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.

ON THE COVER

Now in development for a 2021 launch, EDF’s MethaneSAT will measure and map methane pollution from oil and gas facilities worldwide. By making the data free and public, we will enable citizens to hold companies and governments accountable for reducing emissions of this potent greenhouse gas.
With your help, Environmental Defense Fund has successfully held the line against the Trump administration’s attempts to roll back bipartisan environmental safeguards over the past two years. The makeup of the new Congress means there will be greater oversight of these protections.

But EDF has never been just about defense. We’ve never stopped making progress. And we’re making progress today—with companies, states and other countries—thanks in part to innovations that are supercharging our ability to solve problems.

The stakes are high. Recent scientific reports show that air pollution is killing seven million people a year, the world is losing wildlife and ocean life at an alarming rate, and the window of time remaining to avert dangerous climate change is rapidly closing.

In response, EDF has raised its ambitions. For example, we are preparing to launch a satellite to expose and reduce methane pollution, which causes more than one-quarter of today’s global warming. Already, state action on methane has been prompted by the data we’ve collected using advanced sensors, planes and drones.

That’s how innovation leads to impact, from our earliest cases that laid the foundation of environmental law to the latest promise of high technology. With each wave of progress, we’ve gained new tools to build on our established strengths.

You’ll see examples of such innovations throughout this report. Thank you for your support that has made this progress possible.
Four waves of environmental innovation

Environmental progress doesn’t just happen. It has been propelled by successive waves of human ingenuity, each expanding our toolkit. Today, a Fourth Wave of innovation is leveraging technological breakthroughs, unlikely partnerships, and new public policy ideas, giving people the power to take action. Look for examples throughout this report.

Our expanding array of strategies

**FIRST WAVE**
Conservation and habitat
1903: President Theodore Roosevelt preserves millions of acres in national parks and forests.

**SECOND WAVE**
Science and law
1972: A series of legal actions brought by the scientists and attorney who founded EDF leads to a U.S. ban on DDT, a pesticide harmful to wildlife.

**THIRD WAVE**
Markets and partnerships
1990: EDF designs the cap-and-trade program for acid rain and launches our first corporate partnership, with McDonald’s.

**FOURTH WAVE**
Technology and innovation
2013: World Resources Institute begins using satellites to track Amazon deforestation nearly in real time.

Executive Vice Presidents Gwen Ruta and Amanda Leland oversee EDF’s use of innovative methods to protect climate, health, oceans and ecosystems.
We apply all these strategies in our main areas of work today.

**OCEANS** Thanks in part to sustainable fishing policies championed by EDF, 90 percent of U.S. federal fisheries are healthy or on the path to recovery, and we’re now taking our strategies global.

**ECOSYSTEMS** Farmers, ranchers and other landowners work with us to improve habitat on their property, showing that people and wildlife can coexist on working lands.

**HEALTH** We are harnessing new technologies, building corporate leadership and securing public policies to protect people from harmful chemicals and air pollution.

**CLIMATE** We’re deploying advanced equipment, including sensors mounted on drones, to measure and reduce methane pollution, which contributes to global warming.
How EDF is holding the line on environmental protections

When the Trump administration and Congressional leaders mounted their assault on the environment and public health, EDF pushed back. So far, every bedrock statutory protection remains in place, but the battle continues.

EDF General Counsel Vickie Patton leads efforts to check the Trump administration in court. Joe Bonfiglio, president of our advocacy arm EDF Action, helped lead our successful Congressional fight to defend the EPA’s budget.

**BLOCK BAD NOMINEES**

Michael Dourson, a chemical industry hired gun, is nominated to oversee the EPA’s chemical safety office.

EDF derails Dourson’s nomination by introducing key senators to families of toxic chemical victims. EDF also helps stop the nomination of climate denier Kathleen Hartnett White to head the Council on Environmental Quality.

**SAVE THE EPA’S BUDGET**

President Trump proposes crippling budget cuts at the EPA.

EDF lobbies Congress, while Moms Clean Air Force, an EDF partner organization with one million members, meets with officials in 20 states. EDF’s campus program Defend Our Future organizes visits to elected officials. The EPA’s budget remains largely intact.

**DEFEND SCIENCE**

The Trump administration proposes to restrict the EPA’s use of important public health studies when making decisions, thereby suppressing vital evidence supporting strong protections.

EDF mobilizes a broad coalition of experts, provides expert testimony and files Freedom of Information Act requests to reveal the EPA’s rationale. For now, the proposal is stalled.
FIGHT SMOG

The EPA announces it will delay implementing a limit for ground-level ozone, the main ingredient of smog. This puts the health of millions of Americans at risk.

EDF and allies ask a federal court to block the unlawful delay. The court orders the EPA to implement the standards. As a result, 52 metropolitan areas are under deadline to restore healthy air.

EDF members sent more than 200,000 messages to Congress opposing EPA head Scott Pruitt.

BLOCK THE COAL BAILOUT

Energy Secretary Rick Perry seeks to force power companies to burn coal, while the EPA moves to roll back limits on emissions of greenhouse gases, mercury and arsenic.

Under pressure from EDF and others, Perry’s plan is shelved. EDF ramps up the fight to defend the Clean Power Plan and the crucial limits on toxic mercury and arsenic from coal-fired power plants.

STAND UP FOR CLEAN VEHICLES

The administration proposes to roll back greenhouse gas standards for cars and exempts super-polluting old diesel truck engines from modern standards.

EDF files suit and joins 20 state attorneys general to oppose rollbacks on car standards. For trucks, EDF files suit and a judge temporarily blocks the exemption for dirty trucks. The EPA then withdraws it.

