SOLUTIONS

Environmental Defense Fund

Vol. 56, No. 3 / Summer 2025

EDF takes on Trump administration rollbacks

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THE GREAT CLIMATE MIGRATION

Why millions of Americans are moving.

ALSO INSIDE: Wildfire-fighting satellites | Colorado methane victory | How to become an activist

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In Japan, a new and more sustainable approach to fishing

For decades, Japanese fishermen have seen their catch decline, threatening their livelihoods and food security. Now, with EDF's support, the country is driving a major reform that gives them an incentive to keep more fish in the sea. "Japan is turning a corner," says EDF's Shems Jud, whose team helped advance the new approach. Japan's progress could set a powerful precedent for sustainable fisheries across the Asian Pacific, ensuring thriving seafood markets and healthier oceans for generations.

CHRIS CUSACK / EDF

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Stopping EPA's dangerous rollbacks

I've seen concerning policy shifts in Washington, D.C. before. But what's taking place at the U.S. Environmental Protection Agency right now is different. If unchecked, it will result in more pollution, disease and premature deaths.

Administrator Lee Zeldin is actively undermining a host of vital environmental protections, including the agency's Endangerment Finding. That's the wonky name for a critically important conclusion — that climate pollution is a danger to human health.

The finding provides the legal foundation for the EPA to regulate greenhouse gas emissions under the Clean Air Act. Undoing it would upend the agency's ability to address the climate crisis by setting emissions standards for cars, trucks, power plants and other sources of pollution (*see p. 6*).

EDF's legal team has been working with a coalition of experts to challenge the attack and protect the finding.

Another dangerous EPA effort will harm communities across the country. The agency has invited polluters to request a "presidential exemption" from existing clean air standards. Those granted an exemption will not have to follow rules that protect the public from pollutants like cancer-causing ethylene oxide.

Hundreds of polluters are seeking this exemption, including 200 of the country's dirtiest petrochemical facilities. EDF is fighting back, working with partners to shed light on where these polluting facilities are and the companies that own them. We are mapping every single facility and whether it or a representative has applied for a free pass, and more.

Journalists are using this map in their reporting. You can find facilities eligible for a "polluter pass" near you at **edf.org/maps/epa-pollution-pass**.

Nevertheless, there are hopeful developments: EDF recently helped launch a satellite-based wildfire detection system called FireSat that's now sent its first satellite into orbit (*see p. 11*). The goal is to provide better data for faster and more strategic responses to dangerous wildfires. EDF is also supporting progress outside of the U.S. For example, we are facilitating funding to advance clean energy innovation in India (*see p. 12*).

Despite the strong headwinds, EDF will tenaciously fight to defend the safeguards that keep our families healthy while we find the ways to make progress around the world. As always, we are grateful for your support.

Fred Krupp, EDF President

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Cover photo: Peter Starman, Getty Images

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Green loans, greener pastures

Farming is a tough way to make a living. What with crop price fluctuations, heavy capital costs and increasingly wild weather swings, farmers rely on loans from private agriculture banks to keep their businesses running. Yet these loans rarely support a switch to smart farming practices that can reduce pollution and keep farms productive as the climate warms — even if these practices can pay off financially in the long run.

So EDF teamed up with CoBank, which issues agricultural loans worth $151 billion each year, to develop a new loan tied to sustainability goals. CoBank's loan to Heartland Co-op, which serves thousands of farmers in Iowa, Nebraska and Texas, comes with a lower interest rate. Heartland, in turn, must help its farmer members adopt cover-cropping on 98,000 acres each year by 2028. The co-op has expanded its conservation program to help farmers get this done. Planting cover crops enhances soil health, can reduce fertilizer use and improves water storage on farmland over time, but requires patient financing to help farmers achieve their goals.

"Funding programs for conservation practices like this are oversubscribed," says EDF agricultural finance expert Vincent Gauthier. "More farmers would participate if they could get the right financing. The private sector banks can help fill that gap."

Farmers in Heartland's program will also install more than 200 natural filtration systems to keep fertilizer out of water supplies.

EDF is working with other major agricultural lenders on similar loan solutions that could help shift many more thousands of acres of farmland toward sustainability.

ALAMY

EDF

Kleber Karipuna at a workshop in the Amazon

Supporting forest protection in Ecuador

Ecuador, home to the Galapagos Islands and a significant portion of the Amazon rainforest, is one of the most biodiverse countries in the world. It is also the latest nation to sign an agreement to reduce tropical deforestation in partnership with the LEAF Coalition. EDF helped found the coalition, a public-private partnership focused on halting tropical deforestation by 2030, by making forests more valuable alive than dead.

For cutting 3 million tons of climate pollution between 2017 and 2021 — 3 million tons equals the annual pollution from 570,000 U.S. cars — Ecuador will receive $30 million from the LEAF Coalition. The funds will support further forest protection in partnership with Indigenous and Afro-Ecuadorian communities. EDF has helped bring these groups together with the country's government to discuss how the funding can be best spent, including on programs like Ecuador's Socio Bosque project. It offers communities and individuals payments in exchange for keeping their forests intact.

