

Enough!

As the Trump administration undermines science and public health, EDF — and the world's scientists — are fighting back.

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online retailers
must clean up

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rise, nature
can protect us

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citizen science
projects



A safe return

The brown pelicans are back on Queen Bess Island. This barrier island, an important rookery for pelicans south of New Orleans, had all but disappeared due to land loss and rising seas. Today, it's been restored with funds that EDF and partners helped secure. The brown pelicans are themselves a hardy survivor. They were near extinction 50 years ago when EDF won a ban on the pesticide DDT. And now their population has topped 650,000.

Our work in a new world



As the world continues to absorb and react to the reality of the pandemic, one thing is clear: we will emerge changed as individuals and as a society. Many attitudes and patterns of living will return to familiar territory once an effective vaccine is widely deployed. Others will not.

Society, and EDF as an organization, must begin to anticipate lasting changes—and, where we can, help shape them. We must

begin to envision the world emerging from the pandemic, project ourselves into that world and plan the changes needed to rebuild better. One heartening fact I've observed is that even in the face of an administration determined to ignore and evade science, public trust in science and expert opinion is stronger than ever (*see cover story p. 7*). I firmly believe the future will favor science and science-based decision-making.

The inequitable course of COVID-19 through the United States, in which the poor and communities of color have been especially hard hit, must result in a reexamination of basic equity and fairness in our society. This will include measures, long advocated by EDF, to clear the air in communities disproportionately exposed to multiple pollutants that make serious lung diseases more likely.

Even in the midst of the pandemic, we are facing a barrage of assaults on the environment from the administration. Among them are the broad rollback of clean car standards, the ongoing effort to censor the science needed to formulate policy and the sweeping rollback of pollution enforcement—a move that former EPA Administrator Gina McCarthy calls “an open license to pollute.” EDF and our allies are working full time to counter these cynical actions. In fact, in 43 of the 45 legal challenges to date, courts ruled against Trump environmental rollbacks or the administration withdrew the action (*see p. 8*).

Many have likened COVID-19 to a “black swan,” an unforeseeable event with huge consequences. But it was not unforeseeable; scientists had long warned of such a pandemic. Climate change is even more certain. We can clearly foresee its increasingly severe impacts and we must address climate change with the urgency required, not with the complacency that largely preceded the pandemic.

After the terrible events of 9/11, I noticed many in New York City becoming more purposeful in their lives, and more selective in their career choices. The life-changing nature of this pandemic makes me think that the resulting societal changes will be even more profound. Many more people will want to help solve the environmental challenges we face together.

Today, even as science races to respond to the pandemic, EDF, our members and our growing cohort of allies are working with new energy and vision, helping to create a moment for transformational change that will slash pollution and build a more just world. With your help, I firmly believe we can succeed.

Fred Krupp
EDF President



Environmental Defense Fund'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.

Our work is made possible by the support of our members. Donate online at edf.org/newsletter or by mail: EDF, Attn.: Member Services, 1875 Connecticut Ave. NW, Ste. 600, Washington, DC 20009



On the cover:

The Trump administration's response to COVID-19 was rooted in a fundamental disregard for science. And now,

the administration is compounding the disaster by rolling back environmental standards. In this issue, *Solutions* writers explore how we are fighting back, strengthening science in the interests of public health.

Solutions

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FIELD NOTES

Teeing up a win for monarchs

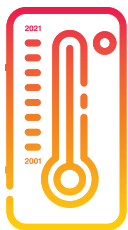
Sometimes a golfer will hook a tee shot deep into the rough. But while searching for the ball, that golfer might come across a lovely surprise: a flutter of monarch butterflies in their milkweed habitat, thanks to EDF and Audubon International. Together, we have created Monarchs in the Rough, a novel program that creates habitat for monarchs and other pollinators on golf courses. The monarch is a North American icon that migrates an astounding 3,000 miles every year. But some populations have plummeted more than 90% over the last

two decades. Chief among the suspected culprits are climate change, pesticides, habitat loss and especially fewer milkweed plants, which monarchs rely on for food and reproduction. In just two years, Monarchs in the Rough has signed up nearly 700 courses in all 50 states, plus Canada and Mexico.

Gary Ingram, superintendent of a public course in Oakland, California, says, "Environmental stewardship is everything. I want to make the course more than just a place to play golf." America has more than 2 million acres dedicated to golf courses.



The heat effect



19
of the hottest
20
years on record
have occurred
since
2001

As a result of climate-related events, the American economy sustained more than \$500 billion in losses over the past five years.

Sources: NASA; U.S. Federal Reserve Bank

EDF exposes the true cost of lead pipes

Roughly 9 million U.S. homes still get their drinking water through a lead pipe, presenting serious risks to residents from lead poisoning. Two new EDF analyses show that replacing lead pipes needs to be a national priority. In one study, researchers looked at 3,400 lead pipe replacements in Washington, D.C. The city has been replacing pipes, but homeowners must pay to replace pipe on their own property. That disproportionately affects low-income households who are less likely to replace the line. Washington now has a policy to assist them.

According to the EPA, 11,000 other cities are in the same predicament, so action is needed nationwide. At issue are pipes that connect water mains to homes. These were once commonly made of lead. Lead exposure is dangerous for children, but it also puts adults at higher risk of cardiovascular disease. Until now, we haven't been able to quantify the

health benefits to adults of replacing lead service lines. But in a new analysis, EDF concludes that each service line removed means fewer deaths from cardiovascular disease, with a social benefit of \$22,000 per line replaced.

TEST YOUR PIPES>>

Does your home have a lead service line? Follow the steps in this interactive tool to find out and learn what to do next. Learn more: bit.ly/3epHT2



GETTY



MEET EDF

Anil Jain Senior director, information security

During the pandemic, EDF shut its offices worldwide and went 100% remote almost overnight. Our information technology team made sure our defense of the environment didn't miss a beat.

How did your team handle this emergency?

Actually we were ready. A blizzard shut down much of the Northeast a few years ago and we made fixes then to make sure everyone can work remotely. Now it will be very difficult to defeat us!

What are you working on now?

I look at the big picture. We can tell a computer to do anything, but what it should do, and how? It's more intellectual than technical.

Has working at EDF changed you?

I wasn't aware of environmental issues when I started more than 20 years ago. Now I've learned the global nature of the problem and our ability to stop the damage. I'm proud that my team's work helps move this organization forward.