STOP METHANE ROLLBACKS

The Trump administration weakens national limits on methane leaks from oil and gas operations on public land, exacerbating climate change.

EDF helped secure this methane rule, and we’re working hard to defend it. After winning a key victory in Congress to prevent a permanent rollback, we’re defending the measure in court.

Showing Pruitt the door

EDF opposed Scott Pruitt from the day he was nominated as EPA administrator, and we didn’t stop until we helped oust him 16 months later. Through more than 50 Freedom of Information Act requests, we revealed, among other misdeeds, Pruitt’s direct involvement in scrubbing EPA’s website of 1,100 references to climate change. EDF is now working with equal vigor to counter his successor, Andrew Wheeler, a former coal industry lobbyist.

Heather Toney, national field director for Moms Clean Air Force and former mayor of Greenville, Mississippi, says: “No elected official can ignore moms.”
WHY WE WORK ON Climate

EDF’s aim is to stabilize the climate by dramatically reducing greenhouse gas emissions, while helping people and ecosystems become more resilient to the impacts we can’t avoid.
The oil and gas industry is the largest U.S. industrial source of methane pollution, but how much methane is leaking was unknown until EDF brought together more than 140 scientists from 40 institutions to publish dozens of peer-reviewed papers that sized up the problem. The conclusion: leakage is a whopping 60 percent higher than the EPA estimated. Once found, most leaks are not hard to fix.

The findings helped shape new state regulations in California, Colorado, Pennsylvania and Wyoming, along with the first national standards to reduce emissions from oil and natural gas production. Now we’re using the data—and the courts—to hold the line against misguided attempts by the Trump administration to roll back those standards.

To take our solutions to global scale, EDF is developing MethaneSAT, a satellite to measure methane emissions worldwide, in partnership with Harvard and the Smithsonian Astrophysical Observatory. Due to launch in 2021, MethaneSAT includes a high-precision instrument with a wide field of view.

EDF is working to cut methane emissions from the global oil and gas industry by 45 percent by 2025. That would deliver the same near-term climate benefit as closing about one-third of the world’s coal-fired power plants.

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MethaneSAT is a major step forward and continues EDF’s pioneering work in seeking to tackle these emissions worldwide.

Fatih Birol, Executive Director, International Energy Agency

“We are seeing a growing recognition of the need to map emissions that other satellites have been unable to detect. It will cover regions that encompass more than 80 percent of global oil and gas production.

“Satellite-derived data will help companies and governments locate problem sites and measure progress,” says EDF Chief Scientist Dr. Steven Hamburg. “And we will make our data public, to help citizens hold companies and governments accountable.”

MethaneSAT is just one of EDF’s forays into emissions detection. We also called on technology developers to design ways to detect methane emissions using sensors mounted on field equipment, trucks, drones and planes. Our aim is to have oil and gas industry leaders pilot the best of these technologies. One solution already being used by Shell and Equinor is a solar-powered laser system that uploads data continuously.

The International Energy Agency estimates that half of the methane emitted from the global oil and gas supply chain could be stopped at no net cost, in part because energy companies can sell the extra gas captured. “Cutting methane emissions from the global oil and gas industry is the single fastest thing we can do to put the brakes on climate change now,” says Mark Brownstein, EDF’s Senior VP for Energy.

A GLOBAL COMMITMENT

Working with EDF, the 13 companies that make up the Oil and Gas Climate Initiative—representing 30 percent of global oil and gas production—have set a target to reduce methane emissions from their operations to near-zero levels, below 0.25%, by 2025.

BP
Chevron
CNPC
ENI
Equinor
ExxonMobil
Occidental Petroleum

Pemex
Petrobras
Repsol
Saudi Aramco
Shell
Total

NEAR ZERO
by 2025
Tom Ingersoll, a successful satellite entrepreneur, was surprised last year when he got a call from EDF’s chief scientist, Dr. Steven Hamburg. Hamburg said EDF wanted to build and launch a satellite to help fight climate change—and wondered if Ingersoll would consider leading the effort. “I thought, ‘Wow, that’s kind of crazy for a nonprofit,’” recalls Ingersoll, the former CEO of Skybox Imaging, a satellite imaging company acquired by Google in 2014.

After studying the technological hurdles, Ingersoll signed on to head the project. “It will be difficult but doable,” he says, “and the potential benefits for society are huge.” The new satellite, MethaneSAT, will track methane emissions from oil and gas fields with unprecedented precision. It will also be capable of measuring emissions from landfills and agriculture.

The space mission—the first by an environmental group—is an example of how technological innovation is unleashing a new era of environmental progress. “EDF will be a trailblazer for the concept of using the power of space and remote sensing to address a wide range of problems on a not-for-profit basis,” says Ingersoll.

The sky, it turns out, is not the limit.
Helping China become a global climate leader

“Our goal is to help China stay on a low-carbon path while at the same time growing its economy,” says Dr. Zhang Jianyu, EDF’s VP for China.

After years of growth at any cost, a rising middle class in China is demanding a shift to clean, sustainable development. With the United States leaving the Paris climate accord, Beijing hopes to fill the void in global climate leadership by lessening its dependence on coal and boosting renewables. China, the world’s largest greenhouse gas emitter, is on track to meet its Paris commitments.

EDF has worked in China for 27 years, initially helping to guide the country’s first projects using economic incentives to cut pollution. More recently, we helped accelerate the Blue Sky policy that has reduced fine particle pollution in some major cities by 40 percent over the past five years. We’re now advising China as it rolls out what will become the world’s largest carbon market, initially covering 1,700 companies in the power sector.