"This latest agreement is a milestone in the battle against devastating forest loss," says EDF President Fred Krupp. EDF's work, he says, supported these groups in their efforts "not merely to be validators of the deal but to engage as true partners."

EDF wins science award

EDF's Cuba team — Dan Whittle, Valerie Miller and Eduardo Boné-Moron — has won the 2025 David and Betty Hamburg Award for Science Diplomacy from the American Association for the Advancement of Science. For 25 years, the team has worked alongside Cuban scientists and communities to protect shared marine ecosystems, helping to address oil spills, coral reef health and the local and global dangers of climate change. "Science unites us and finding common ground is the only way forward," says Whittle.

EDF

EDF's Cuba team

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Colorado protects communities and climate with new methane pollution standards

As the Trump administration seeks to tear down climate and health protections, one state models a way forward.

DENVER7.COM / ANGELIKA ALBALADEJO

Patricia Nelson

IN 2016, PATRICIA NELSON MOVED FROM Lake Charles, Louisiana, in that state's infamous "Cancer Alley," back to her childhood hometown of Greeley, Colorado, about 75 minutes north of Denver.

She had moved because she was concerned about raising her son around the pollution from so many petrochemical plants.

But not long after, Nelson heard that an oil and gas company planned to drill right behind the local school.

Pollution from oil and gas drilling includes methane, a potent climate pollutant, as well as harmful chemicals that can cause cancer, respiratory diseases, neurological problems and other illnesses. Concerned about impacts to her family and her community, Nelson signed up to challenge the drilling near the school in court and has been working for safeguards ever since.

She now works with the advocacy group GreenLatinos, who, with EDF, EDF-affiliate Moms Clean Air Force and a coalition of environmental and advocacy groups, recently scored a long-sought victory for Colorado communities and for the climate as a whole.

The country's fourth-largest oil producer, Colorado adopted standards in February that require companies to replace devices that intentionally push methane and other toxic gases into the surrounding air and up into the atmosphere. EDF estimates that by 2029, the safeguards will reduce methane pollution in the state by a full 10%. Colorado anticipates the new rules will cut as much pollution a year as produced by more than 104,000 gas-powered cars.

The new standards also make Colorado the first state to begin adopting the U.S. Environmental Protection Agency's 2024 methane standards. Those rules will cut methane pollution from oil and gas operations by 80% nationwide, according to the EPA. (Cutting methane is the fastest way to slow climate change. But the federal methane standards may soon be in the Trump administration's crosshairs. See pp. 6–7 for more on the EPA's efforts to undermine federal climate rules.)

"These Colorado safeguards are a huge achievement," says Nini Gu, an EDF policy expert for the U.S.'s Western region. "And Colorado did all this with consensus across the board from environmental groups, industry trade groups and state regulators. It's really an example for other states to follow."

The new standards also require companies to refine their air monitoring practices so that they conduct more detailed reporting of the toxic gases that are currently released as part of oil and gas operations. These gases include carcinogenic benzene, along with neurotoxins such as toluene and xyelenes.

"Previously, when industry collected an air sample, it was hard to know what you were looking at because the compounds were grouped together and there was no information about the concentration of individual pollutants," says EDF scientist Meagan Weisner. "Now, thanks to the new standards, there are stricter requirements so we can see what's coming out of these wells and rigs."

At a time when federal climate protections are under attack, this victory highlights the importance of working at the state level to combat climate and air pollution, Gu says. "If you can accomplish this in Colorado, you can do it in other places, too."

Liz Galst

ALAMY

Coloradans living near oil and gas rigs have higher illness rates.

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ANTONIO PERONANCE

Fighting an extreme threat

By Joanna Foster

SINCE PRESIDENT TRUMP TOOK office in January, every week has brought news of his administration's attempts to strike down environmental safeguards, undermine science and ignore public health. This furious assault on basic protections is unlike anything the country has ever seen.

Amid the chaos, two actions stand out as particularly egregious: an effort to dismantle any limits on climate pollution and a move to grant hundreds of industrial facilities a free pass to pollute. EDF is sounding the alarm on these blatant attacks on public health, holding power to account and going to court to fight for a safer, cleaner future.

Full court press

"When it comes to the environment, the second Trump administration is taking actions that are even more extreme than the first," says Peter Zalzal, EDF's associate vice president for clean air strategies. "They are trying to take a bulldozer to decades of clean air progress."

Prime among those attacks is the U.S. Environmental Protection Agency's assault on its own Endangerment Finding. Issued in 2009 after a stringent review of scientific data, the wonkily named finding is the EPA's conclusion that greenhouse gas pollution is a threat to human health and safety. Under the Clean Air Act, the finding obligates the agency to limit how much of this pollution is dumped into the air, just as it does for any harmful pollutant.

In March, EPA Administrator Lee Zeldin announced plans to reverse the finding, a move that would aim to take away his agency's authority and obligation to limit dangerous climate pollution from power plants, vehicles, landfills and oil and gas infrastructure.

31 **The number of clean air and climate protections threatened by EPA Administrator Lee Zeldin.**
Source: U.S. Environmental Protection Agency

Zeldin's recommendation flies in the face of a mountain of scientific evidence that definitively shows greenhouse gases threaten our health and safety by trapping heat in the atmosphere. That trapped heat leads to more extreme weather — bigger floods, more intense hurricanes, rising temperatures, longer droughts and more destructive wildfires — and the dangerous consequences that come with it.

