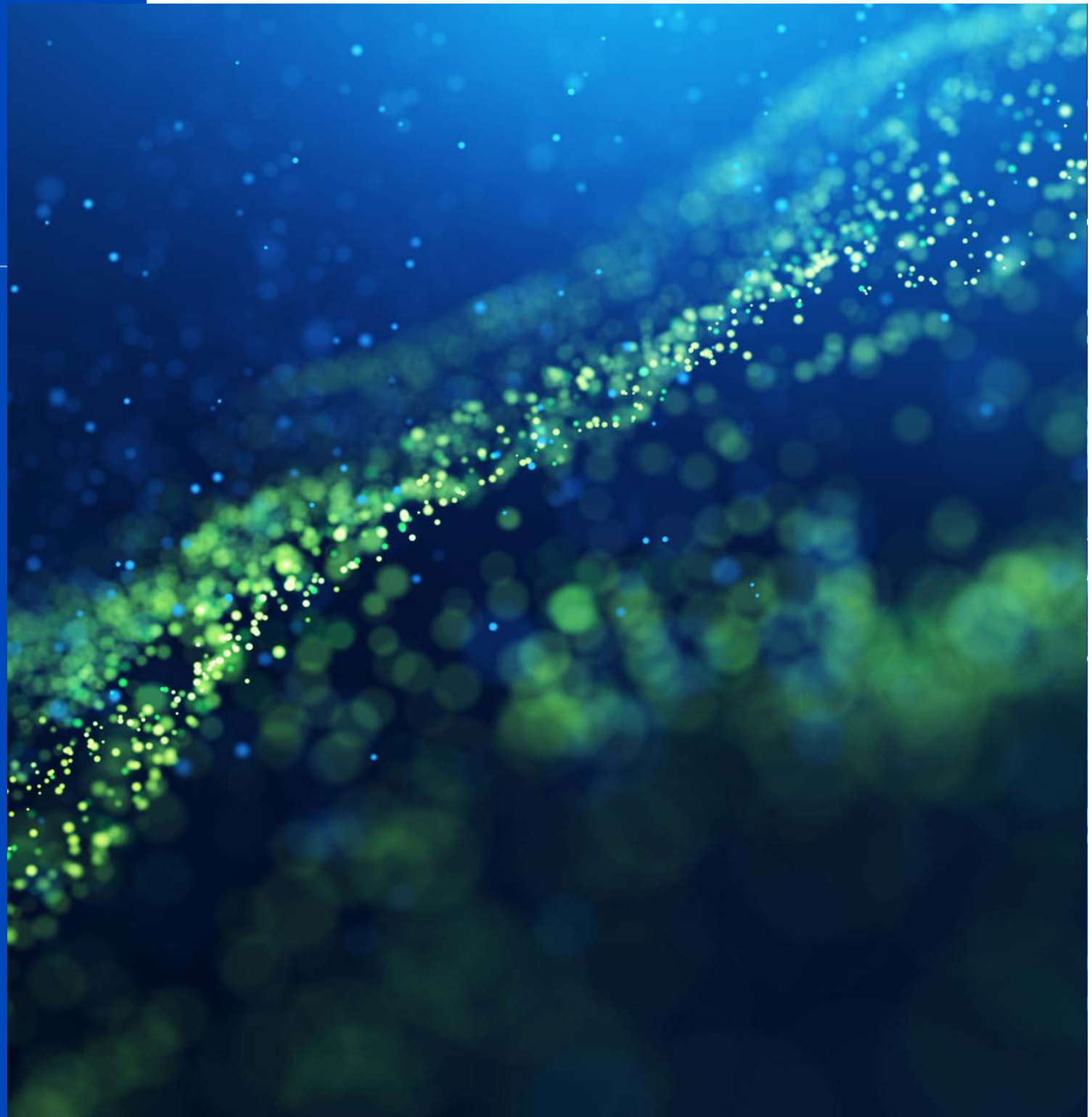


Clean Air Task Force 2022 Impact Report

Catalyzing resilient solutions,
scaled to meet the climate challenge



CLEAN AIR
TASK FORCE



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An aerial photograph of a river delta, likely the Amazon, showing a large area of green vegetation (rainforest) surrounded by sandy, light-colored riverbanks and channels. The water is a deep, dark green. The image is used as a background for the title page.

SECTION 1

Introduction

A Note from the Executive Director

The world is complex. So is climate change.

Even more so is the challenge of decarbonizing our global energy system while contending with competing priorities like energy security, energy demand, land competition, and development imperatives, as well as unforeseen changes like supply chain shortages, inflation, and war, to name just a few.

The available evidence suggests we must dramatically reduce greenhouse gas emissions over the next few decades to secure a manageable climate future. Reality dictates that we do this within context – acknowledging the full scope and complexity of the challenge and the full suite of solutions we'll need to meet it.

At CATF, we've never shied away from that complexity. In fact, we embrace it. We know that there are no silver bullets, no simple slogans, no easy answers. We are pragmatic, clear-eyed, and curious. We work to drive change in the world as it is, rather than how we might wish it were, and we've done so for more than 25 years.

We're a global environmental organization that's purpose-built for today's reality – unburdened by ideology and aimed at making the greatest possible impact at all times.

Global events in 2022 underscored the wisdom of this approach. With the war in Ukraine exacerbating already destabilized global energy markets, and with energy security and scarcity rising to the fore, flexible, option-based climate strategies were more widely recognized as a better fit for a world filled with uncertainty. European policymakers got real about their energy needs and prioritized policies that ensured energy security and emissions reductions, embracing new nuclear energy, accelerating carbon capture and storage, and scouting realistic pathways for hydrogen from multiple sources – renewables, decarbonized fossil energy, and nuclear.



ARMOND COHEN
CO-FOUNDER AND EXECUTIVE DIRECTOR

The Middle East emerged as a formidable player in the global climate and energy landscape, supplying Europe with much-needed energy while hosting COP27 and flexing its muscle as a global climate financier. In Africa, leaders asserted their power to choose their own energy pathways with their development goals top of mind.

And despite the challenges presented by the “polycrisis,” U.S. Congress concluded the most productive climate policy session in history by passing the Inflation Reduction Act (IRA) – unlocking the largest ever U.S. investment in climate action with support for a fully diversified suite of solutions including renewable energy, nuclear energy, carbon capture and storage, zero-carbon fuels, transmission infrastructure, and methane mitigation. IRA passage served as proof positive that an approach that acknowledges complexity and respects the scale of the problem – and adds more tools to the tool kit rather than taking them out – is not only necessary, but also politically robust as well. CATF made progress on each of these fronts, finding and seizing opportunities to drive lasting impact, as you’ll see in our 2022 Impact Report. We forged new partnerships, asked hard questions, and found innovative solutions – always pushing toward what’s new, what’s next, and what’s needed.

While our embrace of the world’s complexity has sometimes drawn the ire of those looking to simplify the challenge, more often it has earned us the trust and support of those looking to drive real change. This year, for the third straight year, we were named one of the world’s most effective climate organizations by some of the most respected third-party evaluators. We were honored to significantly expand our global community of supporters, without whom none of this would be possible.

With your help, CATF has grown from a small but mighty team of ten in downtown Boston in 1996 to a multi-faceted global organization of nearly two hundred staff driving lasting change around the world, pushing the global climate and energy landscape toward a more secure future for people and the planet.

Your partnership is essential to our continued success and we’re proud to share this journey with you.

Thank you,



Armond Cohen
Co-Founder and Executive Director
Clean Air Task Force

2022 HIGHLIGHTS

\$370 billion+

secured for clean energy funding

500+

news stories with perspective from
CATF experts

20+

reports published with original CATF
research, analysis, and thought leadership

100+

policymakers directly engaged
around the world



CATF's growth has been phenomenal since I joined the organization as its first government affairs director two decades ago. I returned as CATF's Board Chair because I believe it is a premier global leader in addressing the climate challenge. CATF's blend of expertise, realism and hard-hitting delivery is needed now more than ever as it's apparent we need more solutions faster. To maintain its independence, CATF does not accept support from the government or the private energy sector; so it requires support from independent donors who want to see real progress.