Tell us something people don't know about you.

I am a seeker of absolute truth. What is the purpose of life? Tomorrow keeps coming, but what is the reason?

When you find out, will you let us know?

Of course. After I get the requisite approvals.



Climate calculator



EDF helped develop an open source policy analysis tool for cities and states to gauge how the actions they take to address climate change will affect their bottom line. "This powerful tool will allow states to design climate policies that align with their economic objectives," says EDF economist Gökçe Akın-Olçum.



Finding a low-carbon flight path

The International Civil Aviation Organization took a major step this spring to tackle climate pollution from international flights. ICAO adopted new rules for its carbon offsets program, which caps climate emissions from international flights at the average of 2019-2020 levels, starting in 2021. It's the first global carbon market for an entire industry sector, and it could channel funds to reduce tropical deforestation.

"At a time of great stress for the industry, ICAO has begun to grapple with the climate crisis," says EDF International Counsel Annie Petsonk.

But now airlines are pressing ICAO to suspend the program. "That would be a dangerous mistake," says Petsonk. "There are plenty of high-quality credits available to meet their carbon limits without undue financial hardship for the airlines." EDF is working to safeguard the program's integrity.

Revealing a hidden climate threat

EDF-led research in America's Permian Basin, the world's biggest oil field, shows alarming underestimates of climate pollution.

Companies in the heart of the basin (in NM and TX) are leaking nearly three times more methane than the EPA national average.

Permian methane pollution is accompanied by toxic air pollutants and other chemicals that form smog.

Despite low oil and gas prices, companies can reduce methane pollution by about 1/3 at no net cost.*



*International Energy Agency

Online retailers must clean up their act

PRICE, QUALITY, AESTHETICS. Many factors influence online shopping purchases. What if we could easily factor in sustainability too?

That's the goal of a new EDF initiative aimed at pushing online retailers such as Amazon and Walmart to disclose the environmental footprint of the products they sell.

"Does it contain unsafe chemicals? Were rainforests cleared to make it? How much pollution was produced?" asks EDF manager of consumer health Boma Brown-West. "For most products, consumers have no way of knowing."

Now Brown-West has created a guide to drive the estimated \$600 billion online retail industry to greater transparency about the health and climate impacts of the products sold on their sites. The work builds on more than 25 years of EDF engagement in corporate sustainability.

The case for action is clear. Analysis shows consumer products are responsible for around half the world's greenhouse gas emissions. Sixty-six percent of consumers say they'd pay more for sustainable goods.

"Transparently sharing sustainability information empowers consumers and gives retailers a competitive edge," says Brown-West. "Some retailers have made key steps in the right direction — notably Target with its Wellness Icon — but this needs to be a mainstream activity."

Currently there is no legal requirement for companies to list ingredients



GETTY

when selling products online and — particularly when buying through third-party sellers — there's no guarantee shoppers will get products that are safe.

Last year, a *Wall Street Journal* investigation found more than 4,000 items for sale on Amazon.com that had been declared unsafe by federal agencies or were deceptively labeled. Among them were 2,000 listings lacking warnings about health risks to children and at least 157 items Amazon itself said it had banned.

From employees to customers and shareholders, companies are under increasing pressure to become more transparent and sustainable.

"The public is looking to businesses to take the lead in protecting their health," says EDF+Business VP Tom Murray. "Businesses that step up will reap the benefits."

Time to take a stand on climate

Companies must also engage in demanding climate action from our elected leaders. In May, EDF helped organize the largest-ever corporate day of action on climate change. The day saw more than 300 companies, with a combined value of \$11.5 trillion

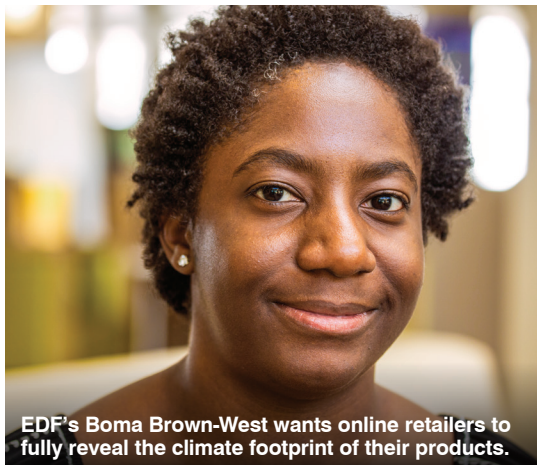
— including General Mills, Microsoft and Visa — calling on Congress to pair economic recovery and future Congressional spending packages with climate action, including policies that lead to a net-zero emissions economy by 2050. And last year, EDF helped launch the CEO Climate Dialogue, a group of CEOs from 21 leading companies, including Ford Motor Company, Shell and Unilever, which is lobbying for an economywide price on carbon with a goal of reducing greenhouse gas emissions 80% by 2050.

"It is critical we begin to set durable and achievable goals that help safeguard the environment while reducing our carbon footprint," said Jamie Gentoso, CEO of US Cement at LafargeHolcim.

EDF is also working with big investors, such as Legal and General Investment Management and California State Teachers' Retirement System, to call for stronger sustainability in the companies they invest in, which include the oil and gas industry and other major greenhouse gas emitters.

"The American public deserve a corporate sector that protects them and the planet," Brown-West says. "We need to build a critical mass of demand — from employees, customers and investors — so we can change the system."

Tasha Kosviner



JOHN RAE

EDF's Boma Brown-West wants online retailers to fully reveal the climate footprint of their products.

Standing up for science

By Rod Griffin, Tasha Kosviner, Shanti Menon and Charlie Miller

The Trump administration's policy of ignoring science left the nation fatally unprepared for COVID-19. EDF uses science to protect the public from mounting environmental health threats.

Every time the Trump administration abandoned science this year in favor of policies that assault the environment, EDF took a stand. When EPA Administrator Andrew Wheeler used COVID-19 as cover to roll back environmental health protections, EDF and allies successfully fought back. When the administration tried to censor science, our legal team exposed this outrageous act. Whenever local air pollution spiked, EDF teamed up with cities and communities to deploy new technology and hold polluters accountable. And when the EPA chose not to protect the nation from toxic chemicals, we sued and held the agency accountable.

Daily, EDF is using science to defend and strengthen environmental protections that safeguard our nation's public health. The following pages describe the progress we're making.