Climate pollution is also linked to worsening air quality, which can exacerbate and even cause asthma and other respiratory issues. "With communities still reeling from the disastrous Los Angeles wildfires and the unprecedented devastation of Hurricane Helene, it is an especially cynical time to claim that greenhouse gases aren't dangerous," Zalzal says.

Zeldin will face an uphill battle. Previously, when the fossil fuel industry and its allies challenged the EPA's power to protect people from climate pollution, that power has been upheld time and time again by multiple courts, including the Supreme Court.

EDF is leading the charge to protect the Endangerment Finding. Within 24 hours of Zeldin's announcement, we held a national press briefing that helped generate over 700 news stories. We are mobilizing our members to urge their representatives in Congress to oppose the rollback. We successfully secured and released the agency's Greenhouse Gas Inventory, which lists sources and amounts of climate pollution, and which the Trump administration illegally attempted to withhold from the public. We are partnering with allies around the country, getting our scientific and legal expertise in front of policymakers, advocating with both parties and arming them with data that empower them.

EDF has also filed a Freedom of Information Act lawsuit to compel the release of information related to Zeldin's plan.

"The public has a right to know why Administrator Zeldin

JOHN RAE

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— the head of the agency charged with protecting the public from the harms of climate change — has instead chosen to trample the science and do the exact opposite," says Zalzal. "The Endangerment Finding is foundational to the EPA's ability to protect us and we will do all we can to preserve this bedrock safeguard."

Hands off the Endangerment Finding!

TAKE ACTION at edf.org/Z6zH

North America's largest oil refinery borders residential neighborhoods in Port Arthur, Texas.

MARK MULLIGAN

Exposing the worst polluters

Trying to overturn the Endangerment Finding is not the only way Zeldin and the Trump administration have put Americans' health and safety at risk. A new offer from the EPA chief has enabled petrochemical manufacturers and some of the nation's dirtiest coal operators to apply for a presidential exemption from pollution safeguards, simply by sending an email. Many of these exemptions have already been granted.

At press time, the EPA had not made public which companies and plants requested these exemptions. But in April, it published the names of the first facilities to win waivers. Nearly 70 coal-fired power plants, including some of the nation's biggest polluters, now have a two-year free pass to ignore federal standards that protect Americans from brain-damaging mercury, carcinogenic arsenic and benzene, as well as other hazardous pollutants. Dominion Energy, NRG Energy and Southern Co. are among the owners of these power plants.

> **"The Endangerment Finding is foundational to the EPA's ability to protect us and we will do all we can to preserve this bedrock safeguard."**
>
> **— Peter Zalzal, EDF associate vice president for clean air strategies**

EDF's Peter Zalzal and Vickie Patton

"Administrator Zeldin has opened a back door for companies to avoid complying with reasonable limits on the most toxic forms of air pollution, and they're rushing through it with no regard for the communities around them," says EDF's General Counsel Vickie Patton.

According to the step-by-step instructions on a new EPA web page, the waivers will exempt polluters from nine major EPA protections for up to two years, after which these waivers can be renewed.

Historically, exemptions from EPA protections have only been granted when the necessary pollution-control technology was not available and compliance posed a national security threat. "This exemption is really meant for one-off circumstances," says Grace Smith, a senior attorney at EDF. "With this invitation to apply for exemptions, they have opened it up in a way where you can tell that they will be rubber-stamping whatever comes their way."

One of the first polluters to apply for and be granted a waiver was the Colstrip coal power plant in Rosebud County, Montana. It's one of the dirtiest power plants in the country, and its owners have avoided installing widely used pollution control technologies for years.

It's not just individual facilities that are applying for exemptions. Industry groups that represent some of the country's largest industrial polluters, including the American Chemistry Council and the American Fuel & Petrochemical Manufacturers, have already asked Zeldin for a blanket exemption for more than 200 facilities. They hope to be exempted from a 2024 EPA safeguard that limits emissions of toxic ethylene oxide and chloroprene, along with other dangerous pollutants. Ethylene oxide and chloroprene are both linked to an increased risk of cancer. Communities living near these facilities have cancer rates more than 50 times the national average. The EPA standard they are seeking to dodge would have reduced the number of people facing elevated risk of air toxics-related cancer by 96%.

200+ **The number of chemical facilities seeking a blanket exemption from EPA clean air standards.**

Source: Politico

The EPA has failed to inform the public about which dangerous power plants and chemical facilities have applied for exemptions and, in many cases, failed to announce which have received them. For that reason, EDF has filed a request under the federal Freedom of Information Act for all records related to those EPA exemptions — including the names of all those seeking a free pass — and pledged to go to court if necessary to obtain the records and make them public.

EDF and a coalition of partners have also created a map showing the locations of more than 500 industrial facilities that are eligible for, have applied for or have already received a free pass to bypass lifesaving EPA safeguards. (You can find the map at edf.org/maps/epa-pollution-pass.)

Some of these facilities are in residential areas or near schools. The map informs communities, members of the media and policymakers about the risks of issuing free passes to pollute.

