at PODER San Francisco, an environmental justice organization. "But they also know what is needed to solve these challenges."

These challenges include unprecedented natural disasters, high utility bills and unhealthy air—all of which are connected to the 74% of U.S. electricity used by the built environment. What's more, most people spend 90% of their time inside buildings, making them tremendously important for health, safety and stability.

The Biden administration formed the National Building Performance Standards Coalition to encourage local and state governments to set policies that improve existing buildings. Paired with the Building Infrastructure Law and Inflation Reduction Act (IRA), this presents an unprecedented

opportunity to decarbonize the built environment through investments in energy efficiency and clean energy. But it is not guaranteed that those investments will benefit those who need them most.

"Historically, underserved communities have been marginalized or eliminated in decision-making affecting the built environment," says Curtis, who serves as Environmental Justice Chair for the NAACP and as founder of Grassroots Impact in Orlando. "We believe by improving the energy efficiency of these ignored structures, our communities could experience a financial reprieve and improved health conditions."

Philanthropy's big opportunity to back a climate justice movement

The new wave of federal funding could spur needed change, but could also perpetuate harm to historically marginalized communities. Unless they are part of decision-making, residents could be shut out of game-changing cost savings, job opportunities and health benefits. Conversely, philanthropy has a multimillion-dollar opportunity to leverage federal investment to give front-line communities a leading role in developing and implementing policies and programs.

Making the most of this moment requires backing a movement. This movement must be community-led, partner-rich, and it must shift power to the people experiencing climate change first and worst. Enter Community Climate Shift: a collaboration of local community-based organizations and national environmental nonprofits working to ensure residents have the resources and connections to drive their own solutions.

This initiative provides financial, strategic and tactical support from a network of partners to better equip community-based organizations to collaborate with local governments and to access federal funding. These efforts will build long-term capacity for participating organizations and offer an innovative, scalable policymaking model.

This concept is gaining traction. In July, the Department of Energy awarded $5 million to IMT and many of the Community Climate Shift team members to support state and local governments taking this approach to building improvement policies. Due to onerous federal reporting requirements, funds for community organizations must be raised separately. Thanks to seed funding from The Kresge Foundation, the Energy Foundation and the Waverley Street Foundation, collaborative

relationships between government and community are already producing results.

"When I think about the incredible challenge before us to solve the climate and equity crises, I cannot think of a more promising through-line than Community Climate Shift," said Sierra Martinez, former Energy Foundation policy program director.

San Francisco: Scaling up retrofits, equitably

Advancing equitable building decarbonization—improvements to buildings that remove fossil fuels and increase the efficiency and health of buildings—is a continuation of work that PODER has been doing to improve the health and lives of Latinx immigrants since 1991.

PODER is partnering with the City of San Francisco and Emerald Cities Collaborative, a nonprofit focused on building high-road economies, to launch an equitable decarbonization pilot project in San Francisco's Mission District. The goal is to determine what infrastructure is needed for San Francisco to both reach its carbon reduction goals and advance equity. PODER is pairing Community Climate Shift funds with those from the City's Department of Environment to evaluate potential sites and incorporate complementary strategies such as high-road contracting, electrification, and possibly local energy production. As part of this project, PODER will hire policy staff to advocate locally and participate in statewide environmental justice policy discussions.

PODER intends to expand the work to cover a full city block, and bring this model to neighborhoods across the city. This will have widespread impact. Buildings contribute to approximately 40% of San Francisco's overall greenhouse gas emissions. More than 80% of the local housing stock was built before 1980, making these structures more likely to waste energy and increase residents' utility expenditures. These older buildings also present health hazards like mold, lead and asbestos that can be addressed through building improvement.

Scaling community-led policymaking

Community organizations have the deep relationships needed to effectively communicate with front-line community members and identify their priorities. In Orlando, Community Climate Shift is supporting Dawn Curtis' work with Central Florida Jobs with Justice and Grassroots Impact

on the Orlando Climate Forward campaign. Their goals include energy justice, reducing energy burden for front-line communities, and increased community ownership over climate solutions in the Greater Orlando area.

Curtis visits residents in their homes to talk about energy security, weatherization challenges and policy approaches that could improve buildings across the city. At the same time, Curtis conducts an inventory of living conditions, providing valuable data for policymaking, while developing a broader understanding of the conditions of residential housing in Orlando's front-line communities.

Lasting policy wins

Community Climate Shift embraces the idea of "going slow to move fast." That means giving those closest to the challenges the opportunity to shape building decarbonization strategies and win broader, more sustained support. This initiative seeks to fundamentally reconcile relationships and power dynamics between governments and community organizations so that they can address challenges collaboratively now and in the future.

Current federal funding presents a once-in-a-generation opportunity to shift power to front-line communities. By investing in Community Climate Shift, funders can leverage federal resources to benefit the people who need them most, while building the infrastructure for a movement that will endure long after funding has been spent.

As Jessica Boehland, Kresge Foundation senior program officer, put it, "CCS is already built. The partners in place. All that's needed is the funding."

Community-Based Climate Partnerships Poised to Gain From New "Green Bank" Funding

Maggie Super Church and John Moon

Originally published June 12, 2023 in ImpactAlpha

Adapting to climate change, and preventing its worst impacts, is a daunting job—too big for most local governments, nonprofits, or businesses to tackle on their own. But in communities across the U.S., a diverse range of leaders are joining forces, building highly effective partnerships to fight the climate crisis.

New federal funding from the recently announced Greenhouse Gas Reduction Fund will boost these initiatives, supporting partnerships between government, private investors and community-based organizations in neighborhoods most at risk from climate change. As the Environmental Protection Agency prepares to open up competitive grant applications for the program, now is the time to forge and strengthen partnerships between government, community leaders and frontline organizations.

For the past 25 years, we have worked with community-based organizations, advocacy groups, research institutions, government leaders and private investors to help build healthy, resilient and thriving communities across the United States. To effectively confront climate change, we need holistic strategies grounded in a long-term vision of community resilience—and more spaces where investors and grassroots groups can "meet in the middle" to act on community priorities.

Through our work with the Center for Community Investment, a national organization that works with communities to strengthen their investment systems, we've seen the impact of this approach.

Urgent need

The need for action is clear. In the past two years alone, the United States has suffered through a record number of severe weather events that each caused $1 billion or more in damages. But these impacts are not evenly distributed. For example, extreme heat is killing more Americans than any other type of climate disaster, and disproportionately affects low-income neighborhoods and communities of color. Climate disasters also magnify the racial wealth gap, as communities of color are less likely to receive disaster relief aid and more likely to lose wealth when compared to white, affluent households and communities.

As climate-related emergencies multiply across the country, communities are grappling with the urgent need to protect people, homes, and businesses from harm. At the same time, a growing number of cities and states have enacted laws requiring significant reductions in greenhouse gas emissions over the next ten-plus years to avoid even greater harm in the decades to come.

Building long-term climate resilience requires a comprehensive, multi-sector, place-based approach. For example, a comprehensive community approach to extreme heat, one of the deadliest climate hazards, may include greening public areas, installing cooling systems in homes, and converting public facilities into resiliency hubs. This requires collaboration among agencies and stakeholders who may have little history of working together.

Fortunately, a wide range of multi-sector and community-based collaboratives have proliferated over the past decade that could help accelerate progress. Existing public/private partnerships that bring together leaders in health, housing, economic development, regional planning, and infrastructure are well-positioned to pivot or expand their work to focus on climate resilience and decarbonization. Frontline environmental and climate justice organizations, government, philanthropy, and the private sector all have roles to play.

Shared priorities

While there is no playbook for solving the climate crisis, CCI has been exploring what's already working—and there are good examples to learn from.

In Chicago, climate justice nonprofit Elevate Energy is demonstrating the economic and health benefits of decarbonizing homes. In South Stockton, a diverse, environmentally burdened neighborhood in California's Central Valley, the Greenlining Institute mobilized a coalition

of community-based organizations to deploy funding from California's Transformative Climate Communities program for energy and water efficiency upgrades and tree-planting projects.

In Buffalo, New York, the Sewer Authority worked with public, private, and nonprofit partners to create a water equity roadmap and issue the nation's largest Environmental Impact Bond for green stormwater infrastructure projects that reduce flooding, create jobs and beautify neighborhoods. And in Eastern Kentucky, Invest Appalachia is providing catalytic capital for long-term flood recovery and climate resilience.

There is real urgency in organizing demand for capital to meet the needs of local communities. The Bipartisan Infrastructure Law, CHIPS and Science Act, and Inflation Reduction Act (IRA) together comprise a massive investment that is poised to inject new resources into historically disinvested communities on the front lines of the climate crisis.

Of particular note, the IRA authorized $27 billion to launch a new EPA Greenhouse Gas Reduction Fund and $22 billion in additional funding for state-level climate action. The Environmental Protection Agency, which administers the program, will award competitive grants to nonprofits with an eye towards leveraging private capital for clean energy and pollution reduction projects in low-income communities.

Just as significant, the Biden-Harris administration's Justice40 initiative has made an explicit commitment to delivering at least 40% of the benefits of clean energy and infrastructure investments to "disadvantaged communities." These resources are already flowing and communities that have done the work to define shared priorities and develop a pipeline of projects will be best positioned to access these funds.

The EPA is expected to release its final Notices of Funding Opportunity for the Greenhouse Gas Reduction Fund expected in the coming weeks.

The program will prioritize application submissions that demonstrate meaningful engagement with vulnerable communities. Existing networks and multi-sector collaboratives may be a solution to maximize impact to these communities. Together, we can ensure that investments in resilience and decarbonization meet the most pressing needs in our communities today and into the future.

Environmental Justice Investors: It's the Demand-Side, Stupid!

Joe Evans

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Many of us want to see clean energy, energy efficiency, climate resiliency and sustainability take root in communities of color and low-wealth communities.

We could get there quickly if the Biden administration, the Environmental Protection Agency (EPA) and the Greenhouse Gas Reduction Fund invest as much in project readiness as in direct financing.

The Biden administration's EPA aims to reduce greenhouse gas pollution through the Justice40 initiative, which is focused on communities they define as marginalized, underserved and overburdened by pollution.

