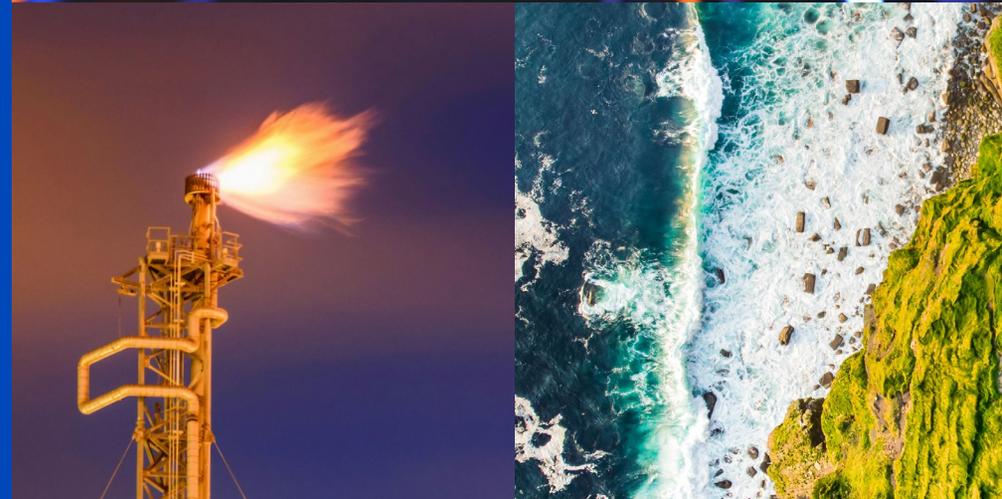
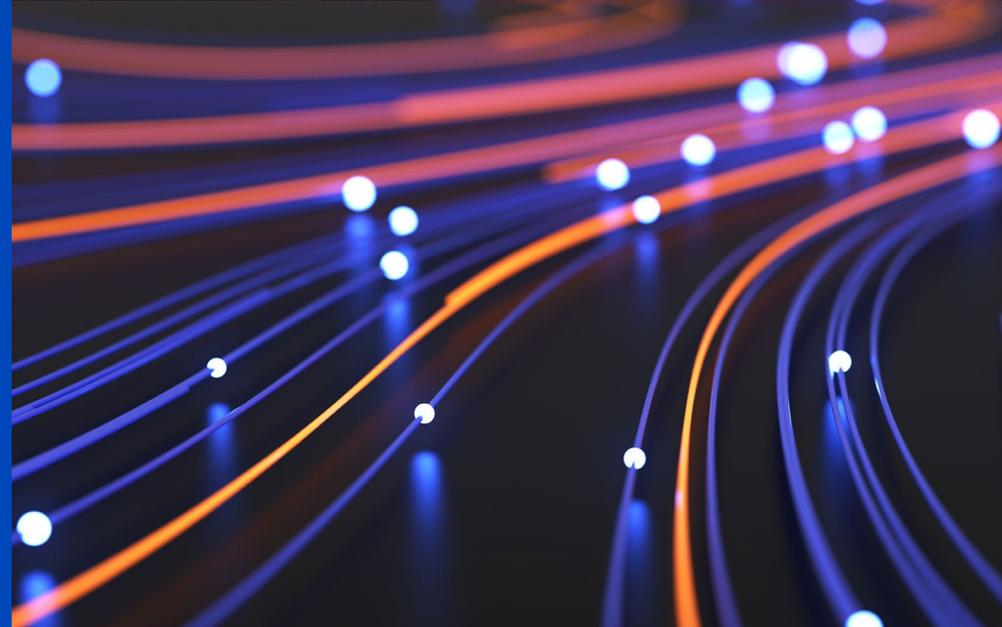


# CLEAN AIR TASK FORCE 2021 IMPACT REPORT

CATALYZING SOLUTIONS SCALED TO  
MEET THE CLIMATE CHALLENGE





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# SECTION 1

## LETTER FROM ARMOND: A PIVOTAL YEAR FOR A STRONGER, MORE GLOBAL CATF





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**ARMOND COHEN**  
CO-FOUNDER AND PRESIDENT

## As I reflect on Clean Air Task Force's 25-year history, several important turning points come to mind.

In 1996, the year of our founding, our small but determined team designed a highly strategic and scalable campaign model that quickly secured wins to reduce emissions from U.S. coal-fired power plants. In 2000, CATF was the first to harvest new scientific evidence that controllable methane emissions were a huge influence on climate and needed to be targeted. In 2004, we concluded that the world would need an expanded suite of carbon-free solutions to fully decarbonize the energy system — a bold stance that set us apart from the herd. And in 2021, as the staggering scope of the climate challenge came into view, we turned yet another significant corner, expanding our pragmatic, science-based approach to match the global scale of the climate challenge.

**Since the start of 2021, CATF has more than doubled our team of experts and expanded our work into nearly 40 countries.** We launched new programs to spur climate and technology innovation in the Middle East and Africa, convened coalitions to improve climate policy in the European Union, and worked directly with governments in North America, Europe, Latin America, and Sub-Saharan Africa to reduce emissions. We even co-hosted a pavilion at the annual Conference of the Parties on Climate Change (COP26) in Glasgow, helping spearhead the launch of the groundbreaking Global Methane Pledge, which we helped conceive of and drive forward.

As CATF has grown, we have tried to stay true to our DNA: curious, following the evidence, and open-minded to new pathways that offer promise. CATF became the first organization to devote a team of geoscientists and industry experts to exploring the prospect of superhot rock energy, a potentially revolutionary carbon-free, always-available renewable energy source. We strengthened our teams advocating for the advancement of zero-carbon fuels and carbon capture, and dived deep into the question of what could enable advanced nuclear energy to contribute significantly. And CATF set itself apart as the first environmental organization to champion a new, higher-impact corporate and government procurement practice, pushing those sectors to commit to 100% carbon-free electricity, 24 hours a day, seven days a week.

Today, CATF's experts are hard at work devising and acting on a blueprint for global decarbonization that factors in complex geopolitical dynamics ranging from energy security to efficient global land use, and from expanded energy access to breakthroughs in technology innovation. As always, CATF pursues a science-based approach that acknowledges the importance of systems thinking, pursuing multiple pathways at once, and advancing more carbon-free energy options, not fewer.

Asking hard questions and looking at climate change from a broader lens is perhaps what makes CATF different from most other environmental organizations. We survey the full scope of the decarbonization challenge, and our efforts to act on what we learn aren't compromised by ideology or fear of standing out from the crowd. We are at heart problem-solvers, pragmatists, scientists, and big-picture thinkers — constantly measuring, calibrating, and iterating on solutions for optimal long-term impact.

It's a difference that was recognized by leading third-party evaluators who rated Clean Air Task Force as the most effective climate organization to support in 2021 — recognizing the role and the unique value we bring to global efforts to address climate change.

As I reflect on the past year, I'm inspired by the dedication of CATF's team and astounded by the generosity of our supporters. It takes courage to join us in this work: to ask tough questions, challenge conventional thinking, and take on the full scope of the climate challenge with an open mind and respect for multiple perspectives.

This is the Climate Century. In just a handful of decades, we must radically reverse the growth of warming emissions from our power, industrial, transport, and building systems in a world that demands much more, not less, energy. We can accomplish this, but we need to think hard and act strategically with our brains as well as our hearts. For those alongside us in this journey, we thank you. For those considering joining us, there is no better time to get involved.

Thank you for your partnership,



**Armond Cohen**

Co-Founder and President, Clean Air Task Force



The world is in dire need of organizations that can deliver both big picture vision and effective, pragmatic action to address climate change. Over the past 25 years, Clean Air Task Force has proven itself poised to meet every moment -- with the global perspective, bold ideas, and technical expertise needed to take on the world's most pressing challenges. With its strong track record and its future-forward vision, I see no better organization to invest in for global impact in a rapidly changing world.

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ELIZABETH THOMPSON  
CATF BOARD OF DIRECTORS

# SECTION 2

## WHAT MAKES CATF UNIQUE



## We're not only environmental advocates. We're pragmatic problem solvers and strategic thinkers.

CATF is a non-traditional, fact-based environmental organization that advances climate solutions based on scientific evidence, intellectual integrity, and pragmatism. We know that the climate crisis is too complex a challenge and that the stakes are far too high for us to limit the tools at our disposal. We challenge conventional wisdom and explore every opportunity that offers promise, and we've done so now for more than 25 years.

Our mission is to push the changes needed to achieve a zero-emissions, high-energy planet at an affordable cost, ushering in a world where we meet the world's rising energy demand in a way that is financially, socially, and environmentally sustainable.

This is an enormous challenge that requires innovation and change at every level. **CATF's operating approach is centered on change in four key areas.**

1

**Change the narrative** to communicate the size of the problem and totality of solution requirements

2

**Change technology** to make available the full suite of solutions

3

**Change business models** to include modular, manufacturable energy solutions that can be deployed anywhere quickly

4

**Change policy** to develop, demonstrate, and scale-up the technologies and systems needed to achieve net-zero emissions by mid-century

**To drive these changes forward and achieve maximum impact, our team of experts deploys the following suite of expertise:**

### **Research & Analysis**

CATF conducts extensive research into emission impacts, emission reduction opportunities, economic feasibility of energy technologies, and potential decarbonization pathways to develop the fact-based, realistic strategies that drive our work. CATF's in-depth approach to energy systems analysis and modeling plays an important role in changing the global conversation around how to decarbonize the global energy system.