"The American public deserves to know what the Trump EPA and major polluters are doing to the air they breathe," says Patton. "And we are going to hold them accountable."

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Millions in the U.S. are leaving their homes due to extreme weather. Is any place safe?

A NATION ON THE MOVE

By Tom Clynes

CINDY ADAIR, A VERMONT REAL ESTATE AGENT, IS busier than ever. Her clients aren't just looking for a change of scenery; they're seeking refuge.

"Lately, I'm getting a whole lot of worried people," Adair says. "New Orleans and Florida people coming up here to escape hurricanes. A couple from Austin who thought they might not survive if their air conditioning broke. Another family from Cape Cod who were thinking that their home will probably be washed away in 15 years — or that they wouldn't be able to sell it because beachfront property values are diving so fast."

Across the U.S. and around the world, more people are leaving their homes as a warming climate drives more frequent floods, storms, wildfires and droughts. Disasters forced more than 26 million people in 148 nations to leave their homes in 2023 and could displace 1.2 billion by 2050.

In the U.S. and elsewhere, the vast majority of climate migrants move within their own country. But even this domestic migration is reshaping American communities.

Residents of Bradenton Beach, Florida, in October 2024, returned to a community devastated by Hurricane Milton.

GETTY IMAGES

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About 2.5 million people had to leave their homes in the United States because of weather-related disasters in 2023, according to the latest U.S. census data. And for some who can move by choice, climate change is playing a growing role in their decisions, with buyers prioritizing climate resilience as much as schools, ocean views and urban conveniences.

Before moving his family to Waterford, Vermont, last year, Dustin Kelly had lived in West Texas for most of his life.

"That was the place I grew up, the place where I once felt most secure," says Kelly. "But it was getting to the point that our AC couldn't keep up. We were getting close to 100 days a year of 100-degree-plus temperatures, and it doesn't cool down at night anymore.

"The aquifers below us were running dry, so we started looking for a place with a secure water supply and cooler summers. It seemed risky to stay."

Economics force tough choices

Climate risks like these will drive an estimated 5 million Americans — more than 1% of the population — to relocate this year, according to a recent study by financial research firm First Street. More than 55 million people are expected to migrate in response to climate risks within the next three decades.

It's not just the climate-driven weather that is forcing migration — it's also the cost of staying put. In 2024, there were 27 weather and climate disasters in the U.S. that resulted in at least $1 billion in damages. Because of losses like these, the cost of home insurance is skyrocketing in high-risk areas. Since 2019, average premiums have jumped 31%, with even sharper increases in disaster-prone states like Florida and California.

2.5 million

The estimated number of people who had to leave their homes in the United States due to climate-related disasters in 2023.

Source: U.S. Census

Demographers predict that these once-booming regions will see significant population declines by midcentury. For example, by 2050, floods in Florida are expected to occur more than ten times as often as they do today, putting 2.4 million residents living within four feet of the high tide line at risk of displacement and forced migration.

California residents face ever-increasing risks from flooding, on top of droughts and wildfires. Paul and Allisa Zimmerman lived in the Los Angeles suburb of Calabasas for 27 years, raising their two children there. "Over the past few years, the fires just kept getting closer," Paul Zimmerman recalls. "We had to evacuate three times. We had a go-bag and we'd perfected a system where we could get away in a few minutes."

During 2018's Woolsey Fire, winds sent flaming tumbleweeds into the neighborhood, but firefighters managed to stop the blaze at the edge of their next-door neighbor's yard.

"After our neighbor told us that he was having trouble getting insurance for his house," says Zimmerman, "we started thinking that we'd better get out of there before they cancelled our policy."

For decades, a mix of regulatory and consumer pressures kept insurance prices low and property values afloat, helping to prevent a mass exodus from high-risk areas. Now, as insurers hike rates to reflect higher climate risks and higher rebuilding costs, home insurance premiums are soaring nationwide — particularly in places where wildfires, hurricanes and floods are becoming more frequent. In some areas, insurers are abandoning entire towns, leaving homeowners with fewer options — or none at all.

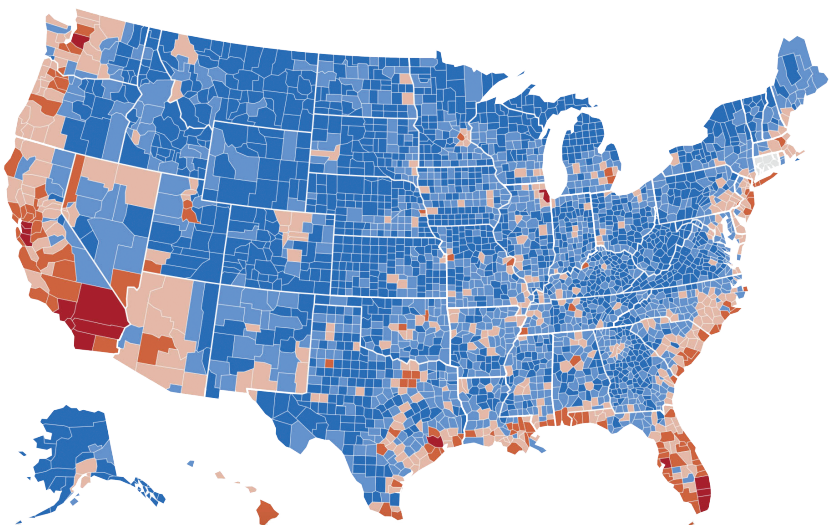
Rising insurance rates are starting to influence where people search for housing, according to EDF disaster insurance expert Carolyn Kousky. "We found that, as wildfires make homeowners insurance harder to obtain, people are rethinking where they want to live," says Kousky.