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Fighting back against the EPA's sabotage of public health

THE TRUMP ADMINISTRATION HAS TARGETED MORE THAN 95 environmental rules and regulations since taking office. But the onslaught in the midst of a public health crisis is particularly galling.

As courts, businesses and other federal and state agencies pushed back nonessential activities, the Environmental Protection Agency forged ahead with its aggressive timetable to roll back critical environmental regulations. The rollbacks range from weakening automobile pollution standards and regulations on mercury emissions from power plants, to undermining science and disregarding the health impacts of a coal bailout.

The good news is that EDF and allies have so far successfully defended in court nearly all of the administration's attempted rollbacks of climate and air pollution rules.

If the rollbacks stand, people across the country will be more exposed to life-threatening pollution and thus potentially more vulnerable to respiratory infections, including COVID-19.

"The fact that the Trump administration would shamelessly exploit the coronavirus crisis to advance its radical goal of dismantling environmental protections is simply outrageous," says

Chronicle of catastrophe

The COVID-19 pandemic virtually shut down the U.S. economy. The lights remained on at the EPA however, as Administrator Andrew Wheeler took numerous harmful actions that deepen human suffering. This calendar tells the story.

Jan 30



World Health Organization declares a global health emergency.

Feb 29



Washington State reports first death in U.S. related to COVID-19.

Mar 17



U.S. COVID-19 deaths reach 100.

Mar 18



EPA Administrator Wheeler pushes through a proposal to limit what scientific studies the agency can use when writing public health protections. This can be used to block research when confronting current or future pandemics.

Mar 26



The U.S. leads the world in confirmed COVID-19 cases.



Prodded by fossil fuel groups, Wheeler allows polluters to violate critical environmental and public health protections during the pandemic.

Mar 27



The U.S. becomes the first country to exceed 100,000 COVID-19 cases.

Dominique Browning, co-founder of Moms Clean Air Force, an EDF partner organization with more than 1.2 million members. “This is when we should be tightening up health protections.”

On March 26, the same day that the United States assumed the global lead in confirmed COVID-19 cases, the EPA eased environmental enforcement, purportedly in response to the pandemic, allowing power plants, factories and other facilities to determine for themselves if they can meet requirements on reporting air and water pollution. Essentially, many industrial polluters may stop monitoring emissions and argue that they are exempt from fines, claiming they broke the rules because of the coronavirus.

The new directive was imposed after the American Petroleum Institute sent a letter to EPA Administrator Andrew Wheeler requesting the former coal lobbyist loosen the rules. Cynthia Giles, who headed EPA enforcement during the Obama administration, told *The New York Times*: “This is essentially a nationwide waiver of environmental rules ... I am just stunned.”

EDF acted quickly. Under the Freedom of Information Act, we requested records of all correspondence between the EPA and industry related to the directive. “The EPA has a duty to protect public health,” says EDF attorney Rosalie Winn. “That should mean more swift enforcement of pollution limits during this crisis — not less.”

A recent Harvard study reveals that people with COVID-19 who live in regions with high levels of air pollution are more likely to die from the disease than people who live in less polluted areas.

The administration’s blatant willingness to disregard public health and economic data was rebuked in court. One day after the EPA finalized a measure to substantially weaken the popular clean car standards, a federal appeals court ruled that it had unlawfully concealed information relating to its action.

The court case was in response to a lawsuit filed by EDF and NRDC opposing the agency’s suppression of the main model on which the clean car standards were based. The model is likely to show that the standards can be achieved by automakers at reasonable cost, while saving lives — and money at the fuel pump.

“The court ruled unanimously that the administration has no legitimate reason to keep this vital information hidden,” said EDF attorney Ben Levitan. “The rollback will add more pollution

to our air, making Americans sicker and causing thousands of premature deaths.” Even many auto companies — including Ford, Honda, BMW, Volkswagen and more recently Volvo — oppose the rollback.

Despite the setback, the administration has continued with its assault, prompting EDF to challenge the rollback itself, alongside a broad coalition of health and environmental groups and 23 states.

Ignoring science

As the pandemic unfolded, the president also issued an executive order waiving the requirement for environmental review of major infrastructure projects, and the EPA fast-tracked a rule on fine particulate pollution, or soot, which is linked to cardiovascular disease. The White House abruptly ended review of the soot rule, canceling meetings with Moms Clean Air Force and the Environmental

Law & Policy Center. Moms received word of the cancellation at 2 a.m. on a Saturday.

Public health experts say that the decision not to strengthen the soot standard defies scientific research, which indicates that particulate pollution contributes to tens of thousands of premature deaths annually and that even a slight tightening of controls on fine soot could save thousands of American lives.

Perhaps the most craven broadside came when the administration gutted the basis for the Obama-era rules that compelled the country’s coal plants to cut back emissions of mercury,



Mar 31



Wheeler finalizes clean cars rollback, subjecting Americans to an estimated 18,500 more premature deaths, 250,000 asthma attacks and 350,000 respiratory ailments by 2050.

Apr 5



Harvard releases new research showing the probable link between air pollution and higher death rates from COVID-19.

Apr 11



U.S. COVID-19 deaths reach 20,000, the highest of any country in the world.

Apr 14



The EPA opts not to strengthen the standards for particulate matter, or soot, which is responsible for an estimated 85,000 deaths each year.

Apr 16



The EPA introduces its final mercury and air toxics rollback, undermining protections that prevent up to 11,000 premature deaths and 130,000 childhood asthma attacks every year.

May 28



The number of documented U.S. COVID-19 cases reaches 1.7 million; U.S. death toll tops 100,000.

arsenic and other toxic air pollution. Virtually all coal-fired power plants have made the technological upgrades required by the rules, which cut mercury pollution from coal plants by more than 80% since 2012. This recent action has already prompted a legal challenge from industry and could result in plants turning



In 43 of 45 environmental cases

courts ruled against rollbacks or the administration withdrew the action.

Zero tolerance for censorship

WHILE HEALTH EXPERTS WERE NECK-DEEP IN FIGHTING the COVID-19 crisis in March, the Trump EPA rushed out a brazen proposal to censor the science that helps protect public health. Studies that shaped the EPA's standards for arsenic in drinking water, particulate pollution in air and even those showing links between air pollution and COVID-19 impacts could be eliminated from consideration in crafting EPA protections. The agency is expected to make a final decision later this year, but the proposal, which broadens the scope of an earlier censorship attempt, has sparked a wave of harsh criticism.