### **Legal Advocacy: Rulemaking, Litigation, & Legislation**

CATF has a long history of legal and policy research, strategy, and technical record building, which has resulted in many successful efforts to enact regulations and defend them from attempts to be weakened or repealed. As a key expert in this space, our legal team represents nonprofit clients in court cases, arguing in support of regulations that reduce pollution and protect the climate.

### **Policy & Technology Advocacy**

Policy advocacy is an integral part of CATF and a critical lever to combat climate change. We develop and advocate for policies and incentives that drive low- and zero-emission energy technology deployment, allowing governments to support research, development, demonstration, and large-scale deployment of low- and zero-carbon energy through tax incentives or direct subsidies for early projects.

### **Building Networks & Collaboration**

CATF plays a catalytic role in developing ecosystems for collaboration, forming coalitions, and building campaigns with partners from across the political spectrum. This work helps build political consensus, achieving crucial policy enactments and generating widespread public support for pragmatic climate solutions.

### **Commercial Assessment & Support**

CATF works to scope new and emerging low- and zero-emission energy technologies and evaluate their potential to scale, conducting research and modeling to understand the factors that impact deployment. We work directly with low- and zero-emission energy companies on their business models and strategies and catalyze business-to-business partnerships and information sharing through workshops and site tours.

### **Education & Outreach**

At CATF, we view knowledge as a shared resource and seek to collaborate and expand our networks of influence with others by sharing what we know. We work to raise awareness of the health and climate impacts of pollution from power plants, oil and gas production, bioenergy, and other sources in order to empower others to make informed decisions and achieve impact. These efforts include making the case for and educating stakeholders on the need for a broad portfolio of scalable, low- and zero-emission energy solutions that can help us reach climate neutrality by midcentury.

## Providing hope through bold, durable climate solutions

Perspective from John Thompson, CATF's Technology and Markets Director.

## SECTION 3

# 2021: A YEAR OF GLOBAL MILESTONES, HARD-FOUGHT WINS, AND STRATEGIC GROWTH



## In 2021, Clean Air Task Force's growing team of experts achieved successes all over the world.

We pulled hard on the most effective available levers to reduce greenhouse gas emissions while simultaneously pushing an advanced set of carbon-free technologies into the global marketplace toward widespread deployment.

Read on to learn more about **CATF's progress all over the world.**



**1. Washington D.C.**

Helped secure billions in funding for clean energy technology while defending clean air regulations and advocating for strong controls on greenhouse gas emissions.

**2. Bogota, Colombia**

Worked directly with the Colombian government to establish the first oil and gas sector methane regulations in South America.

**3. Glasgow, Scotland**

Spearheaded the launch of the Global Methane Pledge at COP26 in Glasgow, uniting more than 115 countries to act on climate change by swiftly reducing their methane emissions.

**4. Lagos, Nigeria**

Launched the Climate and Energy Innovation in Africa program, focused on expanding energy access while catalyzing clean technology innovation in sub-Saharan Africa.

**5. Brussels, Belgium**

Established a prominent presence in EU climate policy, securing funding for carbon capture technologies and zero-carbon fuels and the first-ever EU regulations to reduce methane emissions.

**6. Dubai, UAE**

Made inroads with governments and industry leaders in the Middle East and North Africa region, emphasizing its potential as a decarbonized energy producer with access to markets to the East and West.



■ CATF Active Areas

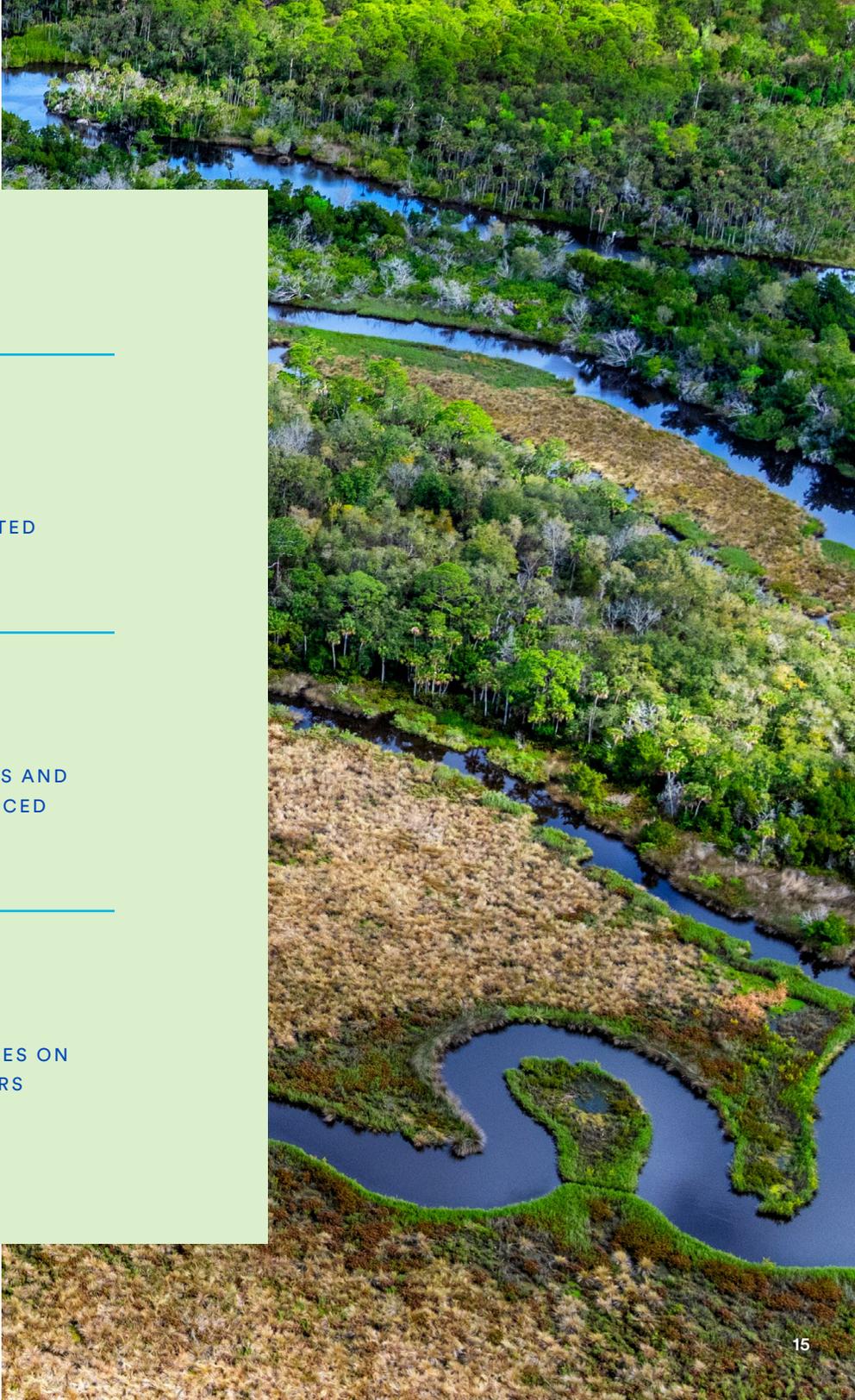
■ CATF Expansion Areas

## Explore Our 25 Years of Impact

CATF launched our 25th anniversary on October 1, 2021 with a virtual forum on the future of climate action. The event featured a wide range of presentations from our team of experts — from accelerating action on preventing methane pollution to decarbonizing and powering the planet with zero-carbon energy solutions. It also showcased how CATF has worked to fight climate change for the past 25 years by taking the best science, the best technology, and the best understanding of the commercial energy system combined with policy and advocacy to push the global energy system to net-zero. We're looking forward to continuing effective climate action in the next 25 years by using technology and policy levers to achieve global decarbonization.

For more on our 25 years of impact, explore our [interactive timeline](#) and [watch our video](#) showcasing CATF experts around the world.





2021 HIGHLIGHTS

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**\$35B**

HELPED SECURE FOR  
CLEAN ENERGY FUNDING

---

**500+**

PIECES OF MEDIA  
COVERAGE GENERATED

---

**100+**

LAWMAKERS MET WITH FROM  
AROUND THE WORLD

---

**20+**

TECHNICAL REPORTS AND  
FACTSHEETS PRODUCED

---

**2x**

MORE THAN DOUBLED OUR  
TEAM OF EXPERTS

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**200+**

EXPERT APPEARANCES ON  
PANELS OR WEBINARS

**SECTION 4**  
**PULLING THE MOST  
IMPORTANT LEVERS TO  
REDUCE GREENHOUSE  
GAS EMISSIONS**



Greenhouse gases and other harmful pollutants are harming the world's people and damaging its atmosphere, accelerating global warming at a dangerous rate.

In order to stave off the worst impacts of climate change, **we must cut global greenhouse gas emissions to net-zero by midcentury.** That requires us to pull hard right now on all available regulatory policy levers and other instruments to reduce pollution and avoid passing irreversible climate tipping points.



## Reducing Super Pollutants: Policy Advocacy, International Campaigns, and a Global Methane Pledge

CATF was the first environmental organization to sound the alarm on methane pollution two decades ago, and we've been providing expertise and building coalitions to advocate for action to cut the emission of methane and other super pollutants ever since. That work reached a milestone at COP26 in Glasgow in 2021, where more than 100 countries joined together to launch the Global Methane Pledge, committing to reduce their collective methane emissions 30% by 2030. This unprecedented display of ambition put methane at the center of the climate conversation on the world's largest stage and laid the groundwork for collective action that could dramatically bend the global warming curve.