EDF is working to keep coverage affordable and equitable. Kousky's team is advocating fair insurance options for low-income communities and improving the understanding of climate-related financial risks within the insurance industry. It's also promoting policies that help homeowners rebuild with climate-friendly materials such as reflective roofing shingles that reduce cooling loads and costs and energy-saving cellulose insulation.

The Zimmermans, for their part, left California entirely, moving to a suburb of Detroit. In January of this year, from

KNOW YOUR RISK

U.S. counties ranked by risks from 18 natural disasters and hazards, including hurricanes, wildfires, severe winter storms, heat waves and drought.



FEDERAL EMERGENCY MANAGEMENT AGENCY

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their new home, they followed the news of the most destructive fires in Los Angeles history.

"We're more convinced than ever we made the right decision," Zimmerman says. "But we're really concerned for our friends out there."

In search of climate havens

For the past few years, cities like Duluth, Minnesota, and Asheville, North Carolina, have drawn increasing numbers of migrants who see these cities as climate havens. But even so-called safe zones are not immune to disaster.

Many considered the Pacific Northwest a climate haven until the 2021 heat dome caused more than 250 deaths in the U.S. and 400 in Canada. Hawaii seemed a safe bet until Maui's deadly fires in 2023. Vermont, home to six of the 10 counties considered least vulnerable to the impacts of climate change, faced devastating floods that same year.

When Hurricane Katrina struck New Orleans in August 2005, Alex Webber fled overnight with her two-year-old daughter. Nine months later, they found refuge in western North Carolina. "We came here seeking higher ground," she explains. Webber, her husband and daughter settled in Marshall, a small town north of Asheville, where they eventually opened a bike shop and café near the French Broad River.

A few miles upstream, the French Broad River winds through Asheville. Peter Conroy, a writer for the Climate Reality Project, moved his family there in 2022. His son, who has asthma, often couldn't play outside in Colorado because of poor air quality caused by increasingly intense wildfire seasons.

On September 27, 2024, the remnants of Hurricane Helene turned both families' dreams of finding a climate haven upside-down.

Flooding destroyed the Webbers' bike shop and the Conroys' house.

"But as bad as it has been for us," says Conroy, "we know it could've been a lot worse. Some people lost their lives or lost loved ones."

Cutting pollution, building resilience

"Climate change is real," says Webber. "And if all of us don't get our heads out of sand, it's only going to get worse."

Some climate impacts are unavoidable due to the amount of pollution already in the atmosphere. They will inevitably force more people to migrate.

ALEX WEBBER

The key to preventing a worsening crisis? "We need to double down on global efforts to cut greenhouse gases and meet the Paris Agreement's targets," says EDF climate policy expert Zach Cohen. Even though President Trump has begun the process of withdrawing the U.S. from the Paris Climate Agreement, most countries remain committed and many are making progress — though at a slower pace than needed.

> **"We assumed we'd found a safe place where it wouldn't happen to us. And then it did."**
>
> **— Peter Conroy, Asheville, North Carolina**

In the meantime, moving out of harm's way isn't a solution that everyone can afford. Research suggests that those left behind — particularly in the southern U.S. — will be older, less wealthy and more vulnerable to extreme weather, making disaster recovery even harder. This underscores the urgent need to strengthen communities' ability to withstand and recover from climate-related threats.

"By upgrading infrastructure to withstand floods and investing in decentralized power grids that prevent widespread outages, we can enable some people to stay in their homes safely and sustainably," says Cohen.

Across the U.S., states and communities are taking action to build resilience against climate disasters. The Biden-era Bipartisan Infrastructure Law is funding power grid improvements, rebuilding wetlands and upgrading stormwater systems, while California invests in grid upgrades and energy storage technologies to prevent wildfires and ensure power during emergencies.

In Louisiana and Florida, with encouragement from local communities and groups like EDF, the Army Corps of Engineers has begun to embrace natural solutions like oyster reefs and wetlands to combat flooding. These nature-based defenses are effective and resilient and can be used instead of or in combination with traditional infrastructure. EDF is now advocating for similar strategies in Virginia and North Carolina.

Whether these and other resilience efforts will move fast enough to prevent people from having to leave their homes is uncertain. What is known, however, is that without urgent action to cut emissions and slow warming, nowhere will be entirely safe from the growing risks of climate change.

Even Conroy, who has spent much of his career communicating the risks of climate change, says he didn't realize how quickly and completely a climate disaster could turn his life upside down.

"We looked at the odds and we made what we thought were well-informed decisions," Conroy says. "We assumed we'd found a safe place where it wouldn't happen to us. And then it did." ■

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A new firefighter launches into space

A constellation of advanced satellites can improve wildfire detection and response.