Our focus is on transparent data sharing between the Ministry of Ecology and Environment and the China Electricity Council, a powerful trade association. Accountability is key. The ministry includes 43,000 environmental enforcement officers EDF helped train through a program we established with leading universities.
When Blue Shield of California unveiled a solar array that will help it reach its 30 percent renewable energy goal, it was one more achievement by an impressive team of young professionals. The initial planning for the installation was done by EDF Climate Corps fellow Radhika Lalit.

Climate Corps trains top-tier graduate students to help companies, cities and public institutions plot a route to cleaner operations. In 2018, we placed 114 fellows with 97 hosts including BlackRock, Colgate-Palmolive and Lyft; 22 fellows worked on projects in China.

In Florida, fellow Ben Stacey developed a tool to monitor energy use in Orlando’s 700 largest buildings. In New York, Andrea Gomez Vesga helped Danone Waters of America calculate emissions linked to warehouses and distribution. And when Lawrence Haorong Lu gave Ikea China his advice on engaging suppliers in sustainability goals, the company promptly hired him full time.

Almost three-quarters of EDF Climate Corps alumni now work in energy or sustainability roles. They’re the next generation of environmental leaders.

“Climate Corps connects the environmental leaders of today and tomorrow,” says Tom Murray, VP for EDF+Business.
Ending tropical forest loss and allowing degraded forests to regenerate could reduce overall global greenhouse gas emissions by at least 25 percent. “Introducing economic incentives to make forests more valuable alive than dead is one of the best paths to lower global emissions,” says Dr. Steve Schwartzman, EDF senior director for tropical forest policy.

Walmart, a longtime EDF partner, announced it will urge suppliers to support forest-friendly projects in parts of Brazil, Indonesia and Malaysia as part of Project Gigaton, its program to cut climate pollution from its supply chain. Unilever, one of Walmart’s biggest suppliers, has pledged to help the Malaysian state of Sabah achieve 100 percent sustainable palm oil production.

“These corporate efforts will spur more industry action and encourage deforestation-free jurisdictions across the globe,” says EDF supply chain expert Katie Anderson. Despite troubling indications that Brazil’s central government could weaken some forest protections, the state of Mato Grosso—the country’s biggest agricultural producer—has, with EDF’s help, committed to ending illegal deforestation by 2020.
Advancing clean energy, state by state

EDF works in 17 states across the country to bring America’s clean energy future even closer. This year’s highlights include:

Illinois moves toward renewable energy
The bipartisan Future Energy Jobs Act, which EDF helped pass, aims for 3,000 megawatts of new solar power and 1,300 megawatts of new wind power by 2030. We worked closely with the Illinois Power Agency as it developed regulations to implement that law, which can achieve a 55 percent reduction in power-sector greenhouse gas emissions by 2025.

EDF helps stop massive coal bailouts in Ohio
In 2018, the Ohio electric utility FirstEnergy pushed legislation and other proposals to bail out its polluting coal plants. EDF helped build a coalition to defeat those proposals. Now, our coalition is poised to help beat back coal bailout proposals elsewhere, schemes that could cost Americans billions in higher electricity bills.

New Jersey opts for a clean energy future
In May, Governor Phil Murphy signed a bill, developed with EDF’s help, that requires New Jersey to meet 50 percent of its electricity needs using renewable sources by 2030. This will produce a drop in emissions equivalent to taking approximately 170,000 cars off the road.
WHY WE WORK ON Health
EDF's vision is a healthy world for all. Whether by reducing children’s exposure to lead or cutting air pollution, we’re working to secure a clean, safe environment for every generation.
For decades, cities tracking air pollution have relied on a handful of monitors mounted on towers or rooftops. But these can’t pinpoint the areas, often in low-income communities, where people are exposed to more pollution. Now, cities and states are starting to take advantage of new technology to identify pollution hot spots and develop policies that will reduce pollution at the neighborhood level.

For example, California passed a law requiring air pollution reduction plans for some of the state’s most contaminated neighborhoods, where houses and schools are squeezed in between oil refineries, industrial facilities and truck routes.

EDF is working with academic, industry and community partners and government officials to collect detailed air pollution data in such neighborhoods, providing pollution insights literally block by block. Working with Google Earth Outreach and others, EDF has deployed Google Street View cars outfitted with fast-response air pollution sensors to develop maps of local air pollution in the San Francisco Bay area, Houston and London.
In Oakland, California, we partnered with health care provider Kaiser Permanente, which combined electronic health records with the pollution data we obtained with Aclima sensors to determine the effect of air pollution on people in the community. The analysis, published in the journal *Environmental Health*, found that streets with more pollution correlated with increased heart disease among the elderly. Even small increases in smog pollutants were associated with a 16 percent increased risk of heart disease. The same was true of black carbon, a type of soot coming largely from trucks.

“Local action requires local information,” says EDF health scientist Dr. Ananya Roy, a co-author of the study. “EDF is making local pollution not only visible but actionable.”

Now EDF is working to encourage the use of block-by-block air quality mapping in communities globally. Our newest project, in London, will take readings in tens of thousands of locations citywide to inform policies to reduce air pollution.

C40 Cities, a partner in the initiative, will share the results with its 96 member cities, with the aim of improving air quality for hundreds of millions of people in cities around the world.

This exciting project will deliver an approach that can be replicated across the world.

