Solutions

EDF ENVIRONMENTAL DEFENSE FUND®
Finding the ways that work

Vol. 53, No. 3 / Summer 2022

Keeping the lights on

Hurricanes, floods and fires. From California to Puerto Rico, the race is on to build a cleaner, more resilient power grid.

ALSO INSIDE: Chemicals in your food | Who needs Russian oil? | EPA gets tough on refinery

The Cuyahoga River on fire in 1952.

Back to life

On June 22, 1969, the Cuyahoga River, as it ran through Cleveland, Ohio, was so polluted it caught fire — for at least the 13th time. But this time, the spectacle helped galvanize America's nascent environmental movement. Ten months later, the first Earth Day was held. By 1972 President Nixon had created the Environmental Protection Agency and Congress had passed the Clean Air Act and Clean Water Act, leading to major reductions in air and water pollution across the nation. Today, the once befouled Cuyahoga is home to dozens of fish species, as well as boaters, and the city's riverfront bustles with life.

NATIONAL PARK SERVICE / D.J. REISER

Hope in hard times

Russia's invasion of Ukraine has led to death and suffering, global food shortages and skyrocketing energy prices. Coal use is increasing and vested interests are making the case for long-term additional fossil fuel investments. Meanwhile, the reliability of the electric grid is threatened by extreme weather worsened by climate change *(see cover story, p. 8)*.

So it's easy to lose sight of some hopeful news on climate.

Before the Paris Agreement of 2015, the world was projected to warm a catastrophic 7.2°F by 2100. Today, if nations meet their commitments, the projection is half that. That's still far too high, but trending in the right direction.

Technology is accelerating this progress. The cost of solar declined 90% between 2009 and 2021. A few months ago, renewable electricity briefly produced almost 100% of California's power — a historic first. In addition, carbon markets, which we consider the fastest way to reduce emissions, now exist in over 40 nations, covering more than 20% of global greenhouse gas emissions. We're working to see that they are designed and implemented to function efficiently and equitably *(see p. 12)*.

Two recent developments are very encouraging. One of the fastest ways to slash climate pollution is to stop the destruction of tropical forests. Last year, we helped launch the largest-ever private sector effort to fund tropical forest preservation and sustainable development. LEAF (Lowering Emissions by Accelerating Forest finance) has already raised $1 billion, and if enough is raised to fund every eligible proposal it has received, that could protect an area larger than the European Union.

There's been progress, too, on reducing methane pollution. Today's emissions of methane will warm the Earth, over the next ten years, more than all the carbon dioxide from burning fossil fuels. This makes slashing methane pollution the quickest way to slow global warming. Last fall, more than 110 countries pledged to cut methane pollution at least 30% by 2030. EDF is now working to reduce methane emissions from agriculture, as well as the oil and gas industry *(see p. 6)*.

Meanwhile, in the United States, the bipartisan $1.2 trillion infrastructure bill, enacted in November, will improve mass transit, upgrade the nation's power infrastructure and help build a network of charging stations for electric vehicles. And EPA's new clean car standards will prevent more than 3 billion tons of climate pollution by 2050.

History has shown it's in the most perilous moments that we have the greatest opportunity to remake our future. I am absolutely convinced that our focus on innovation, equity, science, economics and partnerships can lead to dramatic progress. With your generous support, we can continue to make progress toward our ultimate goal: a vital Earth for everyone.

Fred Krupp
EDF President

In this issue

4 **Field Notes** Slash methane, save the Arctic
6 Cows and climate: farmers take action
8 **Cover Story** Weathering more severe storms
12 Cleaning up carbon credits
13 **Ask an Expert** Ukraine, gas prices and climate
14 In Colorado, activists celebrate clean-air win
15 The legal loophole threatening food safety
16 Hydrogen: climate friend or foe?
18 **Green Living** Eco-friendly funerals
19 **EDF Community** Buses, babies and Buttigieg

Editor in chief	**Tasha Kosviner**
Senior energy editor	**Shanti Menon**
Editor at large	**Peter Edidin**
Writer/editor	**Vanessa Glavinskas**
Contributing writers	**Tom Clynes**
	Joanna Foster
Design	**Tink Tank Studio**
Photo editor	**Paula Trotto**
Project coordinator	**Kat Rossos**
Production editor	**Emily Mathieson**
Talk with us	**editor@edf.org**

Solutions

©2022 Environmental Defense Fund. Published quarterly in New York, NY. ASSN 0163-2566

ENVIRONMENTAL DEFENSE FUND
EDF's mission is to preserve the natural systems on which all life depends. Guided by science and economics, we find practical and lasting solutions to the most serious environmental problems.

257 Park Ave. South, New York, NY 10010
212-505-2100

Support our work
Donate online at edf.org/newsletter or by mail: EDF, Member Services, 1875 Connecticut Ave. NW, Ste. 600, Washington, DC 20009.
For inquiries, contact 800-684-3322 or email members@edf.org.

New York / Austin / Bentonville, AR / Boston / Boulder / Raleigh / San Francisco / St. Petersburg, FL / Washington, DC / Beijing / Jakarta / La Paz, Mexico / London

EDF ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

FIELD NOTES

EDF research: How to save the Arctic's summer sea ice

Rapidly slashing global methane emissions could help save the Arctic's summer sea ice, slow climate change and protect numerous unique animal species.

Those are the findings of a recent study, published in *Environmental Research Letters*, by EDF scientists Tianyi Sun, Ilissa Ocko and Steven Hamburg.

Since 1979, as global temperatures have risen, the Arctic's summer sea ice has diminished by about 40%. A recent international report estimates it could disappear entirely around the middle of this century.

This ice loss could drive polar bears to extinction and threatens a host of other Arctic species. It would also accelerate global warming, since sea ice reflects far more sunlight (and its heat) than open water.

EDF's study shows that rapidly cutting global methane emissions, along with the CO_2 reductions laid out in the Paris Agreement, raises the odds of preserving Arctic summer sea ice this century from nearly zero to 80%. Methane is key because it is a potent greenhouse gas that causes more than 80 times more warming than an equal amount of CO_2 over a 20-year time frame.

Fortunately, more than half of global methane emissions from the oil and gas industry can be reduced by implementing existing strategies — some as straightforward as tightening valves and avoiding flaring. Better still, many reductions come at no net cost.

The stakes are high. "If we do nothing, Arctic summer sea ice will likely vanish," Sun says. "But if we tackle methane now as we reduce CO_2 emissions to achieve net zero, we have a very good shot at saving it."

GETTY

Returns on rhinos

The World Bank recently issued the world's first wildlife conservation bond, raising $150 million to help save the endangered black rhino in South Africa.

The rate of return on the five-year "Rhino Bond" will vary, depending on the rate of growth of black rhino populations at South Africa's Addo Elephant National Park and Great Fish River Nature Reserve. Investors will get a return of between 3.7% and 9.2%, depending on the growth rate, or zero return if there is no increase.

The population of black rhinos, which are found only in Africa, fell 96%, to fewer than 2,500, between the 1970s and 1990s, due to poaching. Conservation efforts since then have increased their numbers to more than 5,000, 40% of them in South Africa.

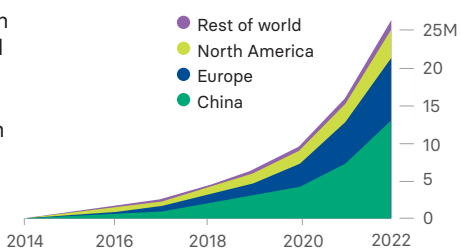
PXHERE/TIMEOUT LONDON

Welcome back!

For the first time in more than 400 years, beavers can be found in London. The city's northern borough of Enfield recently introduced two two-year-olds, a male and a female, to an area called Forty Hall Farm as part of an effort to restore nature and river habitat and reduce flood risks. Beavers were hunted to extinction in Britain in the 16th century.