— ELIZABETH THOMPSON, BOARD CHAIR



SECTION 2

About Us

Who we are

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

Founded in 1996, CATF is a non-traditional, fact-based environmental organization that advances climate solutions based on scientific evidence, intellectual integrity, and pragmatism. We know that climate change 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 to achieve a zero-emissions, high-energy planet at an affordable cost. We envision a world where global rising energy demand can be met in a way that is financially, socially, and environmentally sustainable.

This is an enormous challenge that requires innovation and change at every level, in all parts of the world.

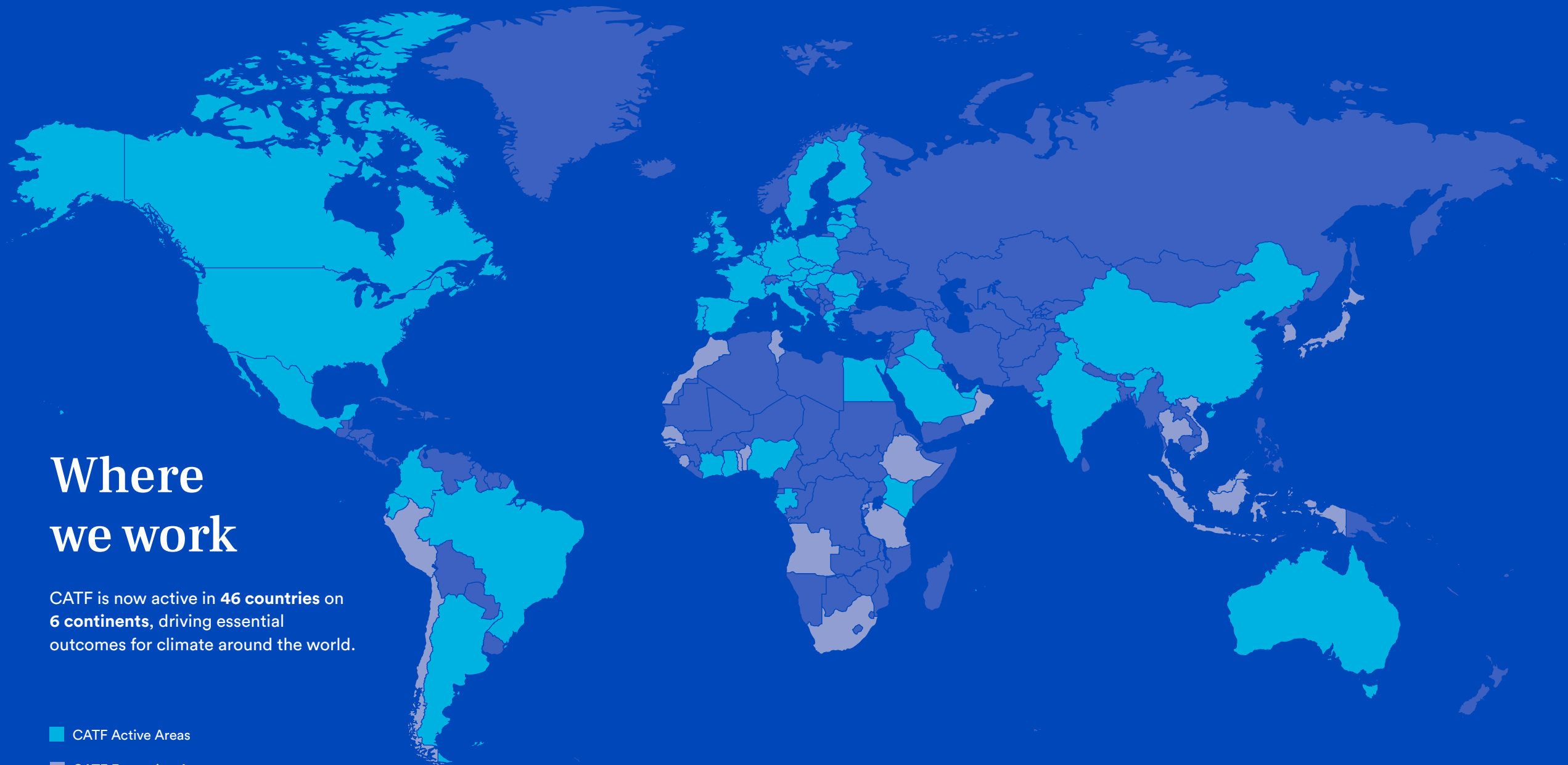
What we do

- **Change the narrative** to communicate the size of the problem and totality of solution requirements.
- **Change technology** to make available the full suite of carbon-free options like advanced renewables, zero-carbon fuels, carbon capture, advanced nuclear, and superhot rock energy at an affordable cost.
- **Change business models** to include modular, manufacturable energy solutions that can be deployed anywhere quickly.
- **Change policy** to develop, demonstrate, and scale-up the technologies and systems needed to achieve net-zero emissions by midcentury.
- **Change the politics** to grow support for clean energy and climate solutions.

Where we work

CATF is now active in **46 countries** on **6 continents**, driving essential outcomes for climate around the world.

-  CATF Active Areas
-  CATF Expansion Areas



Activity highlights

1

California, U.S.

Secured state support for carbon capture and storage and successfully advocated to keep the state's largest source of carbon-free energy, Diablo Canyon, in operation.

2

Washington, D.C., U.S.

Helped unlock historic funding for a range of climate and clean energy solutions through the Inflation Reduction Act, which will reduce pollution and spur innovation while pushing the U.S. closer to achieving its climate commitments.

5

Brussels, Belgium

Secured the first-ever EU commitment to develop a comprehensive carbon capture and storage strategy and led an advisory board on behalf of the European Commission.

7

New Delhi, India

Conducted a first-of-its kind analysis to assess decarbonization pathways for India's transportation sector, including electrification, hydrogen, and ammonia.

3

Quito, Ecuador

Hosted trainings on Ecuadorean oil and gas methane mitigation with government officials, industry leaders, civil society, and philanthropists.

4

West Africa

Convened the West African Utilities Roundtable, bringing utilities from across the region together with CATF experts to discuss the challenges and opportunities embedded in Africa's quest to significantly expand energy access.

6

Sharm el-Sheikh, Egypt

Strategically engaged world leaders at the largest annual climate summit, COP27, hosting the Zero-Carbon Future pavilion to showcase the hardest climate questions, share innovative solutions, and highlight opportunities to transform the energy system.

An aerial photograph of a lush green mangrove forest. The dense vegetation is interspersed with a network of winding, light-colored waterways that create a complex, organic pattern across the landscape. The lighting is bright, highlighting the vibrant green of the trees and the clarity of the water.

SECTION 3

2022 in Review

Climate Breakthroughs in a Complex World




2022 IN REVIEW

A new era of U.S. climate leadership

Securing historic climate and clean energy funding to jumpstart the next generation of climate solutions

More than a decade of U.S. climate and clean energy advocacy came to fruition in 2022 when Congress passed the [Inflation Reduction Act](#) (IRA), unlocking nearly one trillion dollars in new clean energy investment. Our modeling shows this historic legislation could help the U.S. cut its greenhouse gas emissions by up to 42%, bringing the country within reach of its climate commitments under the Paris Agreement while advancing the commercialization of the next generation of technological solutions and catalyzing emissions reductions across the globe. **And CATF's fingerprints were all over it.**

Aided by CATF's technological research, innovative thought leadership, and strategic political advocacy over the past decade, this landmark legislation included



CATF is at the nexus of sustainability, climate action, and policy.

– KIRSTIN, CATF DONOR, U.S.

significant investments in a wide range of too-often overlooked technologies, including [carbon capture and storage](#), nuclear energy, low-emission hydrogen, [methane mitigation](#), geothermal energy, transmission infrastructure, and more. Its passage marked a victory not only for the U.S. and for the planet, but also for the strategic framing that CATF has advanced for years. We know that it will take more options, not fewer, to tackle the climate challenge, and the U.S. Congress adopting that view represents a major breakthrough in our collective understanding of the problem.

Now, it's [implementation time](#).