**100+** COUNTRIES JOINED THE  
GLOBAL METHANE PLEDGE

CATF played a critical role in bringing the Global Methane Pledge to fruition, building the methane movement that took this issue from virtual anonymity to the center of attention on the world's largest climate stage — making it a core component of world economies' climate strategies. Over the years, we've carefully built civil society partnerships creating political space for this moment, provided expert support for nearly every piece of global methane policy to date, and designed a predecessor to the Global Methane Pledge in 2019 with our partners at Climate & Clean Air Coalition (CCAC).

As U.S. President Joe Biden and European Commission President Ursula von der Leyen formally launched the Global Methane Pledge at COP26 with leaders from every corner of the world, Clean Air Task Force's Super Pollutants team was right there alongside them — showcasing action to cut methane emissions and highlighting the need for increased ambition at the [Methane Moment](#) pavilion, the first-ever COP pavilion devoted solely to methane.

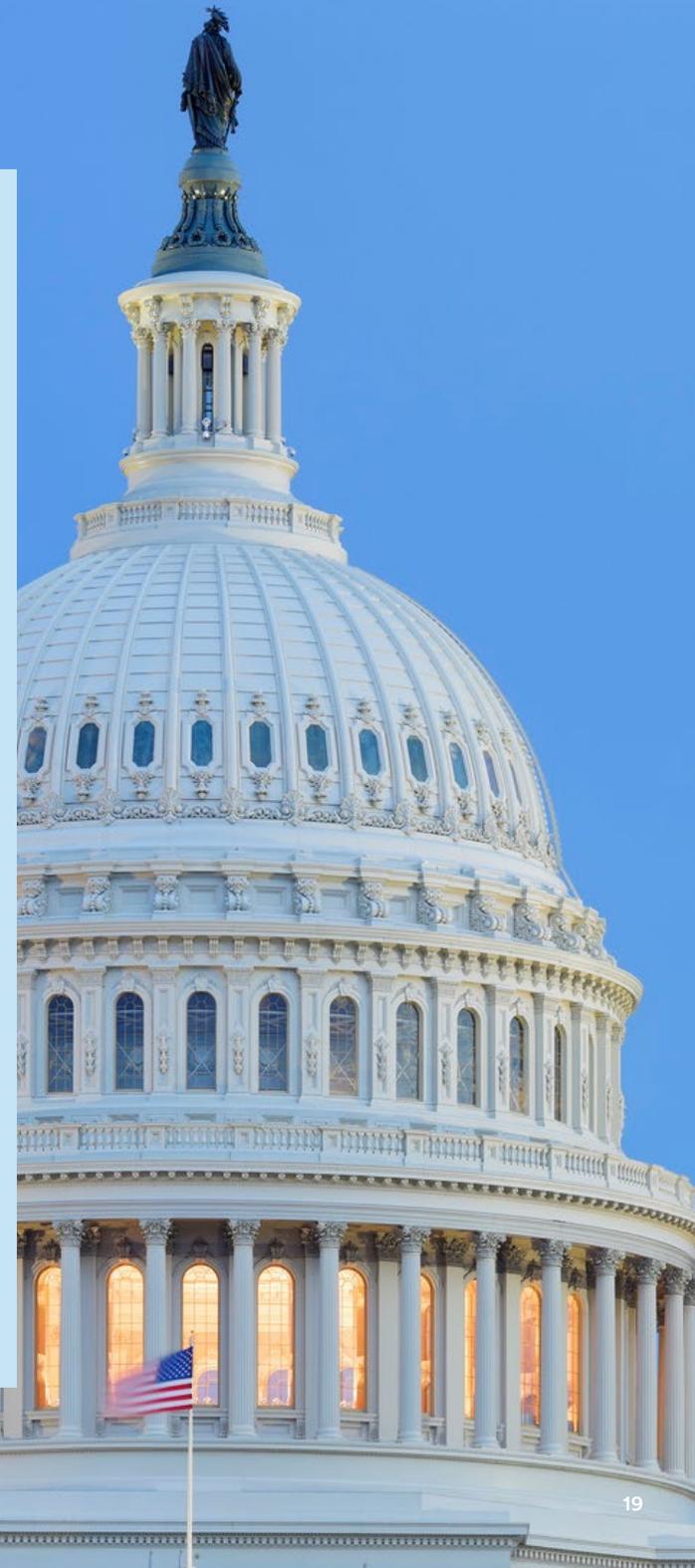
As a result of CATF's leadership, the Global Methane Pledge marked a major step forward to reduce methane emissions around the world. Our team supported this historic moment by pushing forward highly strategic, coordinated, global advocacy for policies to detect and repair methane leaks and establish clear regulatory measures to reduce emissions around the world.

## IMPACT HIGHLIGHT

## Championing Clean Energy in the Infrastructure Investment and Jobs Act (IIJA)

CATF, our coalitions, and our affiliate lobbying organization, CATF Action, **played a critical role in the design and passage of the 2021 Infrastructure Investment and Jobs Act (IIJA)**, the largest ever U.S. investment in climate action. The bill's passage cleared the way for billions of new dollars of investment in research, development, and demonstration for carbon-free technologies, as well as important provisions to limit methane emissions from abandoned oil wells. Working across both sides of the political aisle, our IIJA advocacy helped secure new programs and funding for carbon capture, storage, and transport – including direct air capture.

We also helped conceive of, socialize, and ultimately secure funding for the development of a system of hydrogen hubs across the United States, as well as support for hydrogen recycling and a hydrogen electrolysis program. Rounding out our IIJA efforts to spur climate solutions, we made sure the IIJA contained programs to both maintain the U.S.'s existing zero-carbon nuclear energy fleet and develop the next generation of nuclear reactor technologies, while ensuring increased funding for loans to develop U.S. electricity transmission to move all of that clean energy around the country. **CATF is now hard at work to implement the IIJA through engagement with U.S. Department of Energy, ensuring the maximum climate benefit from this hard-won policy package.**



## U.S. Advocacy to Cut Methane

In the U.S., with a new presidential administration taking office in 2021, our team of experts got to work urging the Environmental Protection Agency (EPA) to reverse the previous administration's rollback of methane regulations and propose a new, stronger rule to limit methane emissions from the oil and gas industry.

Our advocacy included the production of an impactful [report ranking the top 100 oil and gas methane emitters](#) in the U.S. according to reported EPA data, which featured prominently in the [New York Times](#) and shined a bright spotlight on the dangers of lesser-known methane emitters — making the case for stronger regulation. We also [testified in front of the EPA](#) with the report's findings in hand, along with our analysis providing a roadmap for the U.S. to [cut methane emissions from the oil and gas sector](#) by 65% using existing solutions.

Our advocacy efforts moved the U.S. government in a positive direction and in June, Congress and the Biden administration reversed the previous administration's regulation rollbacks. In November, the EPA issued a rule addressing all existing sources of methane across the country, a first. Going forward, we're advocating for a stronger methane rule that will cover additional sources and set more stringent standards to rein in methane in the U.S.

## Putting Methane on the Map in the EU

In Europe, our team led a targeted campaign across the continent to highlight the prominence of methane leaks, using an optical gas imaging (OGI) camera to document emissions that would otherwise remain invisible. From Romania to Italy and from Germany to the UK, this effort generated impactful European media coverage,



### PAVING THE WAY FOR THE GLOBAL METHANE PLEDGE

putting methane on the climate agenda across the continent and motivating EU policymakers to prioritize methane regulations that were long overdue.

CATF's newly formed European policy team worked closely with the European Commission and Parliament to formulate key proposals to regulate methane pollution in 2021. These efforts made a clear impact on the EU's proposed methane legislation, which included many of the policies CATF's team developed and advocated for. In fact, the EU Commission's guidance on the legislation cited CATF directly. Going forward, we're working with members of Parliament to draft important amendments to proposed rules and working with the EU's Parliament and Council to increase ambition to limit methane emissions from imported gas, providing technical corrections for amendments to the current legislation.



### #CutMethaneEU: Highlighting methane emissions across Europe

In 2021, Clean Air Task Force, led by campaign manager James Turitto, **inspected more than 250 oil and gas facilities in 11 countries** as part of our [#CutMethaneEU campaign](#). Using special optical gas imaging (OGI) technology, we documented a shocking 433 methane emitting sources across Europe's oil and gas network, driving commitments from policymakers to mitigate these harmful pollutants.

The campaign's powerful images and videos have been featured by leading global media outlets such as Bloomberg, France TV, and the Global Investigative Journalism Network. To learn more about the campaign and the observations of methane pollution from oil and gas infrastructure within the EU, [read our report](#).

## Providing Technical Expertise to Governments in Latin America

In Latin America, CATF experts provided technical and policy support through interactive workshops for regulators, lawmakers, and stakeholders in 2021. We issued written comments to ministries and national oil companies in Ecuador, Mexico, and Colombia, and our work in Colombia [led to a final rule in early 2022](#). Our team also worked to raise awareness of the importance of methane reductions among key stakeholders in Argentina. These efforts are helping governments understand their methane emissions and devise mitigation strategies across sectors to cut methane.