Electric vehicle sales take off

More than 26 million electric vehicles will be on the road by the end of 2022, up from just 1 million in 2016. That number is projected to hit 71 million by 2025.



Source: BloombergNEF

GETTY

73k

The planet is home to approximately 73,000 species of trees, according to a recent study. That's 14% more than previously estimated. More than 40% of those species are in South America.

Source: PNAS

10%

Wind and solar generated 10% of global electricity in 2021, a new record. Fifty countries got more than a tenth of their power from those sources.

Source: Ember-climate.org

IN THE COURTS

1 **The EPA and other federal agencies** can resume considering the social costs of carbon and other greenhouse gases in decisionmaking, thanks to the Fifth Circuit's stay of a lower court's order that had restricted the practice. The social cost of carbon, an estimate of damage caused by emitting one ton of CO_2, is crucial to evaluating the environmental effects of proposed regulations and infrastructure projects.

2 **In good news for national park** visitors, EDF is part of a coalition of environmental groups suing the EPA over air pollution in national parks and other public lands. The lawsuit alleges that the EPA has failed to enforce the Regional Haze Rule under the Clean Air Act, which require states to submit plans to curb harmful emissions that create haze. Haze is a problem at 90% of national parks, obscuring views and harming human health, and 34 states have yet to submit plans.

GETTY

A big win on oil and gas emissions

Every year, oil and gas operators in New Mexico emit more than 1.1 million metric tons of climate-warming methane, plus 300,000 tons of smog-forming volatile organic compounds. All that's about to change.

New rules passed by Gov. Michelle Lujan Grisham's administration will slash oil and gas pollution, requiring frequent inspections of wells and compressor stations, especially those near homes and schools.

EDF is part of a broad and diverse group of stakeholders that helped get the tough new rules passed, including public health, environmental justice, tribal and conservation groups, as well as Occidental Petroleum, one of the state's leading oil producers.

In a state that has become the nation's second-largest oil producer, these rules will improve the health of New Mexicans, as well as reduce methane emissions, and "set a powerful example for the EPA to build on as it advances nationwide methane protections," says Jon Goldstein, EDF's senior director of regulatory and legislative affairs.

GETTY

SEC to business: It's time to disclose the real costs of climate change

The U.S. Securities and Exchange Commission (SEC) recently announced an important proposal that would, if finalized, require all publicly traded companies to disclose their risks from climate change.

EDF has long advocated for this step, which will give investors information they need to better evaluate the severe and increasing financial risks companies face from climate change.

A 2019 study found that 215 of the world's largest companies face almost $1 trillion in climate-related risk, ranging from supply chain disruptions to more frequent flooding and natural disasters.

Beginning in 2024, companies would need to report to the SEC how climate-related risks, from the impact of climate-related events to ongoing transitions to clean technology, are likely to affect their businesses and, by extension, their overall financial outlook.

"For corporations, climate-related financial risks are already significant and they are growing more urgent every day," says EDF Director of Climate Risk Strategies Michael Panfil. "Investors need to understand the size and scope of climate risk, and this proposal from the SEC is a welcome step toward that goal."

Moo-ving the dial on methane

Bovine bodily functions are responsible for about 35% of methane emissions in the U.S. Farmers and scientists are tackling the problem... from both ends.

By Joanna Foster

GETTY

The Crave Brothers dairy in Waterloo, Wisconsin, is famous for its fresh mozzarella, squeaky cheese curds and creamy chocolate mascarpone. But that's not all they produce here. The dairy's more than 2,000 milking cows also help generate enough electricity to power the entire farm, cheese factory and 300 local homes. The miracle of cow poop power derives from two massive anaerobic manure digesters that capture the methane released as the manure is processed into liquid fertilizer and bedding material for the cows.

"It's not always sunny or windy here, but we definitely always have manure," says Karl Crave, part of the third generation of Crave family farmers. "We like to call it cow power."

Across the country, there are more than 300 anaerobic digesters like the ones at the Crave Brothers dairy. They are helping farmers diversify their businesses while reducing planet-warming methane emissions. For dairies, about 43% of methane emissions come from manure.

We can't do it without farms

Last fall, more than 110 governments pledged to cut methane emissions by 30% by 2030, as part of the historic Global Methane Pledge, launched by the EU and the U.S.

But the world can't meet this crucial target without dramatically reducing the methane released on farms, an obstacle that until very recently seemed technically and politically insurmountable. Now, thanks to innovative strategies for reducing agricultural methane and growing support from farmers, there is new hope for progress.

Methane is an extremely potent greenhouse gas, with more than 80 times the warming power of carbon dioxide in the short term. It is responsible for 25% of the global warming we're experiencing today. Globally, agriculture is the largest source of human-caused methane emissions. And in the U.S., agriculture is responsible for about one-third of total methane emissions. That's on a par with the oil and gas industry.

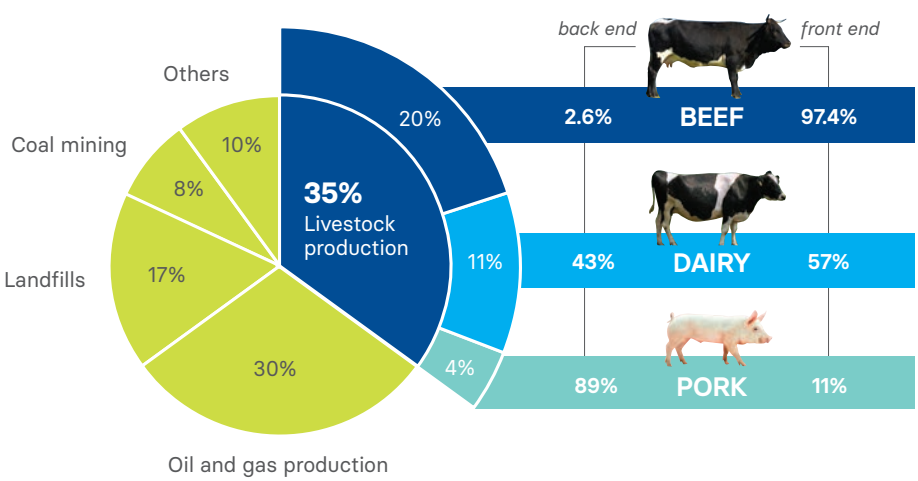
Unlike in the oil and gas industry however, where tightening a valve may be all it takes to stop a methane leak, that's not the case on farms.

"On farms, you're dealing with intricate biological systems, not a leaky pipe," explains EDF lead senior scientist, Joe Rudek.

What's the beef?

Livestock — primarily beef and dairy cows — account for the vast majority of agricultural methane emissions. And there are a lot of cows: more than 94 million in the U.S. and around one billion globally. Cows produce methane in two ways: from the decomposition of their

THE U.S. METHANE BREAKDOWN



manure under certain conditions, and by what is politely known as enteric emissions — cow burps.

"Addressing methane from livestock doesn't mean the end of dairy or beef," explains Britt Groosman, EDF's vice president for climate-smart agriculture. "EDF's goal is to work with farmers to help lower the methane footprint of that glass of milk or hamburger. Because every bit of ground we gain on methane emissions matters."

There are various ways to reduce methane emissions from manure. Anaerobic digesters, like those used by the Crave family, offer one way. Another way is to cover the large ponds — called lagoons — used to store and process manure from cows and pigs. The coverings retain methane that would otherwise be released as the manure decomposes underwater.

To diminish the belching problem, farmers are turning to feed additives that interrupt the microbial processes in a cow's gut that produce methane. One of the most well-studied feed additives, 3-NOP, marketed as Bovaer, has been shown to reduce methane from belching bovines by about 30%. It was recently approved for use in the EU, Chile and Brazil and is currently being evaluated for U.S. approval. Another promising additive, still in development, is a red seaweed *(Asparagopsis spp.)* that may cut methane from belching by as much as 70%.