Two grant programs totaling $27 billion, both part of the Greenhouse Gas Reduction Fund, will launch later this year. And guidance from the EPA this week confirms that these same communities will be priorities for this significant federal funding.

But that funding will go underutilized, and we will fail to fully leverage this historical investment, without significant attention to two barriers to adoption and scale of greenhouse gas-reducing efforts in Justice40 communities.

First, organizations need access to knowledge and technical advice from trusted sources who aren't selling products. Second, they need a modest amount of cash equity to put into projects. These barriers fall under the umbrella of "project readiness," and they are what stop many community-based organizations from installing rooftop solar or heat pump, or from conducting energy efficiency retrofits.

To explain how these barriers work, let's look at common scenario.

Say a Justice40-aligned nonprofit organization wants to install solar panels on its building to reduce energy costs and become more climate resilient. It reaches out to a solar installation company from outside the community to talk.

In the first meeting, the company talks about building assessments, new technologies and a complicated financing scheme. It sounds like it has merits, but people in Justice40 communities are understandably distrustful of complicated financial arrangements. They can't say for sure if this is the right path forward.

The organization is also told it will need to put cash equal to about 10 percent of total costs into the project.

The organization's leadership hits the pause button. They realize they need to better understand the technology and the financing options to be sure they are charting a productive path.

But when they look around for technical advice, the places they find it are other companies selling similar services and equipment. How can they trust them as fair and unbiased messengers any more than the company they're already talking with?

And the 10 percent equity requirement is no small ask. Let's assume that a typical project for a community-serving nonprofit is $400,000; this means they need $40,000 upfront. The organization might have that, but it also has several needs competing for limited resources. So, it puts off the greenhouse gas reduction investment.

This is the scenario we can—and must—change. We must improve access in Justice40 communities to information and professional advice from entities that aren't selling or financing the products and we must provide equity to put into projects.

These things are robustly available to people and organizations in more affluent communities, where greater financial resources circulate and networks of educated professionals help their daycare centers, community groups, schools, churches and employers leverage federal tax and other subsidies for greenhouse gas reduction investments.

My back-of-the-envelope estimate says by earmarking $12 billion, less than half of its $27 billion pot, to scale a trusted project advising infrastructure and to provide 10 percent project equity grants, the EPA could ensure more than 150,000 projects in Justice40 communities are made ready.

That's enough to ensure that greenhouse gas reduction technology is available to every community health center, every housing or mixed-use project currently financed by federal low-income or new markets tax credits, 10,000 community and senior centers, every Head Start program and tens of thousands of other community-serving organizations.

With convincing evidence of financeable demand, investors will come running. The truth is that many corporate and institutional investors ache to invest in projects that will meet climate and equity goals. We don't have an awareness-building issue anymore, and we don't really have a financing issue.

When I talk to community-focused lenders about why they are not investing more in Justice40 communities, they tell me that the transactions are really hard; the deals don't "pencil out" because there isn't any equity in the project. Or they say organizations aren't ready. We can change this dynamic.

Building financeable demand is the ticket. It involves removing the barriers to reaching project readiness that Justice40-aligned organizations face. That's important work that often goes underfunded and overlooked, leading the immense sums of available financing to go underutilized and misdirected.

We can't afford this same status quo outcome now. The EPA, applicants to the Greenhouse Gas Reduction Fund and all of us who care about this issue have the opportunity to get it right with this once-in-a-lifetime opportunity.

The Supreme Court Could Doom Biden's Environmental Agenda

Daniel Reich

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In his State of the Union address, President Biden laid out a vision of a cleaner, greener future—with electric vehicles supported by a nationwide network of 500,000 charging stations. Unfortunately, the Supreme Court's 2022 ruling in West Virginia v. EPA may serve as a legal basis to strike down the Environmental Protection Agency's (EPA) efforts to increase the number of electric vehicles on the road. More broadly, this decision could make it much more difficult for the EPA—and other federal agencies—to protect the public.

The Supreme Court's West Virginia decision codifies the "major questions" doctrine—which holds that agencies must have specific congressional authorization for policies with extraordinary economic and political significance. The Supreme Court rejected EPA's Clean Power Plan, asserting that the agency lacked clear congressional authority to devise the plan. The major question at issue in the West Virginia case was what constitutes the "best system of emission reduction" (BSER) for the power sector.

The concept of BSER dates to the Clean Air Act of 1970, in which Congress sought to reduce emissions from a wide range of industrial sectors. Of course, the best way to reduce emissions varies by sector and over time—what was "best" in 1970 won't cut it 50 years later. That's why Congress delineated certain factors that should be considered (including cost, effectiveness and environmental impact) and left it to EPA to decide which systems could best reduce emissions.

In West Virginia v. EPA, the Supreme Court ruled that EPA must obtain congressional approval to act on BSER, ignoring almost 40 years of precedent to defer to EPA in acting on BSER. This requirement unduly burdens Congress while making it impossible for the EPA to act. Indeed,

if "clear congressional authority" is needed each time a decision is made as to what constitutes BSER, the process would grind to a halt. That is why Congress in 1970, 1977 and 1990 expressly left it to EPA to figure out the answer for each sector over time.

Moreover, it's not a given that the Clean Power Plan would have "extraordinary economic and political significance." Even the Trump administration, which opposed former President Obama's Clean Power Plan, acknowledged that the plan would not have significant impact. Indeed, the plan affirmed actions the affected industries were already taking, which is why those industries overwhelmingly supported it.

Now that the "major questions" doctrine has become law, it can be applied to curtail a broad range of governmental actions. For example, it could undermine the Security and Exchange Commission's (SEC's) efforts to inform its investors of the risks of climate change. The Supreme Court could rule that the SEC statutes designed to provide investors with material information do not explicitly mandate climate disclosures. Future regulations proposed by EPA to address carbon dioxide from power plants, cars and trucks might also be subject to scrutiny as to whether there is "clear congressional authority" under the Clean Air Act for the terms of the regulations.

And application of the "major questions" doctrine can reach well beyond the environmental area. It could apply to rules banning the use of youth-friendly flavored tobacco, or to proposed rules protecting access to abortion rights in the wake of the recent Supreme Court's Dobbs decision, which overturned Roe v. Wade.

Chillingly, the West Virginia case is the first in a line of cases that the Supreme Court is now ready to decide, which are directed at scrapping the tools agencies traditionally use to protect the public. One of these cases will decide whether the SEC has authority to bring an enforcement action. The results will go to the heart of how federal agencies ensure compliance with its regulations. Another case will decide whether California's legislation authorizing the regulation of pork products sold in its state is valid. The court will also decide whether congressional statutes requiring administrative review of an agency decision are constitutional, potentially further limiting the review role of an administrative agency.

Based on views they have expressed, it appears that six Republican-appointed Supreme Court justices would further curtail the role of administrative agencies. In their concurring opinion on the West Virginia ruling, Justices Neil Gorsuch and Samuel Alito express concerns about the explosive growth of the broader administrative state and raise the "major questions" doctrine as a prime vehicle for its curtailment. Justices Clarence Thomas and John Roberts have also voiced concerns about the administrative state. The American Enterprise Institute, a conservative think tank, believes Justice Kavanaugh will have a major influence in limiting the role of administrative agencies. The last member of the majority in the West Virginia decision, Justice Amy Coney Barrett, demonstrated her willingness to ignore precedent with the Dobbs decision.

The Supreme Court is poised to hobble administrative agencies' ability to protect the public, and to strip them of the tools they need to function. Doing so would undermine a half-century of progress toward protecting public health and the environment—and sabotage efforts to preserve a stable climate for future generations.

Preparing Underinvested Communities for New Funding

Laurie Mazur

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Earlier in her career, Robin Hacke believed that money alone could solve the problem of underinvested communities. As Hacke observed in a Center for Community Investment video, she thought, "They don't have the money to do the projects and deals that they would like to do. We're going to bring money—presto!—problem solved."

Turns out it isn't that simple. Marginalized communities typically lack development plans, which take money, time, and skill to develop. But those plans are needed to apply for state and federal funds, so, when funding becomes available, the communities that are most in need are shut out. "You can load money onto an airplane, and fly it to Detroit, and have it just circle around and around with no place to land," Hacke said.

This is no accident. Because of structural racism, funding tends to flow toward the communities that need it least, often bypassing neighborhoods of color. The disparities between affluent neighborhoods and underinvested ones only grow over time.

Hacke and her colleague Marian Urquilla set out to disrupt that pattern. Between 2010 and 2011, they developed an approach they called the Capital Absorption Framework, designed to help communities build "landing strips" for investment that will advance racial and economic equity. Communities and practitioners use the framework to work with stakeholders to establish shared priorities, develop a pipeline of fundable projects, and strengthen local policies and practices. Together, these strategies give federal funding agencies, investors, and grantmakers confidence in the long-term viability of a project.

Hacke and Urquilla have since shared that model widely through the Center for Community Investment (CCI), which they founded in 2017. The framework has helped dozens of communities acquire the funding to realize their goals.

Here, we take a look at three long-disinvested communities that have used CCI's framework to bring in nearly $50 million in federal and philanthropic funding, and explore how others can attract more investment in the future.

Putting Community Priorities First in Central Appalachia

In Central Appalachia, the process of working together on shared priorities began decades ago. The region, which includes the mountainous counties of Kentucky, Ohio, West Virginia, Virginia, Tennessee, and North Carolina, has a strong network of grassroots organizations and community economic development groups, some dating back to the War on Poverty in the 1960s. In 2011, as the coal industry entered a death spiral, two of those groups—Mountain Association and Kentuckians for the Commonwealth—convened thousands of residents and grassroots leaders to identify a shared priority: a thriving post-coal regional economy.

After decades of underinvestment, federal dollars began to flow toward Central Appalachia in 2015. That's when the Appalachian Regional Commission launched the Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) initiative, which has since devoted $370 million in grants to support the region's shift away from coal.