Not resting on our laurels, CATF is building out our U.S. team to ensure we can implement these federal policies effectively and equitably. With a multi-pronged, strategic approach, we're advising U.S. federal agencies on how best to spend billions of dollars in new IRA funds, including how to establish new programs and staff up. We're launching new programs focused on the responsible development of hydrogen hubs, and we're standing up a new U.S. state program to facilitate coordination between U.S. states and the federal government – maximizing the climate impact of the Inflation Reduction Act. And a [new analysis](#) finds that for every ton of CO₂ reduced in the U.S. under IRA, an additional 2.4-2.9 tons of CO₂ emissions reductions are achieved outside the U.S.

Together, we unlocked the largest climate victory in U.S. history this past year. Now, we're adapting our approach to ensure we seize the opportunities it presents and compound their impact for years to come.

REPORT

Climate and Clean Energy Legislation, 2020-2022

This report assesses the four landmark pieces of U.S. climate and clean energy legislation passed in the U.S. since late 2020, a period that straddles multiple presidential administrations. **It identifies the following investments in climate:**

- **Energy Act of 2020:** \$35 billion in federal investment, including billions to support research, development, and demonstration dedicated to innovative energy sector technologies with a focus on zero-carbon energy and domestic manufacturing.
- **Infrastructure Investment and Jobs Act of 2021:** \$62 billion in clean energy investment, primarily for large-scale technology demonstration and deployment programs, including massive clean energy hubs.
- **Inflation Reduction Act of 2022:** \$369 billion investment in clean energy innovation and climate solutions, primarily through tax credits and deployment incentives for zero-carbon technologies – taking clean energy hubs from basic economic development to something that can scale up and provide benefits to communities + funding for hydrogen, carbon capture and storage, nuclear, methane abatement, energy siting, and renewables.

Laboratories for climate innovation: Advancing climate action in statehouses across the country

In addition to driving progress at the federal level, **CATF also worked to secure climate breakthroughs in U.S. state policy**, helping unlock support for a broad range of climate solutions in a diverse set of states.

- California lawmakers advanced carbon capture and storage, invested \$1 billion in renewables, and extended the life of nuclear plant Diablo Canyon, the state's largest single source of carbon-free energy (see next page).
- In North Carolina, Governor Roy Cooper signed an executive order to lay the foundation for the adoption of the Advanced Clean Trucks rule.
- The Maryland General Assembly passed the Climate Solutions Act of 2022, a broad and ambitious bill that includes a statewide commitment to achieving net-zero GHG emissions by 2045.
- In Pennsylvania, Governor Tom Wolf, universities, labor unions, companies, and other lawmakers, committed to advance carbon capture and low-emission hydrogen.

Legal advocacy under the Clean Air Act: Setting the narrative around *West Virginia v. EPA*

What does environmental legal advocacy look like at the Supreme Court?

CATF played a central role in one of the highest profile – and most environmentally significant – Supreme Court rulings of 2022: *West Virginia v. EPA*. Representing a collection of health and environmental organizations including the American Lung Association, the American Public Health Association, and the Appalachian Mountain Club, **CATF's legal team conducted strategic legal advocacy and provided expert analysis to shape the public narrative** after the Supreme Court ruled that the pollution control system underlying EPA's 2015 Clean Power Plan was outside its authority. Through a coordinated legal briefing and communications campaign featuring some of the country's foremost Clean Air Act lawyers, CATF reminded the world that while *West Virginia v. EPA* took a key tool out of EPA's regulatory toolbox, it did not by any means block the agency from exercising its authority to establish stringent emission standards for fossil fuel fired power plants.

This narrative victory would prove critical to our efforts to secure strong power plant emissions reduction rules from EPA in 2023 and beyond.





\$1 billion

of investment in California's renewable energy
secured with CATF's help

Diablo Canyon: Protecting California's largest source of carbon-free energy

As climate impacts take hold around the world, California's renewable energy deployment hit roadblocks due to slow solar siting and transmission constraints, and even fossil fuel plants struggle to keep up with growing demand, why would California shut down its largest source of carbon-free energy?

CATF staked out a leadership position in the environmental world to raise that question in 2022 – catalyzing expert research, a public affairs campaign, and a coalition called Carbon Free California that, in conjunction with a grass roots campaign called Save Clean Energy, persuaded the Governor and the Legislature to continue the operation of [California's Diablo Canyon Nuclear Power Plant](#).

Supporting the work of Carbon Free California, **CATF made sure that California lawmakers understood the value of nuclear energy to clean air and the climate**, securing the state legislature's vote and the governor's support to keep it open. At the same time, we helped secure \$1 billion of investment to accelerate wind, solar, storage, and other renewable energy sources in California.

A premium on planning: Developing California's clean energy deployment plan

Mandating and funding clean energy is a big enough hurdle; actually building it in a land-constrained world is an even bigger one. Having successfully advocated for the first-ever state law in California requiring a zero-carbon power grid, **CATF launched a program this year focused on building clean energy infrastructure**. We produced [a landmark report](#) on what California must do to reach its climate and clean energy goals. With the report's findings in hand, we're working to ensure the state develops a concrete deployment plan that includes specific quantities, locations, and timing of new resource development and infrastructure expansion to expedite clean energy deployment.

We're bringing a similar approach to efforts in Colorado and New England, with future work underway in Europe. Working across CATF areas of expertise in planning, deployment, policy, and land use, we're asking the hard questions, including:

- How are we going to build all the clean energy infrastructure we need?
- How can we ensure land serves as an enabler, rather than a barrier, to the energy transition?
- How can we better meet community needs?
- How can better planning for clean energy deployment improve public acceptance and environmental outcomes?



⊕ A more all-encompassing approach resonates with me. Rather than arguing about which technologies are best, we need to look to the future and think of creative ways to address the climate crisis.

— TYSON, CATF DONOR, U.S.



2022 IN REVIEW

A new vision for Europe

Energy security and climate
leadership in a destabilized world

In 2022, Europe found itself at an inflection point.

Long considered a climate leader, the war in Ukraine and the subsequent global energy crisis forced it to check its ambitions and its preconceptions against the need for energy security in a fast-changing world. New realities caused European leaders to acknowledge their reliance on unabated fossil fuels, as well as to reconsider their long-held opposition to carbon-free, firm energy sources like nuclear energy.

This changing landscape heightened the importance of CATF's approach. Now three years into our concerted advocacy efforts in [Europe](#), **we've taken a key role in shaping resilient, energy security-focused climate policy for a new era of European leadership.**

With Europe's energy realities top of mind, CATF developed a new European strategy in 2022 – focusing on increasing the continent's clean energy options while facilitating long-term economic growth, energy security, and climate neutrality.

As part of this new approach, we leveraged our strategic relationships with European policymakers and our deep technical and policy knowledge to help secure the first-ever European commitments to develop a [comprehensive carbon capture and storage strategy](#), providing detailed policy recommendations and co-leading a [working group](#) at the invitation of the European Commission. We also made our voice heard on a number of key European legislative priorities, including the [Trans-European Transportation Network](#), the [FuelEU Maritime Regulation](#), the Alternative Fuels Infrastructure Regulation, and the first-ever European legislation on [methane regulation](#) – an issue we put on the map in Europe with an accountability campaign paired with targeted policymaker engagement.