## Facilitating Global Methane Leadership in Nigeria

CATF worked with government agencies, national oil companies, and the regulators that supervise them to develop a deeper understanding of the sources of Nigeria's methane emissions, as well as the actions available to eliminate them. Using our unique [Country Methane Abatement Tool \(CoMAT\)](#), we supported Nigerian officials in developing a mitigation plan tailored to its unique economy and natural resources. As a result of our work with key national stakeholders, [Nigeria set a world-leading target](#) to reduce 60% of fugitive methane emissions by 2031, a goal the country included in its Nationally Determined Contribution (NDC) under the Paris Agreement.

Our team is actively working with Nigerian officials to develop regulations to help achieve this ambition and have begun arrangements to conduct similar work in Ghana, Cameroon, Gabon, and Egypt — host of COP27 — in 2022.

### Designed for Action: CATF's Country Methane Abatement Tool (CoMAT)

CATF's comprehensive Country Methane Abatement Tool (CoMAT) allows countries, civil society, and other interested stakeholders to estimate their oil and gas methane emissions and develop plans to reduce methane pollution. By working with CATF, governments can estimate emissions and determine how a given policy solution — such as requiring leak detection and repair — might reduce emissions. The tool provides governments with an opportunity to make informed decisions, gather data, and explore specific policy options and implementation plans tailored to a country's unique circumstances.

### Building the Blueprint for Fast Action on Methane

To reduce methane emissions at the pace and scale required, we must build capacity at key international organizations and scale up financing to help accelerate progress in dozens of countries at the same time — a key focus of the Climate & Clean Air Coalition to Reduce Short-lived Climate Pollutants (CCAC). In 2021, CATF's Super Pollutants Program Director Sarah Smith was elected to serve on the CCAC's Board of Directors.



DIVE DEEPER

[Cut methane to avoid passing climate tipping points](#)



CATF's team is helping to shape and support the CCAC's efforts to increase ambition and make it easier for countries to turn methane commitments into action. With methane squarely on the climate action agenda in countries around the world, CATF is strengthening its global advocacy efforts to accelerate the Methane Moment from a pledge into a global movement for methane action.

SARAH SMITH  
SUPER POLLUTANTS PROGRAM DIRECTOR



## Legal Advocacy to Secure Strong Climate and Clean Air Protections

Since our founding in 1996, Clean Air Task Force's strategic U.S. legal advocacy has advanced air pollution emissions reductions at the federal and state levels. In 2021, our legal team — led by founding CATF member, [Legal Director Ann Weeks](#) — continued to push for stringent standards on emissions from the energy sector, litigating on behalf of nonprofit clients in the U.S. courts, drafting statutory language, and developing comprehensive comments on proposed Executive Branch regulations.

### A few of our key accomplishments in 2021:



CATF represented American Lung Association and five other nonprofit groups in the D.C. Circuit win in *American Lung Association v. EPA*, **successfully jettisoning the Trump administration's gutting of Clean Air Act authority over greenhouse gas emissions.** We also successfully leveraged an EPA proposal reversing the Trump administration's unravelling of the oil and gas development methane standards. Our legal advocacy team is now defending that win in the Supreme Court.



Along with our partner organizations, **we achieved a court victory to remove an unlawful obstacle to science-based policy at the EPA.** Known as the "Secret Science Rule," the Trump administration measure would have restricted the agency's ability to freely rely on the best scientific evidence of the harms to human health from pollution. Its elimination removed a major roadblock in the Biden administration's pursuit of setting aggressive health-based standards for environmental pollution.

Beyond these wins, our team quickly got to work in 2021 to course-correct the environmental protection rollbacks of the previous four years. CATF's advocacy with the Biden transition team, along with that of our allies, resulted in **two significant Executive Orders**:

- *Protecting Public Health and the Environment, and Restoring Science to Tackle the Climate Crisis*
- *Tackling the Climate Crisis at Home and Abroad*

These Executive Orders directed the reconsideration of several public health and climate protections and championed the use of science in regulatory decision-making, respectively.

These early wins paved the way for our attorneys to engage the EPA on a number of fronts, including reinstated and stronger proposed oil and gas methane emissions standards, the reinstatement of the “appropriateness” determination for coal and oil-fired power plant air toxics, and the reissuance of stronger Cross State Air Pollution Rules. We also continued to press for more aggressive carbon pollution standards for new and existing power plants.

We made significant progress on other federal actions limiting methane emissions as well. Thanks in part to our advocacy, Congress passed a resolution at the end of June to disapprove a Trump-era rule deregulating methane emissions from the oil and gas industry. And as the [Global Methane Pledge](#) took center stage at COP26 in November, we remained hard at work behind the scenes to turn ambition into action in the U.S., providing critical technical expertise and analytics to develop the new, more ambitious oil and gas methane standards that were proposed in November.



#### REDUCING POLLUTION AND FIGHTING CLIMATE CHANGE THROUGH LITIGATION AND REGULATION

In the year ahead, CATF's legal team will continue our pursuit of stronger climate and public health-protecting standards, as well as supporting other domestic efforts to advance zero-carbon energy. We continue to focus where our work can make the greatest impact, recognizing the urgency of the task at hand and the importance of our work in reducing air emissions for the most vulnerable communities in the U.S.



DIVE DEEPER

[Pushing to ensure cleaner air for all](#)

## IMPACT HIGHLIGHT

## The Wendy Jacobs Fellowship: Empowering the Next Generation of Environmental Attorneys

In 2021-22, Clean Air Task Force established the Wendy Jacobs Fellowship in memoriam of distinguished attorney and former CATF Board Chair Professor Wendy Jacobs.

The year-long fellowship honors Professor Jacobs's venerable career in environmental law and as Director of Harvard Law School's Emmet Environmental Law & Policy Clinic. We remain deeply grateful for her thoughtful leadership, commitment to environmental equity, and crucial work on issues directly relevant to CATF's mission.



WENDY JACOBS

## **SECTION 5**

# **PUSHING AN ADVANCED SUITE OF CARBON-FREE SOLUTIONS INTO THE GLOBAL MARKETPLACE**



In addition to pulling hard on available levers to reduce emissions, we must also push into the commercial marketplace innovative technologies capable of achieving a zero-carbon future.

More than 15 years ago, through rigorous modeling and analysis, CATF recognized that decarbonization would require carbon-free energy sources and other climate protecting technologies beyond only energy efficiency coupled with wind and solar power. We took a hard look at the difficulty of electrifying sectors like heavy industry as well as the land-use implications and intermittency of renewable energy, and worked to reconcile those realities with the need to dramatically increase global energy access around the world to alleviate poverty in much of the developing world.

We concluded that advancing a full suite of carbon-free energy solutions that include always available and higher-density energy sources would be crucial to maximizing our chances of addressing climate change on a global scale. Over the years, we developed

programs to explore, advocate for, and deploy advanced nuclear energy, carbon capture technologies, zero-carbon fuels like hydrogen and ammonia, and superhot rock energy – a new focus for CATF.

Today, with the International Energy Agency (IEA) finding that 75% of emissions reductions will come from technologies that are not yet mature, **CATF is the leading global climate organization advocating for the rapid development and commercialization of a diverse portfolio of climate solutions.**

In 2021, we added significant expertise to our teams working to develop these technologies, conducting groundbreaking research, orchestrating impactful advocacy campaigns, and expanding into new geographies and technology areas. We are making substantial progress to ensure we have a broad array of energy options, which increases the likelihood we can decarbonize the global economy to avoid the worst impacts of climate change.

75%

OF EMISSIONS REDUCTIONS WILL COME FROM TECHNOLOGIES **NOT YET MATURE**

– INTERNATIONAL ENERGY AGENCY

## Carbon Capture and Storage

Despite the impressive growth of renewable energy, fossil fuels continue to provide more than 80% of the global energy supply, with new oil and gas sites added to the global energy mix every year. For this reason, both the IEA and the Intergovernmental Panel on Climate Change (IPCC) find that we will need large-scale deployment of carbon capture and storage technologies – including direct air capture – to decarbonize the world economy and bring greenhouse gases in line with a 1.5 degrees Celsius scenario.

**At CATF, we take the world's leading climate science and energy modeling into account and work to develop, evaluate, and implement a roadmap of policies that will allow carbon capture technologies to scale, deploy globally, and deliver necessary CO<sub>2</sub> reductions to meet climate goals.** In 2021, our expanded global team of experts built bold strategies, pioneered new efforts, and drove forward necessary policy and market changes to ensure that by 2030 carbon capture technologies will achieve cost parity with unabated fossil fuels – and that policy pathways exist to help deploy carbon capture globally at a meaningful scale – securing the largest-ever federal funding package to advance carbon capture technologies in the U.S.

CATF's technical and policy experts played an important role in making 2021 a landmark year for carbon capture in the U.S., designing and advocating for provisions that made the Infrastructure Investment and Jobs Act (IIJA) the largest single investment in carbon capture and storage technologies since the Department of Energy (DOE) began funding carbon capture research in 1997. In addition, our efforts advanced the critical carbon capture provisions in the proposed Build Back Better Act (BBBA).

The IIJA, passed in November of 2021, took a holistic approach to developing a carbon capture ecosystem, allocating \$12.1 billion in federal funds for carbon capture, utilization, and storage research, development, and demonstration; carbon transport and storage infrastructure and permitting; carbon utilization market development; and direct air capture hubs. CATF's analysis helped inform the creation of the IIJA's carbon capture provisions, and our advocacy and technical expertise were crucial to pushing it across the finish line. We amplified this work in collaboration with our partners and wider coalitions, including the [Carbon Capture Coalition](#), which CATF co-founded in 2011.