EDF attorneys filed comments calling the proposal “irretrievably unlawful” and “fatally deficient.” Nearly 80,000 EDF supporters told the EPA to drop the perilous plan, which undermines vetted research that constitutes the foundation of health and environmental safeguards.

“The EPA makes life and death decisions,” says EDF Chief Scientist Dr. Steven Hamburg, who served on the EPA Science Advisory Board until 2019. “They should be based on facts, not politics.”



EDF is spearheading new science on oil and gas pollution, making the data public to spur action.

off pollution control equipment. The EPA's own analysis said the rules curbed mercury's devastating neurological damage to children and prevented thousands of premature deaths annually.

By disregarding the co-benefits of reducing other pollutants, the rollback could also set a precedent for weakening future safeguards. Former EPA Administrator Carol Browner called it a “sinister Trojan horse” with long-lasting and deadly consequences. EDF has joined with allies to file suit.

“This is not normal,” says EDF General Counsel Vickie Patton. “We cannot become numb to these unprecedented assaults on human health. We must fight back. This is an all-hands-on-deck moment — and together we'll prevail.”

The administration has made its disdain for science clear. In its first two years, some 1,600 federal scientists were pushed out. Leading academic scientists on the advisory board — which evaluates the scientific integrity of EPA proposals — were replaced with industry representatives and climate change deniers. Nearly 700 staff scientists have left the EPA in the past three years, and only 350 have been replaced. This loss of scientific expertise, together with funding cuts and staff reductions, is hindering the agency from doing its job.

However, dedicated EPA scientists remain, producing unbiased data that reveal whether the agency's actions are based on fact or if they are, as EDF general counsel Vickie Patton says, “arbitrary and capricious.” EDF is also fighting back with our own rigorous science.

With academic, government and grassroots partners, we're spearheading research on air pollution in urban communities and climate pollution from the oil and gas industry. By making our data public in near real time, we are spurring action by cities, states, industry and concerned citizens to reduce pollution.

“This administration isn't interested in data, but we are,” says Hamburg. “Science will reveal the truth.”



JOHN RAJE

“This administration isn't interested in data, but we are.”

— Steven Hamburg, EDF Chief Scientist

TAKE ACTION>> See page 18 for ways you can make a difference by engaging in citizen science.



Dusk falls in Salt Lake City, one of multiple cities worldwide where EDF scientists are shedding light on air quality.

GETTY

Clearing the air in cities

EVELYN GARCIA WELL REMEMBERS THE DAY LAST YEAR when a chemical facility exploded in Houston's Deer Park neighborhood, sending a vast fireball and black plumes of toxic smoke into the sky.

"It was terrifying," the 17-year-old asthma sufferer, who lives near Deer Park, said. "People had headaches, irritated noses and nausea."

The fire, which burned for four days, was one of six major chemical disasters in Houston between March 2019 and January 2020, causing pollution to surge in a city already ranked one of the nation's 10 smoggiest.

With fewer than 3% of illegal releases of air pollution being penalized, Houston is a poster child for what happens when underregulation and disregard for science give industry a free rein to pollute.

But the city is not alone. Worldwide, nine out of 10 people breathe unhealthy air. Every year, air pollution is responsible for five million premature deaths. People of color, residing in neighborhoods close to heavy industry, are particularly at risk.

Across the globe, EDF is fighting back, harnessing new sensor technology and data analysis to show communities the pollutants in the air they breathe, and who is responsible for it. This drives policy changes and better enforcement.

"We're shining a light on air quality at a scale and scope never seen before," says EDF scientist Dr. Elena Craft.

In London we're providing hyperlocal air quality data through one of the world's most comprehensive networks of fixed and mobile monitors and sharing lessons with cities across the globe. In Cangzhou, China, we're showcasing emerging sensor technology that can drive down pollution further by targeting enforcement at hot spot areas. In Salt Lake City, we're combining data from Google Street View cars with meteorological data to pinpoint pollution sources. More air quality work is planned in India.

"By demonstrating solutions, and sharing our findings globally, we aim to accelerate the number of cities taking clean air action," says EDF's VP for Health, Sarah Vogel. The goal? To halve the global burden of disease from air pollution by 2050.

In Houston, home to more than 2,500 chemical facilities, we've equipped Google Street View cars with sensors to map pollution citywide. In analysing the data, our scientists found hot spots where pollution was up to nine times higher than the average across all areas measured.

"There is plenty of information about pollution at a county level," says Craft. "But it's the air on your block that matters. Our work is filling that crucial information gap."

The work builds on research by EDF and partners in Oakland, California, which found pollution can vary as much as eight times within one city block. Oakland residents and environmental justice groups are using our findings to advocate for healthier communities.

As COVID-19 swept the globe, laying bare direct connections between air pollution, underlying health issues and increased risk of death, EDF's work gained even greater urgency. In April, a preliminary nationwide study by researchers at Harvard's T.H. Chan School of Public Health found people with COVID-19 who live in counties with high levels of air pollution are more likely to die from the virus than people in less polluted areas. To further validate this finding, EDF's Craft, along with Rice University and local public health agencies, launched the COVID-19 Registry, collecting data on the illness and further exploring the links between poverty, pollution and health.

In Pleasantville, a predominantly black and Latino neighborhood on Houston's heavily industrialized east side, that has particular resonance. COVID-19 claimed one of its first Houston victims here.

"Even without the pressing threat of coronavirus, people in our neighborhood have higher rates of lung disease, heart disease and cancers, and limited access to healthcare," says



Houston clean air activist Bridgette Murray (right) on the job in 2019 with then-EDF scientist Katie Moore.

DAN JOYCE

Bridgette Murray, a retired nurse and founder of the nonprofit advocacy group Achieving Community Tasks Successfully. “COVID-19 shines a bright light on that inequity.”

Last year, EDF helped Murray launch Texas’ first community-owned and managed air quality monitoring network. ACTS will use the network’s findings to educate residents and ultimately, demand tougher control of polluters. “If the data reveals significant exposure, we can pursue further enforcement action,” Murray says.