Sadiq Khan, Mayor of London

Baroness Bryony Worthington, executive director of Environmental Defense Fund Europe, played a lead role in bringing hyperlocal air pollution mapping to London.
Houston, we have a solution

Houston is Dr. Loren Raun’s city—and her laboratory. For 20 years, she has researched the health effects of air pollution in Houston, which once vied with Los Angeles for dirtiest air. She has studied air quality and cardiac arrest, estimated the cost of asthma attacks triggered by pollution and identified high-risk asthma days.

Soon, Dr. Raun, the chief environmental science officer for the Houston Health Department, will be getting data she could only have dreamed of a few years ago. Building on our work monitoring air quality using sensors mounted on Google Street View cars, EDF helped install sensors on vehicles in Houston’s municipal fleet.

Our research with the vehicle technology company Geotab shows that just 10 to 20 carefully selected municipal vehicles could map air quality for 70 percent of a city while following their normal routes. “Public fleets could become the eyes and noses of their cities,” says EDF’s Aileen Nowlan. Their data could jump-start clean air measures such as bike infrastructure, congestion relief and freight electrification.

Dr. Raun can’t wait to start working with the new data. “Improving our ability to measure air pollution improves our ability to manage it,” she says.
In April 2017, Kevin Hartley, 21, was using a chemical stripper to remove paint from an old bathtub. He was aware of the dangers and took recommended precautions, but it didn’t matter. He died the next day in a Nashville, Tennessee, hospital.

Six months later, in Charleston, South Carolina, 31-year-old Drew Wynne was removing paint from the floor of his coffee company. As he was applying paint stripper, he was overcome by the chemical fumes. He, too, lost his life.

The deadly chemical in these paint strippers was methylene chloride. Almost every hardware store in America carries such products. EDF brought the families of these young men to EPA headquarters in 2018 to meet with then-administrator Scott Pruitt. Just two days later, Pruitt pledged to ban methylene chloride—but the EPA hasn’t done so yet.

EDF is pressing Pruitt’s successor, Andrew Wheeler, to make sure the agency follows through. “The administration must deliver on its promise—before more people die,” says Dr. Sarah Vogel, EDF VP for Health.

Following EPA’s decision, major retailers took action. Lowe’s, Home Depot and Sherwin-Williams all committed to phasing out these deadly products, and EDF worked closely with Walmart, which pledged to stop selling them.
There is no safe level of human exposure to lead. So, what is lead doing in baby food—and how do we get it out? Those are the questions EDF has been pursuing ever since our 2017 report revealed the presence of lead in 20 percent of baby food samples collected by the Food and Drug Administration from 2003 to 2013. An FDA study in 2014 showed similarly concerning results.

Our Freedom of Information Act request for the FDA’s 2014 data revealed which brands had been tested. We contacted the affected companies, encouraging them to increase testing and analysis to identify lead sources and urging them to call for stronger federal standards. Many responded positively to our approach.

“EDF’s willingness to recognize our efforts to reduce lead levels in our products and to encourage us to go further is a valuable public service,” says Wendy L. Johnson, vice president at Gerber Products Company.

In part due to EDF efforts, the FDA in 2018 committed to reducing the levels of heavy metals such as lead in food, publicly acknowledging for the first time the cumulative harmful effect of these substances on children’s brain development.
WHY WE WORK ON Oceans

EDF is working to create more resilient oceans that stay healthy in the face of climate change. Our vision: more fish in the sea, more food on the plate and more prosperous coastal communities.
Scientists have long warned that warming seas could devastate fisheries. But new research from EDF and its partners shows how smart management can help revive our oceans, even in the face of climate change.

On a bone-chilling morning in the Chilean port of San Antonio, Cristian Miranda and other fishermen gather to ready their boats for a day at sea. Along the country’s 2,500-mile coast, fishermen have followed similar daily rituals for generations, supporting local economies and feeding their families.

It’s a way of life that’s at risk due to overfishing. Reported landings of hake, a mainstay in the local diet, have plummeted 90 percent since 2002. “The fishery has collapsed,” says Miranda, president of the local cooperative. “We have to go farther out to fish. It’s dangerous, but we have no choice.”

Climate change has compounded the problem. Traditional Chilean fisheries are under pressure from Humboldt squid, voracious predators that are moving south from Peru as water temperatures change. As more marine species cross borders around the world, countries—and local communities—need to work together on fisheries management.

Scientists from EDF, UC Santa Barbara and elsewhere have published new peer-reviewed research showing that adaptive,
proactive fisheries management can keep oceans productive, even with climate change. The study examined data from more than 900 fish stocks globally. The conclusion: With the right policies, we can increase the number of fish in the sea by nearly a third by 2100, improving food security and boosting fishing revenue.

“Despite the impacts of climate change, there is a path forward that’s good for oceans and for the people and economies that depend on them,” says EDF scientist Dr. Kristin Kleisner, one of the study’s authors.

We’re working to apply new management solutions in Chile and Peru. With our help, the countries are beginning to share information on fish stocks and are considering early warning systems and stock-sharing arrangements to make fisheries more resilient.

“This is the new frontier,” says Erica Cunningham, the regional lead for our work in South America. “What’s happening in Chile and Peru is also occurring in other fisheries around the world.” In response to changing ocean temperatures, fish are traveling outside their normal ranges, sparking new conflicts over fishing grounds. “The good news,” says Kathleen McGinty, head of EDF’s Oceans program, “is that with strong management and sound science, overfishing is one of the most solvable environmental challenges we face.” Research shows many fisheries can recover in as little as 10 years.

“EDF understands how important fishing is to our community. We look forward to their help in developing strategies to end overfishing.”