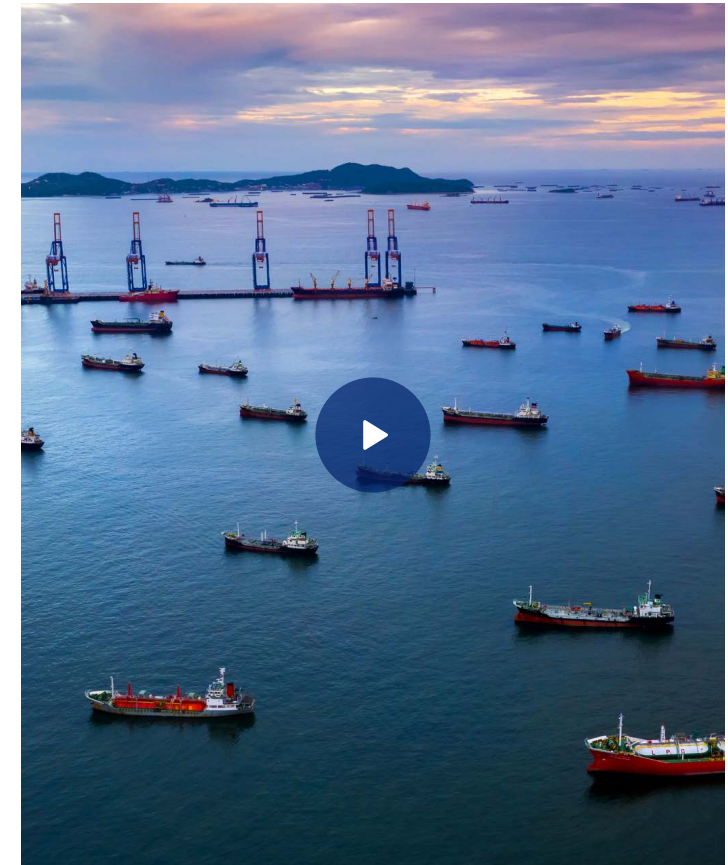
With a European strategy that's purpose-built for a new era, **CATF is expanding our work and deepening our impact in Brussels and beyond.** Look out for new member-state efforts in the U.K., Germany, and Eastern Europe in 2023, with an expanded team of Europeans working across the continent to drive effective, reality-based climate leadership that sends ripples out around the world.

A policy framework for carbon capture and storage in Europe

There has already been a marked growth in efforts to deploy carbon management technologies across Europe. But efforts to deploy them at large scale in Europe have struggled, owing primarily to inadequate regulatory incentives and the need to develop common CO₂ infrastructure. Now, with over 50 carbon capture or storage projects proposed across the region, it is imperative that the **EU and national governments develop a coordinated policy framework** that allows these first-move projects to progress and develop into a viable, region-wide industry for CO₂ storage.

Fit for 55: Decarbonising European shipping

CATF launched a campaign highlighting the importance of the Fit for 55 proposals in addressing emissions from shipping and its major impact on climate change and air quality.



VIDEO

[Fit for 55: Decarbonising European shipping](#)



DID YOU KNOW?

3°C

could be knocked off by cutting
methane emissions by 40%

2022 IN REVIEW

Methane Momentum

Our global quest to pump the
brakes on climate change

Scientists agree: Reducing methane emissions is our best bet to immediately slow the pace of global warming. What's more, we have many of the solutions needed to cut methane emissions right now.

CATF has been leading the charge to reduce methane emissions around the world for more than two decades – pushing methane mitigation onto the global climate agenda and playing a key role in nearly every methane reduction policy developed anywhere on Earth – including at the state and federal levels in the U.S., in the European Union and in member states, and in Mexico, Ecuador, Colombia, Argentina, and Nigeria. We also helped design and build support for the Global Methane Pledge, launched in 2021, one of the largest ever displays of collective climate ambition.

Reducing methane is the one thing we can do today that will slow down global warming in our lifetimes. Not my kids' lifetimes, not their grandkids' lifetimes, but in our lifetimes. We can slow down the rate of warming we're experiencing today and avoid some of the catastrophic impacts we're just starting to see.

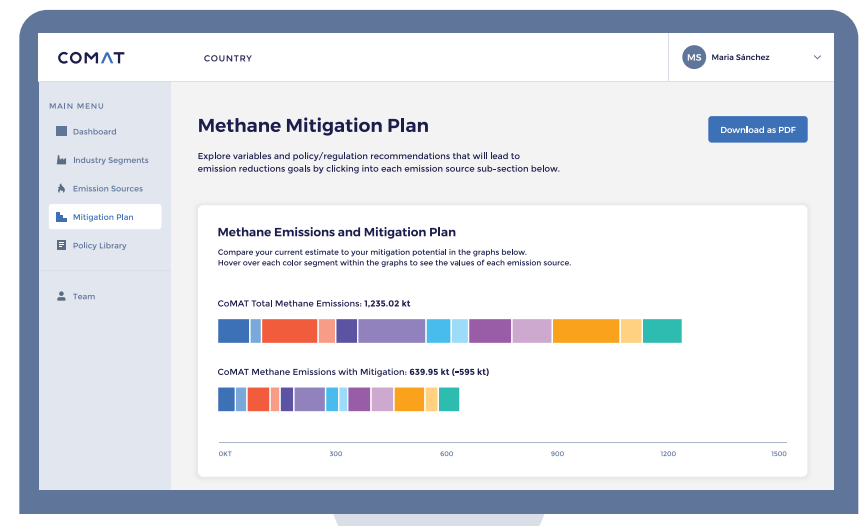
– JONATHAN BANKS,
GLOBAL DIRECTOR, METHANE
POLLUTION PREVENTION

In 2022, we made major breakthroughs to turn that global methane ambition into action. Not only did we continue to leverage our relationships and expertise to secure additional Global Methane Pledge participants, we drove implementation of new methane regulations in places like the [U.S.](#), [the European Union](#), [Canada](#), [Colombia](#), [Ecuador](#), [Mexico](#), and [Nigeria](#) – advancing emissions reductions that are bending the climate curve in real time. Our work was recognized by world governments at last year's largest climate summit – COP27 in Sharm el-Sheikh, Egypt – where CATF co-hosted government leaders and the United Nations at the [Global Methane Pledge Ministerial](#), highlighting the critical need for urgent action on methane.

While we've made important progress since the signing of the Global Methane Pledge, we know it's not enough. Global methane emissions continue to climb, threatening climate targets. That's why we're expanding our reach and deepening our efforts on methane to work directly with governments, helping them better understand and manage their oil and gas methane emissions using our [Country Methane Abatement Tool](#) (CoMAT). We're also launching new work focused on reducing methane from the [global waste sector](#), the third largest source of methane in the world, as well as efforts to develop more solutions to reduce emissions from the agriculture sector, the largest source of methane in the world. Look out for new efforts in 2023 and beyond focused on another strategic leverage point: finance.

CATF's innovative emissions reduction software: CoMAT

CATF is breaking down the barriers that prevent governments and companies from understanding their oil and gas methane emissions and taking meaningful action to reduce them. The Country Methane Abatement Tool (CoMAT) **helps governments identify and quantify methane emissions from their country's oil and gas industry**, compiles best practices from around the world, and provides a menu of effective policy options for governments to choose from when customizing methane mitigation plans to their unique circumstances.



430+

oil and gas sites
emitting methane
pollution have been
documented by CATF



#CutMethaneEU: Making the invisible visible

CATF continued our groundbreaking work to raise the issue of methane emissions from Europe's oil and gas sector in 2022.

By providing optical gas imaging and training, we helped civil society and policymakers understand the way that **gas wasted through venting and flaring worsens climate change and compromises energy security.**

We complemented this visual campaign with targeted policymaker outreach, educating key stakeholders on the interconnection between energy security and emissions reductions, and the way regulations can help address both.

CASE STUDY

Nigeria notches a climate victory: Securing Africa's first regulations to mitigate methane from oil and gas

CATF has worked closely with the government of Nigeria over the past few years to build an understanding of the country's methane emissions by utilizing the CoMAT tool, helping Nigeria map its primary sources of methane emissions and advising on policy pathways to reduce them.

In 2022, **Nigeria announced a new set of regulations to address methane emissions from the oil and gas sector** – the first country in Africa to do so. CATF continues to work with Nigeria to ensure it has the necessary tools and resources to implement the regulations.





⊕ I chose to donate to CATF because I like that you prioritize impact and are willing to learn to become more effective. Addressing methane emissions is vital in the short term, and the work CATF is doing to address it across Europe can be a bridge to a brighter future.

— LAURENZ, CATF DONOR, GERMANY



2022 IN REVIEW

Africa's energy transformation, led by Africa

At CATF, we think of Africa and its energy journey differently than most environmental organizations.

We understand that African countries have an imperative to prioritize their own energy access and economic development, and that any conversation about emissions reduction in a region that has historically contributed so little to the climate challenge must be led by those living and working within it.