Much progress has already been made. In the late 1990s, Houston residents breathed unhealthy air an average of 110 days, compared to fewer than 27 days in 2019. Last year, Harris County voted to invest more than \$11 million in environmental protections — the highest one-time commitment in 30 years — and the district attorney’s office tripled the number of prosecutors in its environmental crimes unit.

Houston and Harris County both plan to step up monitoring, coordinated by EDF’s Craft.

“Improving our ability to measure air pollution improves our ability to manage it,” says Loren Hopkins, chief environmental science officer at the Houston Health Department.

Yet Texas remains polluter-friendly. Shortly after Hurricane Harvey hit Houston in 2017, causing more than 100 releases of pollutants, Gov. Greg Abbott suspended 46 environmental protections. And this spring, at the height of the COVID-19 pandemic, the EPA allowed polluters to violate critical environmental and public health protections. Shortly thereafter, air pollutants in Houston’s industrialized areas surged as much as 62%. (See pp. 8-10 for how EDF is fighting back.)

“The consequences of this retreat will be devastating,” warns Murray.

As communities across the globe reckon with their losses, EDF will keep up the fight, bringing solutions based on science to those who need it most.

“There will be another COVID-19,” Murray says. “We’re tackling the underlying disparities to make sure communities like ours aren’t always harder hit. We’re in this for the long haul.”

TAKE ACTION>> Join the COVID-19 Registry and support EDF’s research into air quality and health at registry.rice.edu/covid19

Defending chemical safety laws

FEW ACTIONS BY THE TRUMP ADMINISTRATION ARE as contemptible as the attacks on chemical safeguards.

A longtime leader on chemical safety, EDF has challenged the administration from Day One.

Take the case of trichloroethylene. This common industrial solvent causes kidney cancer. Even more concerning are fetal heart defects seen at low exposures.

For decades, TCE was dumped indiscriminately across the country, and it continues to leak and contaminate soil and groundwater. Its ongoing use puts workers and the public at risk. So what has the Trump administration done? It shelved two proposed bans on high-risk uses and is now twisting science to argue that TCE isn’t so dangerous.

In its new safety review, the administration trashed decades of scientific practice, ignored major exposures to TCE and failed to safeguard against fetal heart defects. EDF has jumped into the

fray, filing detailed comments on the agency’s draft review that provide a strong record for any future legal challenge. EDF also raised public awareness of our concerns through our highly influential health blog, a must-read for journalists, government officials and the public health community.

The administration’s decision to ram through scientifically flawed chemical risk evaluations without adequate public or expert review parallels its rollbacks of air pollution protections and its complete failure to address climate change. These actions all endanger public health during the pandemic.

“The administration’s approach to chemical safety is to give chemical companies just about whatever they want regardless of what the science says,” says EDF scientist Dr. Richard Denison. In 2016, Denison worked with many stakeholders, including the chemical industry, to help enact a sweeping reform of our main chemical safety law. Today, he says, “I am frankly horrified by the greed of the industry. Science has been shoved to the background.”

Under Trump, the task of gutting the new chemical safety law fell to industry insider Nancy Beck. Upon arriving at EPA’s toxic chemical unit, Beck rewrote the rules governing how the law was to be implemented, overruling EPA’s own experts. Not surprisingly, the rules closely track an industry wish list.

TCE isn’t the only dangerous chemical that the administration has failed to protect us from. Methylene chloride is a deadly chemical commonly used in paint strippers. Under pressure from EDF, families that have lost loved ones, and others, EPA took a half-step by banning consumer use of these deadly products. But by refusing to prohibit commercial use, EPA left workers, who account for the vast majority of deaths from these products, at risk.

EDF is working with public health groups to fight back. We’re exposing the real costs of the administration’s acts and suing the EPA over its illegal actions. Science — and the law — are on our side. And that’s a winning combination.

JULIE DERMANSKY



Wendy Hartley lobbied Congress after her son Kevin died from exposure to a paint stripper.



THE SPOT.COM

Using economics to put a lid on climate pollution

EDF's new chief economist Suzi Kerr speaks out

Dr. Suzi Kerr recently moved to New York from New Zealand, where she served as Founding Director and a Senior Fellow at Motu, New Zealand's leading economic and public policy research institute. Kerr has dedicated her life to advancing large-scale climate solutions that help vulnerable populations. She spoke to Solutions editor Peter Edidin.

Amid the turmoil of the pandemic, how important is climate?

The pandemic hasn't changed the science behind the climate crisis. We need to get to net-zero emissions globally as fast as we can. If we don't, we're going to be facing much bigger crises than COVID-19.

What's the focus of your work?

I work on emissions trading systems and global cooperation on climate. I'm particularly interested in a new idea, "climate teams," where a small group of governments cooperate intensively. The group includes a host — a developing country — and partners, which are richer countries.

Together, they reduce the host's emissions faster. Unless developing nations reduce emissions rapidly, we're not going to succeed.

How important are emissions trading systems in combating climate change?

Very important. They translate national targets into enforceable private sector targets. They also make countries' commitments transparent. And they're flexible, so politically they can work in many places. There are now 21 such systems across four continents and 24 more in development or under consideration.

Can emissions trading systems boost local air quality as well?

Yes, beyond limiting emissions, they can generate billions of dollars that governments can spend on things that help people locally — for example, electrifying buses, which can make a big difference in local air quality.

to kill the cap-and-trade pact between California and Quebec. How important are such regional agreements?

They matter a lot. Humans are really good at cooperating with people close to them. But the challenge with climate change is that we have to cooperate across boundaries. We need tight and binding agreements between countries, or states, that already trust each other.

How effective are international agreements, like the Paris Agreement?

Paris provides a public platform through which countries must commit to reduce emissions and report what they are doing. That's critically important. But broad international agreements alone don't get countries to act. So EDF is working to catalyze cooperation among smaller groups of countries that leverages gains from trade and builds political will for more ambitious action.

China will roll out its carbon market nationwide this year. How important is this?

It's incredibly important. China has made the market relatively public, so it's going to be under pressure to show progress. If it succeeds, China can help countries they have close relationships with create their own carbon markets. This could be transformational.

Working on climate change involves the biggest, scariest problem on Earth. How do you keep going?

Optimism. I know we can solve this. It's not a technologically unsolvable problem. It's not economically infeasible. And the cost-benefit analysis in favor of solving climate change is so overwhelming that it's obvious we should do it.

What do you miss about New Zealand?