Cristian Miranda, Chilean fisherman
Oregon fisherman Brad Pettinger has witnessed the complete turnaround of the Pacific groundfish fishery, once declared a federal disaster, a recovery that stems in part from sustainable fishing policies championed by EDF. Now he’s testing new smart-boat technologies that could help troubled fisheries around the world.

Working with Pettinger and others, EDF is experimenting with cameras, machine learning, low-cost sensors and broadband offshore internet connections to monitor fishing more accurately. The innovations improve accountability and reduce the need for expensive human observers.

“Information is a powerful tool,” says Pettinger, the former head of the Oregon Trawl Commission. Networked fishing vessels could share data while at sea, enabling better fisheries management and business decisions in real time, reducing waste.

“I envision a fully integrated information system,” says Pettinger, “from the vessel clear to the market.” Just as smartphones stimulated innovation, smart boats could revolutionize fishing worldwide by providing more precise data on fish populations and habitat conditions than ever before, while enhancing compliance with fisheries law.

Fisherman Brad Pettinger and EDF’s Shems Jud test technologies that could revolutionize fishing.
A swath of protected deep-sea habitats off the West Coast has doubled in size, thanks to a historic plan brokered by fishermen, EDF and other nonprofit groups and approved by the Pacific Fishery Management Council. Under the agreement, 140,000 square miles of ocean, an area larger than New Mexico, has been safeguarded. Simultaneously, 2,000 square miles of less sensitive habitat was reopened to fishing. The agreement was reached voluntarily, showing the power of aligning conservation incentives.

“This was an amazing team effort,” says fisherman Ralph Brown of Brookings, Oregon. “Both fishermen and environmentalists focused on the goal of opening up closed fishing grounds and carving out the areas that really need protection.”

The resurgence of the Pacific groundfish fishery made the breakthrough possible. That recovery has been attributed in part to secure fishing rights that EDF helped implement in 2011. “This is now one of the best-managed fisheries in the world,” says Shems Jud, EDF’s West Coast fisheries director. Fish populations are growing, and eight out of 10 species are fully recovered.
Europe’s fisheries face the future

For years, fishermen in Sweden have collaborated with government officials and EDF to design a sustainable fishing system for the country that could be replicated across Europe.

One goal is to address the wasteful practice of discarding fish that are caught inadvertently—often in excess of a fisherman’s quota—and then thrown overboard, frequently dead or dying.

In 2019, when an EU ban on discarding fish comes into full effect, Sweden will be ready. The country has adopted an online platform, FishRight, that allows fishermen to trade quotas in real time. They’re now free to fish, knowing they can stay within sustainable fishing limits, rather than exceed their quota and be forced to stop.

It’s an elegant solution that comes at a critical time. Many countries are unprepared for the discard ban and face disarray as they struggle to comply. Sweden’s innovation can help. Developed on an open-source platform, FishRight is available for other countries to adopt.

“Swedish fishermen saw a challenge and stepped up to find a solution,” says EDF’s Nancy Raditz.

Spotlight on Indonesia

In the world’s second-largest fishing nation, the governor of Lampung Province approved a sustainable management plan that EDF helped design for blue swimming crab, Indonesia’s third most lucrative fishery.
WHY WE WORK ON

Ecosystems

EDF works for a world where natural ecosystems thrive and people flourish, despite changes in the global climate.
In America’s heartland, corn is king. More than 89 million acres were planted in 2018, enough to fill a freight train that would more than encircle the earth.

But growing corn has a steep environmental cost. Excess fertilizer runs off fields into rivers, lakes and groundwater, polluting drinking water around the Midwest and creating algae-filled dead zones. It also forms nitrous oxide, a potent greenhouse gas.

Historically, farmers often didn’t know how much fertilizer to use, so they applied extra to be on the safe side. This hurts downstream communities. Today, farmers increasingly want to use fertilizer more efficiently, which also saves money, and adopt other conservation practices.

EDF’s collaboration with major food buyers including Campbell Soup Co., Land O’Lakes, Smithfield Foods and Walmart is raising the bar for sustainable large-scale agriculture. We’re helping these companies measure progress toward their sustainability goals—and we’re helping farmers meet the new standards.
That means partnering with farmers and trade groups to advance practices such as applying fertilizer more precisely, using no-till techniques that leave more carbon in the soil, creating buffers and wetlands along rivers and streams to improve water quality, and planting cover crops to protect the soil.

Today’s tech-savvy, data-hungry farmers are using these practices to reinvent their approach to the land. In 2018, to further accelerate progress, EDF partnered with the National Corn Growers Association, which represents about 80 percent of America’s corn farmers. This partnership will greatly expand farmers’ access to our sustainability innovations and advice.

So far, our partnerships have resulted in improved fertilizer and soil management on more than 3.6 million acres of corn, with commitments to boost conservation on 20 million more. By 2022, we aim to have such practices in place on 45 million acres, half of all U.S. cornfields.

“EDF is a trusted name in the countryside,” says Iowa grain farmer Bill Couser, who, with his son Tim, helps other farmers adopt new techniques. “EDF shows companies like Walmart how farmers operate. Neither of us has all the answers, but EDF has persuaded us to move in directions I did not know were possible or practical.”

Iowa farmer Bill Couser now factors climate change into his planning. “If you don’t, you’ll get caught out,” he says.

“EDF has been a key ally for years. Our new partnership will bolster corn farmers’ tradition of stewardship, helping the environment, farm profitability and rural America.”

Jon Doggett, CEO, National Corn Growers Association
As water supplies dwindle in the arid West, farmers and water managers are looking for dramatically more efficient ways to use water. The question, according to Nevada farmer Denise Moyle, is, “How do I cut my water consumption by 50 percent over the next 30 years and still manage to grow a crop of alfalfa?”