But the region wasn't equipped to use those funds. Central Appalachia didn't have enough fundable projects, and there wasn't enough communication between the funders and the communities they wanted to help. So, in 2016, the Appalachia Funders Network (AFN), a regional funders' affinity group, convened partners to bolster the regional investment ecosystem through collaborative design and planning. By participating in CCI's Connect Capital initiative, the partners learned about the capital absorption framework, which is now integral to their approach.

As a result of this years-long planning effort, AFN and its partners created Invest Appalachia (IA), which aligns investment capital with community priorities: clean energy, community health, creative placemaking, and food and agriculture. IA raises funds from philanthropy, investors,

and government agencies, then uses both grantmaking and traditional financing to support a pipeline of local projects.

An ongoing challenge facing IA was the disconnect between financiers and community development practitioners on the ground. Andrew Crosson, founding CEO of Invest Appalachia, says this causes "a breakdown in understanding of the project's purpose and intent…As a result, the deals that do get done in low-wealth places are generally those that are the easiest to do."

To close that gap, IA trains "community investment framers," a concept created by CCI. These framers are deeply connected to the community, but develop the technical knowledge, language, and tools to frame a project for investment. By translating community priorities into the language of finance, framers ensure that development addresses community needs.

Today, these efforts are paying off. Throughout Central Appalachia, networks and organizations involved in community finance and community development—including banks, CDCs, CDFIs, local housing organizations, and local developers—have built a pipeline of investable deals. The decades of collaboration that led to IA have also helped create a robust enabling environment for investment, with community foundations, downtown groups, and institutions of higher education actively engaged in advancing projects toward investment readiness.

In its first full year of operation, IA is on track to deploy $10 million in new blended capital investment, which is helping to leverage about five times that amount from other sources, according to Crosson.

Already, those investments are having an effect in the region. With flexible financing and a loan guarantee from IA, a local CDFI was able to help a grocery store in eastern Kentucky buy solar panels and energy-efficient equipment that will reduce operating costs. In a former coal-mining community in West Virginia, Crosson reports that IA supported the redevelopment of an industrial building that will serve as a hub for green businesses. As of January, IA had raised $19 million of its $40 million fundraising goal.

More broadly, the region is seeing significant new investment, including ongoing POWER funding and support from the Appalachian Regional

Commission, as well as CDFI lending and investment by both local and external funders. And the region is better able to absorb those funds, with robust and thoroughly vetted plans in sectors from clean energy to community health and downtown revitalization.

A Focus on Preservation in Pittsburgh

Pittsburgh, like many American cities, has a severe shortage of affordable homes. In 2016, there was an estimated shortage of over 17,000 units for very low-income households—with ever-growing demand across broader Allegheny County. Recognizing housing's impact on health, UPMC Health Plan, a health care provider and insurer, began examining ways to preserve and increase the city's supply of affordable homes.

But the organization soon realized it couldn't take on such a challenge alone.

In 2018, CCI recruited six health care organizations for its Accelerating Investments for Healthy Communities (AIHC) initiative. The members, including UPMC, would work to provide affordable housing in their localities. Separately, the members convened local partners, and UPMC's group determined that preservation of existing affordable housing was key. "What's the good of funding two more LIHTC deals of 100 units if we lose 500 units?" Kevin Progar told CCI. Progar led the UPMC team for AIHC and is now a staff member at the Center for Community Investment.

To meet its new goal, UPMC started the Preservation Working Group, a critical step in creating an effective enabling environment for preservation. Today, the group identifies affordable housing in Pittsburgh that might be at risk, leads efforts to keep these properties affordable, and advocates for preservation policies and programs.

The group takes a proactive approach to preservation. It uses the HouseCat database to identify properties that are strategically important to maintaining affordability, which can then be preserved by housing nonprofits.

Because the Preservation Working Group had established shared priorities and created a pipeline of affordable properties to preserve, it was ready when American Rescue Plan Act (ARPA) funding became available. The group was able to obtain $10 million in ARPA funding for preservation

work in Pittsburgh. And UPMC worked with local foundations to start an $11 million private capital fund, Preserve Affordability Pittsburgh, to help nonprofit buyers compete with market-motivated investors.

To date, two investments by UPMC have helped fund the construction or preservation of over 350 affordable homes through Bridgeway Capital's Affordable Housing Loan Program, Progar says. Separately, UPMC Presbyterian hospital supplied parcels that will create a LGBTQ-friendly senior housing community in Pittsburgh through the Low-Income Housing Tax Credit Program.

Members of the group also succeeded in increasing the state housing trust fund from $40 million to $60 million annually, Progar says. The trust fund expands low-income housing, works to prevent homelessness, and promotes homeownership. And earlier this year, the Preservation Working Group, in conjunction with other advocates, received a $125,000 grant from the Pennsylvania Housing Finance Agency to create and preserve affordable rental housing in Pittsburgh.

Preventing Displacement in Maryland

It's a painful paradox: When cities build much-needed transit in low-income areas, property values skyrocket, rents rise, and longtime residents are priced out. That's what many fear will happen along the new Purple Line in Washington, D.C.'s Maryland suburbs. To prevent displacement, The University of Maryland's National Center for Smart Growth established the Purple Line Corridor Coalition (PLCC) in 2013. With help from Kaiser Permanente, a member of CCI's AIHC initiative, the group identified an ambitious shared priority: to preserve or create 17,000 affordable homes on the corridor.

"You really need to start early if you want to get ahead of what we see happening in the D.C. region and beyond," current PLCC director Sheila Somashekhar told the *Washington Post* in 2021. Some of the communities along the line's planned route, she added, are "the last bastions of affordability in our region."

As a public-private coalition, PLCC includes representatives of state and local government, nonprofits, foundations, and businesses. The coalition hired a housing development coordinator, Vonnette Harris, to create a pipeline of development and preservation deals. By the end of 2022,

the coalition's fund had invested $8.8 million in 861 homes, with many more on the way.

Recognizing that many community groups have the motivation, but not the capacity, to preserve and create affordable housing, Harris works to "get projects shovel ready, so they are able to apply for funding opportunities as they arise," she says.

When an affordable apartment complex near the Purple Line was put up for sale, its tenants sought to buy the building themselves, fearing displacement, but lacked the resources. Harris says she arranged funding for the purchase, including public and private loans and a grant from the city government. With Harris' guidance, the city government established a small fund to help other tenant groups purchase and preserve their homes.

Throughout the Purple Line corridor, Harris is mobilizing a broad coalition of stakeholders to work together to ensure that the area continues to have affordable housing options. "Yes, you want the lending community, the CDFIs at the table. But you also want the development community, government officials, community organizations—as well as institutions of higher learning, health care providers, and faith leaders. It takes a village to do this work," she says.

Working with Prince George's County staff, CCI consultants completed the final stage in the framework: looking into existing policies and conditions in the area that could help preserve affordability in the corridor. CCI consultant Michael Bodaken uncovered a dormant law that would give Prince George's County the right of first refusal to acquire affordable multifamily buildings that are about to change owners. Instead of purchasing the properties, the county's Department of Housing and Community Development can pass them off to developers, without compromising their affordability.

By early 2023, DHCD had already used its right of first refusal 25 times. As of February, the department had preserved 1,213 units across six properties.

The timing of this effort was critical, DHCD director Aspasia Xypolia told CCI: "Five to seven years from now, when rents have escalated more, there will be no value to this—there won't be anything to preserve then," she said. "The window of opportunity is now."

Prepare for Opportunity

For those working in America's underinvested communities, it's hard to know when the window of opportunity will open. "You can't tell when it will rain money," says Hacke. But new funding sources regularly appear from infrastructure investments, disaster recovery funds, and changes in the tax code.

Right now, the plane is circling. Substantial funds are earmarked for historically disinvested communities, including through the American Rescue Plan, Inflation Reduction Act, and Bipartisan Infrastructure Law. While time is short to prepare for the current round of funding, it's high time to prepare for the next round.

Feds Should Make Climate-Friendly EVs More Affordable

Valeria D. Hairston

Originally published July 2, 2023 in The Cap Times

I'm a physician practicing medicine in the Milwaukee area. Currently, I'm driving a high-mileage car that is in need of replacement, and I strongly want to purchase an electric vehicle because of the impact a gasoline car has on the environment.

As a provider, I see how poor air quality exacerbates my patients' asthma. Despite my strong desire to purchase an electric vehicle, it has to make financial sense. That's why I urge President Biden's administration to make buying electric vehicles less cumbersome and as affordable as possible.

Transitioning away from internal combustion engines and toward zero emission cars will have a powerful impact on air quality and help to limit the climate crisis in Wisconsin. Currently, transportation accounts for 29% of the greenhouse gas emissions in the United States, and it's the leading cause of heat-trapping pollution. Burning gasoline and diesel fuel creates harmful byproducts, including nitrogen oxide, carbon monoxide and hydrocarbons. These pollutants can cause significant health problems such as asthma, chronic bronchitis and heart attacks. Additionally, there can be delays in infant development, reduced IQ, attention deficits and learning difficulties.

To mitigate this pollution we need compelling incentives to buy clean vehicles. The Inflation Reduction Act includes incentives for purchasing clean vehicles. However, the qualifications associated with these incentives are daunting. From January 2023, "qualifying" used electric vehicles priced below $25,000 that are at least 2 model years old can qualify for up to $4,000 in federal tax credits. The credit must equal 30% of the sales price to a maximum of $4,000 credit. The credit is not refundable so you cannot get back more in taxes than you owe.

Why not make the credit refundable, eliminate the fact that the credit must equal 30% of the sales price, and change the credit for a maximum of $6,000? Additionally, most of the used or hybrid vehicles that are currently listed on the internet range between $9,000 and $81,000. The lower priced models are often compact or economy sized cars or are significantly older than 2 years. Many of these particular models are approaching over 7 years in age if not older. Consequently, there should be no restriction with regards to the price of used vehicles.

There are also restrictions regarding the buyer's household income. It cannot be greater than $75,000 for individuals, $150,000 for a joint return, and $112,000 for the head of household. My proposal is to eliminate the income criteria.

When considering a new electric car or plug-in hybrid the criteria are quite restrictive to qualify to receive federal tax credit. Vehicles must be manufactured in North America and have a manufacturer's suggested retail price below $80,000 for an SUV or $55,000 for a sedan, wagon or hatchback. The maximum federal credit is $7,500.