"These feed additives could be game-changers," explains Ben Thomas, EDF's senior policy director for climate-smart agriculture. "For years, people just shook their heads and asked, 'how do you want us to keep cows from burping?' But now, there's something that could really make a dent in these emissions."

Because these additives must be administered daily, however, they are only viable for dairy cows, which live in a barn, not for beef cattle left to graze in grasslands. These cattle may require the development of a one-time vaccine, slow-release treatment or selective breeding. Still, major progress can be made right now, says Groosman. "We estimate that in the U.S. we can get to about 60% of the targeted reductions in agricultural methane we need with technology that's already out there," she says.

Of course, in addition to being a major source of methane pollution, livestock can also cause localized impacts on water quality, air pollution and odor, that often disproportionately affect low-wealth communities and communities of color because of the location of livestock operations. Any strategy to address agricultural methane should help address these issues as well.

"We call it poop power," says Wisconsin farmer Karl Crave.

PAUL CRAVE

Don't be cowed by cost

Solutions, though, aren't enough. Someone has to pay for them, and feed additives and manure processing systems can be expensive.

"We can't ask farmers, who already operate on razor-thin margins, to foot the bill for methane reductions if the benefits are exclusively environmental," says Thomas.

Earlier this year, EDF helped secure a major victory when the U.S. Department of Agriculture announced a first-of-its-kind $1 billion investment in pilot projects that promote farming, ranching and forestry practices that create marketable products or practices that reduce or capture climate-warming gases.

Qualifying projects could include initiatives that cut or capture methane emissions on dairy farms or ranches, and programs that encourage farming practices that soak up carbon from the atmosphere and store it in the soil.

This investment is thanks in large part to the work done by the Food and Agriculture Climate Alliance, an initiative spearheaded by EDF two years ago to bring environmental groups including the Nature Conservancy and agricultural groups including the Farm Bureau together to push for climate solutions that benefit everyone.

"The fact that agriculture and environmental groups were willing to team up in the first place and then actually found common ground speaks volumes about both the urgency of addressing climate change and just how much the political calculus has changed," explains Thomas.

EDF is also working with leading companies to ask their suppliers to reduce methane emissions.

"We're making the case to companies that they can't meet their climate goals without addressing methane from agriculture in their supply chains," says Katie Anderson, supply chain director at EDF+Business. "And we are helping leading companies, like Walmart and Danone, to engage their suppliers in high-impact opportunities to reduce methane."

At the Crave family's farm, they're already having some fun letting consumers know about their sustainability practices: A cow swishes her green tail on the label of every one of their cheeses.

Tackling methane across America's vast dairy and beef operations is a massive undertaking, but a crucial one.

"We need heroes," says Thomas. "But I can't think of anyone better suited for the challenge than the hardest working and most resourceful Americans out there — farmers." ■

INSIDE
Solutions

LIVE WEB EVENT

Methane breakthrough

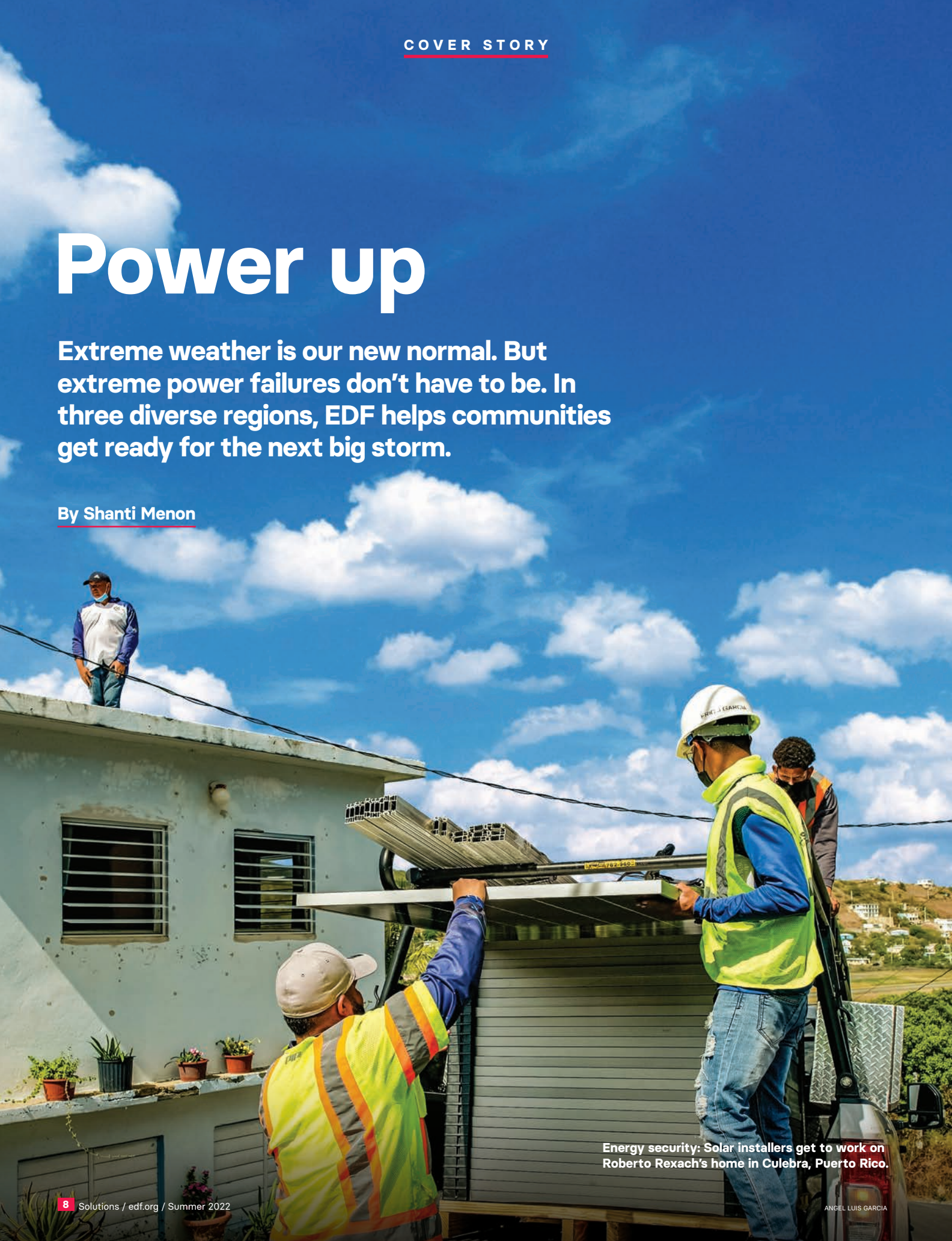
It was the climate-wrecking gas that few people talked about until EDF's groundbreaking research helped mobilize international action. Hear EDF scientists and experts explain how we can rapidly slash methane pollution to slow climate change and save our most treasured ecosystems.

August 24, 2022 | 1-2pm ET
Sign up at edf.org/InsideSolutions

Power up

Extreme weather is our new normal. But extreme power failures don't have to be. In three diverse regions, EDF helps communities get ready for the next big storm.

By Shanti Menon



Energy security: Solar installers get to work on Roberto Rexach's home in Culebra, Puerto Rico.

ANGEL LUIS GARCIA

ROBERTO REXACH HAS REBUILT HIS home twice. The first time was when Hurricane Hugo flattened the small Puerto Rican island of Culebra in 1989; the second after hurricanes Irma and Maria — Category 5 and 4 hurricanes — tore through back-to-back in 2017.

"I cried when I saw my house," says Rexach, recalling the devastation.

Rexach and his wife, Mirtas, stayed with a friend who had a generator so Mirtas could run medical equipment for her asthma and sleep apnea. But others were less fortunate. Nearly 3,000 people died in Puerto Rico due to Maria, many as a result of crippling power failures.