Africa can't and won't bend to the narrow pathways prescribed by some in the industrialized world – and any sophisticated climate strategy must contend with the region's development imperatives and its potential as a center for indigenous innovation.

We also know that dynamics in the region are complex and that we need the buy-in of utilities to transform Africa's energy future. In recognition of that reality, we launched the West Africa Utilities Roundtable in

2022, bringing utility companies together to discuss challenges and solutions to energy expansion in Africa. We know that we'll need decentralized and centralized energy systems working in tandem to meet Africa's energy access needs, and utilities are critical to driving that work forward.

In 2022, we also set out to take stock of where things stood with [energy transition research](#) on the continent. We wanted to know: Who is producing the scholarship on energy and climate in Africa, what is it focusing on, and how is that research coloring the global understanding of Africa's energy future?

We found that energy transition research is primarily being conducted by those outside the continent – with little regard paid to the realities on the ground. We also found that general assumptions about Africa's development and energy needs didn't match with indigenous understanding. These findings help underscore the need to develop a knowledge base in Africa as a core part of an energy transition strategy.

As CATF's Director of [Energy and Climate Innovation in Africa](#) Lily Odarno notes: **"If we can align the African vision of energy transformation and development with the academic and economic literature, we can make sure public policy better reflects the realities on the ground."**

We showcased these findings and our [broader work across Africa in 2022 at COP27](#) in Sharm el-Sheikh, Egypt. Seizing the opportunity to better educate the global climate-concerned public on climate and energy in the African context, CATF brought together key

actors from the region, including the vice chair of the Intergovernmental Panel on Climate Change, members from the African and West African Development Bank, and representatives from key African universities for conversations on how to build [African solutions for the climate and energy transition](#). Through a series of high-profile events, we provided space for Africans to assess the challenges facing Africa and to voice how current approaches are insufficient to address those challenges.

This convening function is central to CATF's approach in the region, bringing together African experts to think through how we can move innovative ideas forward with Africa front and center, ultimately highlighting how leaders on the continent can and must navigate their own energy development journey.

An African vision for energy transformation

What does an African-led energy transformation look like? How can we break free from old paradigms around energy access and development? How can African leaders ensure they have the freedom to develop their economies while aligning that development with a global energy transformation? This panel discussion at COP27 featured leaders from across Africa who are working to **build an African vision for energy transformation**, ensuring local ownership and regional self-determination within a global vision for decarbonization.



VIDEO

[An African Vision for Energy Transformation](#)



2022 IN REVIEW

Catalyzing climate leadership in the Middle East and North Africa

The Middle East and North Africa (MENA) region is a rich and diverse collection of cultures, economies, and countries – each with its own natural resources, geopolitical interests, and pathways to climate leadership. Collectively, it also represents one of the world’s largest energy hubs, with significant technical know-how, financial resources, and influence over global energy markets. Yet, widespread inequality in terms of capital, income, and consumption have led to significant vulnerability to climate impacts.

These factors converge to present a complex challenge worthy of CATF’s unique, strategic approach.

Understanding the importance of advancing climate and clean energy leadership across the MENA region while reckoning with its development and access imperatives, CATF has worked to establish itself as an independent thought leader and knowledge resource in the region. We've recruited top local experts, joined influential working groups and consortia, infused resilient climate strategies into the region's energy plans, and co-authored prominent literature that informs policies for the region and its partners. **We work directly with governments and other stakeholders to identify opportunities for impact and we leverage those opportunities to spur innovation and clean energy deployment in the region and beyond.**

In 2022, through strategic engagement and analysis, we explored new opportunities to pivot the MENA region's energy investments toward a wider range of clean energy generation and climate technologies, [producing a landmark report](#) examining the opportunity the region has to pioneer clean hydrogen production, carbon capture and storage, and methane emissions management. CATF found that with the right policies, market conditions, and international cooperation, the region can achieve long-term economic and geopolitical success as a decarbonized energy supplier in a carbon-constrained world.

We showcased that work while engaging in high-level diplomatic discussions around MENA climate leadership at [COP27](#) in Sharm el-Sheikh, Egypt, and will continue to engage at COP28 in Dubai, UAE. These MENA-based climate summits provide the perfect opportunity for CATF to advance its

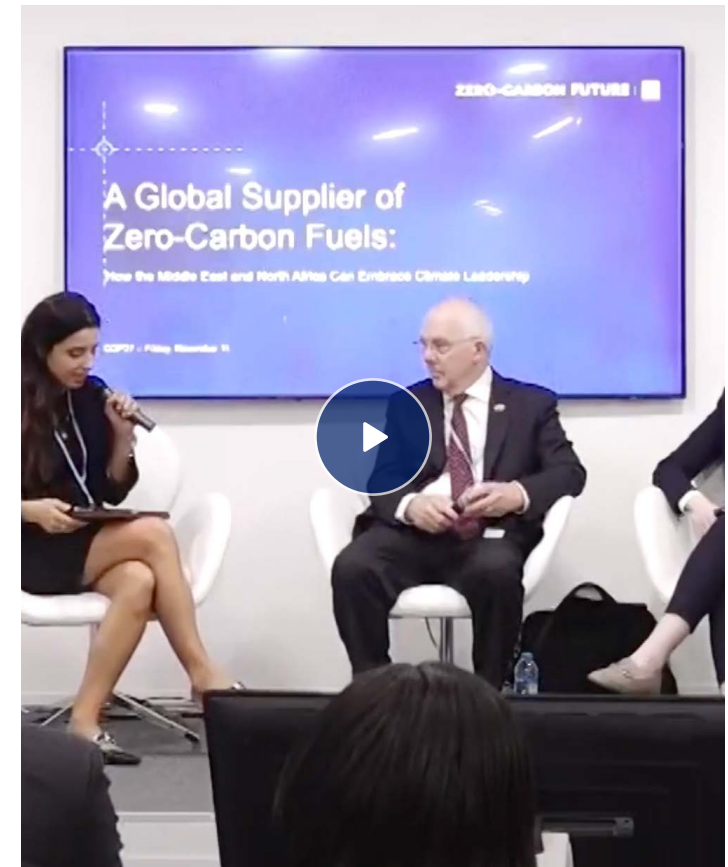
pragmatic approach, embracing the complexities of the decarbonization challenge and asking the hard questions that bring others face-to-face with the realities of our global energy system and the multi-faceted approach it will take to work within it.

In 2023, look out for new thought leadership evaluating the region's opportunities to establish itself as a hub for clean manufacturing, to reduce methane and carbon dioxide emissions from fossil fuel flows, and to encourage the development of a diverse array of climate technologies in developing countries through strategic financing.

REPORT

How the Middle East and North Africa Can Accelerate the Global Energy Transition

This report explores the potential for the Middle East and North Africa (MENA) region to position itself for leadership in the growing global market for low-carbon hydrogen — and to enable technologies such as carbon capture and storage technology and near-zero methane emissions management.



VIDEO

[A Global Supplier of Zero-Carbon Fuels: The Middle East and North Africa](#)

CATF's key strategies and leadership activities in the Middle East and North Africa

- **Develop new energy plans** for MENA countries that flow into a regional diversification and decarbonization vision for the region.
- **Highlight opportunities for Gulf State countries to adopt decarbonized technologies at scale**, emphasizing how such actions support each country's economic and social goals.
- **Educate key decision-makers** through engagement, analysis, and advocacy on the policies and technologies needed to transition to a low-carbon economy.
- **Build connections between supply and demand centers** and share learnings through robust global dialogue.
- **Leverage global climate summits** like COP27 in Egypt and COP28 in the UAE to promote a more globally conscious, region-centric approach to decarbonization informed by a more realistic reckoning with the world's energy system.

COP27: Catalyzing leadership for a zero-carbon future

COP27, the year's largest global climate change summit, brought world leaders in government, civil society, industry, and finance together in Sharm el-Sheikh, Egypt, where **Clean Air Task Force was on the ground to advocate for immediate and long-term climate action**. In addition to co-hosting and speaking at ministerial events with world climate leaders, CATF hosted the [Zero-Carbon Future pavilion](#) — a collaborative platform for climate advocates, government officials, and other experts to take on the hardest questions, share innovative solutions and highlight opportunities to transform the energy system and decarbonize the global economy.