Imagine standing on a smoke-darkened hillside,watching flames tear across dry brush toward a subdivision below. The fate of those homes will depend, in large part, on how quickly firefighters can respond. In these moments, every second matters, and early detection isn't just beneficial — it's vital to saving homes and lives.

On March 15, the world's first FireSat satellite blasted off from Vandenberg Space Force Base in California, ushering in a new era of faster wildfire detection and response. Using advanced thermal imaging, FireSat can spot fires early — even in remote areas — and help firefighters respond to small blazes that could escalate into disasters.

EDF helped develop the satellite-based fire detection system beginning in 2021. By working closely with firefighters, disaster response specialists and scientists, the team put together a system that delivers critical data to crews, allowing them to respond faster and more strategically to wildfires. This effort led to the formation of the Earth Fire Alliance, the nonprofit organization that has taken over further development and operation of FireSat. EDF continues to contribute to the project's scientific planning and analysis.

The satellite is equipped with cutting-edge instruments that can detect fires as small as five square meters, about the size of a classroom. Once the first phase of the system is operational, in 2026, FireSat will scan the entire planet at least twice a day, with even more frequent passes over wildfire-prone areas such as the western United States. With additional funding, by 2030, a constellation of about 50 FireSat satellites could monitor fires almost anywhere on the planet every 20 minutes — and as often as every 10 minutes in a few high-risk zones.

> **"FireSat will give us a valuable new tool to empower smarter, faster and data-driven action across the globe."**
>
> **— Steven Hamburg, EDF's chief scientist**

These frequent observations would increase the chances of containing small blazes that could escalate into catastrophic wildfires. During active fires, satellite imagery could help firefighters track a fire's movements and predict its spread more accurately, allowing responders to concentrate resources where they will be most effective.

The expected benefits would be substantial: According to Earth Fire Alliance, measures enabled by FireSat could save $1–2 billion in U.S. fire suppression costs annually, protecting 9,000 to 18,000 homes and businesses.

Protecting people and ecosystems

Early detection of wildfires can also play a key role in reducing harmful air pollution and limiting the release of climate-warming greenhouse gases from burning forests. Since wildfires contribute to rising emissions, which further exacerbate droughts, they fuel a cycle of worsening fires. Cutting these emissions is essential to slowing the rate of warming.

"We will leverage FireSat data to gain deeper insights into wildfire's climate impacts, ensuring we maximize its scientific value and practical benefits for effective wildfire management," Hamburg says.

Beyond its immediate firefighting benefits, FireSat's data can give scientists a deeper understanding of fire behavior, leading to more effective wildfire prevention and response strategies.

"There's no single pathway to managing the growing wildfire crisis," says Hamburg. "But FireSat will give us a valuable new tool to empower smarter, faster and data-driven action across the globe."

Tom Clynes

A firefighter watches as smoke rises from a wildfire in Goleta, California, in 2021.

AP PHOTO/RINGO H. W. CHIU

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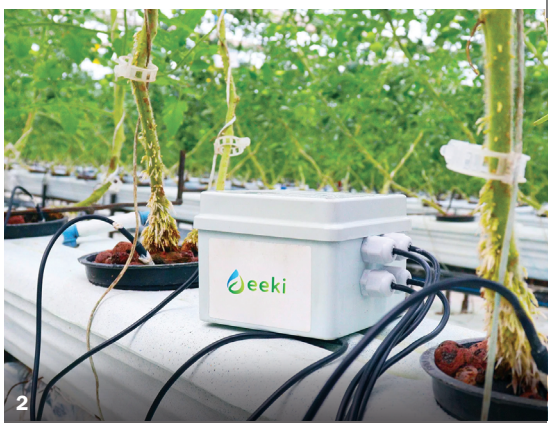

India's young innovators tackle climate change

By Shanti Menon

AKSHAY SHEKHAR, A SOFTWARE engineer, started and sold his first company while still in college.

"In my family, the dinner table conversation was always around new business ideas," says Shekhar, 32. He's since made waves as the co-founder of Kazam, a 4-year-old electric vehicle charging company whose software is helping Indian delivery fleets, city buses and for-hire vehicles go electric.

Shekhar is just one of a growing number of Indian entrepreneurs seeking to hit it big with promising new businesses that create more than profit. They deliver cleaner air, save energy, and improve economic opportunities for millions — the solutions India needs to grow and prosper without drastically increasing climate and other pollution.

Still, thousands of promising Indian clean-tech companies that are ready to expand lack the private capital that typically flows into growth-stage enterprises in more developed economies. That's why EDF gathered Indian policymakers, business leaders and private investors to hear from Kazam and other growing companies at the Climate Tech Convening 2025 in Mumbai earlier this year.

ISTOCK

"To have everybody under one roof has been amazing," said clean-tech CEO Rahul Nainani of ReCircle. "It has been a great opportunity to interact with the right investors."

A clean path to growth

Although India's historic contribution to global climate pollution has been minimal, in recent years its annual emissions have ranked among the world's highest. Both the government and the public are aware of the reality of climate change. Its impacts — including unhealthy air, punishing downpours, water stress and extreme heat — are deeply felt by all, whether they're well-heeled urbanites or small farmers in rural villages. So India's government, while pursuing economic prosperity for its 1.4 billion people, has also been pursuing climate-friendly solutions that support a clean path to that growth, investing billions in technologies like solar power and electric vehicles.