The storm uprooted utility poles and flooded power stations, leaving more than a million people in the dark, without refrigeration for food and medicine, unable to pump water or run medical equipment. Some were without electricity for months. People scrounged up wax to make candles.

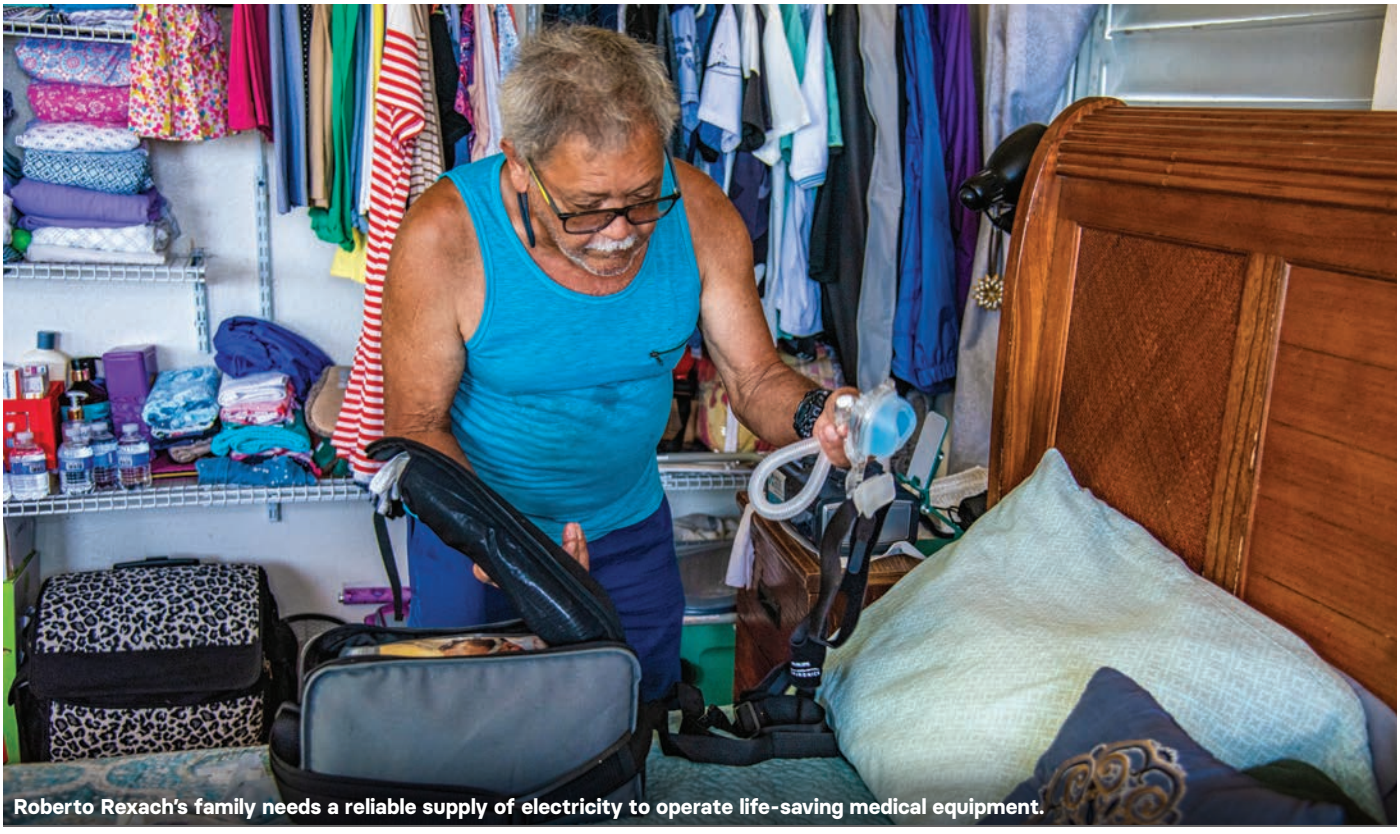
Climate pollution is making extreme weather our new normal. Atlantic hurricanes are more frequent and intense. Western heat waves are hotter and droughts drier, creating favorable conditions for wildfires. Even brutal cold snaps may be linked to climate change.

"This project represents hope, a relief from uncertainty," says Culebra resident and environmental scientist Nicolás Gómez Andujar, whose home will also receive solar panels.

ANGEL LUIS GARCIA

Without action to reduce pollution and prepare the grid for extreme weather, power outages could become a new normal too. Across the country, the number of blackouts tied to severe weather is on the rise. According to a new analysis by the Associated Press, we've gone from about 50 a year in the early 2000s to more than 100 annually, on average, over the past five years.

This summer, as hurricane and wildfire seasons get underway, millions of people across the country could face power failures. While nothing can stop the wind from blowing, there are ways to keep the power flowing. From Puerto Rico to California to Texas, EDF is working with communities and governments to help keep the lights on, even in the face of disaster.



Roberto Rexach's family needs a reliable supply of electricity to operate life-saving medical equipment.

ANGEL LUIS GARCIA

Community power in Puerto Rico

Culebra's 1,800 residents, including the Rexach family, waited 18 months for full electric service to be restored after Hurricane Maria. Culebra's backup diesel generators, which ran on fuel irregularly supplied from the main island, provided sporadic power — but not all residents could access it.

"There were sectors that could not connect to the plant," recalls Veronica Melendez, 71, a retired police officer and longtime Culebra resident. "Those people went crazy, looking for generators, candles. They left the island."

Culebra is tenuously tethered to the main island by an unreliable ferry, an undersea electric cable and a single drinking water pipeline. Self-reliance is a paramount concern. Melendez is already stocking up on canned food in anticipation of the coming hurricane season. But this year, she hopes to have one less thing to worry about: electricity.

In collaboration with EDF, Fundación Colibri and other local organizations, about 40 households in Culebra, including hers and the Rexaches', have begun to install solar panels paired with batteries that can provide an independent, resilient source of power. The project grew out of a three-year partnership between EDF, Culebra residents and local nonprofits. It is one of several initiatives the community is developing to make Culebra more sustainable and self-reliant.

The systems are designed to withstand winds up to 180 miles per hour, and can power household essentials, including refrigerators, lights and medical equipment. The batteries store solar energy that can be discharged in the evenings or even sold back to the grid to reduce bills. The installations are expected to be up and running before peak hurricane season begins in August.

"We will no longer have to run for a shelter, because we can solve it with our house," says Melendez. "This project is a blessing."

1 in 3

U.S. adults have been affected by extreme weather in the past two years

Source: Gallup Environment Poll, March 2022

But it doesn't take a hurricane to cause a power failure in Puerto Rico. The system is fragile, with lengthy power lines that extend across mountains to deliver electricity from the power hub in the south to population centers in the north.

A major blackout in 2019 was triggered, according to authorities, by an iguana that made contact with high voltage equipment. This past April, a fire at the largest of Puerto Rico's four main power plants led to a blackout affecting more than 1 million people across the territory. Melendez lost power for about 11 hours before the generator was turned on.

Recent energy reforms in Puerto Rico, which EDF and other local partners helped drive, are laying the groundwork to develop a cleaner, more reliable power system that will allow more communities to generate solar power, store it in batteries and sell it back to the grid.

"So many communities are finding their own solutions to improve reliability," says EDF attorney Agustín Carbó. "Building connections between these communities, technical experts and governments creates fertile ground for expanding climate solutions in Puerto Rico and across the Caribbean. We all want to be ready for the next storm."

Texas, frozen

Hurricanes also threaten the coast of Texas. Harvey dumped 1 trillion gallons of rain on Harris County, Texas, over four days in 2017 and knocked out power for more than 300,000 homes and businesses. But last year, the biggest threat to Texas' energy system struck in the winter. A polar vortex sent the temperature plummeting to 13 degrees in Houston as winter storm Uri blasted the state with ice and snow.