CATF hosted [two full weeks of programming](#), highlighting the need to:

- Develop the next generation of **innovative clean energy and climate solutions**.
- **Center the development needs of the Global South** and support those on the front lines of climate change.
- Move from ambition to **action, accountability, and implementation**.
- Reduce carbon emissions and methane emissions **simultaneously**.

COP27 HIGHLIGHTS

30 CATF experts from 13 countries in COP delegation

70 speaking engagements for CATF experts

100+ stakeholder meetings

42 presentations and events at Zero-Carbon Future pavilion

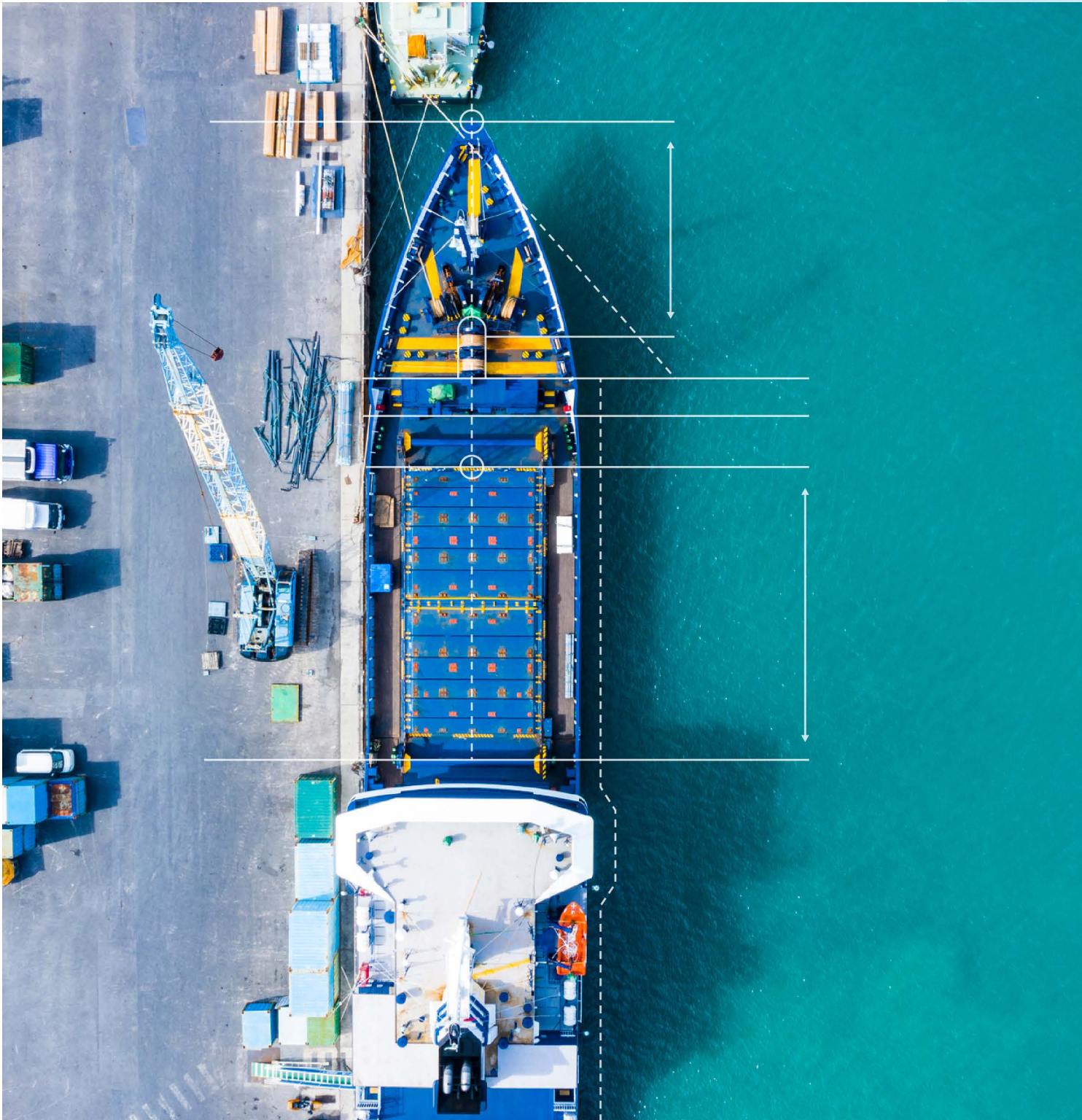
250 expert speakers hosted across all programming

300+ news stories featuring CATF expertise



CATF's approach is great because they're not only focusing on technologies that already have significant years of research and high-dollar funding behind them. There are a lot of other, more nascent and promising technologies out there that we should focus on. By donating to CATF, I believe my support can make a much bigger difference in addressing climate change.

— TOM, CATF DONOR, U.S.



2022 IN REVIEW

Future forward

Advancing the next generation of clean energy technologies

We are climate and clean energy pioneers. About 20 years ago, CATF assessed the climate and energy landscape and concluded what some knew but many hesitated to say publicly: energy efficiency and renewable energy sources like wind and solar were unlikely to get the job done on their own. The world would need an expanded suite of carbon-free solutions to fully decarbonize the energy system.

CATF pursued a strategy that reflected that reality – including technology advocacy for critical innovations in carbon capture and nuclear energy and expanding our potential solution set to include geothermal, bioenergy, zero-carbon fuels, and more in the years to come. We adopted the role of an honest broker in advocating for these technologies – firm in our insistence that it will take a wide range of solutions to meet this challenge and open to any innovation that offers promise, yet sober and objective in our recognition that we advance these solutions responsibly and that we move on when a pathway no longer makes sense.

Superhot Rock Energy: A potential clean energy revolution in the making



In this long-held CATF tradition, we pioneered groundbreaking technology advocacy in 2022 with the debut of work in superhot rock energy, a potential new form of geothermal energy that would use innovative deep drilling techniques to provide abundant, always available, cost-competitive and carbon-free power virtually everywhere on Earth – all with a land-use footprint much smaller than that of other energy sources.

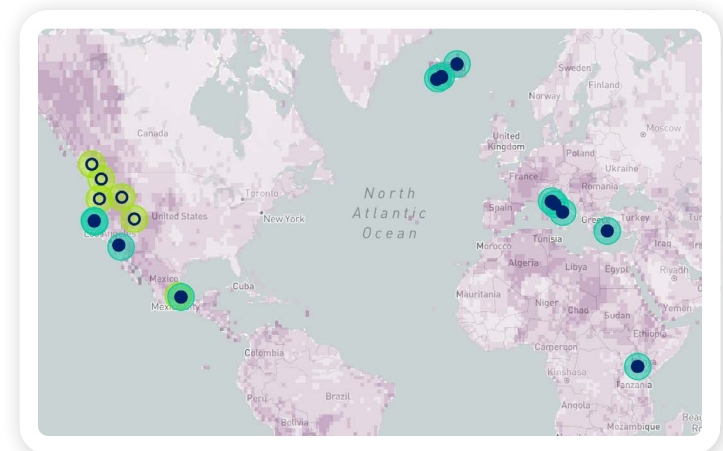
The problem? Superhot rock energy isn't yet being meaningfully deployed anywhere on Earth and, despite its enormous promise, it receives very little funding or attention.

In 2022, we assembled a world-class team of **geoscientists, industry experts, and policy advocates devoted to advancing the research, development, and demonstration pathway for superhot rock energy.** We issued a new report that provides the authoritative overview of the technology and its potential, mapped the most promising locations for early stage superhot rock energy deployment, and coordinated a public launch that generated extensive coverage of this potential energy source in top tier global news media. We also worked directly across the potential superhot rock energy supply chain and financial ecosystem, fostering a collaborative and competitive environment that taps into the power of the global market to push this technology into the mainstream.

In 2023 and beyond, we'll pioneer more innovative work at the vanguard of superhot rock energy – conducting new research, convening important stakeholders, and providing policy recommendations and educational opportunities to governments around the world.