As of April 2023, the full tax credit has been divided into two parts. To qualify for the first $3,750, at least 50% of a vehicle's battery components must be produced or assembled in North America. To get second $3,750 at least 40% of critical materials used in the battery must be extracted or processed in the U.S. or in a country with a U.S. free trade agreement partner, or they must be made from materials recycled in North America.

My proposal is to eliminate the battery restrictions and increase the federal tax credit to $10,000. The buyer should have a choice to use it as a down payment, apply it to any taxes owed or receive a refund.

Eliminating the red tape with regard to the purchase of new and used electric and hybrid vehicles would greatly incentivize Americans to buy green vehicles. This in turn significantly reduces air pollution. In the long run, reduction in air pollution would have positive effects on heart disease, early death, lung disease, diabetes, cancer, etc. Not only would reducing vehicle emissions go a long way in improving health, but electric and hybrid vehicles have lower fuel costs, flexible charging and are much cheaper to maintain.

When considering the purchase of a new or used vehicle I should not have to choose between what's better for my purse or what's better for the environment. The federal government needs to put their money where their mouth is.

Are EPA Programs Creating More Barriers for Polluted Communities?

Jamie Hearn

Originally published January 30, 2023 in The Hill

Seattle has long been considered one of the most sustainable cities in the country. But the city's green reputation obscures a deep legacy of environmental racism. Just a few miles south of Seattle's iconic downtown and waterfront lies the Duwamish Valley, a polluted stretch of land that is home to many low-income people of color. And an Environmental Protection Agency (EPA) grant program intended to help appears to have inadvertently become part of the problem.

The Duwamish Valley feels a long way from the leafy, green Emerald City. Here, residents have access to an average of only 40 square feet of green space each, versus an average of 387 square feet within Seattle City limits. The Duwamish Valley is choked with pollution from a disproportionate number of polluting industries and major highways. It also hosts the Lower Duwamish Waterway Superfund site—one of the most toxic hazardous waste sites in the nation.

These factors result in tangible and serious impacts. Life expectancy in one Duwamish Valley neighborhood, South Park, is 13 years less than in whiter and more affluent areas of Seattle. After decades of disinvestment, the Duwamish Valley community faces significant health, public safety and economic disparities that require community advocacy and systemic investment to repair.

Over 20 years ago, the Duwamish River Community Coalition (DRCC) was founded by community activists seeking to address these problems. For more than a decade, our work has been supported in part by a Technical Assistance Grant (TAG) from the EPA. The purpose of the TAG is to "help communities participate in Superfund cleanup decision-making" by providing community groups the funds to contract a technical adviser

to "interpret and explain technical reports, site conditions, and EPA's proposed cleanup proposals and decisions."

Yet, what was initially a helpful resource that allowed us to better serve our community has in practice become another one of the many systemic barriers that we face when working to create a safe and healthy environment for all. Recently, we decided to continue our advocacy work without the TAG.

The timing may seem surprising. We are choosing to forego EPA support just as internal restructuring and an influx of funding has allowed the agency to consider the ways that environmental justice and health equity are inextricably linked to their work. Yet, even as the EPA works to address environmental justice, the TAG is structured and operates in ways that are inherently unjust in my experience—especially to small, grassroots community organizations.

Maintaining the TAG has imposed outsized administrative burdens on DRCC. Significant portions of our time and resources have been spent on preparing, processing, filing and refiling invoices, work plans and other documents as we attempt to navigate confusing and inconsistent TAG procedures in a timely manner to get reimbursed for the services that we are committed to providing to our communities.

As the years have gone by, EPA has significantly narrowed our allowable scope. This means that the work we can bill to the grant has become increasingly limited. While these work plans are agreed upon by both parties, there is an undeniable power imbalance between a federal government agency that controls the funding, and small nonprofits that depend on the agency.

Our last work plan with the EPA was the most limiting plan yet. For example, when using TAG funds, we would have been required to consult with EPA before conducting outreach to people who fish in the Duwamish River. If we wanted to print a flyer warning of toxins in fish, or hold a meeting on how to fish safely, we would first need to seek approval from the EPA. This inhibited our ability to reach a highly vulnerable population, and to do large-scale, systemic work within our community.

As the EPA strives to center environmental justice in its work and organizational hierarchies, we hope the agency will reflect on the ways in

which many of its systems are still deeply flawed. While new investments in environmental justice will no doubt catalyze long-awaited changes, no amount of money can remedy the consequences of environmental racism if the systems that bolster these inequities remain firmly in place.

The EPA should remove systemic barriers like the burdensome TAG requirements that limit true partnerships with community-based organizations. Our communities have valuable insight that must be heard and incorporated in environmental solutions. The National Environmental Justice Advisory Council recognizes this, stating that "bringing local experience and knowledge to the table improves the quality of cleanup decisions and builds community support."

In contrast, the structure of the TAG program prevents meaningful participation and progress. There is no doubt that other environmental justice groups around the country are also feeling the burden of these institutional obstacles, and we are confident that by increasing accessibility, the EPA will create spaces for richer and more diverse perspectives to be heard.

Accountability and equitable funding practices are not mutually exclusive. The EPA should be able to track federal funds to ensure that money is being spent for the correct purpose. But there are ways to hold organizations accountable for the grant money they receive without overburdening them and limiting decision-making to groups that are large enough to handle current reporting requirements. For example, the EPA could support frontline-serving intermediaries to handle grant compliance. The EPA can and should work with community groups to develop processes that center the organization's capacity and experience working with impacted communities.

Ultimately, the EPA says that it embraces "the need for better outcomes in communities where there are unique burdens and vulnerabilities for populations living in and around Superfund sites." I hope that EPA will recognize this opportunity to live up to that promise.

Alabama Should Get on the (Electric) School Bus

George Crawford

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Remember the school bus you rode as a kid? As soon as it took off, a large cloud of black smoke would billow from the tailpipe. The noxious fumes leaked in through the windows, filling the bus with diesel exhaust.

There is a mountain of data that show the harmful long-term health effects of that exhaust. And yet, in Alabama our children are still riding the same kind of dirty, diesel-powered buses we rode as kids. We have the ability to do better, because we know more about the health effects of diesel than our parents did.

We've known for 20 years that diesel exhaust contains pollutants that are linked to asthma and other respiratory problems as well as cancer. Newer research suggests that exhaust can harm the brain and affect learning. Schoolkids get a concentrated dose of these toxic chemicals: a child riding inside a diesel school bus may be exposed to four times the level of diesel exhaust as someone riding in a car ahead of it.

Low-income kids and children of color are hurt the most, because they often live in communities with lots of air pollution—so school buses add to their burden of toxic exposures. And kids from low-income families are disproportionately exposed to diesel exhaust: 60% ride a bus to school, as opposed to 45% of students from wealthier families.

In addition to knowing more about the health effects of diesel buses, we now have better technology. Electric buses offer a cleaner, healthier alternative to diesel. They don't produce tailpipe emissions, and the amount of greenhouse gas they produce is minimal.

So, why haven't we replaced our dirty diesel buses with clean electric ones?

The first hurdle is always the same. Some will ask: "Is the technology proven?" Well, it's been 15 years since Tesla released one of the first commercially available electric cars. Tesla is now one of the most highly valued companies in the world. Electric vehicles are increasingly used by businesses and the federal government, which is considering an all-electric fleet. Right here in Anniston, New Flyer is producing state-of-the-art electric buses on its high-tech assembly line. It's safe to say that this technology has come of age.

The second hurdle is a big one: money. In Alabama and across the U.S., it will be expensive to replace our diesel buses with electric models. Moreover, school districts have established infrastructure around diesel vehicles, including mechanics and service contracts. Retooling that infrastructure for electric buses will be no small feat.

But here's a secret: electric buses are cheaper to maintain than their diesel counterparts ($.19 vs $.82 per mile), so they could save money in the long run. And there is federal money available to make the switch. The 2021 infrastructure bill directed the Environmental Protection Agency to award $5 billion through 2026 for zero- or low-emission school bus purchases. Rural, low-income and tribal school districts are prioritized for funding through the EPA's Clean School Bus Program. And the EPA is partnering with the U.S. Department of Energy and Department of Transportation to provide technical assistance to districts that want to go electric.

Last year, nearly 400 school districts were awarded a total of nearly $1 billion through the Clean School Bus Program to add more than 2,400 electric-powered buses to their fleets. But a glance at the map of awards shows that Alabama is lagging behind in applying for—and receiving—those federal grants (though a handful of Alabama school districts are on the waiting list.)

Why?

Short-sighted school boards, for one. School board members are typically elected every 3 to 5 years. Some avoid the optics of voting to make education more expensive because they won't be around to see the long-term benefits of that change.

Second, the State of Alabama doesn't really want electric school buses. Well, technically, they want just 10% of the state's school buses to be powered by alternative fuel). Whatever their reasons for discouraging the widespread adoption of electric buses, it will harm our children's health in the long run.

Third, remember that those most impacted by toxic diesel fumes are low-income kids and children of color. The powers that be in Montgomery are less likely to have kids who ride the bus, and less likely to have kids with asthma. Until the people making the rules are affected, real change won't occur.

It's time for all Alabamans to acknowledge that there's a problem with the way we transport our kids. Parents, local school boards, state education departments, and the federal government should all become invested partners in solving this problem.

If our kids' health is a priority, if climate change is a priority, and if equity is a priority, we need to make the switch to clean, electric school buses. A school bus initiative that requires the switch and sets a deadline—with financial support from local, state, and federal governments—would be a great place to start.

Washington State Needs a Cumulative Air Toxics Law

Christian Poulsen

Originally published June 13, 2023 in The Urbanist

Seattle's only majority people of color and immigrant neighborhoods are also the most vulnerable; with more families, lower incomes and higher asthma rates, all living and working by Seattle's only river. As a near port community, black carbon (a super pollutant) and ultra-fine particulate matter are found in higher concentrations. King County International Airport continues to use leaded fuel for recreational aircraft which disperse dangerous airborne emissions. Toxic clouds of cadmium from Ardagh Glass and poisonous dust plumes from Seattle Iron and Metal, all occur regularly with little monitoring, oversight, or consequence for polluters.