CATF was the linchpin in advancing the carbon capture components in both the IIJA and the BBBA, helping design resilient provisions and building support for them among key stakeholders,

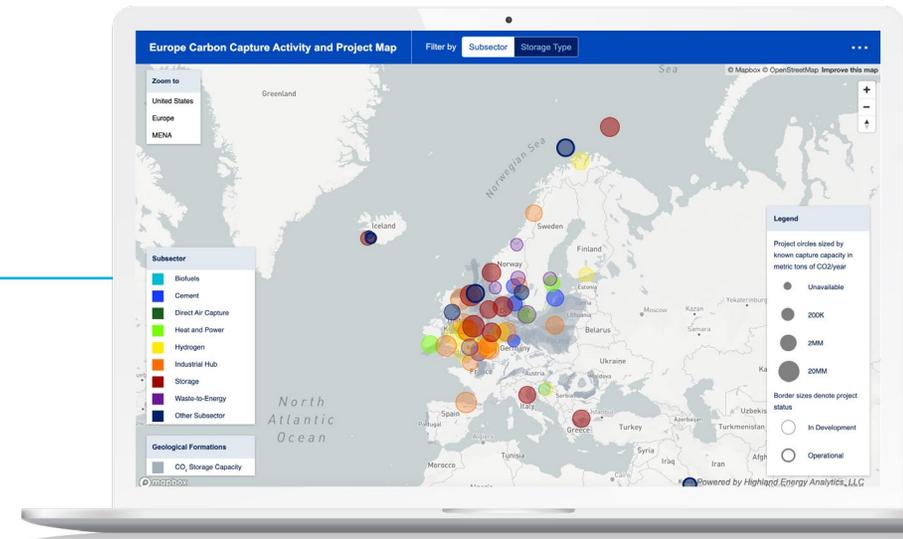
including lawmakers, companies, labor unions, and environmental organizations. We produced fact sheets and reports, conducted in-person and virtual educational meetings, and became a mainstay source for journalists reporting on carbon capture policy in the U.S., highlighting the importance of advancing carbon capture in more than 150 news stories.

Our research and analysis highlighted the potential jobs and health benefits of carbon capture and storage technologies, while building supportive coalitions and conducting new analysis on carbon capture in important states like California. We also highlighted carbon capture as a critical component of potential hydrogen hubs in select U.S. cities, including Pittsburgh, Pennsylvania, and Houston, Texas.

## Championing Carbon Capture in Europe

In April of 2021, CATF expanded its efforts to advance carbon capture in Europe – and made an immediate impact on EU climate policy. At the close of 2020, the European Commission had released its proposed revision of the Trans-European Energy Infrastructure regulation, or TEN-E, to align with the EU’s ambitious climate target of net-zero emissions by 2050. The initial proposal left significant room for improvement to enable the European carbon capture economy, so our team launched #TenETuesday – a public campaign in partnership with the Norwegian environmental group Bellona. Together, we raised awareness of the importance of improved carbon capture provisions in TEN-E, and brought diverse voices from academia, science, industry, and advocacy into the discussion.

We also developed [one-pagers for lawmakers](#), reports on the [potential for carbon storage in Europe](#), “myth-buster” materials



## Explore the Carbon Capture Activity and Projects Interactive Maps

CATF’s interactive map of carbon capture and storage developments tracks carbon capture projects in the U.S., Europe, and Middle East. Users can use the map to learn each project’s location, sector, type of carbon storage, storage capacity, and current status. The map also shows potential geologic saline storage formations in each geography.

dispelling common misconceptions about carbon capture, and an [interactive map](#) showcasing the announced carbon capture projects throughout Europe. Based on this research, we carried out an important analysis that highlighted the extent of the gap in funding required to realize these projects at current carbon prices, amounting to a deficit of €10 billion by 2035. Much of this analysis broke new ground for the region and helped lay the foundation for policymakers to help grow carbon capture in Europe.

As a result of our efforts, the new TEN-E proposal [included two carbon capture breakthroughs](#), now including carbon dioxide storage as well as carbon dioxide transport modalities other than pipelines — such as shipping, rail, or truck transport. Both measures are crucial for advancing carbon capture projects and achieving Europe’s decarbonization targets. This success set the stage for the development of a more specific and comprehensive EU strategy for carbon capture and storage that ensures the appropriate development of carbon capture infrastructure and effective coordination between member states to capture, transport, and store carbon dioxide at scale.

## Paving the way for a carbon capture strategy in Germany

In addition to our EU policy advocacy, CATF also [launched a related effort to develop a carbon capture strategy in Germany](#). In 2021, we began [working with a coalition of NGOs and other stakeholders](#) committed to making sure carbon capture finds a place on Germany’s political agenda. Our expanding European team also provided technical analysis and [resources for policymakers](#) and organized convenings, including an event on Industrial Decarbonization in Berlin. These events enabled cross-collaboration with Dutch and German policymakers to further the

recognition of industrial decarbonization as a key area of climate and industrial policy.

## Advancing Carbon Capture Leadership in the Middle East and North Africa

As part of our global strategy, we also expanded our work to advance carbon capture technologies in the Middle East and North Africa (MENA) in 2021. This expanded effort allows CATF to broaden its organizational impact by conducting stakeholder engagement with a wider array of governments, companies, and other partners critical to the global energy matrix. MENA is a particularly important region for CATF’s carbon capture efforts, as it is the global hub for fossil fuel production and a major exporter of energy, making it particularly well positioned to host a thriving carbon capture economy. Over the next ten years, as demand for zero-carbon fuels and decarbonized fossil energy increases, the MENA region can position itself for long-term success — using carbon capture technology to support the production of low-carbon hydrogen at scale while building carbon capture and direct air capture hubs to sequester carbon for regional exporters, putting the circular carbon economy into action.



DIVE DEEPER

[Opportunities for carbon capture and storage projects in Angola](#)



## Zero-Carbon Fuels

Acknowledging the likely long-term role of fuels, CATF aims to accelerate the development and deployment of zero-carbon fuel substitutes like hydrogen and ammonia to reduce emissions in time to achieve the Paris Agreement's midcentury goals. These fuels have the potential to reduce costs associated with decarbonizing hard-to-electrify sectors and could unlock additional opportunities for future decarbonization across the wider global energy system.

To reach net-zero emissions, the [IEA predicts](#) that global hydrogen use will need to increase from the 70 million tonnes per year used today to more than 530 million tonnes per year by 2050, and CATF is hard at work finding ways to get there. Our zero-carbon fuels team made significant progress in 2021, accelerating the development and deployment of hydrogen and ammonia around the world through policy design and advocacy, stakeholder engagement across the hydrogen supply chain, coalition building, and thought leadership exploring a range of hydrogen and ammonia applications and production pathways.

## Global Policy Advocacy: Advancing the hydrogen economy

### United States

In the U.S., CATF played a lead role in conceptualizing and socializing the regional hydrogen hubs approach in 2021, which brings various stakeholders in a geographic area together to tap into economies of scale in producing, processing, distributing, storing, and using hydrogen. We successfully advocated for this approach with key lawmakers, and it was picked up by the U.S. Senate Energy and Natural Resources Committee and included in the Infrastructure Investment and Jobs Act (IIJA) of 2021.

Our U.S. team also successfully pushed for the inclusion of a hydrogen production tax credit in the Build Back Better Act (BBBA) legislative packages and helped protect the measure against significant dilution or removal in both the House and the Senate in 2021. If passed, the hydrogen production tax credit would support low-carbon hydrogen production and help advance the clean hydrogen economy across the U.S. While the fate of the Build Back Better legislation remains unclear, a hydrogen production tax credit is likely to be enacted if Congress passes some or all of the climate and energy provisions included in the package.

### Our IIJA advocacy helped secure \$8 billion through 2026 to establish at least four regional clean hydrogen hubs

Our advocacy also helped win authorization and funding for a \$500 million Department of Energy (DOE) grant program for research, development, and demonstration of technologies that increase the reuse and recycling of clean hydrogen system components. The IIJA also directs and authorizes DOE to establish a \$1 billion research, development, demonstration, commercialization, and deployment program to advance the production of clean hydrogen using electrolyzers.



DIVE DEEPER

[Four western states announce coordinated hydrogen hub collaboration](#)

### European Union

In the European Union, our stakeholder education and advocacy helped secure the recognition of low-carbon hydrogen as a transition tool in the EU Parliament hydrogen report and built a core set of content to help reframe the hydrogen debate in Europe. We commissioned a study to assess several potential EU decarbonization pathways, including stress scenarios, to highlight the importance of the deployment of different technologies to de-risk Europe's energy transition and the need for low-carbon hydrogen for hard-to-abate sectors. We also helped turn attention to the need for Europe to focus on industrial decarbonization and highlighted the importance of a portfolio of solutions to decarbonize Europe's steel industry.

CATF also worked to advance zero-carbon fuels in the EU Gas Package, which aims to create the regulatory framework for the decarbonization of Europe's gas infrastructure. Due in part to our advocacy, the final package contained a technology-open approach to allow renewable and low-carbon molecules to replace current unabated fossil gases. The biggest emitting industries and sectors in Europe will need hydrogen to decarbonize properly, and Europe's core challenge will be meeting the massive spike in demand as quickly and cleanly as possible. CATF has also been engaging with policymakers to advance zero-carbon fuels in the maritime sector and to promote the inclusion of targets for the development of zero-carbon fuels bunkering infrastructure.