Superhot rock global project map

In order to drive awareness of superhot rock energy's unparalleled potential, CATF created a Superhot Rock Project Map, which highlights superhot rock projects in various states of maturity. The map shows the estimated depth required to reach 450°C across the world, as well as existing and planned superhot rock projects and wells.



Zero-Carbon Fuels: Innovation to reach the hardest-to-electrify sectors

We also continued exploring the potential for [zero-carbon fuels](#), namely hydrogen and ammonia, to replace high-emitting fuels like diesel and petroleum in powering the hardest-to-electrify sectors.

While electrification is a critical component of decarbonization, it's either technically infeasible or prohibitively expensive for sectors like global marine shipping, aviation, and long-haul trucking. Zero-carbon fuels like hydrogen and ammonia could provide a low-emissions alternative while maintaining some of the key benefits of conventional fuels. Hydrogen also plays a key role as a feedstock for ammonia and methanol production, oil refining and petrochemicals, and for the nascent bio and synthetic fuels production. The problem? Hydrogen itself is currently produced from high-emitting processes using mainly natural gas and coal as feedstocks.

That's why **CATF is working to ensure that existing high-emitting hydrogen production is decarbonized**, and that future hydrogen production follows climate beneficial production pathways and reaches the scale necessary to contribute meaningfully to decarbonization efforts.

To test the potential of zero-carbon fuels and to better quantify the impact of their high-polluting alternatives, CATF conducted cutting edge research in the fuel space in 2022, digging into [aviation decarbonization](#),

transportation sector [diesel pollution](#), and decarbonization of [India's transportation sector](#). CATF also commissioned a study to understand how existing assets which consume large volumes of hydrogen can be decarbonized through the deployment of clean hydrogen as a feedstock and zero-carbon fuel, and another to help stakeholders understand the [cost of hydrogen transportation](#) for different sources to the Port of Rotterdam via maritime shipping and pipeline transportation modalities.

Key benefits of zero-carbon fuels:

- They are produced via clean pathways, **emitting no carbon dioxide** when burned.
- Their production can be scaled up, allowing them to become **cost-competitive with fossil fuels**.
- They are **always available** and compatible with existing networks.

DID YOU KNOW?

2%

of global carbon dioxide emissions come from the aviation sector and **could triple by 2050**

Decarbonizing aviation: Challenges and opportunities for emerging fuels

Decarbonizing the global aviation sector will require significant investment in and policy support for an expanded suite of clean energy solutions beyond only biofuels, including low-emissions hydrogen and synthetic fuels, electricity, and direct air capture. This report provides recommendations for policies to advance these solutions in both the United States and European Union.



Advanced Nuclear Energy: The next generation in clean, firm, flexible energy

Alongside successful efforts to preserve the clean, firm power generated by California's Diablo Canyon, **CATF has been working globally to realize the potential for advanced nuclear reactors.**

Despite the growth in renewable energy around the world, about 80% of the world's energy (and about two thirds of the world's electricity) is still derived from unabated fossil fuels. As we build new power generation to meet growing energy needs, advanced nuclear reactors can provide a dense, high-energy alternative to meet the demand for electric power needs, hydrogen production, district heating, manufacturing and process heat, and desalination.

In 2022, CATF worked on several efforts to unlock nuclear energy's potential. We successfully spearheaded a campaign to reinstate a federal research program concerning low-dose radiation health effects, an initiative with the potential to substantiate a more realistic framework for nuclear reactor safety standards. CATF also originated the [Nuclear Hydrogen Initiative](#), a global coalition encompassing nuclear vendors, hydrogen providers, and potential stakeholders. The consortium operates as a central repository for information on nuclear hydrogen and advocates for this emerging application.

With support from McKinsey & Company, CATF formulated an extensive 100-page strategic vision for the global nuclear energy industry. This blueprint has

been widely circulated and discussed with nuclear industry participants, developers, and financial entities. Finally, CATF testified before Congress several times in 2022, delineating a pathways for nuclear energy to become relevant at climate scale and speed.

On the Horizon: Fusion, advanced fission, and more

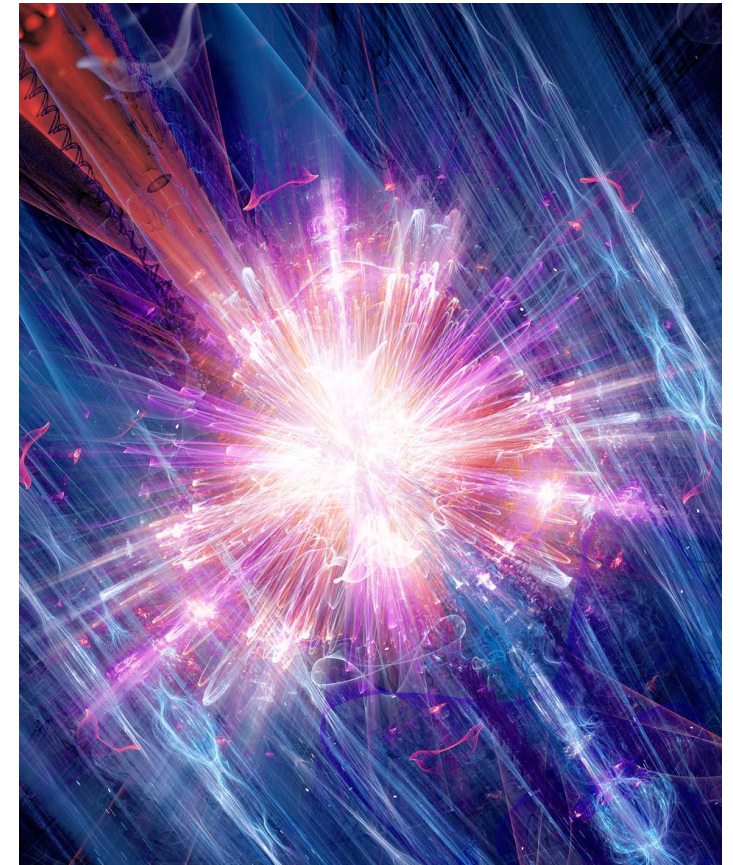
We'll be hard at work to expand our clean energy options in the year to come, understanding that the climate challenge's complexities call for more solutions, not fewer.

In 2023, **we're building a new CATF team focused on fusion energy** with an eye toward the commercial and regulatory barriers we face and the opportunities we have to unlock this potentially revolutionary carbon-free energy source. At the same time, building on our longstanding work in the nuclear energy space, we're pioneering a new global strategy to overhaul the financial, regulatory, and commercial ecosystem for nuclear fission.

DID YOU KNOW?