On top of it all, raging wildfires send soot and ash raining down reliably in late-summer smoke season, delivering the worst AQI scores in the world to the Puget Sound for days at a time.

Washington State needs a new approach to air pollution that centers environmental justice, prioritizes human health, and addresses the cumulative impacts of air pollution in communities using disaggregated data from a robust, comprehensive regional air quality monitoring network for environmental justice communities. People of color are 3.6 times more likely than white people to live in counties that experience poor air quality, as reported by the American Lung Association. Given Seattle's history of redlining and 13-year gap in life expectancy between South Park, Georgetown and Laurelhurst residents, this is a glaring reality.

Many of these impacts are exacerbated by the impacts of climate change, and relative mental health also takes a toll. Policymakers and regulatory bodies should create and enforce stringent reduction goals and aggressive state level standards for harmful air pollutants to close the gaps responsible for health disparities faced by communities living in the Duwamish Valley.

The differences in health outcomes are the result of historic and persistent environmental injustice and institutional racism that state and local legislators and policymakers have attempted to undo with optimistically titled initiatives like the King County Equity and Social Justice Strategic Plan and the Healthy Environment For All Act. Regrettably, these policies and rhetorical statements of solidarity have not delivered on the promises of health equity and protection. Some examples include:

- **County**: King County Council declared racism a public health crisis yet recently approved a new 20-year lease in the valley for Ardagh Glass with almost no community engagement and over serious objections from affected community members in the single public comment hearing offered before the vote to approve. KCIA has begun the process of expansion while community-backed ordinance 2022-0011 opposing the airport's master plan, including the fuel farm expansion, has languished in committee at King County Council for over a year without a vote.

- **State**: While the Puget Sound Clean Air Agency (PSCAA) is the regional authority for air quality, created by the Washington State Clean Air Act, it remains unclear how the HEAL ACT applies to the PSCAA. The Climate Commitment Act regulates carbon using a market-based "cap and trade" tactic to address climate change specifically, and largely overlooks airborne toxics.

- **Federal**: NAAQS policy is the latest update that is falling short of protective measures with no change for the 24-hour particulate matter (PM) standard for non-attainment and attainment areas. No level of PM 2.5 and toxics is healthy for children or adults.

Washington needs a stringent cumulative impacts policy and regulations that centers health and sets a new standard for emission reduction, both stationary and mobile, emission control technologies, indirect source rules, and a mandate authorizing environmental justice criteria in permitting.

Stronger regulations and actionable implementation is key for our civil rights. For example, the State of Oregon regulates air toxics by evaluating emissions based on the danger to human health they pose when considered

with the total pollution present at a specific location by setting limits on the risk to nearby residents, or risk action levels.

Environmental justice communities in Washington need a cumulative impact policy that includes air toxics that match the reality in which we are living like Oregon has implemented. It's time that Washington State, King County and the City of Seattle live up to their own stated values and start walking all their environmental justice talk so people in the Duwamish Valley may finally take a breath of healthy air.

What the Supreme Court Decision on Affirmative Action Means for Climate Equity Policy

Jacqueline Patterson, Aiko Schaefer, and Alvaro S. Sanchez

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Climate justice is racial justice. There is no way to talk about equitable, effective, and just solutions to climate change without also talking about the disproportionate burdens that communities of color shoulder as the planet warms. The legacies of systemic racism and discrimination mean that today, communities of color are more likely to live in polluted, climate-vulnerable neighborhoods with limited capacity and resources to build resilience or bounce back after a climate disaster.

The inextricable link between race and climate vulnerability demands race-conscious policies to mitigate climate effects for these communities. But the Supreme Court's recent decision to ban affirmative action in college admissions could derail progress in our collective fight to slow climate change and address the long legacy of racial injustice in this country.

To be clear, efforts to fight climate change by explicitly targeting race as a decision-making factor do not currently exist. Rather, the federal government and some states, including California, use complex, data-driven methodologies to identify "disadvantaged" communities where environmental pollution and poor socioeconomic outcomes are most prevalent. But because race is the number one indicator of people living near polluting facilities, we know that by any measure, low-income people of color suffer first and worst from climate change and its impacts.

Race-Conscious Policy

Even before the recent Supreme Court decision, legal constraints on race-conscious policy caused misunderstanding, tension, and division

between frontline communities working on climate equity and the local governments representing them.

For example, the Biden administration decided not to include race as a factor in a screening tool designed to support the implementation of Justice40, an executive order meant to address environmental injustice by funneling resources to disproportionately impacted communities. In California, a state where affirmative action has been outlawed in education, public employment, and government contracting since 1996, legal constraints on the use of race-conscious policy has resulted in hesitancy to apply it even in areas where the ban is not in effect, such as in environmental policy.

Moving forward with a "colorblind" approach to climate justice risks making our efforts less effective, more costly, and slower. The formula for success requires that climate and race are as inextricably woven together in our solutions as they are in the world in which we live.

Still, places with decades-old bans on affirmative action show us how to advance racial justice in climate solutions, despite perceived legal limitations. We start by being race-conscious in our policy goals, seeking explicitly to combat discrimination and eliminate racial disparities. As Stephen Menendian at the Othering & Belonging Institute points out in his helpful legal guidance, federal law broadly permits government entities to try to reduce disparities, though the policy *implementation*—the specific mechanisms and criteria for distributing burdens and benefits to advance race-conscious policy goals—must generally be race-neutral. But we can be explicit about race in measuring what matters and assessing the racial impact of our policies.

The new affordable housing policy in Berkeley, CA, prioritizing residents affected by redlining and other housing discrimination, is a succinct example of this approach. The policy's goal is explicit about race—to stem the loss of Black residents from the city. However, the implementation mechanism is race-neutral—affordable housing priority goes to people who have been displaced by transit infrastructure or live in formerly redlined areas. Gathering disaggregated demographic data on who gets the priority affordable housing will illuminate the extent to which the legal, race-neutral implementation mechanism is achieving the race-explicit policy goal and inform future iterations.

The Impact of Banning Affirmative Action

The precedent-shattering affirmative action decision must be understood as just one part of conservatives' broad and long-term strategy to undermine racial justice. Right-wing actors have always fought to preserve White supremacy in our institutions, including through the interpretation and application of the law. Over the years, they have reinterpreted the Equal Protection Clause of the Constitution to mean that the government should be colorblind except in very limited instances that address a shrinking set of court-defined "compelling state interests." Even then, race-conscious government action is required to be narrowly tailored and pass a strict scrutiny test in order to be legal.

The Trump-appointed majority on the court sent a strong signal that they take a dim view of efforts to explicitly advance racial justice with race-conscious government action. The prominence of the Supreme Court decision will almost certainly embolden conservative activists to launch even more lawsuits against any kind of government policy or program that appears to center race or serve the purpose of advancing racial justice. Government officials and their lawyers are likely to take preventive measures—such as narrowing or completely scrapping policy initiatives—to avoid the risk of being sued or losing a lawsuit, as we've already seen with Justice40.

Such chilling effects have the potential to significantly erode progress on climate resilience, especially for marginalized communities.

Movement Toward Equity

Despite the recent decision, our organizations and many others across the United States continue to advocate for and implement climate policy that addresses racial disparities through several key actions:

- **Educate:** Proactively share information about the link between racism and existing inequities in our world and inform decision-makers about the scope and limits of the SCOTUS decision.

- **Unite:** Connect with communities and grow our membership to incubate a large-scale, long-term strategy to build equitable climate policy.

- **Pilot:** Push forward race-conscious approaches to fighting climate change to test effectiveness and political will.

- **Organize:** Sign people up to vote, advocate to change government structures that hinder our progress, and win over hearts and minds by showing people how these issues connect to their everyday lives.

At the Greenlining Institute, our work linking climate work with equity underlies our advocacy efforts to include race-conscious language in state and federal policies. The institute advocates for policies and tools that make equity a rigorous practice rather than a commitment or ideal to strive toward. Equity for the institute means that policy design, planning, implementation, and evaluation include concrete steps that transform behaviors, institutions, and systems to support communities of color. This is why in 2020 the institute proposed legislation to create a statewide Office of Racial Equity. Our proposal ultimately resulted in the approval of a statewide Racial Equity Commission, tasked with creating a racial equity framework and moving California closer to an equitable future.

Similarly, the Just Solutions Collective works to broaden and deepen the understanding of equitable and effective policies and projects to build the capacity of BIPOC frontline communities to replicate, scale, and build support for justice-centered solutions. As a national movement partner organization, the collective works to implement equitable and effective climate policies and programs at a scale and pace that match the urgency of the climate crisis.

On a more grassroots level, The Chisholm Legacy Project: A Resource Hub for Black Frontline Climate Justice Leadership is rooted in a Just Transition Framework, serving as a vehicle to connect Black communities on the frontlines of climate justice with the resources to actualize visions through regenerative, cooperative, democratic systems.

We know from experience that race-conscious policies can effectively tackle discrimination and build climate resilience. In the face of attacks on race-conscious policies, climate justice leaders, policymakers, and local governments must continue to come together to affirm their shared commitment to racial justice and collaborate on strategies that meet this moment.

SECTION IV

Environment and Health

We're Missing a Critical Opportunity to Prevent Childhood Cancer

Kristina Marusic

Originally published September 30, 2023 in The Hill

My sister was diagnosed with thyroid cancer when she was 25 years old. I was 27 at the time, living abroad and teaching English. When she got her diagnosis, I moved home to help during her surgery and treatment.

Twenty-five is young for a cancer diagnosis, but stories like hers are increasingly common—cancer is on the rise among millennials and young people. Since health officials began collecting data in the 1970s, charts tracking cancer in children and young adults are distressingly uniform, with diagonal lines steadily climbing upward.

In the U.S., rates of childhood leukemia, the most common type of childhood cancer, increased 35 percent from 1975-2019; childhood brain cancer rose by 33 percent. Today, one in 285 Americans are diagnosed with cancer before their 20th birthday. Cancer is the leading cause of death by disease for American children.