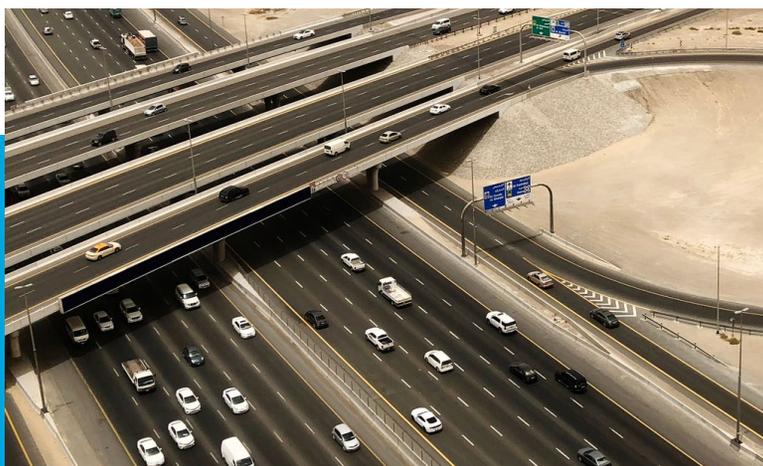
CATF has identified research gaps to support the development and deployment of zero-carbon fuels in Europe and as a result, has commissioned studies to assess several potential EU



decarbonization pathways and gain insight in the economics related to the nascent international hydrogen trade. The studies will be key to CATF advocacy efforts in Europe and will highlight the importance of the deployment of a technology-open approach to de-risk Europe's energy transition.

### Middle East and North Africa (MENA)

In the Middle East and North Africa (MENA), a new geographic focus for CATF, we made significant inroads with governments and industry leaders, emphasizing the region's unique positioning as a major decarbonized energy producer with access to markets to the East and West. As decarbonization policy takes hold and demand for hydrogen in Asia and the EU increases, the MENA region has the opportunity to meet it, leading the global transition to zero-carbon fuels and positioning itself for long-term success in a decarbonizing world.



### Thought leadership and analysis: Driving the conversation forward

In addition to policy advocacy and thought leadership, CATF released cutting-edge analysis and multimedia initiatives to explore the potential for zero-carbon fuels and educate stakeholders on their importance to decarbonizing key sectors.

Our growing team of transportation experts provided analysis on the potential for zero-carbon fuels to decarbonize marine shipping and long-haul heavy trucking and advocated for their inclusion in transportation decarbonization plans. We even produced a report on the potential for [nuclear energy to generate zero-carbon fuels to decarbonize marine shipping](#), and produced an animated video and visual journey map that lays out a systems-level view of how the marine shipping sector can decarbonize by 2050. The journey map's end-to-end vision is shaping new strategic and tactical discussions in a field that has been historically slow to change.

We also weren't afraid to stand out from the crowd. Our Director of Advanced Energy Technology Research Mike Fowler brought a fresh, pragmatic, and science-based voice to the debate around hydrogen produced with natural gas equipped with carbon capture in a widely read piece called "We need 'blue' hydrogen. And we need to get it right." The piece explains that while hydrogen generated with renewable energy could dominate in the long term, "blue" hydrogen can reduce emissions quickly in the near-term — if policymakers reward appropriate performance and producers mitigate upstream methane emissions.



DIVE DEEPER

[We need 'blue' hydrogen. And we need to get it right](#)

## Coalition building and stakeholder engagement

CATF's zero-carbon fuels experts played an important role as conveners and coalition builders in 2021 as well. Our team convened the best transportation decarbonization minds from a wide range of stakeholders to explore pathways to achieving full transportation decarbonization, including experts from companies in the transportation sector, academia, and environmental advocacy. We released a [report synthesizing the results of that convening](#) in 2021, capturing the consensus view that the best approach is to pursue the simultaneous advancement of both electrification and zero-carbon fuels, and that clean fuel standards can play a critical role in driving the carbon intensity of transportation energy down to zero.

We also convened and helped to co-found the Cargo Owners for Zero Emissions Vessels (coZEV), a coalition of nine major companies, including Amazon, IKEA, Michelin, and Unilever, committed to switching their ocean freight to vessels powered by zero-carbon fuels by 2040. The initiative harnesses the buying power of the world's largest cargo owners to accelerate marine shipping sector decarbonization and encourages companies to engage in collaborative innovation that drives economies of scale and fosters an economically viable marketplace for zero-carbon shipping.

### DIVE DEEPER



[Major companies commit to zero-carbon fueled vessels by 2040, sending clear market signal to fuel producers](#)



## On the horizon: Continued global expansion, hubs, and aviation

CATF is poised to build on this progress and play a catalytic role in advancing policies and industry practices that tap into the potential for zero-carbon fuels in global decarbonization efforts. In 2022, we'll help to implement hydrogen hubs across the U.S., Europe, and the Middle East, with potential expansions into port cities in Asia. We'll continue advocating at the international, federal, and state policy level, and we will evolve our sectoral approach to include decarbonization of aviation, where zero-carbon fuels like hydrogen could play an important role.

## Advanced Nuclear Energy

Nuclear energy provides carbon-free, dense, space-efficient energy 24 hours a day, seven days a week, 365 days a year, regardless of weather. While CATF's advanced energy models and most credible economic studies show that wind and solar could power a significant portion of future decarbonized electric systems, they invariably conclude that a complementary clean firm power source like nuclear energy must play a role to ensure the highest likelihood of success at the lowest cost. Indeed, the [IPCC includes](#) an expansion of nuclear energy in every one of its potential pathways to reduce the speed of global warming by midcentury.

While nuclear energy is already the world's most widely used **carbon-free energy source**, providing about 11% of global electricity generation, we rely heavily on unabated fossil fuels for the vast majority of our energy needs — despite the advancement of renewable energy sources. This dramatic imbalance highlights our clear imperative to not only preserve and transform existing nuclear energy sources, but more importantly, accelerate the development, demonstration, and deployment of advanced nuclear reactors to scale production, improve performance, and reduce

costs. In light of dramatically increasing global energy growth, we need to deploy hundreds of new nuclear energy plants every year, not the dozen or so we do now.

In service of that imperative, CATF advances the development and deployment of full-size and modular versions of a host of potentially more efficient and less costly advanced nuclear energy technologies. These designs also have innovative safety features, like using coolants and moderators other than water (which has boiled off in the three major global accidents): high-temperature gas reactors, reactors cooled with low-pressure molten salt, or reactors using liquid metals.

**11%** OF GLOBAL ELECTRICITY IS ALREADY  
GENERATED FROM NUCLEAR ENERGY

**At CATF, we're working to establish a broad portfolio of commercially available and market-competitive carbon-free nuclear energy options** that can scale rapidly through policy advocacy, research and analysis, public education, and coalition building with leading cross-sector stakeholders across industry, technology, finance, and academia. Our expert team focuses

not only on markets where nuclear energy is already deployed at scale, such as North America and Europe, but also in Asia, Latin America, and other emerging economies aiming to reconcile rapidly increasing energy demand with the need to decarbonize their energy systems.

We've worked to enable and accelerate advanced nuclear energy since 2007 and are seeing more momentum now than ever before — with government interest, public opinion, private investment, and technological innovation on the upswing. CATF has played a key role in driving that progress, including our 2021 efforts to advance and improve the nuclear energy landscape around the world.

## Policy Advocacy: Securing support for nuclear energy in U.S. policy

In the U.S., CATF helped secure support for both existing and advanced nuclear energy in landmark policy packages at the federal level. Through policy design and advocacy, we made sure the IIJA—passed in November — included important provisions to maintain the U.S.'s existing nuclear energy fleet as well as develop the next generation of nuclear reactor technologies. With our support, the Advanced Reactor Demonstration Program in the IIJA included nearly \$2.48 billion in funding for a Department of Energy (DOE) program aimed at developing advanced reactor models through cost-sharing with industry, while the Civil Nuclear Credit Program appropriated \$6 billion through 2026 for a program to maintain the U.S.'s existing zero-carbon nuclear fleet.

We also played a role in ensuring support for nuclear energy in the Build Back Better Act (BBBA), whose fate is uncertain but whose climate and energy provisions currently have strong support. We successfully advocated to make sure that the energy provisions

in BBBA took an “all-of-the-above” approach to technologies aimed at reducing carbon dioxide emissions from the power sector, including critical support for nuclear energy. The Build Back Better Act includes tax incentives to extend the needed operation of existing nuclear energy and supported research and development aimed at readying new and potentially transformative nuclear technologies such as nuclear fusion.



READ MORE

[We need federal action, but not a blank check, to counter the premature retirement of nuclear plants](#)

## Exploring new applications: Nuclear-derived zero-carbon fuels for a decarbonized marine shipping sector

In addition to our efforts in the policy arena, CATF pushed the conversation around nuclear energy in a more productive direction through rigorous energy modeling and analysis and expert thought leadership.