One challenge is that many farmers don’t have access to data on evapotranspiration, or ET, a measure of the water they lose to the atmosphere through evaporation from the soil and transpiration through the leaves of plants. By understanding ET, farmers have the power to cut down on excess water use while maintaining healthy crops.

That’s why EDF is working with NASA, the Desert Research Institute and others on OpenET, a web-based service that will harvest ET data from satellites and provide the results to farmers and water managers—nearly in real time. The data will help foster sustainable water use and encourage beneficial water trading programs.

“If you give farmers better information on when they should and shouldn’t have their water on, you’re going to save water,” says Moyle. “I think that’s the greatest asset of OpenET.”
Rich Mississippi River sediments once replenished Louisiana’s coastal wetlands. But in recent decades, we’ve turned the river into a walled canal that shoots sediments out to sea. As a result, the state has lost 2,000 square miles of land, putting at risk millions of people, wildlife, and an economy driven by the seafood, shipping and energy industries.

Harnessing the Mississippi’s power is key to a coastal restoration master plan that the state developed with EDF’s help. The plan’s first such project, the Mid-Barataria sediment diversion, will restore wetlands by piping in silt-laden river water. EDF convened 60 scientists, coastal planners and others to help Louisiana manage such sediment diversions. We also mobilized more than 200 businesses to endorse the plan.

To restore the coastline sooner and at lower cost, we demonstrated that environmental impact bonds, which pay returns based on environmental outcomes, can be attractive to private investors. We are also sharing our work with planners in other U.S. coastal areas that experience severe flooding.
In the past 20 years, the monarch butterfly population has plummeted 90 percent, and it could face an endangered species listing in 2019. EDF has assembled an extraordinary alliance of farmers, academics, corporations and states dedicated to ensuring the monarch’s survival. “Our goal is to restore 1.5 million acres where milkweed, the monarch caterpillar’s sole source of food, can flourish,” says EDF’s David Wolfe (pictured left).

We’re working with landowners in Texas and in California, where we also helped pass a bill that will fund protection of critical overwintering and breeding habitat. And in Missouri, we’ve launched a flagship project with Smithfield Foods to restore 200,000 acres of native prairie. That work will also help pollinators such as bees and birds, foster carbon absorption in the soil, promote clean water, and provide renewable energy fuel when the grasses are harvested after the butterfly has passed through.

It weighs less than a dollar bill, can fly 2,500 miles, and depends for its survival on a single plant. The monarch butterfly—whose annual migration spans the continent—has captured America’s heart. But it needs our help. So, EDF is working to save this miraculous creature.
Financial overview

Total support and revenue for Environmental Defense Fund reached a record level of $223 million in fiscal 2018, an increase of 41 percent over the previous year. This $65 million increase was driven in large part by two generous gifts designated for use over multiple years, totaling $56 million. EDF also saw continued growth in membership gifts, which increased 5 percent, or $2 million, over the previous year.

Year-to-year swings in total support and revenue, and changes in net assets, reflect the use of established nonprofit accounting principles. These require us to record gifts and pledges—including multiyear commitments—in the year they are made, not in the years designated for use. Stewardship of multiyear gifts is an organizational priority that enables longer-term program development, central to EDF’s ability to address large, ongoing challenges such as climate change.

To ensure financial stability and to provide increased funding for high-impact programs, we monitor fundraising and adjust spending to maintain a balanced annual budget. The Unrestricted column shown on the next page parallels that operating budget.

EDF’s total operating expenses reached $192 million in fiscal 2018, also a record level, representing an increase of 5 percent over the previous year. Program activities accounted for 82 percent of the total. Personnel costs were the largest area of growth, followed by rent and related occupancy expenses (see edf.org/audit).

Net assets have grown with the addition of larger multiyear grants and initiatives. Liquidity, the standard measure comparing the timing of support and revenue versus the timing of expense payments, ranks favorably within EDF’s peer group.

The generous resources provided by our donors enable us to deliver strong results for the environment and human health. We thank you and welcome the critical role you play as our partners in this mission.