These increases are too rapid to result from genetic changes, which happen over centuries, not decades. Nor are they clearly the result of better diagnostic tools: The tools for diagnosing childhood leukemia, for example, remain unchanged since the 1970s. Behavioral choices—such as smoking and drinking—cannot explain the increase in childhood cancer.

This is a real, rapid increase in childhood cancer rates. If it's not a result of genes or behavior, it's likely caused by something in the environment. And one thing in our shared environment has changed substantially during this same period: the number of manufactured chemicals we're exposed to on a daily basis.

In the last 100 years, more than 300,000 new manufactured chemicals have been invented.

Many of these chemicals have improved our lives: Disinfectants bring safe drinking water to millions and reduce deaths from dysentery, for example. But we also know that manufactured chemicals can cause great harm. Agent Orange had brutal effects that have spanned multiple generations. Chlorofluorocarbons nearly destroyed the ozone layer before being phased out.

Most new chemicals are never tested for safety, and fewer than 20 percent are evaluated for their potential to harm fetuses, infants and children. Even when chemicals are tested and found to be dangerous, they generally stay on the market—at least in the U.S. The World Health Organization has identified at least 100 manufactured chemicals that can cause cancer in humans, but only five have been removed from U.S. markets in the last 50 years.

Chemicals get into our bodies through our air, water and food, and by being absorbed through our skin. Several hundred are found in the bodies of almost every person on Earth, including infants and children. Many are carcinogens or endocrine disruptors, which interfere with hormonal processes in ways that increase cancer risk. A growing body of research suggests that even very small doses of many chemicals increase our health risks in big ways.

Children, with their smaller bodies, are especially vulnerable to this constant barrage of chemicals. Their bodily systems are still developing—processes that require healthy hormonal systems to happen in precise order. And because those systems aren't yet fully developed, children's bodies are also less capable than adults of filtering out toxic substances. Even scarier: Research suggests that parents,' grandparents' and even great-grandparents' chemical exposures can increase a child's risk of disease.

Yet in the U.S., carcinogens and endocrine-disrupting chemicals are hardly regulated at all. Many chemicals that are banned in other parts of the world are common in processed foods and personal care products sold here.

An estimated 90-95 percent of all cancers are caused by preventable factors. But globally, only 7-9 percent of all cancer funds go toward prevention.

In our "war on cancer," this equates to spending about 90 percent of our war budget on treating wounded soldiers, and less than 10 percent on measures that could keep them from getting hurt in the first place.

Pursuing new cures and treatments is critical, but we could be doing much more to prevent cancer.

The Biden administration should incorporate efforts to reduce exposure to carcinogens into its federal Cancer Moonshot plan. As the administration continues its efforts to rebuild the American economy, lawmakers should prioritize a transition away from chemicals that raise our cancer risk, and toward the safer alternatives that are already being produced through significant advances in green and sustainable chemistry.

The U.S. Environmental Protection Agency (EPA) should take additional steps to protect people from toxic chemicals like PFAS—a.k.a. "forever chemicals"—pesticides and other known and suspected carcinogens by conducting additional safety testing, stepping up its enforcement of existing regulations, and enacting new regulations that prioritize human health and cancer prevention.

States are leading the way when it comes to enacting new, more stringent regulations on these chemicals in drinking water, air pollution and consumer goods. It has been more than 30 years since Massachusetts passed its Toxics Use Reduction Act, which requires companies to track, document and report their use and disposal of certain toxic chemicals, and to make a plan for reducing their use over time. In the two decades following the law's passage, the use of cancer-causing chemicals declined by 32 percent in the state and releases of known or suspected carcinogens into the environment declined by a whopping 93 percent.

California's Proposition 65 informs consumers when carcinogenic chemicals are present in the products they buy. Groundbreaking PFAS legislation in Colorado, Minnesota, Maine and Washington State provide recent examples of how to regulate specific pollutants that increase cancer risk. Federal regulatory agencies should follow the lead of the state lawmakers executing these initiatives.

The European Union also offers templates for better chemical regulations that still allow economies to flourish. The E.U.'s REACH program

protects European consumers from many of the carcinogens Americans are exposed to on a regular basis.

My sister was one of the lucky ones. She survived her cancer and has been in remission for more than a decade. I've had the joy of watching her get married and have two beautiful children.

I have also talked her through the anxiety she feels each time she goes in for a follow-up scan to make sure her cancer hasn't returned. And I know that she, like most childhood and young adult cancer survivors, would rather have had prevention than a cure.

Could Extreme Heat Make It Harder to Breastfeed?

Brianna Clark

Originally published June 15, 2023 in MedPage Today

As a family physician and lactation consultant, I often see patients who struggle to breastfeed. Usually, they blame themselves. Are they holding the baby wrong? Forgetting to alternate sides?

The actual problem might have nothing to do with the breastfeeding person, and, in some cases, may be the result of factors beyond individual control.

I practice in rural Kansas, in an area surrounded by dairy farms. Here, it is common knowledge that cattle don't do well in the heat. Cows are mammals—milk producers—just like us. When it gets too hot, cows produce less milk, and their milk is less nutritious.

If extreme heat affects lactation in dairy cows, are humans affected, too? The problem is, we just don't know, because the issue has not been properly researched.

We *do* know that extreme heat has a detrimental impact on the pregnant body and fetus, causing an increase in preterm births, stillbirths, and low birth weight. Excessive heat causes stress on the body, and it is worth studying whether rising temperatures also have an impact on human milk production. Already, 60% of mothers do not breastfeed for as long as they intend to. This failure in planned behavior should lead us to look at all of the factors—including the physical environment—that could lead a parent to stop nursing.

Any reductions in breastfeeding could be harmful for infants and children. Human milk is still the ideal nourishment for babies; it works powerfully to strengthen the immune system and provides other benefits that

scientists are still discovering. Breastfed babies are healthier; they are less prone to ear and stomach infections, and have lower risk of asthma, obesity, type 1 diabetes, and sudden infant death syndrome.

As the planet warms, we need to understand—and mitigate—the effects of extreme heat on human health, including pregnancy and potentially the postpartum. And we need to do so quickly. The World Meteorological Organization predicts that the next 5 years will be the hottest ever recorded. Extremely hot summers, which happened rarely 50 years ago, are now common. That means a mother today is breastfeeding in an environment that is very different from that of her grandmother, and which will only become more distinct.

The dairy industry, at least, is taking extreme heat seriously. Farmers track the volume and nutritional content of their cows' milk production, to understand how heat affects the animals and what changes need to be made. Dairy farms have strategies in place—shade, ventilation, evaporative cooling—to alleviate heat stress for their cows.

If farmers are taking measures to keep their cattle cool, shouldn't we have a better understanding of the best practices to care for human mothers and infants exposed to the same heat?

We need more research to determine the impact of extreme heat on breastfeeding mothers and infants. We also need actionable plans to mitigate heat in our homes and communities. That might mean parks and other green spaces, cooling centers, and help for families that cannot afford air conditioning. More broadly, it means reducing the greenhouse gas emissions that are heating up the planet.

On warm nights, I often sit on my porch, reviewing medical charts and listening to cattle mooing in the distance. When it's especially hot, the animals' cries become an unpleasant wail. Those sounds are Mother Nature's not-so-subtle way of saying that things aren't quite right; it's getting too hot for comfort.

I think, then, of my postpartum patients and their struggles with breastfeeding, their discomfort and exhaustion in the unrelenting heat. The fact is, it's getting too hot for all of us.

The Costs of Extreme Heat: Illness, Death, and Economic Loss

Shawn Miya

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As a graduate student in public health, I thought I knew about the dangers of extreme heat. But that danger hit me on the head—literally—in the sweltering summer of 2020, when I fainted while on a walk with a friend. After seven stitches and a $4,000 emergency room bill (even with insurance), I found a new life mission: to protect others from heat-related illness in an ever-hotter world.

The danger is real: The National Weather Service reports that extreme heat kills more people in the U.S. annually than all other singular weather-related events, on average. According to the Centers for Disease Control and Prevention, more than 700 people die, over 67,000 people visit the emergency room and more than 9,000 people are hospitalized due to heat each year. This human toll is especially tragic since virtually all heat-related illness and death is preventable.

Here in Bloomington, Indiana, we have seen more extreme heat days, or those with highs above 95°F. And we are not alone. Under recent climate conditions, researchers say around 5% of the U.S. population—more than 16 million people—may experience 100 or more days per year where the daily maximum temperature is above 90°F. This could increase to around 30% of the population by 2050 absent concerted action to limit greenhouse gas emissions.

To me, this is a loud call to action to prepare our communities for hot weather that is here to stay.

Almost all of us know someone who is vulnerable to extreme heat. Those most at risk include children, adults over 65 years old, pregnant people and those with preexisting conditions such as heart disease,

respiratory disease and diabetes. Heat also takes a disproportionate toll on the unhoused, residents of low-income communities and people of color. Those who work outdoors, emergency responders and athletes are especially vulnerable. And many of us take medications such as antidepressants, antihistamines and diuretics that reduce our bodies' ability to cool down or cause dehydration.

Extreme heat affects our lives in so many ways. It reduces outdoor leisure activities, damages infrastructure and makes our farms less productive. It also affects the productivity of workers who labor in unbearable heat. Research indicates lost labor productivity costs the economy $100 billion a year—a number that could double by 2030 and reach $500 billion by 2050. Local economies are also affected as the mercury rises and people forgo tourism, shopping and participation in outdoor events—not to mention the increased costs for cooling.

Fortunately, there is much that can be done about extreme heat. Places across the U.S. are taking up the challenge of reducing temperatures and protecting the most vulnerable.

Take Florida's Miami-Dade County, for example. In 2021, the county appointed Jane Gilbert as the world's first chief heat officer. Recently, Gilbert and her colleagues published a bold and ambitious Extreme Heat Action Plan. The plan puts forward initiatives ranging from pursuing a countywide heat standard to protect outdoor workers to installing cool pavement that can retain moisture or better reflect solar energy. The plan also promises a review of how state rules are enforced to ensure that assisted-living and nursing home facilities have backup generators to keep a common area cool for an extended period of time during a power outage.