We produced a groundbreaking new report on the potential for nuclear energy to provide a viable pathway to decarbonizing the marine shipping sector through the generation of zero-carbon fuels like hydrogen and ammonia. The report, [Bridging the Gap: How Nuclear-Derived Zero-Carbon Fuels Can Help Decarbonize Marine Shipping](#), found that nuclear energy has certain distinct strengths as an agent of marine shipping decarbonization, including that nuclear power plants already use hydrogen in their daily operations, nuclear energy is both historically fast-scaling — positioning it to quickly produce the energy needed to produce

zero-carbon fuels — and dense, meaning it can generate large amounts of energy without consuming as many resources or taking up as much space as other generating sources. We also found that nuclear energy’s status as a firm power source allowed high utilization rates for electrolysis and other fuel synthesis equipment, and nuclear energy could provide high-temperature steam to support efficient fuel production. Finally, we found that much of the existing nuclear energy fleet in the U.S. is accessible by coastal and navigable waterways.

The report also evaluates the U.S.’s potential to lead the transition to a decarbonized global shipping sector powered by nuclear-derived zero-carbon-fuels. We found that the U.S. has a major opportunity to drive innovation and seize the opportunity embedded in this transition, in part by increasing funding and tax credits to promote zero-carbon fuel production and nuclear derived zero-carbon fuel production, directing relevant agencies to explore and support the use of zero-carbon fuels, extending zero-carbon or low-carbon fuel standards, and promoting technology inclusivity in policies supporting hydrogen-based zero-carbon fuels.

## Advanced energy modeling: Clarifying the necessity of clean firm power in California

In 2021, CATF and the Environmental Defense Fund (EDF) teamed up on an important analysis of the potential pathways for California to make good on its ambition to decarbonize the state’s electricity grid by 2045, finding that clean firm power such as nuclear energy would be critical to success. We convened energy system experts from Princeton University, Stanford University, and Energy and Environmental Economics (E3) to model California’s electricity system, mapping out how it might meet its energy demands with affordable, reliable, carbon-free electricity.

Each group conducted different independent models and, despite distinct approaches to the calculations, reached the same important conclusion that wind and solar power could not get California all the way there on their own.

Together with EDF, we published our findings in a report ‘[Clean Firm Power is the Key to California’s Carbon-Free Energy Future](#),’ in the journal *Issues in Science and Technology*. The report helped raise awareness of the need for clean firm energy sources, offering nuclear energy as an option that provides very large amounts of energy 24 hours a day, seven days a week, 365 days a year with a small land footprint.

## Educating Stakeholders and Increasing Understanding

CATF played an active role in increasing key stakeholders’ understanding of nuclear energy, its benefits, and its risks. We partnered with the Massachusetts Institute of Technology (MIT) to host “Nuclear Energy in a Low-Carbon Future: Key Facts and Issues,” a weeklong educational program on nuclear energy for federal and state policymakers and their staff, environmental NGOs, academics, philanthropists, and journalists. Our Executive Director Armond Cohen [penned an op-ed](#) dispelling common misconceptions about nuclear energy for *Foreign Affairs*, and our experts provided perspective on nuclear energy in dozens of articles in top tier news outlets including *The Economist*, *The Wall Street Journal*, *Bloomberg*, *CNBC*, *CBS News*, *Politico*, and *Reuters*.



CATF's advocacy of nuclear power as part of the solution to climate change is refreshing to hear. The amount of carbon free energy that it can generate is unparalleled and is the reason I chose to become a recurring donor to CATF above other charities.

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ALEXANDER  
CATF DONOR, U.S.

## New Frontiers: Superhot Rock Energy

**Superhot rock energy is a visionary technology deserving of investment, and yet almost entirely unrecognized in the decarbonization debate.** It has the potential to meet long-term demands for zero-carbon, always-on power, and can generate hydrogen for transportation fuel and other applications. Unlocking the potential of this energy source could expand our options and potentially carve a path forward to replace fossil fuels.

CATF's experts and geoscientists are some of the first in the world to research this new zero-carbon energy technology and the opportunities to scale it in an affordable and broadly deployable way. With multi-decade experience, **our team has concluded that superhot rock energy is a critical pursuit and could be a transformative solution that could provide reliable energy dense power.** Our vision is to motivate rapid innovation that could rapidly scale the sourcing of superhot rock energy from demonstration to early commercialization in this decade and scale it around the world in the 2030s.

In 2021, we officially launched our work to build momentum behind superhot rock energy with an expanded team and add it to our vision for global decarbonization as a long-term, always on, renewable option for meeting energy demand. We released the report [Superhot Rock Geothermal: A Vision for Zero-Carbon Energy “Everywhere”](#), providing an introduction to the technology's potential, an overview of its current status, and a pathway forward to commercialize it around the world. On the U.S. advocacy front, we pushed for federal support for this new technology as part of the Carbon-Free Technology Initiative.

In 2022, our team will focus on advanced superhot rock energy modeling studies, engineering assessments, and related geotechnical analysis — and map and identify the regions best positioned for superhot rock energy demonstrations. As part of our strategy, we'll work to increase our advocacy for government investment in demonstration projects in the U.S., EU, Japan, Mexico, and New Zealand, and continue to identify opportunities and support the superhot rock energy efforts of private companies in places such as the U.S., Slovakia, and China. Our long-term goal is to raise awareness of superhot rock energy around the world, and help develop deeper understanding of this innovative new technology within key stakeholders and decision makers (lawmakers and industry), as well as the broader global NGO community.

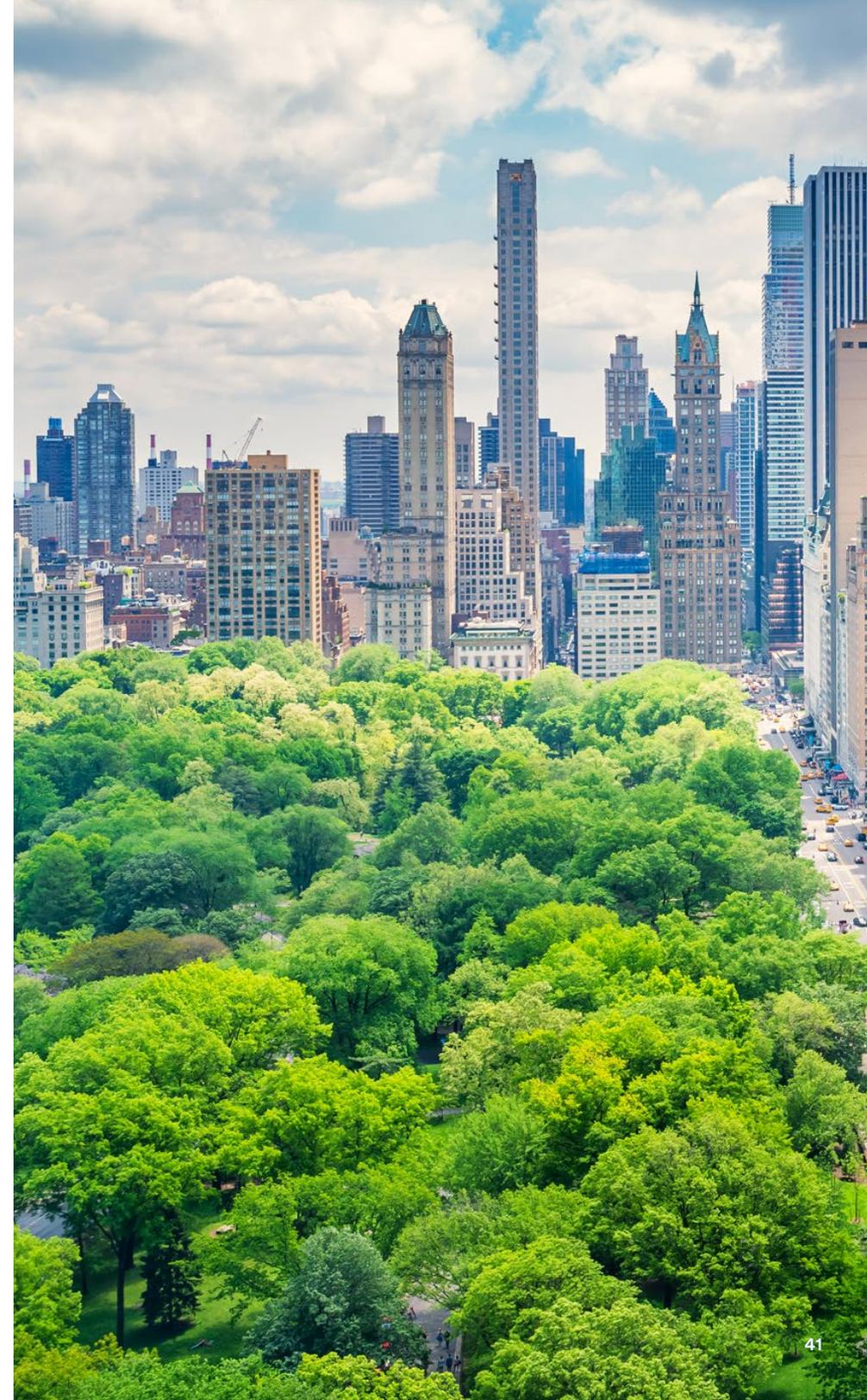
**SECTION 6**  
**PUTTING THE**  
**CORPORATE SECTOR**  
**TO WORK TO**  
**COMMERCIALIZE**  
**CARBON-FREE ENERGY**



## CATF Launches the Carbon-Free Technology Initiative

In 2021, as part of our U.S. federal policy advocacy, CATF teamed up with the U.S. power sector and other NGOs to announce the [Carbon-Free Technology Initiative](#) — a collective advocacy effort to boost federal support for the development, demonstration, and deployment of the firm, zero-carbon technologies needed to decarbonize the power sector.