I miss our 72 acres that we're converting to native forest. My family and I have a little off-grid house with solar panels and a water tank and a sewage system powered by worms. It's called vermiculture.



BRAD HAMILTON



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

EDF and NRDC recently had a victory in the Trump administration's effort



Natural infrastructure such as this wetland in Jamaica Bay, New York, helps protect coastal communities from storm surge.

FLICKR.COM/FRANCISCODAUM

Harnessing nature's power

By Tasha Kosviner

Rising seas and more intense storms threaten lives and livelihoods up and down our coasts. With 20 years' experience in coastal resilience, EDF is helping communities prepare today so they can weather the storms of tomorrow.

FRANCIS SUAREZ, MAYOR OF MIAMI, is a Republican whose acknowledgment of climate change is noticeably out of step with the national leadership. And with good reason. Seas in Miami have risen six inches since 1996, and flooding is a monthly occurrence. For Suarez and the city's 500,000 residents — 85,000 of whom live three feet below sea level — the water that regularly laps at the footings of Miami homes is all the evidence they need.

As polar ice caps melt and oceans warm and expand, communities, businesses and wildlife on every coast are under threat. In addition to sea level rise and erosion, warmer waters supercharge hurricanes, which contribute to inland flooding such as that seen when Hurricane Harvey clobbered Texas with record-breaking rainfall in 2017.

"Higher seas and stronger storms are normal conditions now," says Steve Cochran, EDF's Associate VP for coastal resilience. "Up and down the coast, cities and states need to be thinking about how to live with that in a systemwide way."

For Cochran, this means building climate resilience into every government decision, harnessing the power of natural defenses such as wetlands and barrier islands, engaging local residents in solutions and, critically, heeding the science.

With as many as 6.7 million people at risk, coastal states desperately need a blueprint for resilience. Now, fortunately, there is one.

Louisiana is often dubbed the ground zero of sea level rise in the United States. Between 1932 and 2016, the state lost an area the size of Delaware to the sea. Critical wildlife habitats, the multibillion-dollar shipping and petroleum industries and the homes and livelihoods of a million people are under threat.

But Louisiana has a plan. Under a bipartisan 50-year, \$50 billion state plan that EDF helped develop, the Pelican State is seeking to stem the rate of loss and devise ways for people and nature to thrive in the face of the inevitable. From the muddy marshes of the Mississippi River Delta to the steamy streets of New Orleans, this is a state that knows a thing or two about resilience.

"Other states don't need to reinvent the wheel," says Cochran, who has worked on environmental issues for 30 years. "They can build off the work Louisiana has done."

Influenced by EDF's systemwide approach, Louisiana harnessed three immense powers to help it — nature, people and government.

Over the next three years, the state will invest nearly \$1 billion a year on natural protections, including harnessing the power of the mighty Mississippi to move sediment to build and sustain tens of thousands of acres of coastal wetlands.

In response to a year-long community engagement project that EDF and local partners convened, the state invested more than \$41 million in community-driven projects, including floodproofing homes, planned relocations and increasing access to mental health services.

And Louisiana has embedded resilience planning into the heart of government. Earlier this year, Gov. John Bel Edwards, acting on advice from EDF, appointed the state's first chief resilience officer, charged with ensuring every state

agency, from housing to transportation, health and more, establishes a plan for confronting how the threats the state faces will affect their services.

Now, EDF is taking Louisiana's learnings further afield. This spring, we helped convene a knowledge exchange between Louisiana and senior resilience officers and environmental officials from Florida, New Jersey, North Carolina, Virginia and New York. Over the course of two days, delegates shared approaches and challenges from their own states and cities.

"Having EDF get these conversations going is invaluable," said Noah Valenstein of the Florida Department of Environmental Protection.

Leading the effort is EDF scientist Natalie Snider, who has adapted lessons from Louisiana to guide other states in developing their own coastal resilience plans. She highlights the importance of building consensus, engaging residents, investing in science and taking action even when the future is uncertain.

"Coastal states must tackle imminent threats with often limited resources," says Snider. "Having comprehensive, science-based plans will allow them to define priorities and secure funding to build resilience over time."

It's a message multiple states have picked up on.

In Goldsboro, North Carolina, memories of the destruction wrought by hurricanes Matthew in 2016 and Florence two years later are still fresh. "It was like a week with no power," says resident Rebecca Montague, recalling Florence, which also caused a 15-foot storm surge.

EDF's director of resilient landscapes Will McDow worked with North Carolina State University to examine how the creation of new wetlands and forests upstream could help prevent flooding in the region. Their findings showed that

just 500 acres of new wetlands could reduce water flow to Goldsboro up to 28% during peak storms. With input from EDF, North Carolina released its first resilience plan in June.

"The state united behind the science and moved forward decisively," says McDow.

Elsewhere in the country, progress is also underway. About a half-dozen states, including Illinois and Wisconsin, have adopted floodplain building rules tighter than federal ones, and a few dozen communities have prohibited building on floodplains altogether, according to the Association of State Floodplain Managers.

Funding natural infrastructure

In New Jersey, where the election of Gov. Phil Murphy in 2017 propelled climate onto the political agenda, EDF is supporting the creation of new climate and coastal resilience plans.

Across the river in New York, the state legislature, at the request of Governor Cuomo, passed the \$3 billion Restore Mother Nature Bond Act to fund natural infrastructure and resilience efforts, including support for underserved communities near the water's edge. The act goes to a public vote in the fall and EDF will be working to ensure it's passed.

We are also fighting some very bad ideas, including a plan to spend \$119 billion on floodgates and walls around New York City. The plan is based on a 1955 Congressional authorization that fails to consider climate change. The walls would not protect the city from the expected sea level rise and flooding and will cause additional catastrophic damage to water quality, wildlife and more.

The good news is that at state and federal levels, efforts to build resilience garner greater bipartisan support than those focused purely on climate. This is helped by some stark economic metrics: research shows that every \$1 spent upfront on re-



JULIE DERMANISKY

Plans proposed by Darilyn Turner and 3,000 neighbors led to a \$41 million state investment in protections for Louisiana's threatened coast. Says Turner: "I trust in God and put pressure on government."

silience reduces the cost of disaster recovery by \$6. Meanwhile, a growing number of mortgage and insurance companies now refuse to lend to or cover homeowners in high-risk areas.