Power plant interiors iced over; coal supplies and even some wind turbines froze. Most critically, more than half the state's natural gas supply was shut down as wellheads, pipes and gas processing plants froze, leaving most of the state's power plants with no fuel to burn.

GETTY

Powerless in Texas: Austinites struggled to stay warm during the big Texas freeze of 2021.

Millions of people lost power for days. Pipes burst, flooding homes, and 246 people died, mostly from hypothermia. "It was so traumatizing," says Houston resident Erandi Treviño, a state coordinator for the advocacy group Ecomadres, part of EDF affiliate Moms Clean Air Force. "And many people are still recovering."

The state legislature responded to the tragedy with a half-measure — requiring the insulation of power plants. That move, says EDF's Texas political director Colin Leyden, let the oil and gas industry off the hook.

"Insulating power plants will help," he says, "but not if fuel supply lines are freezing in the oil and gas fields." Leyden and EDF are urging the Railroad Commission of Texas, which oversees oil and gas infrastructure in the state, to require oil and gas companies to weatherize their equipment too.

But what's needed more, says Leyden, is insulation for people. Many homes in Texas use old, inefficient electric resistance heating and half have inadequate attic insulation, making it difficult to stay warm and keep a lid on electric demand.

The Bipartisan Infrastructure Law, which Moms Clean Air Force and EDF helped push through Congress, could provide some relief. It gives a $3.5 billion boost to the federal home weatherization program, which will assist half a million low-income families nationwide to insulate their homes, seal drafts and upgrade to more energy-efficient heating and cooling.

Whether people can weatherize in time remains to be seen.

"Hurricanes, cold, heat — we're not really prepared for any of it," says Treviño. "We need to winterize. We need to invest in renewable energy. In Texas, people say we can rely on oil and gas, but clearly that's not what we can rely on."

Batteries save the day in CA

While Texas continues to tiptoe around climate change, California has been tackling it head-on for decades. Forward-looking energy legislation passed in 2010, which EDF supported and helped implement, required California utilities to increase their battery storage capacity.

Those batteries proved their worth during the heatwave of July 2021, when Oregon's Bootleg Fire disabled three major transmission lines that deliver power to California, curtailing supplies even as demand for electricity soared.

SIEMENS/FLUENCE

Not your average AAAs: Utility-scale batteries make the grid cleaner and more reliable.

The previous summer, similar circumstances left nearly 1 million customers without power. This time, however, the state had 10 times the battery storage. On cue, stacks of batteries parked in warehouses, substations and solar farms sent 1,000 megawatts of power back to the grid — enough to meet the immediate need of more than 750,000 homes.

99.9%

of California's electricity came from renewables on April 30, 2022

Source: California Independent Systems Operator

California is expected to double its battery capacity this year, which will also help meet its target of running on 100% clean electricity by 2045. Batteries even out the intermittent flow of power from renewable energy by filling up on charge when wind and solar production is plentiful and cheap, and discharging when demand is high.

That flexibility helps the grid and consumers. The Warnecke family of Kensington, California, installed a rooftop solar and battery system in 2019, after their utility announced it would cut power during high wind and drought conditions to avoid sparking wildfires. The system powers their 3,000-square-foot home, charges an electric car and sells excess energy back to the grid. "If something happens, our house can be the one where neighbors go to charge their phones or refrigerate their medication," says Edna Warnecke.

Over time, these systems pay for themselves by reducing energy bills. But not everyone can afford them. Even with state and federal rebates, the Warneckes paid nearly $14,000 up front.

Michael Colvin, a former California utility regulator who leads EDF's California energy work, helped design a state grant program to help lower-income customers install batteries. Another program he's working on would allow customers to pay back the cost of a battery directly on their utility bills — an affordable, bank-free loan that also helps clean up and fortify the grid.

"We're pushing for policies that will give everyone access to affordable, clean, safe, reliable electricity," says Colvin.

Still, California officials warn that more power outages are possible this summer. As climate change brings the western U.S. into its 22nd year of drought, and drives what is likely to be another above average Atlantic hurricane season, the need to cut pollution from our electric system is just as urgent as the need to make it more reliable.

"Smart technologies can both bring more clean energy onto the grid and improve reliability," says Pamela MacDougall, who leads EDF's grid strategy. "But people are already facing power outages. We need to act now to deploy these solutions where they're most needed." ■

Additional reporting by Sara Justicia

Making carbon credits credible

When a company claims to offset its climate emissions, how can we be sure it's working?

As companies struggle to cut emissions and reach their climate goals, the voluntary carbon market — where organizations or individuals seek to compensate for climate pollution (beyond the reductions that are possible in their operations) by funding projects that reduce emissions — is booming. Last year, transactions in so-called carbon credits exceeded a record $1 billion — more than double the year before. A recent report estimated that demand could increase by a factor of 100 by 2050.

GETTY

Carbon credits can fund restoration of mangroves, a powerful carbon sink.

But the market can be a complex and confusing place. Even buyers with the best intentions struggle to figure out which credits really benefit the planet and which are just expensive greenwashing or worse.

EDF is working on multiple fronts to change this.

"Companies worldwide are taking steps to tackle their own greenhouse gas emissions from their operations," says Pedro Barata, senior director for climate policy at EDF. "But for most firms, it's either technologically impossible or financially untenable to do so completely or immediately. Carbon credits, when done right, allow companies to take action now by financing emissions reductions elsewhere."

A carbon credit allows a business, government or individual to pay someone else to reduce greenhouse gas emissions or remove a given quantity of greenhouse gases from the atmosphere. That could be restoring degraded mangroves in Indonesia, protecting rainforest in Brazil, capturing methane leaking from landfills in Argentina or financing solar farms to displace fossil fuels in Kenya. The voluntary market also channels private financing to climate-friendly projects — often in developing countries — that would otherwise never get off the ground.

But with so many options out there, what makes a good carbon credit and how do you sort the good from the bad?

With good oversight and widely recognized standards, says EDF's Barata. He is working with the Integrity Council for the Voluntary Carbon Market to create a standard to identify high-quality carbon credits, reassuring buyers they conform with strict requirements. In turn, these high-quality credits will command a premium in the market. Another effort is dedicated specifically to forest carbon credits, which account for more than 50% of credits on the voluntary carbon market. This initiative identifies criteria for high-integrity tropical forest carbon credits so that companies can invest with confidence and help to accelerate tropical forest conservation.

A third effort, the Carbon Credit Quality Initiative, is a collaboration between EDF, the World Wildlife Fund and the Oeko-Institut to create an open-access web tool where buyers can compare different carbon credit projects.

All these efforts are working toward identifying credits that meet or exceed certain criteria. The credits must represent a greenhouse gas reduction or removal that is permanent and would not otherwise have taken place; they should be monitored, reported and verified to ensure they are actually doing what they claim; and they shouldn't just move the problem (for example, deforestation) elsewhere. At a minimum, they should cause no adverse side effects, such as displacing people or causing other pollution. The highest-quality credits deliver additional benefits, such as protecting biodiversity.

There will be no shortage of demand. The number of companies pledging to reach net zero greenhouse gas emissions jumped from around 500 in 2019 to more than 3,000 in 2021. Barata says voluntary markets can help companies reach these goals. But he points out that companies must cut emissions themselves first and only use credits to supplement and not replace these efforts.

"The voluntary carbon market can never single-handedly solve the climate crisis," says Barata. "But when it's done right, it can harness the huge demand and incredible creativity of the private sector to accelerate the climate solutions we need right now."

Joanna Foster

THE WILSON LEGACY

This feature honors the memory of Robert W. Wilson, a longtime EDF supporter and champion of harnessing market forces to drive environmental progress. See edf.org/wilson

GETTY

War and gas

How is the war in Ukraine affecting global energy prices and the climate? EDF's top energy expert shares his insights.