Some officials are also working to lower temperatures by planting trees and cultivating green spaces. A recently announced plan for Cincinnati includes goals to expand the city's tree canopy and install more "green infrastructure" such as wetlands and parks. Chicago is home to more than 500 heat-mitigating green roofs that cover over 5 million square feet. In order to provide relief from high temperatures when citizens leave their homes to walk or take transit, a Phoenix initiative calls for creating Cool Corridors by planting trees to provide shade for sidewalks and installing drinking water fountains.

Other officials have sought to provide financial assistance for vulnerable residents so that they can have a functioning air conditioning unit, worked to create cooling centers and hydration stations and sought to increase education about heat health risks.

After learning about these types of strategies, I joined Bloomington's Commission on Sustainability and created a Heat Management Task Force that brings together staff from our local health, planning, and emergency management departments with nonprofits and academics. Our short-term goals include educating unhoused residents about heat-related illness. Over the long term, we plan to map our urban heat island, install cool roofs that reflect heat and open cooling centers to keep residents safe during heat waves. We are also creating partnerships to bring heat management strategies into our building codes and ordinances.

Importantly, we will engage our community in the development of our heat management plan by asking residents to tell their own stories about their experiences with extreme heat and seeking their help in crafting solutions.

Who knew that a walk on a summer evening would lead me to all of this?

The scar I see on my face is a daily reminder about the risks of extreme heat—even for someone like me who is active and healthy. It's also a clear indication that no matter what you believe or your political affiliation, extreme heat affects us all.

That's why I encourage you to educate your neighbors about the risks of extreme heat, and get involved in your community's planning for a hotter future. In the era of climate change, rising temperatures are now inevitable. But if we act now to put the right policies in place, heat-related illness and death are not.

Don't Breathe the Air

Priyanka deSouza and Patrick Kinney

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On June 7 and 8, 2023, the sky in the Northeast turned sepia. Broadway shows were canceled. Photographs of mundane scenes—a hot dog cart in NYC, the iconic Brooklyn Bridge—took on an apocalyptic quality, against the orange swirl of wildfire smoke. This is not the first time that a huge number of Americans have been exposed to toxic wildfire smoke. The scenes from New York made many Californians think back to the ash-filled sky in September 2020, when wildfires in the area made it impossible to breathe. However, researchers reported that June 7 and 8 were the worst individual wildfire smoke days on record for the US, in terms of the number of people exposed to the highest smoke-related fine particulate matter concentrations.

Where did the smoke in early June come from? Due to record-setting prolonged hot and dry conditions, the boreal forests in Canada became a tinder box with more than 400 fires blazing across the region. Climate researchers have projected larger and more frequent forest fires in the future. In fact, on June 13 alone, the Canadian Interagency Forest Fire Center wrote that an unprecedented 100,000 hectares of forest burned, increasing its yearly total so far to 5.1 million hectares or 20,000 square miles.

Wildfire-related air pollution has been shown to be associated with a wide range of negative impacts including increased respiratory and cardiovascular health effects and worsening test scores in schools. Researchers have estimated that the cost in lost annual earnings in the US from workers exposed to smoke amounts to a colossal $125 billion. Importantly, the increase in pollution from wildfire smoke can lead to a reversal of air quality gains the US has achieved since the passing of the Clean Air Act in the 1970s. My work has shown that annual PM2.5 concentrations have actually increased after 2016 for the first time in decades. Troublingly, the smoke from wildfires is not counted as pollution under the Clean Air

Act, neither is smoke from prescribed burning, which is a key mitigation measure for wildfires. This needs to change if we are to address the massive problem that wildfires are likely to present in the future.

What can we do to protect ourselves when the next wildfire smoke event occurs? In the moment, do not exercise or perform other strenuous outdoor activities. Try and stay indoors and reduce your exposure to the pollution. Note that, by looking at measurements reported from indoor low-cost PurpleAir air quality monitoring network, researchers found that air pollution in indoor spaces were also high (PM2.5 levels were > 100 μg/m3; compare this with the daily-averaged standard of 35 μg /m3). This suggests that during such events, it is also important to run air purifiers at home to scrub the air. Although some people recommend not running your AC which can draw in outside air, it is better to keep your AC on, especially if you're having trouble breathing to maintain a comfortable temperature. You can use high-quality, well-fitted, filtering masks (KN95, N95, KF94) to reduce your exposure to the pollution. Although you may still smell the smoke from gas molecules that pass through your mask, you will still be protected from ~95% of particles of all types in the air.

We are living in unprecedented times. We have just emerged from a pandemic caused by a tiny virus latching on to tiny particles floating in the air, whispering to us words of wisdom about the need for better air quality. The message the wildfires bring is more of twist and shout! We need to reduce air pollution emissions and mitigate outdoor pollution measures. But we also need to improve air quality in our indoor spaces. There have recently been important congressional efforts to improve indoor air quality during wildfire events. For instance, Rep. Scott Peters (D-California) and Senators Michael Bennet (D-Colorado) and Jeff Markey (D-Oregon) plan to introduce legislation to make air filtration units more affordable to the public and to set up clean air centers that are accessible to communities.

In the long-term, however, we need to do better to tackle the root problem and prevent climate change from getting worse- there is simply no getting around it.

Biden's War On Cancer Should Begin With Banning Chemicals

Kristina Marusic

Originally published July 24, 2023 in The Progressive

The next phase of the Cancer Moonshot, initiated by President Joe Biden in 2022, aims to cut the cancer death rate in half within twenty-five years.

There's a lot worth celebrating in this new plan, including the fact that it is more committed to cancer prevention than previous versions that overemphasized early detection. Those tests are important, but they are tools for treating people who already have cancer, not a way of keeping them from getting cancer in the first place.

The new plan also supports the use of vaccines that can help prevent cancer and recognizes the role of environmental risk factors. This shift deserves to be applauded—it demonstrates an important acknowledgment of untapped potential to stop cancer before it begins.

But there's a clear path to cancer prevention that the plan hardly mentions: reducing the amount of cancer-causing chemicals that are present in nearly every facet of our everyday lives.

Dozens of unregulated or under-regulated carcinogens in tap water, including hexavalent chromium (made famous by *Erin Brockovich*), nitrate and chloroform cause an estimated 100,000 lifetime cancer cases nationwide. Carcinogens in our food include glyphosate, PFAS, titanium dioxide and many additives that are banned in other parts of the world, but are still allowed in products sold in the United States.

Our homes, offices, daycares and schools are built using carcinogens like formaldehyde, polybrominated diphenyl ethers and polyvinyl chloride. Many affordable shampoos, lotions, makeup and household cleaning

products available to Americans contain chemicals that raise our cancer risk. This list may seem overwhelming, but it represents a tiny fraction of the myriad carcinogens we encounter every day.

Many people assume the chemicals in our consumer products are strictly regulated, but the truth is that less than 1 percent have been tested for safety. Among those that have been tested, those found to be harmful are generally still on our shelves: More than 100 manufactured chemicals have been found to cause cancer in humans, but in the last fifty years, only five chemicals have been removed from U.S. markets because they're harmful.

We don't have to reinvent the wheel here. Safer alternatives to these chemicals exist, and numerous nonprofits have spent decades advocating around this issue and have put forth comprehensive policy briefs.

Our existing chemical regulations—or lack thereof—represent a vast, untapped potential for cancer prevention, and Biden could effectively mobilize the numerous federal agencies needed to address the scale of this crisis.

Biden's plan will be a powerful tool when it comes to treating Americans who already have the disease. But it will only be truly revolutionary if it also includes specific, concrete plans to protect us from the chemicals giving us cancer in the first place.

Those 'Green' Solutions to Plastic Pollution Aren't What They Seem

Erica Cirino

Originally published July 18, 2023 in The Hill

The good news about plastic pollution is that public awareness has become widespread of the gravity and harm of pollution by this now-ubiquitous manmade material. As a result, most people want to see the crisis solved. And we know we can solve it by turning off the petrochemical and plastic taps on the one hand, and building up systems that eliminate waste on the other.

The bad news is that the culprits of the plastic pollution crisis are now working hard to delay and distract us from progress by peddling false solutions. Those false solutions effectively allow corporations dealing in petrochemicals and plastics to continue perpetuating and profiting from their pollution.

The name for the petrochemical and plastic industries' favorite business tactic is "greenwashing," the practice of fabricating or exaggerating the eco-friendly ("green") qualifications of a brand, product or service. False, greenwashed solutions commonly offer quick fixes while causing further problems, instead of making necessary systems change eliminating waste.

One common greenwashed false solution is single-use products made from "bioplastics." While the word may confer a green image, in reality, bioplastics are anything but. These materials can be made fully or partially from highly processed plant-based ingredients, such as sugar cane, corn or potato starch.

Some bioplastics may contain as little as 25 percent plant-based ingredients and up to 75 percent fossil fuel ingredients. While bioplastics may emit fewer total greenhouse gas emissions than conventional plastics, crops grown for bioplastics have many known social and human and ecological health costs.

Instead of biodegrading, as their name and plant-based chemistry might imply, bioplastics—PLA, PHA, PBAT and others—more commonly act just like conventional plastics, breaking up into small particles that travel around ecosystems and into our bodies. What's more, bioplastics are typically made with many of the same additives as plastics, and research shows that these chemicals are harmful.

Like conventional plastics, bioplastics and their petrochemical ingredients are produced in facilities that drive pollution and injustice, and are likely to end up in landfills and incinerators that do the same. Industrial facilities of all kinds—including those churning out bioplastics and conventional plastics alike—are most likely to be placed in underserved low-income, rural, Black, Indigenous and people-of-color communities, as are most forms of waste infrastructure. These sites emit dangerous pollutants, reduce overall quality of life and pose a heightened risk of industrial accidents like fires and explosions. Bioplastic is already a $7 billion industry; without intervention, its size is only expected to grow to $12 billion by 2028.

Another greenwashed false solution is biodegradable, compostable plastics, which require infrastructure and specific conditions to actually be compostable, and are likely to still contain conventional fossil-fuel based plastics and/or toxic additives.