"In what is often a very partisan environment, resilience is a truly bipartisan issue," says Mark Rupp who leads EDF's state and federal ecosystems policy efforts. "And what happens in states influences what happens on the Hill."

Rupp points to at least 20 current or recently passed pieces of bipartisan federal legislation addressing resilience. Among them is a bill to create a low-interest loan program for states and tribes undertaking resilience efforts, and the America's Transportation Infrastructure Act, which includes \$10 billion to address climate change, including support for natural infrastructure.

Perhaps most revealingly, the cause of sea level rise is now being broached in some unlikely places. In states like Louisiana, with its deep roots in the fossil fuel industry, the blunt reality of the crisis has made talk of climate change acceptable. In February, Gov. Edwards established a task force to explore ways to reduce the state's carbon emissions. EDF's Cochran is an advisor. North Carolina also has in place climate mitigation plans.

As Miami's Suarez says: "We can't just react to what Mother Nature is doing. We have to do everything in our power not to make matters worse, but to make matters better."

Risk by the numbers



40% of the U.S. population lives in counties on the coast



Flooding costs the U.S. economy \$54 billion a year



6.7 million people are at risk of coastal flooding today



Navigating toward sustainability in Mexico

THE GULF OF CALIFORNIA, A 700-mile narrow sea between the Mexican mainland and the Baja peninsula, is one of the most productive ocean ecosystems in the world. It's home to more than 800 species of fish and an extraordinary array of marine mammals, including endangered turtles and blue whales. Explorer Jacques Cousteau called it the "aquarium of the world."

The region is also responsible for 70% of Mexico's fishing revenue. The dominant fisheries in the northern Gulf are shrimp and sardines, followed by hake, a type of finfish that was, until recently, completely unregulated. In the 1990s, hake was not widely fished. Over the past decade, however, shrimp fishermen began switching gear during the off-season to catch hake and supplement their income. Recognizing that there are potential new markets for hake and a risk of overfishing, a group of forward-thinking fishermen reached out to EDF and the Mexican government in 2012.

Working with us, they are now developing a rights-based management system and using technological innovations

such as electronic monitoring to make the fishery more sustainable and profitable. The fishery supports the livelihoods of more than 2,400 families.

Why EDF? The fishermen recognized that management ideas we've long championed were helping fisheries recover from the Gulf of Mexico to the Pacific. The approach gives fishermen a stake in the health of these fisheries, so they become stewards of the resource.

"We wanted to act before the fishery was in crisis, while fish stocks are still healthy," says Claudia Higuera, a second-generation fisher in Sonora. "EDF has been with us all the way."

Last year, hake permits were issued to 80 trawlers. "The next step will be to set scientific catch limits to ensure the health of the fishery and the well-being of fishers," says Rafael Ortiz, EDF's director of Mexico fishery programs. If we succeed, it'll be the first catch share program for an industrial fishery in Mexico.

"Our goal is for other industrial fisheries to adopt similar measures," says Higuera. "We want people to know that the fishing industry in Mexico can help with food security while protecting the ocean and its resources." Fish consumption per capita in Mexico has increased roughly 30% over the last five years.

To help with accountability, EDF has launched two pilot "smart boat" projects for the hake fishery. The first involves satellite tracking, cameras and low-cost sensors on boats to document where they are fishing. The second couples electronic monitoring with networked computers at

the dock to transmit data to regulators and processors in real time.

"The technology can show that we are fishing sustainably," says Gilberto Marquez, who has had cameras installed on his trawler. Demonstrating that the fishery meets standards for eco-certification will improve access to premium markets in the United States and Europe.



Changemaker: Claudia Higuera

EDF has similar smart boat projects underway around the globe, including several off the U.S. West Coast and in the Gulf of Mexico, as well as in Chile, Indonesia and Japan. On the West Coast, EDF has partnered with the Oregon Fish and Wildlife Service to install cameras at ports to monitor recreational fishing and inform fisheries policy.

"Just as smartphones transformed global communications, smart boat technology can revolutionize fishing worldwide," says Shems Jud, EDF's director of oceans and technology solutions. "By giving us a better understanding of the state of oceans ecosystems, we can help put fisheries on a sustainable course."

Rod Griffin



The pandemic: A view from the Amazon

AKĀ PANARÁ IS AN ELDER OF BRAZIL'S PANARÁ PEOPLE. IN THE 1960s, he survived the near extinction of his people when the government carved a road through their territory and two-thirds of his people died of viral infections such as the flu. Akā was one of just 89 survivors. EDF anthropologist Dr. Steve Schwartzman met Akā in the 1980s when he was leading his people to reassert their autonomy. Schwartzman lived with the Panará, learned their unwritten language and helped the tribe win legal recognition of some of its territory, preserving a forest the size of Delaware in Pará and Mato Grosso states. When word of the novel coronavirus reached Akā's village, Nasepotiti, he recorded the following message.

Coronavirus and the history of my people, *by Akā Panará*

Why have the white people done this to us, indigenous people? I'm very concerned, for myself and for my people. If it [the coronavirus] gets here, it is going to finish us off.

In the old days, we lived happily by ourselves. No one told us when the white people began clearing the path for the road through our territory. One day, we went to collect bamboo and we came across the road. We went back to the village to tell the others. We decided to go fight the white people, so we took our bows and arrows and went back to the road and shot arrows at them. Then we went to tell the other villages. An airplane came and flew over our villages. We talked

among ourselves and decided to leave the village. We crossed the river and came to an old garden, and started to clear new gardens. That's where the sickness started. We got a very strong cough, it was hard to breathe, we got a sore throat, chest pain and high fever. We heard explosions, and thought that the explosions had brought the sickness. First, an old woman died, then everyone got sick. People began dying. We managed to bury some of the dead, then the living were so weak and sick that they couldn't bury the dead anymore. We were very afraid, people ran away and hid in the forest. People kept on dying by the side of the road. Only a few of us survived, and the white people took us to the Xingu [Indigenous Park], where the Kayapó live. We didn't know where the sickness came from or where it went.

I think that this sickness we hear about today is the same thing. I'm very worried. Why did the white people do this to us, Panará, indigenous peoples? I think the white people want to finish us off.

Akā's story is the story of indigenous peoples in the Americas since 1492, when tens of millions died from new viruses brought by the Europeans, to which they had no immunity. Recent research shows that fragmentation of natural habitats through tropical deforestation increases the risk of passing new viruses from wild animals to domesticated ones to humans.