RUSSIA INVADED UKRAINE IN February, and tens of thousands of people have died in the ongoing conflict. In addition to the immediate humanitarian crisis, the war has also spurred an increase in energy prices that is rippling around the globe, hurting consumers and pressuring world leaders to ease their pain. We asked Mark Brownstein, the leader of EDF's energy transition team, what the war means for energy prices and clean energy progress.

GILBERTO TADDAY / TED

EDF's Mark Brownstein.

Q. What is driving up oil prices?

A. There's a perfect storm of three causes. First, oil prices are going up in general because there's been less capital to develop new oil resources. Most investors lost money on U.S. oil and gas development over the last 10 years, and they're not enthusiastic about losing more. They just don't see it as profitable in the long term.

Second, the conflict in Ukraine. After Putin invaded, the West introduced financial sanctions that made it difficult to clear Russian oil transactions through Western banks. Russian oil normally accounts for about 10% of global oil supply. It's still being traded, but not to the same degree, so we have a gap in supply.

Third, oil demand has largely returned to pre-pandemic levels. I just got back from California, and the plane was packed!

Q. What has the Biden administration done to ease pain at the pump?

A. The administration is trying to strike a balance between providing immediate relief from high gas prices and moving our economy away from fossil fuels.

In April, Biden announced the release of 180 million barrels of oil from our national petroleum stockpile. This will provide a bit of short-term relief. On that same day, he announced an Executive Order to make it easier to produce batteries in the United States, which will be critical to making electric cars and trucks more available and affordable.

Q. How are other nations being affected?

A. In Europe, natural gas is the main source of energy for homes and industry, and 40% of it comes from Russia. Europe is taking aggressive steps to end this dependence by reducing demand and securing supplies from other countries. But this won't happen overnight. And European demand for gas is bidding up the price for countries like Japan, South Korea and China, which depend on natural gas.

Q. Will exporting more U.S. oil and gas help our allies?

A. Europe is facing the worst refugee and energy crisis since the end of World War II. If American energy resources can provide some measure of relief, then we should do what we can.

We can supply half the natural gas we've promised to send to the EU just by capturing climate-polluting methane waste from the U.S. oil and gas industry. But new production of oil, gas or coal leads to more carbon dioxide going into the atmosphere. We don't want to see huge amounts of new development — suddenly opening federal lands to drilling, or building a significant number of new pipelines or export facilities that can lock in fossil fuel use for 20 to 30 years.

Q. Is the clean energy transition happening fast enough to avoid the next crisis?

A. No. That's the takeaway from the IPCC report in April. We have the technology, but we're not deploying it fast enough to avoid the climate crisis or the next geopolitical crisis.

Many of us lived through the oil crisis of 1978 and the Gulf Wars. We've seen this movie before. Now is the time to fundamentally reduce our dependence on fossil fuels. The sooner we shift to electric cars and trucks, the sooner we begin to make a material difference in the amount of oil we need. The sooner we deploy renewables, better insulation and high efficiency heat pumps, the sooner we reduce demand for natural gas.

This is not the first energy crisis. And it won't be the last, unless we make a conscious decision to make it the last. We need to accelerate the clean-energy transition. That will give us real energy independence and a safer climate future.

Shanti Menon

A good day for justice

The EPA called for tighter oversight of a Colorado oil refinery, signaling the agency's increased focus on environmental justice.

Clean air activist Shaina Oliver.

LESLIE VON PLESS/EDF

THE ENVIRONMENTAL PROTECTION Agency has objected to the state of Colorado's permit renewal for the Suncor Refinery, one of the largest refineries in the Rocky Mountain region and a major supplier of gas, diesel and jet fuel to the state. Under the Clean Air Act, all polluting industries must apply to the state for permission to release a certain level of pollution into the air during their operations.

Activists have long fought for more stringent regulation of the 91-year-old refinery's emissions, which can form ground-level ozone, a dangerous toxic gas linked to asthma and heart disease.

The EPA's objection this spring signals the agency's re-commitment to Clean Air Act regulations, loosened under the Trump administration. The move directly expresses environmental justice and civil rights concerns for communities north of Denver that abut the facility.

"It's really rare for the EPA to question state permitting approvals," says Patrice Tomcik, national field manager for Moms Clean Air Force, an EDF affiliate advocating for change. "And more uncommon to comment on environmental justice issues."

Suncor Refinery has a long history of polluting above permitted levels. Last year, the company exceeded pollution limits 15 times in three weeks alone. Since 2012, the Colorado Department of Public Health and Environment has allowed the refinery to operate on expired permits based on renewal requests, enabling Suncor to skirt oversight for a decade. While the new proposal lowers the threshold for some emissions, it increases the limit on others, like ground-level ozone.

In its recommendations, the EPA found roughly 40 changes to Suncor's permits since 2009 without a public vetting process. Suncor characterized these changes as "minor modifications" to qualify for Clean Air Act exemptions. But the EPA said this practice "deprived the public of meaningful participation" on the effects these changes have on air quality.

Shaina Oliver, a Moms Clean Air Force field organizer, lives just south of Suncor. She has been instrumental in bringing the permitting loopholes and severe public health impacts to public and congressional attention. In an op-ed for *The Denver Post*, Oliver and fellow activist Lucy Molina described the yellowish chemical dust that blanketed the area around the refinery in 2019, forcing local school children to shelter in place. "The company's response was to offer us all free car washes, as if exposure to this did not warrant a full examination along with medical care," they wrote. Residents regularly complain of bloody noses, asthma, migraines and more.

Oliver hopes the EPA's move will force the state to enforce Clean Air Act violations that often hit communities of color and low wealth hardest. Nationwide, these groups make up more than half the population who live within two miles of commercial toxic waste facilities.

"There was no plan for people to be living right next to these facilities," said Oliver. "But now, it's where the available affordable housing is concentrated. We can't simply move."

The questioning of Suncor follows EPA Administrator Michael Regan's 2021 tour of Gulf Coast communities plagued by water contamination, air pollution and widespread health problems.

"As I look at many of the folks in these communities, they look just like me," said Regan, the first Black man to head the agency. "They look just like my son, and it's really tough to see them question the quality of their drinking water."

Regan, a former EDF employee, acknowledged the years of neglect that communities have endured from the EPA and state and local governments. The agency recently drafted a plan to assess risk to these communities from nearby chemical exposure. EDF welcomed the move, but called for a far broader approach to capture the full scope of risk.

What's clear is that the Suncor permit rejection is just the beginning. At the time of press, the CDPHE had not yet responded to the EPA's recommendation and the refinery continues to operate as usual. Oliver is prepared for a long fight. "We aren't going to look away," she says. "We want clean air, breathable air, and that's what we deserve."

Reena Shah

Bad neighbor: 15 air pollution violations in three weeks for this Denver-area refinery.

JOE AMON/THE DENVER POST VIA GETTY IMAGES

The loophole that swallowed the law

A dubious exemption lets companies decide whether chemicals are safe to eat.

WHEN YOU OPEN A BOX OF CEREAL or enjoy a protein shake, you probably assume that the ingredients are safe. After all, reviewing them is the Food and Drug Administration's job, right?

Over the last quarter century, however, the agency has increasingly abdicated its responsibility. In fact, the so-called Generally Recognized as Safe (GRAS) exemption lets manufacturers self-certify a chemical as safe for use as a dietary supplement or food additive, without notifying the FDA.

As a result, there are now some 1,000 chemicals in our foods whose safety has never been assessed by the FDA. Even when companies do notify the agency, they can ask the FDA to stop its review and continue to market their chemical as GRAS. Take, for example, gamma-aminobutyric acid (GABA), marketed as a mental health and sleep aid. Despite FDA concerns about possible adverse health effects in pregnant women, GABA was self-certified by Pharma Foods International in 2008 and continues to be sold.

1,000

Estimated number of chemicals in our processed food products whose safety has never been assessed by the FDA.