William P. O’Brien
Chief Financial Officer
### Statement of activities

**Year ended September 30**

<table>
<thead>
<tr>
<th></th>
<th>UNRESTRICTED</th>
<th>RESTRICTED</th>
<th>TOTAL 2018</th>
<th>TOTAL 2017</th>
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<tbody>
<tr>
<td><strong>OPERATING SUPPORT AND REVENUE</strong></td>
<td></td>
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<tr>
<td><strong>Support:</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Contributions and membership</td>
<td>$57,441,937</td>
<td>$70,779,307</td>
<td>$128,221,244</td>
<td>$103,618,737</td>
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<tr>
<td>Foundations and other institutional giving</td>
<td>782,695</td>
<td>80,744,392</td>
<td>81,527,087</td>
<td>43,657,061</td>
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<tr>
<td>Bequests and other planned giving</td>
<td>4,964,989</td>
<td>11</td>
<td>4,965,000</td>
<td>4,565,127</td>
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<td>Government and other grants and contributed services</td>
<td>401,601</td>
<td>842,665</td>
<td>1,244,266</td>
<td>2,075,984</td>
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<tr>
<td><strong>Total support</strong></td>
<td>63,591,222</td>
<td>152,366,375</td>
<td>215,957,597</td>
<td>153,916,909</td>
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<td><strong>Revenue:</strong></td>
<td></td>
<td></td>
<td></td>
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<td>Investment income allocated for operations</td>
<td>5,294,740</td>
<td>597,979</td>
<td>5,892,719</td>
<td>3,338,165</td>
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<tr>
<td>Fees, royalties and other income</td>
<td>1,556,531</td>
<td>17,469</td>
<td>1,574,000</td>
<td>729,241</td>
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<td><strong>Total revenue</strong></td>
<td>6,851,271</td>
<td>615,448</td>
<td>7,466,719</td>
<td>4,067,406</td>
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<td><strong>Net assets released from restrictions</strong></td>
<td>128,849,626</td>
<td>(128,849,626)</td>
<td>–</td>
<td>–</td>
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<td><strong>Total support and revenue</strong></td>
<td>199,292,119</td>
<td>24,132,197</td>
<td>223,424,316</td>
<td>157,984,315</td>
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<td><strong>EXPENSES</strong></td>
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<tr>
<td><strong>Program activities:</strong></td>
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<td></td>
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<tr>
<td>Climate and energy</td>
<td>83,273,492</td>
<td>–</td>
<td>83,273,492</td>
<td>85,915,786</td>
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<td>Oceans</td>
<td>23,229,891</td>
<td>–</td>
<td>23,229,891</td>
<td>22,142,158</td>
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<td>Ecosystems</td>
<td>28,014,754</td>
<td>–</td>
<td>28,014,754</td>
<td>24,274,330</td>
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<td>Health</td>
<td>11,821,639</td>
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<td>11,821,639</td>
<td>10,057,330</td>
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<td>Education</td>
<td>8,841,466</td>
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<td>8,841,466</td>
<td>8,829,989</td>
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<td>Membership activities</td>
<td>2,805,946</td>
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<td>2,805,946</td>
<td>2,763,209</td>
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<tr>
<td><strong>Total program activities</strong></td>
<td>157,987,208</td>
<td>–</td>
<td>157,987,208</td>
<td>153,982,802</td>
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<tr>
<td><strong>Supporting services:</strong></td>
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<tr>
<td>Management and administration</td>
<td>12,240,993</td>
<td>–</td>
<td>12,240,993</td>
<td>10,178,361</td>
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<td>New member acquisition</td>
<td>467,658</td>
<td>–</td>
<td>467,658</td>
<td>460,535</td>
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<tr>
<td><strong>Fundraising:</strong></td>
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<td></td>
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<tr>
<td>Membership</td>
<td>4,146,953</td>
<td>–</td>
<td>4,146,953</td>
<td>3,731,692</td>
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<tr>
<td>Development</td>
<td>17,057,153</td>
<td>–</td>
<td>17,057,153</td>
<td>13,872,182</td>
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<tr>
<td><strong>Total supporting services</strong></td>
<td>33,912,757</td>
<td>–</td>
<td>33,912,757</td>
<td>28,242,770</td>
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<tr>
<td><strong>Total operating expenses</strong></td>
<td>191,899,965</td>
<td>–</td>
<td>191,899,965</td>
<td>182,225,572</td>
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<tr>
<td><strong>Change in net assets from operations</strong></td>
<td>7,392,154</td>
<td>24,132,197</td>
<td>31,524,351</td>
<td>(24,241,257)</td>
</tr>
<tr>
<td><strong>Other expenses, net of contributions and other income</strong></td>
<td>(131,168)</td>
<td>(275,258)</td>
<td>(406,426)</td>
<td>423,223</td>
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<tr>
<td><strong>Investment results, net of allocation to operations</strong></td>
<td>(4,518,391)</td>
<td>242,089</td>
<td>(4,276,302)</td>
<td>(905,813)</td>
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<tr>
<td><strong>Change in net assets from discontinued operations</strong></td>
<td>(9,075)</td>
<td>–</td>
<td>(9,075)</td>
<td>1,790</td>
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<tr>
<td><strong>Change in net assets</strong></td>
<td>2,733,520</td>
<td>24,099,028</td>
<td>26,832,548</td>
<td>(24,722,057)</td>
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<tr>
<td><strong>Net assets, beginning of year</strong></td>
<td>57,560,637</td>
<td>134,399,300</td>
<td>191,959,937</td>
<td>216,681,994</td>
</tr>
<tr>
<td><strong>Net assets, end of year</strong></td>
<td>$60,294,157</td>
<td>$158,498,328</td>
<td>$218,792,485</td>
<td>$191,959,937</td>
</tr>
</tbody>
</table>

This statement of activities represents the consolidated activities of Environmental Defense Fund, Incorporated, EDF Action and California Fisheries Fund, Inc. Copies of the complete audited financial statements are available upon request or at edf.org/audit.
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# Management

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<tr>
<th>Name</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Fred Krupp</td>
<td>President</td>
</tr>
<tr>
<td>Amanda Leland</td>
<td>Executive Vice Presidents</td>
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<tr>
<td>Gwen Ruta</td>
<td></td>
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<tr>
<td>Mark Brownstein</td>
<td>Senior VP Energy</td>
</tr>
<tr>
<td>David Festa</td>
<td>VP West Coast; Senior VP Ecosystems</td>
</tr>
<tr>
<td>Elizabeth Gore</td>
<td>Senior VP Political Affairs</td>
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<tr>
<td>Steven Hamburg</td>
<td>Chief Scientist</td>
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<tr>
<td>Ryan Hamilton</td>
<td>Chief of Staff</td>
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<tr>
<td>Jessica Isaacs</td>
<td>Chief Administrative Officer</td>
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<tr>
<td>Nathaniel Keohane</td>
<td>Senior VP Climate</td>
</tr>
<tr>
<td>Kathleen McGinty</td>
<td>Senior VP Oceans</td>
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<tr>
<td>Tom Murray</td>
<td>VP EDF+Business</td>
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<tr>
<td>Catherine Nardone</td>
<td>Chief Development Officer</td>
</tr>
<tr>
<td>Eric Pooley</td>
<td>Senior VP Strategy and Communications</td>
</tr>
<tr>
<td>Sarah Vogel</td>
<td>VP Health</td>
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</table>