We need to pay attention to Akā's concerns and recognize, unlike Brazil's Bolsonaro government, that we are all in this together. "We are now beginning to do to ourselves what we've done to the indigenous peoples," says Schwartzman. "Let's help Akā keep his people — and their forest — safe. It will help us too."

Peter Klebnikov

Akā and his Panará people survived viral infections and the incursions of land-grabbers. Now they fear the coronavirus.

MARILYN FERNANDA RIBEIRO BELLE/EDF

Wanted: Citizen scientists

The global health crisis has changed the way we work, socialize and enjoy the outdoors. You can still participate in valuable citizen science projects, however, and help researchers better understand climate change, wildlife migration patterns and other phenomena. All you need is a computer or smartphone. There is even research underway that invites you to help disarm the coronavirus, and what's more inspiring than that?



■ Fold proteins

Like puzzles? Challenge yourself with a game that helps scientists develop antiviral drugs to combat COVID-19. Foldit asks players to solve 3D puzzles that simulate how a chain of amino acids folds into a protein. Determining the most likely shape of a protein helps scientists develop drugs that can block it from doing harm. You can also add your home computer to a network that creates a virtual supercomputer that works on protein simulations.

Learn more: fold.it and foldingathome.org



■ Count penguins

Under threat globally, penguins aren't just cute but also important for detecting risks to critical ecosystems. In the popular Penguin Watch project, volunteers of all ages can help protect penguins by counting them in aerial photos of remote regions.

Learn more: bit.ly/3ccx71E



■ Map coral reefs

Corals are threatened by climate change and pollution. To preserve them, we need to know their location. In NASA's NeMO-Net video game, players of all ages identify and categorize reefs from 3D ocean imagery and help train a super-computer to create a global map.

Learn more: nemonet.info



■ Track marine debris

Contaminants from plastic marine debris are everywhere, on our beaches, in our oceans, even inside our bodies. Volunteers can help guide marine debris policy development, education and outreach when they participate in NOAA's citizen science program.

Learn more: bit.ly/36KAvLe



■ Give butterflies a boost

Monarch butterflies are hovering near extinction. Help scientists better track their migration by reporting every monarch you see in your area July 15-August 20 (if north of Oklahoma City or 35°N latitude) and August 1-September 25 (if south).

Learn more: monarchwatch.org/calendar



■ Monitor water levels

Climate scientists study rising tides, flooding and fluctuating water levels to predict their effects on homes and biodiversity. Citizen scientists can help by contributing photos of bodies of water near them. Whether it's a backyard stream or an exotic sea, just note the time and location of the photos to help NOAA scientists map low, normal and high-water stages.

Learn more: bit.ly/2N5J7



■ Preserve climate data

Help protect the scientific record from assault by climate change deniers. Join citizen archivists who copy climate data from government websites and save it on independent servers. The effort to back up government data gained traction after Donald Trump's election. Datasets preserved so far include studies by the Environmental Protection Agency, National Oceanic and Atmospheric Administration and NASA, among others. This requires some technical skill, but the website offers instruction.

Learn more: climatemirror.org



■ Record historical plant research

The New York Botanical Garden has about 7.8 million plant specimens in its herbarium. Collected over centuries, the specimens often contain handwritten notes that computers are unable to decipher. That's where you come in. Transcribe these historical documents and help create a digital database that scientists worldwide can use to describe new species, monitor invasives, plan conservation areas and model the effects of climate change.

Learn more: bit.ly/3bkuczj

EDF is not affiliated with the above organizations.

ASK AN EXPERT



ALLEN

Refocusing on climate during hard times

The COVID-19 pandemic is on everyone's mind. Nonetheless, the Earth continues to warm and the seas continue to rise. How do we move forward with the climate fight while we deal with another crisis?

— Richard Kaplan, Blue Bell, Pennsylvania

Derek Walker, EDF VP for U.S. Climate, responds:

Thank you for this thoughtful question. The pandemic has touched everyone. We have lost people, jobs and a sense of normalcy. We've witnessed how ignoring science and failing to lead is a recipe for disaster. So let's learn from our mistakes and change course on climate.

We need to rebuild America better than it was before, with healthier communities, a more just society and a more resilient economy. As Congress invests in recovery, we should create jobs that produce less pollution, not more. Our health and our kids' futures depend on it.

Here's what you can do: Make sure your senators and representatives support a clean recovery. That means investments in things like electric trucks and energy-efficient buildings. It includes replacing lead pipes that threaten children's health and building community and ecosystem

resilience through investment in reforestation and coastal protection.

We'll need leadership and collaboration to slow climate change. During the pandemic, Amish seamstresses and shoe manufacturers pitched in to make medical supplies. States worked together on plans to reopen economies and took the lead on protecting their residents.

EDF is working harder than ever to bring disparate partners into the climate fight. We're joining forces with labor unions to create robust markets for American products with a low-carbon footprint. We're working with states on policies to cut climate-polluting methane from the oil and gas industry, build charging stations for electric vehicles and repair leaky gas pipelines. We're redoubling our efforts to partner with communities already burdened by pollution and facing the greatest risk of climate impacts.

There's only one fight here — the fight for our collective future. That's why it's critical that millions of activists like you keep up the pressure on our leaders to listen to the scientists and take effective action for our climate. A new Oxford University survey of hundreds of leading economists worldwide suggests that investing now in climate-friendly policies will drive a superior economic recovery. The pandemic mobilized the whole world. It's time for climate change to do the same.

TAKE ACTION» Tell Congress to rebuild better: We need a cleaner, healthier future for all Americans.
edf.org/healthyfuture

Make your IRA work as hard as you did to earn it.

Are you aware that non-spousal heirs are heavily taxed when receiving retirement assets, while non-profits may be designated as tax-free beneficiaries?

Consider maximizing the impact of your retirement funds for the environment by including EDF as a tax-free beneficiary of your IRA, and using other assets to benefit individual heirs.

There is no cost, no need for an attorney, and it can take as little as a few minutes. Contact us today to learn more.

Legacy@edf.org
1-877-677-7397
edf.org/legacy



GETTY

“Everywhere, across whatever sorrows of which our life is woven, some radiant joy will gaily flash past.”

— Nikolai Gogol (1809-1852), Russian author