GETTY

Another chemical, apoaequorin, is added to protein shakes under the name Prevagen, which producer Quincy Bioscience claims improves memory and supports healthy brain function. FDA investigators have repeatedly questioned Prevagen's safety, and there have been multiple reports associating it with serious neurological and cardiovascular problems. Nonetheless, the company continues to sell it.

How did we get to this point?

In 1958, when Congress enacted the Food Additives Amendment to the Federal Food, Drug, and Cosmetic Act, it exempted common ingredients — such as vinegar, spices and vegetable oil — that really were generally recognized as safe. But in the mid-1990s, an overburdened FDA began implementing a more lenient voluntary notification process. By 2016, when those rules were finalized, food manufacturers were already applying the GRAS exemption to new chemicals — something never intended by Congress. Today, virtually all new chemicals added directly to food are self-certified in this way.

"The loophole has essentially swallowed the law," says Tom Neltner, who directs EDF's Safer Chemicals program. Neltner notes that manufacturers usually pay their own safety "experts" and often don't disclose the basis for their determinations.

Dysfunction at the FDA

In 2017, EDF and others challenged this practice in a lawsuit, but last year a federal district court sided with the FDA's argument that the rising number of companies filing GRAS notices actually showed that the program was working.

This is clearly not the case, food-safety advocates say. Instead, the GRAS exemption has left the FDA ignorant of what chemicals are in many foods and unable to fulfill its statutory responsibility.

"With consumer concern about chemicals in food growing, we're calling on the FDA to close the GRAS loophole," says Neltner. "If it doesn't, Congress should clarify that new chemical additives must go through a formal review process before companies can put them in food. Fixing the broken GRAS system is a first step to restoring Americans' confidence in food safety."

Tom Clynes

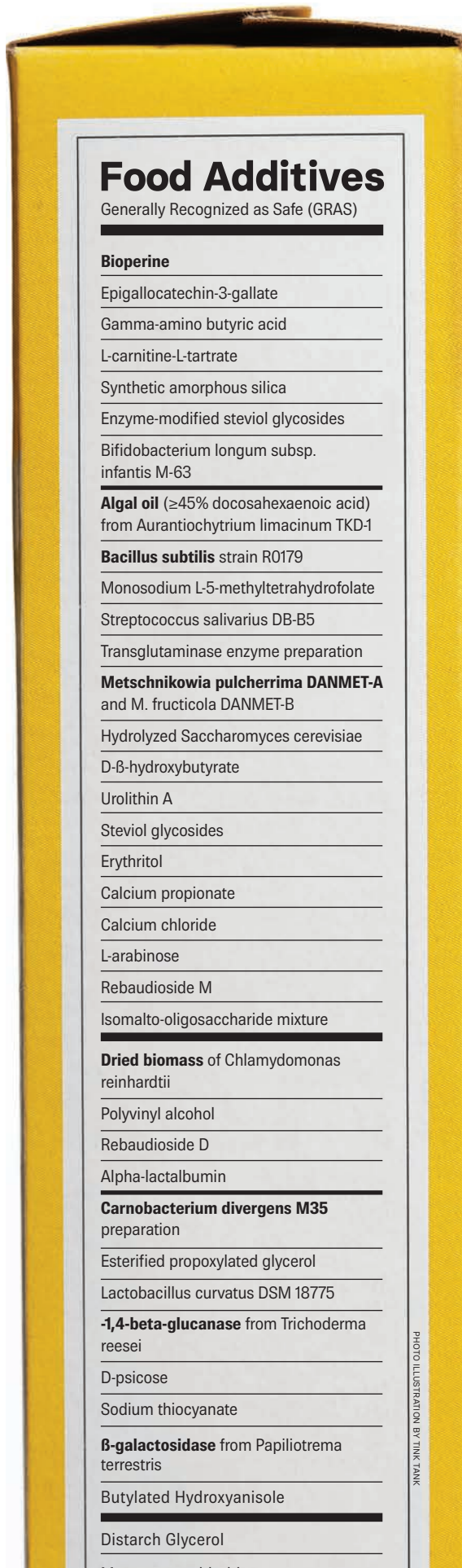


PHOTO ILLUSTRATION BY TINK TANK

NASA/KIM SHIFLETT

We need to talk about hydrogen

Some say it's the next big thing. But EDF scientists spotted an issue that no one was talking about.

By Shanti Menon

Hydrogen, the "fuel of the future," is coming. It already powers buses in California and cars in Europe. Small, hydrogen-fueled passenger aircraft will soon begin test flights.

The U.S. government is investing $8 billion to set up regional hubs to research, produce and use hydrogen — states from New York to Oklahoma want in. Public and private investments in hydrogen worldwide are growing by roughly $1 billion every week.

Why the excitement? Hydrogen could be a clean alternative to using fossil fuels. It can be produced in ways that create little or no carbon dioxide pollution and used to power not just cars, buses and planes but also heavy industries like cement manufacturing, as well as ships and trains.

Done right, hydrogen could be a key climate solution, a fuel with near-zero climate impacts.

Done wrong, hydrogen could be worse for the climate in the near-term than the fossil fuels it's intended to replace.

Whether hydrogen turns out to be a climate Jekyll or Hyde will depend, based on early research by EDF, both on how it's made and also how much of it leaks.

How hydrogen affects climate

Hydrogen is an indirect greenhouse gas. It doesn't trap heat, but, through a series of chemical reactions, it increases the amount of greenhouse gases such as methane, which is accelerating the rate of global warming.

Hydrogen's effects on the climate are short-lived but potent, say EDF scientists Steven Hamburg and Ilissa Ocko, co-authors of the new study.

"If we overlook near-term climate impacts," says Ocko, "we risk more climate damage during our lifetimes. Addressing them is going to help us today as well as the generations of tomorrow."

Hamburg and Ocko previously drew attention to the near-term climate impacts of methane (the primary component of natural gas) and helped drive global action to cut methane leaks from the oil and gas industry. This time, they took a fresh look at hydrogen.

> **"If we overlook near-term climate impacts, we risk more climate damage during our lifetimes."**
>
> **— Ilissa Ocko, climate scientist**

The standard way to characterize the power of a climate pollutant is based on its impacts over 100 years. But that long time frame masks near-term effects.

Hamburg and Ocko analyzed climate impacts from scenarios of hydrogen leakage over a few years to 100 years, revealing its warming effects over all timescales. The shift in perspective was dramatic: Over 10 years, they found, hydrogen emissions could have up to 60 times more warming power than an equal amount of CO_2, four times higher than its impact over 100 years.

Checking for leaks

Hydrogen is a tiny, slippery molecule, known to leak easily into the atmosphere. If the world were to develop a vast, global network of hydrogen production facilities, pipes and storage tanks, and hydrogen-powered homes and vehicles, that would create countless opportunities for hydrogen to leak and warm the climate.

According to EDF's research, if hydrogen has a high leak rate, and it's produced from natural gas with a high methane leak rate, then replacing fossil fuels with hydrogen could increase warming for several decades.

On the other hand, if it's produced using renewable energy and water and leak rates are minimal, switching to hydrogen could nearly eliminate the warming impacts from fossil fuels.

Getting hydrogen right

We have a lot more to learn about hydrogen before it can deliver on its promise, say Ocko and Hamburg, who are spearheading more research within and outside EDF to examine how and where hydrogen leaks.

This much is clear: hydrogen's value in addressing the climate crisis depends on where it is used, how it's produced and if leakage is minimized.

And climate isn't the only consideration. If hydrogen is burned directly in a power plant or in home heating, it can produce nitrogen oxides, air pollutants that can cause asthma.

"The industry is in its infancy," says EDF's VP for Energy Transition, Mark Brownstein. "Now's the time to make sure we address these concerns — not after we've built out the system." ■

$1 billion

is being invested in hydrogen energy worldwide every week.