Other such false solutions include "chemical recycling" or "advanced recycling;" incineration (with or without energy recovery); oxo-degradable plastics; plastic credits; and plastic-to-fuel technologies. Conventional "mechanical" plastics recycling is also greenwashing—the process is not circular, as corporations have claimed, but rather wasteful and toxic. It causes pollution and injustice, and that is if the recycling occurs at all, which often it does not.

Despite being marketed as solutions, these strategies are neither efficient, effective nor safe. In establishing lucrative end-markets for our "plastic waste," plastics production is only further incentivized. False solutions are characterized by perpetuating the wasteful notion of single-use—which we know is fueling the crisis at hand, and is keeping the petrochemical and plastic industries wealthy at all of our expense.

Corporations push false solutions with aggressive marketing materials such as PSAs, press releases, branded content (that can look a lot like news to

the untrained eye), advertisements and more. Such marketing materials also commonly dupe the media, which has perpetuated greenwashing. Industry trade groups lobby policymakers to kill or water down legislation aimed at addressing plastic pollution, seriously complicating the pathway to real solutions and corporate accountability.

Individuals and policymakers can learn how to detect greenwashing by reviewing common plastic greenwashing terms and strategies. Journalists and others in the media industry must also learn how to spot and avoid greenwashing to bring truth and real solutions into their reporting and content. This opens up space for us all to engage in the behaviors and mindsets necessary to eliminate our use of plastic, facilitating the wider policy and systems change we need to turn off the tap on petrochemical and plastic production.

Real solutions to plastic pollution exist and include adopting and embracing practices and systems that allow us to refill, regenerate, repair, share and reuse nontoxic, plastic-free materials and items. In short, we must live far less wastefully than we do today. To succeed, solutions must be just, equitable, and accessible to all people, everywhere, and meet local needs. A global plastics treaty, if it can be written in a way that takes greenwashed false solutions off the table, has much potential to help us address this crisis rapidly and effectively.

Historically, markets and governments have not adequately protected the public from harmful and deceptive greenwashing; the practice remains a deep-seated problem, particularly in the U.S.

Short of an effective systemic approach to implementing and enforcing restrictions on corporate greenwashing, individuals must learn to spot the difference between real and false solutions and choose the real solutions we know will free us of our wasteful plastic lifestyles.

Time to Take Action to Protect People From PFAS Contaminated Fish

Betsy Southerland

Originally published March 10, 2023 in Environmental Health News

The federal Clean Water Act was established by Congress in 1972 to ensure that the nation's waters would be "fishable and swimmable."

Today, more than 50 years later, that goal is unachievable because of unregulated discharges of toxic PFAS chemicals into rivers, lakes and streams. These hazardous chemicals have contaminated freshwater fish in waters throughout the continental 48 states. It's past time to regulate PFAS to protect the health of everyone who drinks water and consumes fish from contaminated waters.

PFAS-contaminated freshwater fish

PFAS, short for per- and polyfluoroalkyl substances, is a class of more than 9,000 chemicals with strong carbon-fluorine bonds that make them highly persistent in the environment. They are used in hundreds of industrial and consumer products that ultimately result in releases into the environment from manufacturing facilities, municipal landfills, wastewater treatment plants, airports and other sites where PFAS-containing fire-fighting foams have been used. The adverse health effects of the PFAS chemicals studied to-date include immune system suppression, increased risk of cancer, thyroid disease, high cholesterol, and reproductive and developmental impairments.

The U.S. Environmental Protection Agency (EPA) has been monitoring PFAS chemicals in fish since 2008 through the National Rivers and Streams Assessment, and since 2010 under the Great Lakes Human Health Fish Fillet Tissue Study. These monitoring studies have found detectable levels of at least 5 different PFAS chemicals in most fish sampled, even though the fish were collected from randomly selected sites instead of known or suspected PFAS hotspots. A new study uses the EPA's recent fish

tissue data to estimate the concentrations of PFOS—the most frequently found PFAS chemical—in the blood of people who consume fish. The study estimates that eating only one meal a year of freshwater fish can elevate blood serum concentrations above 2 Nanograms per milliliter (ng/mL), the level at which the National Academies of Sciences, Engineering and Medicine (NAS) recommends reducing PFAS exposure. The study also found that eating freshwater fish weekly can elevate concentrations above 20 ng/mL, the level at which the NAS recommends clinicians test for thyroid function, kidney and testicular cancer, and ulcerative colitis.

In July 2022, NAS published guidance on PFAS exposure, testing and clinical follow-up that advises clinicians to offer PFAS blood testing to patients likely to have elevated exposure, and to test for certain health effects if blood serum concentrations for PFOS and other PFAS chemicals exceed the concentration of 2 ng/mL.

We need PFAS fish consumption advisories

Given their widespread use and persistence, it is not surprising that PFAS chemicals have contaminated fish throughout the country. What is surprising is that federal and state governments have been so slow to regulate these toxic chemicals. The immediate priority should be for states to develop fish consumption advisories that recommend consumption limits based on existing EPA data from and state monitoring programs. Only 14 states have issued fish consumption advisories for PFAS. The Great Lakes states should consider developing a single advisory applicable to all the lakes since the EPA data show Great Lakes fish generally have higher PFAS concentrations than the fish from rivers and streams in other parts of the country.

The EPA and the states must focus on eliminating PFAS releases into the environment. The EPA is working on rules to regulate PFAS discharges from two major industries and from landfills, but these rules will take several years to put in place. States should not wait for national rules. They should use their authority to set PFAS limits in permits for industries that discharge directly into their waters or into municipal wastewater treatment plants.

PFAS monitoring

More PFAS monitoring —using better analytical methods—is also essential. The EPA and states should monitor surface water, wastewater, sewage

sludge and fish tissue using the EPA's new analytical method, which allows detection of 40 individual PFAS chemicals. Wastewater samples should be analyzed using the EPA's new method for total adsorbable organic fluorine, which indicates the presence of additional PFAS chemicals beyond the 40 detectable ones. The EPA has no plans to develop a total adsorbable organic fluorine method for fish tissue, but it is needed so the potential for additional PFAS contaminants can be evaluated.

The EPA should also prioritize the development of non-cancer and cancer toxicity levels for PFAS chemicals frequently found in freshwater fish in order to determine safe consumption levels. To date, the EPA's monitoring programs have found five PFAS chemicals in most fish (PFOS, PFUnDA, PFDA, PFDoA, and PFNA), but has only developed toxicity levels for PFOS. If critical data needed for assessing the toxicity of the other PFAS chemicals are missing, the EPA should use its authority under the Toxic Substances Control Act (TSCA) to require industry to provide that data. Finally, the EPA should accelerate use of its TSCA authority to restrict or ban the existing uses of PFAS and to prevent future uses of these toxic chemicals.

The EPA and states have years of data showing that PFAS contamination of our nation's waters poses serious public health threats. There is no longer any merit to the argument that further study is needed before we take action to protect our drinking water and fisheries. We must act to protect people's health.

To Protect Our Health, Tell the Truth About the Fossil Fuel Industry

Linda Rudolph

Originally published March 2, 2023 in Capitol Weekly

Climate change and fossil fuel pollution are two sides of the same health emergency. Air pollution from burning fossil fuels caused about 8 million deaths in 2018, nearly 1 in 5 deaths worldwide. And fossil fuel pollution is a primary driver of climate change, which threatens health in numerous ways—from chronic and infectious disease to deaths from extreme heat.

The fossil fuel industry wants you to forget all that.

In 2010, Koch Industries and big oil refiners spent many millions in an effort to suspend California's landmark climate change law, AB 32. Now they are at it again.

Just three days after Governor Newsom signed a law to create a safety buffer zone between new oil and gas wells and places that people live, work and play, oil companies filed a ballot measure to prevent implementation of those protections and have spent over $17 million to get the measure onto the 2024 ballot.

Meanwhile, industry is fueling a culture war to sow doubt about the evidence that gas stoves emit harmful pollutants that cause asthma and other diseases. A few years ago, SoCal Gas even funded a front group to oppose local ordinances favoring electric appliances in new buildings.

These efforts are just the latest in a long history of Big Oil's efforts to undermine climate science, suppress public health evidence, sow unwarranted fears about climate solutions, and engage in direct lobbying to hinder climate action.

Here in California, organizations representing oil and gas companies spent over $77 million lobbying in Sacramento between 2018-2022, successfully blocking or weakening legislation to control climate air pollution.

With new reports of record oil industry profits, Governor Newsom has called on the Legislature to "hold Big Oil accountable" by passing a price-gouging penalty to prevent extreme gas price spikes. That's a good start. But we also need to hold Big Oil accountable for its impacts on our health.

An example of how we might do that comes from the California Department of Public Health Tobacco Control Program (TCP), which prevented about a million deaths in its first few decades. In 1988 TCP launched a media and advocacy campaign to broadly communicate the health dangers of tobacco use. The campaign exposed the tobacco industry's deception and countered its predatory marketing ploys, while referring smokers to cessation programs. The strategy worked. It delegitimized the industry, removed its social license to peddle dangerous products, and created a social and legal environment in which tobacco use became less desirable and less accessible while providing supports for smokers.

The fossil fuel industry is using the same deceptive tactics that Big Tobacco did, although the parallels between tobacco and fossil fuels go only so far. Smoking is hardly a necessity, but most Californians currently depend on oil and gas to light and heat their homes, cook their food, and fuel their cars. From 2008—2017, U.S. fossil fuel trade associations spent a massive $1.4 billion on advertising and public relations to persuade the public that without fossil fuels we will lose those amenities. That is simply a lie. We now have the ability to rapidly reduce our reliance on fossil fuels while creating jobs, building our economy, and protecting our children's health.

But that won't happen if we keep letting the fossil fuel industry use its excessive profits on advertising to fool the public and political spending to shape our public policy.

To counter industry propaganda and build support for the urgent action required, California must launch a creative, coordinated, aggressive, well-funded media advocacy campaign that connects the dots between the fossil fuel industry and its catastrophic impacts on our health and our climate.

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