In the first months of the Biden administration, we mobilized the Initiative to advocate for the White House and Congress to increase funding and other support for critical carbon-free technologies, an effort that helped support the administration as it championed climate innovation.



## Socializing New, Higher Impact Procurement Practices

CATF also championed a new advocacy effort in 2021 focused on harnessing the immense buying power of the U.S. federal government, as well as some of the world's largest corporate buyers of electricity. We mobilized a group of companies, including Google and Adobe, as well as fellow nonprofit organizations **to urge the Biden administration to procure 100% carbon-free electricity, 24 hours a day, 7 days a week.** This high-ambition procurement practice differs from a 100% renewable energy procurement in two ways: it includes critical carbon-free technologies beyond wind and solar power, and it maps carbon emissions to actual reductions at the time they occur. This approach achieves the tandem goals of increasing actual carbon reductions and stimulating the market for all clean energy technologies.

CATF and our partners [sent a letter](#) to the Biden administration to this effect, which made an immediate impact. President Biden included a carbon-free electricity procurement provision in his proposal for the Build Back Better Act and in White House announcements on climate change, ultimately issuing an executive order late in 2021 [committing the federal government](#) to procure 100% carbon-free energy by 2030, with half of that electricity available 24 hours a day, seven days a week. That means that by 2030, the federal government will purchase carbon-free energy to match all of its electricity consumption — putting the buying power of the country's largest electricity consumer to work in the service of power sector decarbonization.

We also spearheaded work to promote this higher impact procurement practice within the corporate community — where companies have the opportunity to strengthen their climate impact by committing to 24/7 carbon-free electricity procurement. CATF worked to socialize this higher impact procurement policy with major companies and was the first NGO to join the [24/7 Carbon-Free Energy Compact](#), a global group of companies, policymakers, investors, and organizations committed to realizing a 24/7 carbon-free future — convened by Sustainable Energy for All and the United Nations.



Reducing pollution from the transportation sector will require more than the purchase of zero-emissions vehicles, however. It also hinges on the availability of low- and zero-carbon energy. It's critically important that we build clean energy infrastructure, including the clean electricity charging stations and clean hydrogen refueling stations that are targeted for development in the recently passed Infrastructure Investment and Jobs Act and in the forthcoming Build Back Better Act.

**JONATHAN LEWIS**

DIRECTOR OF TRANSPORTATION DECARBONIZATION

**SECTION 7**  
**A BLUEPRINT FOR  
CLIMATE SOLUTIONS:  
EXPANDING CATF'S  
IMPACT AROUND  
THE WORLD**





## A New Vision for Africa's Climate and Energy Future

Very few organizations think about Africa as a place for energy independence, technological innovation, and climate leadership. At CATF, we stay away from outdated views of the continent and instead rely on our ability to engage with local partners to build strong networks of influence that advance bold ideas, cultivating a favorable environment for technology innovation and economic growth. We believe that it is Africa's role to determine what clean energy sources will work for the region, and we seek to join efforts, provide knowledge, and design solutions that can lay the ground for a carbon-free African energy system.

In 2021, we expanded our global efforts to address climate change by launching a new [energy and climate innovation program in Africa](#) led by Lily Odarno, Director of CATF's Energy and Climate Innovation Program, Africa – **focused on expanding energy access while catalyzing clean energy technology innovation in sub-Saharan Africa**. With an initial geographic focus on Kenya, Ghana, and Nigeria, CATF is working with partners on the ground to advocate

### ENERGY AND CLIMATE INNOVATION IN AFRICA

for innovative frameworks and policies designed to meet the energy demands of Africa's growing economies and population. We're working to **create an ecosystem for incubating technologies in Sub-Saharan Africa and build support from the government and the private sector.**



With our engagement in Sub-Saharan Africa, we have an opportunity to build a foundation for an energy system that is low-carbon and establish Africa as a leader in the global energy transition. **Over the next several years, CATF plans to:**

- Work with local leaders to identify and strengthen existing African civil society organizations and academic partners through increased funding and improved networking
- Develop a set of actionable strategies with utilities and other stakeholders to improve power sector performance
- Create independent African think tanks to conduct research and advocacy for an African-centric energy transition
- Encourage African entrepreneurship
- Develop African-centered sources of philanthropic funding to support the development and execution of Africa's energy future.

These actions will help support strong energy markets that can catalyze development and scale the deployment of zero-carbon energy technology on the continent.



Ultimately, effective engagement in climate action from African countries will rest on their ability to set their own agenda and act on solutions suited to their contexts, without having to perpetually depend on external support to act.

**LILY ODARNO**

DIRECTOR, ENERGY AND CLIMATE INNOVATION, AFRICA

## Facilitating Carbon-Free Technology Leadership in the Middle East

As a major producer of fossil fuels and large exporter of these resources to the world, the Middle East and North Africa (MENA) region has the opportunity to advance and demonstrate key decarbonization technologies such as zero-carbon fuels, carbon capture, and near-zero methane mitigation to both decarbonize its own economy and position itself for leadership in a growing global market for carbon-free fuels.

We're working with MENA governments to make sure they take full advantage of the opportunities offered by advanced energy technologies. We see an opportunity to develop a regional environmental vision for carbon capture and storage and zero-carbon fuels with methane mitigation through a consortium of regional groups, an assessment of innovation opportunities, and development of communication materials and content.

Guided by our experience, CATF experts are working to inform, strengthen, amplify, and implement a MENA-centric climate strategy.

DIVE DEEPER



[Middle East and North Africa region has potential to lead as an exporter of low-carbon fuels, CATF report finds](#)

**SECTION 8**  
**ON THE HORIZON:  
NEW GEOGRAPHIES  
AND PROGRAM AREAS**



## We greatly increased our organizational impact and expanded our global reach in 2021, but we're not stopping there.

Climate change demands a real-world understanding of technology, economics, domestic politics, and geopolitics, as well as the long-term vision to develop a holistic blueprint for global decarbonization. Time is of the essence, and **it's imperative that we provide pragmatic solutions around the world at scale, particularly in the developing world** – where most energy use and associated emissions are poised to increase dramatically in the coming years.

That's why we're launching exciting new climate initiatives, expanding our reach into new geographies, deepening our expertise, and enhancing our advocacy power in 2022. In addition to strengthening our existing efforts to reduce greenhouse gas emissions and advance a full suite of critical carbon-free technologies, CATF will pilot new programs focused on land use, clean energy deployment, and corporate clean energy procurement in the coming year – with plans for expansion into additional U.S. states, European countries, and countries in Latin America, Africa, the Middle East, and Asia.

We are disrupting traditional climate advocacy and moving climate action in a more pragmatic, science-based direction, and we're committed to playing that role in every aspect of climate advocacy all over the world. Stay tuned for much more to come in 2022 and join us in our journey to ensure an emissions-free, high-energy planet at an affordable cost by supporting our work.



It means lots, all that you do. Especially to the younger generation like me. There is only so much I can do to help the planet from my own home and I'm happy to have organizations like you go the extra mile and combine the resources of all of us who care to make substantial changes.

---

**SARAH**  
CATF DONOR, U.S.

**SECTION 9**  
**RESOURCING**  
**CATF'S LEADERSHIP**  
**AND BOLSTERING**  
**OUR SUCCESS**



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## CATF Donors: Supercharging our Global Leadership

In 2021 our donors helped make every accomplishment highlighted possible by making a decision to financially invest in us and our work. It is through their support that we have been able to expand into new geographies while concurrently resourcing efforts where we see promise and opportunity.

**We saw a record-breaking year of donors from around the globe stepping up to join us**, from Singapore to Germany, Canada to Australia. Donors have banded together, with CATF, to ensure the climate challenge is addressed with courage and optionality.

Our donors come from various backgrounds, professions, and interest areas, and are as young as 5 years old! Without their support, we wouldn't be where we are today. We work tirelessly to make good on our promise, that with their help we are making real progress in the climate challenge.

# 10,934

FIRST-TIME DONORS

# 45

COUNTRIES REPRESENTED  
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The business community has a critical role to play in addressing the climate crisis, and Clean Air Task Force appreciates efforts by companies to reduce emissions, educate consumers, and provide tools for action.

Donations coming from companies and employee groups have been carefully reviewed to ensure that each entity is a good fit and in support of CATF's mission. The principal basis for making a gift should be the desire on the part of the business and its employees to support CATF's mission, programs, and objectives. **Donors do not in any way direct our programmatic work or influence organizational decisions.** Clean Air Task Force reserves the right to refuse any contribution.

As a fully independent organization, CATF and its elected Board of Directors are solely responsible for its positions, priorities, programs, and publications and a donation doesn't result in any influence in our work. To ensure transparency, we disclose all donations over \$10,000.

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- Orbis Investments
- Orix Corporation USA
- PennyMac Financial Services
- Quantedge
- Tyve



My daughter Jade, age 9, saved her own money and secured matching funds to make this donation. Fighting for our planet is very important to her. She really liked your organization and all the ways it helps to make our world a better place. Thank you for all that you do!

---

SARAH (MOM), JADE (DAUGHTER)  
CATF DONOR, U.S.



CLEAN AIR  
TASK FORCE

**Headquarters**

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