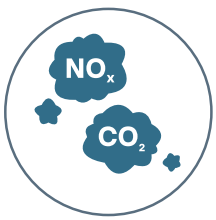
Hydrogen: risks and rewards

Hydrogen can be a climate-friendly fuel, but it's also an indirect climate pollutant. How it's made matters, as well as where it's used and how much it leaks.

A bumpy road

Most hydrogen today is extracted from natural gas.

But we need to reduce gas use, and methane leaks from the gas system are a climate threat.



Making hydrogen this way also produces carbon dioxide and air pollution.

Better, but...

Green hydrogen can be made from water using clean energy...

But we get cheaper, faster climate benefits by using that clean energy to charge electric vehicles and power buildings.

Hydrogen leaks are still a concern. Using it close to where it's produced will help.

UNSPLASH

There is no time to spare.

We are facing the greatest challenge of our time. Knowing we can count on your future support accelerates our work towards a stable climate, ensuring people's ability to thrive today.

Will you include EDF in your will, trust, retirement account, or other long-term financial plans? **The only thing as important as a gift today is a gift for tomorrow — it may be the greatest gift you ever make.**

Contact us to share your plans, or for help getting started.

Toll-free: **1-877-677-7397**
Legacy@edf.org
edf.org/legacy

Final resting place: the Kokosing Nature Preserve Cemetery in Gambier, Ohio.

KEN NAGEL

Back to the land

With green burials, both people and nature can rest in peace.

You won't see ornate tombs or neat rows of headstones at the White Eagle Memorial Preserve. And you won't hear any mowers or weed whackers manicuring the grounds. Instead, graves, some marked by natural stones, are placed among acres of native grasses and wildflowers, serenaded by birds that flit through stands of pine and oak.

White Eagle, a "conservation cemetery" in southern Washington state, is emblematic of the growing green burial movement, which is devoted to attending to the dead in Earth-friendly ways. Today, there are hundreds of sites around the nation where the ideas of what a final resting place looks like are being rethought and remade.

"People are coming to understand that the intimate decisions they make about the end of their lives can reinforce their connection to the land and help to protect what's important to them," says Jodie Buller, who manages White Eagle.

What is green burial?

Burial customs differ around the world and across cultures, but in the U.S., green, or natural, burial offers an environmentally conscious take on long-dominant traditions. It does this, typically, by forgoing embalming, which uses harmful chemicals, as well as caskets of hardwood or metal laid into concrete-lined graves. Biodegradable, low-impact materials such as cloth shrouds and wicker caskets — or even seeded urns that transform ashes into a living tree — take their place. Bodies are usually placed at a depth that optimizes natural decomposition, returning nutrients to the soil and nourishing surrounding organisms.

A need for alternatives

For anyone who tries to tread lightly on Earth in life, the high environmental cost of a death in the U.S. can be dismaying. The Green Burial Council estimates that more than 4 million gallons of embalming fluid, 1.6 million tons of concrete, 64,500 tons of steel and 20 million board-feet of hardwood accompany bodies into the ground every year. And state cremation laws generally require heating a furnace to more than 1,400 degrees Fahrenheit for more than two hours, generating emissions roughly equal to a 500-mile car trip.

Numbers like that are driving the search for alternatives. Surveys by the National Funeral Directors Association found that more than half of respondents were interested in green funerals, and that almost three quarters of cemeteries reported increased demand for them.

Many shades of green

Cemeteries differ in their approach to natural burials. Some are designed exclusively for them, while others combine natural burial sections with areas of conventional graves. Some preserve a lush-lawn aesthetic. At others, the burial of a loved one can help protect natural habitats. At White Eagle, for instance, the 20-acre cemetery supports the conservation of more than 1,200 acres of surrounding wildlands.

"These are very personal decisions," says Heidi Hannapel, co-founder of Bluestem Conservation Cemetery, slated to open this summer on 87 acres of rolling fields and forests in North Carolina's Piedmont region. "We want to respect everyone's choices and offer a place where people can bring cremated remains or be buried full-body, naturally."

What's right for you?

Laws and traditions vary across the world and from state to state. Those who choose a conventional burial in the U.S. can make their choice greener — and more affordable — simply by declining embalming, hardwood caskets and vaults. "We can make choices now about how that final event can have a greater purpose," says Hannapel. "Even in death, we can give something back to the Earth."

Tom Clynes

RESOURCES

WHERE TO FIND ECO-FRIENDLY BURIAL OPTIONS

More than 300 cemeteries and burial grounds provide natural burial options in the U.S. and Canada. Here's a comprehensive list: **bit.ly/3vDb7H**

The Green Burial Council, which has established standards for eco-friendly burials and burial grounds, compiles GBC-certified cemeteries: **bit.ly/3LHp9g**

The Conservation Burial Alliance, which fosters the conservation of land with natural burial, lists conservation burial sites in the U.S.: **bit.ly/3F8Jax**

Pete Buttigieg: Transportation is the climate solution

AT A VIRTUAL TOWN HALL HOSTED BY EDF ACTION, the advocacy partner of EDF, Transportation Secretary Buttigieg spoke with EDF political affairs director Elizabeth Gore about climate change, climate action and being a sleep-deprived new dad. Here's an edited excerpt of their conversation.

Elizabeth Gore

EG: Why is transportation so important in the fight against climate?

PB: When you look at the U.S. economy, transportation accounts for the largest share of our greenhouse gas emissions. To me, that means transportation ought to be responsible for the biggest share of the solution. There's a lot in the Bipartisan Infrastructure Law that will help us do that, like the emphasis on electric vehicles.

EG: What's one way that law will cut our emissions?

PB: We think the EV revolution will happen no matter what, but it's not guaranteed to happen in time to help us meet our climate challenge. That's why policy matters. We are investing in a nationwide EV charging network — 500,000 stations by the end of the decade. So wherever you live, wherever you're headed, you can be as confident about filling up your EV as somebody is today driving a gas-powered vehicle. This is a classic example of good policy that can drive good environmental outcomes.

EG: What technologies can accelerate the transition to clean transportation?

PB: EVs get the most attention. They're one of the most powerful tools we have, and that's why we're trying to drive the price down and make sure everyone can get charging. But some of it is unsexy stuff like air traffic control, which can reduce aviation emissions by 15%. There's technology that allows you to plug in a cargo ship at berth instead of running the engine. We can rebalance Amtrak and cargo train schedules to make trains a more reliable option for people. So it's making better use of technology we've already got, as well as cultivating the technology we envision for the future, like sustainable fuels.

EG: Looking ahead, how can our members and partners help the country continue to make climate progress?

PB: Don't underestimate the role you've already played. Your voice, your advocacy, your credibility has made a big difference in getting the infrastructure law passed. I really am thankful for that and I know the president is as well. Also, recognize the power and importance of the local. Most of the dollars my agency sends out will be spent by state and local authorities. Those neighbor-to-neighbor and community conversations are really powerful, alongside the federal advocacy that's creating such a wind at our backs.

EG: Over the last two years you've been appointed to the cabinet and adopted baby twins — Joseph and Penelope — all during a global pandemic. What's the secret of your success, and how do you look so rested?

PB: Rest is a distant memory! But there's nothing like holding a newborn child in your arms to remind you of what matters. I was at an event in New Hampshire where someone said, "I'm not the mother I wish I was because of this commute." At moments like that you realize this is not about dollars and cents or minutes and seconds. It's about the way we relate to the people we love most. That's what's at stake in transportation policy. In climate policy. There are people growing up into a world that will irreversibly bear the results of what we're doing right this minute. That's what propels me through and, I imagine, most of you too.

Scan to watch the event.

"You don't want a dirty planet, do you?"

— Alaia, age 6

We asked kids why it's important to protect the Earth.

Watch Alaia and her classmates break it down.

SCAN ME

LESLIE VON PLESS/EDF