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<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>David Acup</td>
<td>VP Marketing and Digital Strategy</td>
</tr>
<tr>
<td>Ramón Alvarez</td>
<td>Associate Chief Scientist</td>
</tr>
<tr>
<td>Elizabeth Amery</td>
<td>VP Development</td>
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<tr>
<td>Brian Attas</td>
<td>Chief Information Officer</td>
</tr>
<tr>
<td>Kate Bonzon</td>
<td>VP Oceans</td>
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<tr>
<td>Jonathan Camuzeaux</td>
<td>Director, Office of the Chief Economist</td>
</tr>
<tr>
<td>Laura Catalano</td>
<td>VP Communications</td>
</tr>
<tr>
<td>Jorge Consuegra</td>
<td>Chief Diversity Officer</td>
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<tr>
<td>Sean Cook</td>
<td>VP Human Resources</td>
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<tr>
<td>Jake DeMoe</td>
<td>VP Development</td>
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<tr>
<td>Dan Dudek</td>
<td>VP Asia</td>
</tr>
<tr>
<td>Keecha Gardner</td>
<td>Senior VP Development</td>
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<tr>
<td>Britt Groosman</td>
<td>VP Global Climate</td>
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<tr>
<td>Cynthia Hampton</td>
<td>VP Membership Marketing and Development</td>
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<tr>
<td>Eric Holst</td>
<td>Associate VP Ecosystems</td>
</tr>
<tr>
<td>Jim Marston</td>
<td>VP Political Affairs</td>
</tr>
<tr>
<td>John Mimikakis</td>
<td>VP Oceans</td>
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<tr>
<td>William P. O’Brien</td>
<td>Chief Financial Officer</td>
</tr>
<tr>
<td>Vickie Patton</td>
<td>General Counsel</td>
</tr>
<tr>
<td>Andrew Reed</td>
<td>VP Development and Campaign</td>
</tr>
<tr>
<td>Dina Sperling</td>
<td>VP Institutional Giving</td>
</tr>
<tr>
<td>Derek Walker</td>
<td>VP U.S. Climate</td>
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<tr>
<td>Matt Watson</td>
<td>VP Energy</td>
</tr>
<tr>
<td>The Baroness Worthington</td>
<td>Executive Director, Environmental Defense Fund Europe</td>
</tr>
<tr>
<td>Zhang Jianyu</td>
<td>VP China</td>
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## EDF ACTION

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe Bonfiglio</td>
<td>President</td>
</tr>
<tr>
<td>Fred Krupp</td>
<td>Executive Director</td>
</tr>
</tbody>
</table>
A

as a data scientist, EDF trustee David S. Vogel looks at historical information to predict investment outcomes. He brings that same discipline to the VoLo Foundation, which he and his wife, Thais, launched in 2014.

“When David presents data that show climate change is the most critical problem in the world, I think about the kids,” Thais says. “What are they going to face in the future? Heat. Sea level rise. Hurricanes.”

The Vogels believe that raising public awareness about the growing impact of climate change is the most critical thing the VoLo Foundation can do. With their support, EDF is hiring a new scientist, the VoLo Data Science Fellow, to expand our work on monitoring and reducing emissions.

“Data-driven assessment,” David says, “will promote public acceptance that climate change demands urgent action.”

Using data to predict the future is a powerful tool.

David S. Vogel

EDF is very innovative in turning new technologies toward positive change.

Lois Chiles Gilder

W

hen Lois Chiles Gilder was growing up in the small town of Alice, Texas, the air smelled fresh and clean. Years later, when she returned to Texas, things had changed.

“There was pollution of all kinds. When the wind blew, I could smell the refineries 30 miles away,” she says.

Lois and her husband, Dick—a longtime supporter of EDF—partnered with the organization to retrofit school buses in Texas with cleaner engines to protect kids from dirty diesel fumes. Now they are supporting EDF efforts to create detailed maps of Houston air pollution using new sensor technologies. “When people know what they’re breathing, they will pay attention,” she says.

The Gilders have also supported EDF’s efforts to restore coastal Louisiana, Dick’s ancestral home. “EDF has a real understanding of using market forces to get results,” he says. “That’s important to us.”
A view from the front lines

Kathleen (Kacey) Conway

Kacey Conway worked on the front lines for the environment in Grand Junction, Colorado, battling invasive plants and inspecting oil and gas wells for the Bureau of Land Management. Seeing the recent attacks coming from Washington, D.C., Kacey threw her support behind EDF as a group that would go to the mat for things she cares about.

“EDF went to court on day one to keep this administration in check,” she says. Kacey especially appreciates our work aimed at stopping methane pollution from oil and gas operations. As a well inspector, she encountered leaks of this potent greenhouse gas. “EDF is helping ensure companies take responsibility for this waste,” she says.

In addition to her monthly contribution, Kacey recently included EDF in her will. “I find an organization I believe in and invest in them. That’s how we get change that lasts.”

We can’t always do much as individuals. It’s in groups like EDF that we have power.

Kacey Conway

How to donate

EDF is a not-for-profit organization that relies on your support. For more information or to make a tax-deductible contribution, please contact:

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