Renewable energy is not the only clean technology that promises big impact, as the innovators at the convening demonstrated. Take recycling, for example. India is a major producer of plastic waste, yet recycling plants in India get much of their material from overseas, because of a lack of waste management infrastructure. People burn waste or dump it at the outskirts of town, where waste pickers sort through it for anything of value. "Growing up in Mumbai, I never thought we had a shortage of trash," says Nainani.

His company ReCircle connects informal waste collectors to authorized recyclers to collect and properly recycle plastics in more than 300 sites across India. To date, ReCircle has diverted more than 161,000 tons of plastics from landfills across the country, while formalizing work for thousands of waste pickers. With a goal of creating a circular plastic economy, ReCircle digitally tracks the material from collection through processing and transforms it into plastic credits that businesses can use to meet their sustainability goals, as well as to comply with new Indian rules requiring companies to improve recycling. Major corporations such as Nestle, PepsiCo and Coca-Cola buy ReCircle credits. The company's next step, says Nainani, is to get recycled plastic back into corporate supply chains for reuse in packaging.

Chakr Innovation also boasts scores of big-name clients. The company was launched in 2016 by four college classmates to tackle another urban problem — air pollution. Diesel generators, commonly used by industries, businesses and even households for power, are a major source. Chakr's materials scientists developed a filter that can be retrofitted onto any diesel generator to reduce pollutants by 90% or more, without taking a toll on the life or efficiency of the machinery. Chakr Shields

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1 **Eeki co-founders Abhay Singh (left) and Amit Kumar**
MADHU KAPPARATH/FORBESINDIA.COM

2 **Eeki's water- and energy-efficient hydroponic farm**
EEKI.COM

3 **ReCircle has diverted 161,000 tons of plastics from landfills.**
RECIRCLE.IN

4 **ReCircle provides regular employment for India's informal waste collectors.**
RECIRCLE

5 **Chakr's diesel filter reduces air pollution by 90% or more.**
CHAKR.IN

6 **Kazam's Akshay Shekhar (seated in an electric rickshaw) with co-founder Vaibhav Tyagi**
TECHOBSERVER.IN

are now installed on more than 4,000 devices, preventing hundreds of thousands of tons of soot from entering the air each year.

> **"In my family, the dinner table conversation was always around new business ideas."**
>
> **— Akshay Shekhar, EV entrepreneur**

But the company isn't stopping there. Chakr now boasts 1,100 employees developing multiple climate solutions. At the convening, Chakr representatives connected with investors to discuss its latest climate tech — a lightweight, affordable new metal-air battery that will have 8 times the range of the lithium-ion batteries now used in most electric vehicles. "It is 100% indigenous," said Parth Sarthi, Chakr's head of engineering. "You don't have to get reliance on other countries."

Like Chakr, Eeki was founded by entrepreneurs with a background in science and a passion for social impact. Co-founder Abhay Singh worked in robotics before he launched Eeki, a company whose patented greenhouses and hydroponic systems allow crops to be grown year-round on barren desert land, using only harvested rainwater and minimal energy, despite extreme temperature swings. The yield of an Eeki farm per acre is about 18 times the Indian average, says Singh, and the crops' nutritional value exceeds that of organic produce. What's more, Eeki's pesticide-free tomatoes and cucumbers are available at local vegetable markets, at the same price as other local produce.

"India tops the world in malnutrition," says Singh. "At Eeki we're trying to make sure that every kid, every adult, gets access to nutritious food at affordable prices."

The company is already expanding into Oman and Qatar. At the convening, Singh was looking for investors to support his next phase of larger farms spanning hundreds of acres. Since the convening, Shekhar of Kazam says he's already had several follow-ups from investors. His company's charging software and hardware is being used by large fleets, vehicle manufacturers and major e-commerce companies.

Kazam is now testing new software that allows EV drivers to choose their electricity suppliers when they plug in. These on-the-spot transactions can help make charging cleaner and more affordable by matching, for example, a consumer plugging in during the day with a solar farm selling excess daytime production at a bargain price.

These new businesses are just a handful of many rising up to meet a critical need in India, a nation whose path toward development affects not only its own people but the future of the world's climate. As the U.S. moves to dismantle its climate progress, India, like other nations, is stepping up to lead.

EDF/ DEEPTI ASTHANA

"India's climate tech sector has emerged as a key pillar in the country's pursuit of sustainable development," says EDF Executive Director Amanda Leland, who attended the convening. "Events like this help remind us that when we work together, solutions are in reach." ■

This article is for informational purposes only and does not endorse any companies mentioned.

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People power

Your guide to effective environmental action

In 1970, 20 million Americans took to the streets to demand action to protect the environment for the first time. Some protested. Others built bike paths or planted trees. Many now look back on that day — the very first Earth Day — as a pivotal moment for the modern environmental movement.

Fifty-five years later, it's again urgently necessary for people to speak up and contact their elected officials.

"The Trump administration's unlawful power grab will take away protections for our drinking water and clean air," says Joanna Slaney, who leads EDF's advocacy work. "The American people did not ask for these health protections to be taken away."

EDF is already filing lawsuits, educating elected officials about the communities and jobs at risk from environmental rollbacks, and talking to the media. But our most powerful asset? You. EDF has 3.5 million supporters. That's a huge number of people who can influence what happens next.

Here are four things you can do to help protect the environment:

Contact your member of Congress

Don't let the onslaught of bad news wear you down. Elected leaders need to hear from you. **Call them in D.C. — the Capitol switchboard is 202-224-3121** — sign a petition or demand action via email. **To learn more, visit EDF.org/take-action-current-opportunities.**

Speak up

Outraged by the extreme nature of the Trump administration's actions? Speak up. That could mean **attending a demonstration, visiting your Congressperson's local office, or writing a letter to the editor of your local newspaper. If you use social media, follow EDF on platforms like Facebook, Instagram and LinkedIn** and use your account to re-share our fact-based information about clean energy and environmental protections.

Get involved locally

"It's critical to find local allies who can help you take action," says Slaney. If you're a parent, Moms Clean Air Force is an EDF-affiliate with chapters across the U.S. (**Find one at momscleanairforce.org.**)

EDF also has a political advocacy arm called EDF Action which focuses on political action in the districts where it matters most. "Make no mistake about the stakes. President Trump is worse on our core issues today than he was four years ago," says EDF Action head David Kieve. "Your political engagement matters."

Donate regularly

Donating to EDF helps fund our work to stabilize the climate and help people and nature thrive. The current administration is making that work harder than ever, and reliable, ongoing support is much needed. **Find out more about becoming a recurring donor at donate.edf.org.**

Vanessa Glavinskas

MOMS CLEAN AIR FORCE

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YOU GOT THIS DONE!

How one mom's video sparked an investigation

ON A SUNNY AFTERNOON IN February, Amanda Rowoldt watched black smoke billow from Freepoint Eco-Systems, in Hebron, Ohio. The plant bills itself as a plastic waste recycling facility.

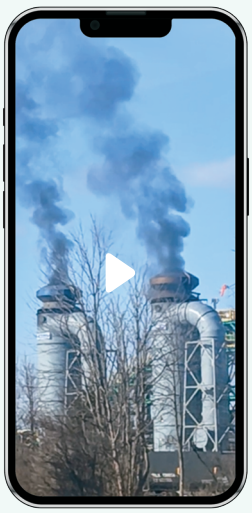
Parked about 30 yards from its smokestacks, she cracked her car window open just enough to capture a cellphone video of the smoke. Within minutes, she was hit with a wave of intense nausea, dizziness and a stinging headache.

As she drove home past rows of houses, "I left feeling guilty," she says. "I could go back home, where my kids weren't breathing this. But what about these families?"

Rowoldt showed the video to a local official, and soon after, the Ohio EPA launched an investigation into potential violations of the facility's emissions permit.

"I'm a breast cancer survivor," Rowoldt says. "I was 39 when I was diagnosed in 2021. My youngest son was only four. The whole experience made me question why younger people are getting cancer and what role environmental toxins might play."

Since her diagnosis, Rowoldt has become a passionate field organizer for Moms Clean Air Force, an EDF affiliate of over 1.5 million parents united against pollution, toxic chemicals and climate change. The group shared Rowoldt's video on social media and is working to get Freepoint Eco-Systems to install emissions controls.



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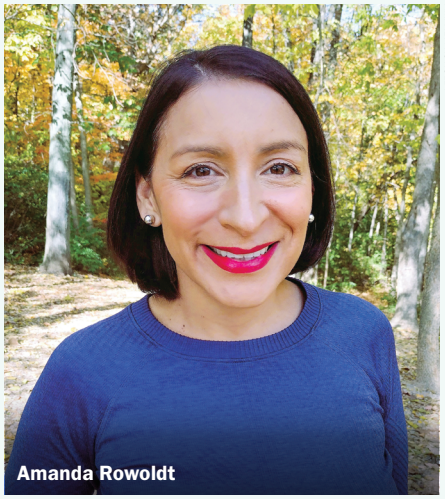

Amanda Rowoldt

AMANDA ROWOLDT

For her part, Rowoldt continues to educate the public on the dangers of pollution from "advanced recycling," which isn't recycling at all.

"The industry purposefully uses the word 'recycling' to trick people into supporting these facilities," she says. "But advanced recycling, sometimes called chemical recycling, is essentially burning plastic."

"When you heat plastic, you end up with hazardous waste and air pollutants," says EDF's chemicals expert Maria Doa. "You get benzene, you get dioxins, you get phthalates. Companies say they're going to make building blocks for new plastics, but from this mixture it's very difficult to directly create new products."

Freepoint Eco-Systems is now under scrutiny for releasing chemicals including styrene, dioxins, and furans — all known carcinogens.

Rowoldt encourages others who see pollution to document and report it. "Never underestimate how much power you have," she says.

Vanessa Glavinskas

WATCH THE VIDEO Scan the QR code or visit bit.ly/3YNs037

WE'RE ALL EARS Got an environmental success story you want to share? Let us know at **editor@edf.org**.

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