80%

of the world's energy is still derived from
unabated fossil fuels



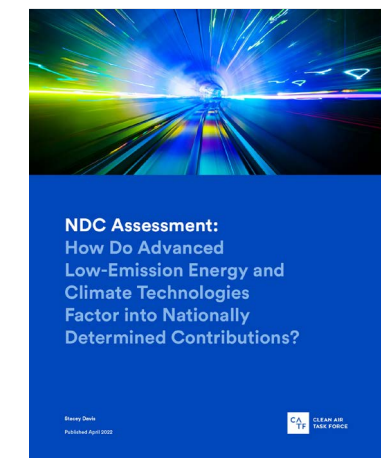
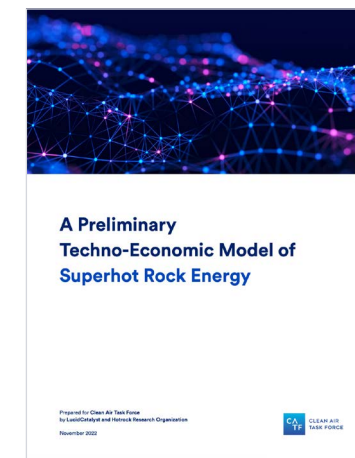
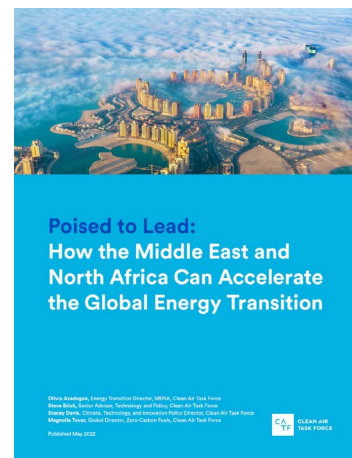
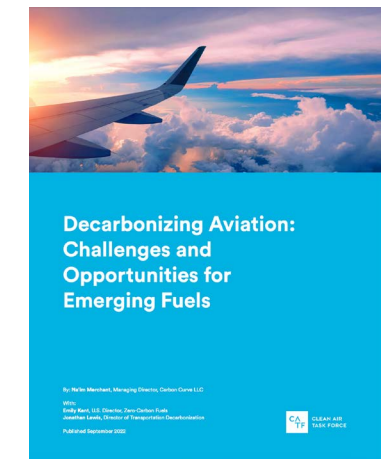
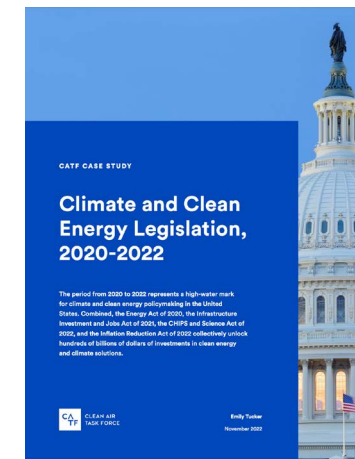
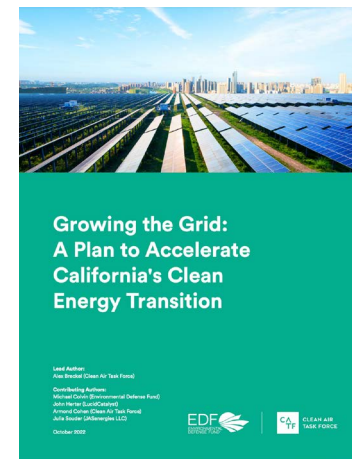
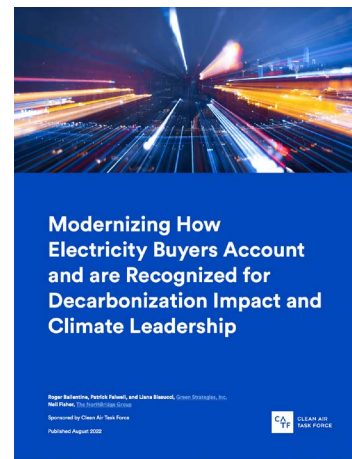


CATF is one of the only organizations actually advocating for nuclear energy. This sets CATF apart, and makes them a great option to support.

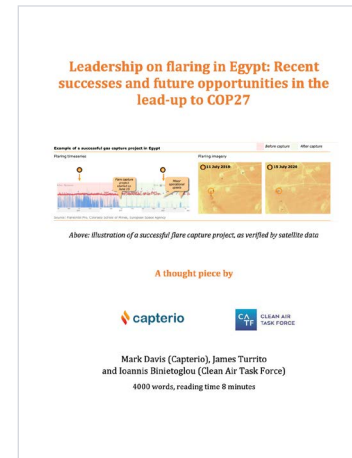
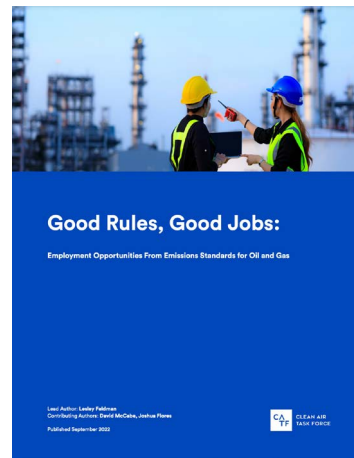
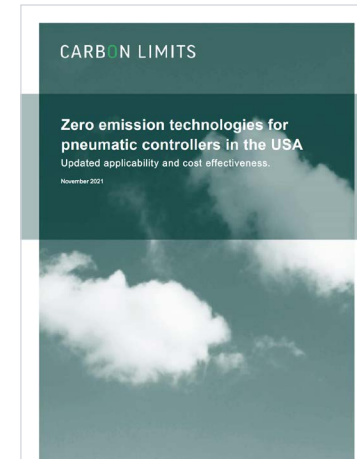
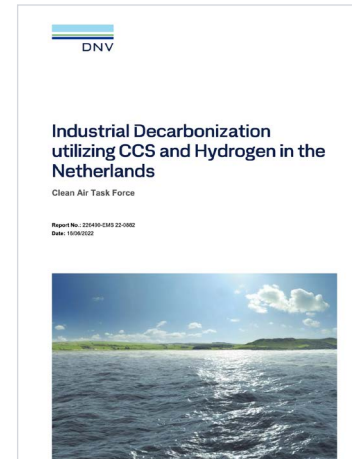
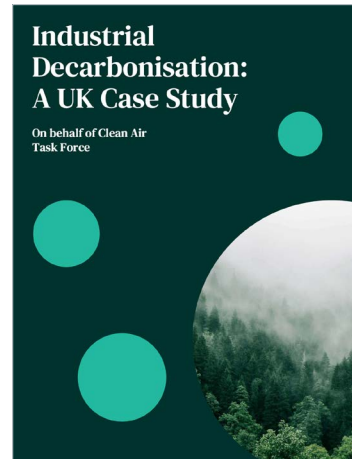
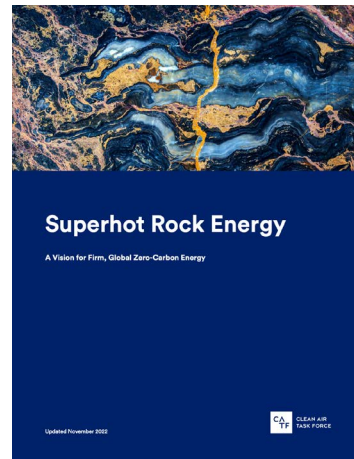
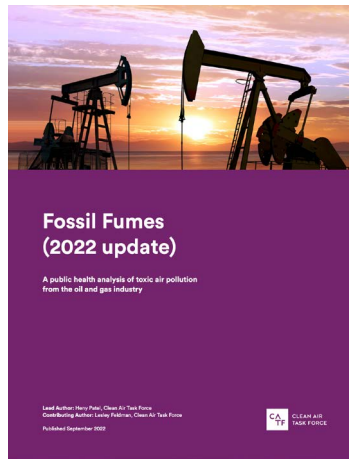
— NILS, CATF DONOR, SWEDEN

CATF Research and Analysis in 2022

A sampling of CATF reports in 2022 that asked hard questions, explored innovative solutions, and increased awareness around the complexity of the climate challenge and the actions we must take to meet it.



CATF Research and Analysis in 2022 (continued)





SECTION 4

Board of Directors

Meet Our Board of Directors

Clean Air Task Force's board is comprised of executive-level leaders with diverse backgrounds in energy, policy, law, advocacy, organizational management, and technology innovation. Board members are selected based on their expertise and engagement in CATF's core work and help keep the organization on the forefront of climate and technology advocacy and innovation.



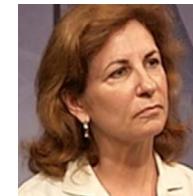
Armond Cohen

Executive Director



Carrie Jenks

Executive Director,
Environmental & Energy Law
Program, Harvard Law School



Sue Sheridan

President and Chief Counsel,
Coalition for Fair Transmission Policy



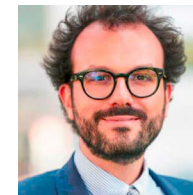
Jeff Brown

Managing Director,
Energy Futures Financing Forum



Jane C.S. Long

Fellow, Center for Global
Security Research; Associate
Director, Lawrence Livermore
National Laboratory



Dr. Simone Tagliapietra

Senior Fellow, Bruegel



Clarence Edwards

Executive Director, E3G,
Washington, D.C. Office



Bruce Phillips

Senior Advisor,
The Northbridge Group



Elizabeth Thompson

Principal, Compass Pt LLC



SECTION 5

Financials



FINANCIALS

CATF Donors

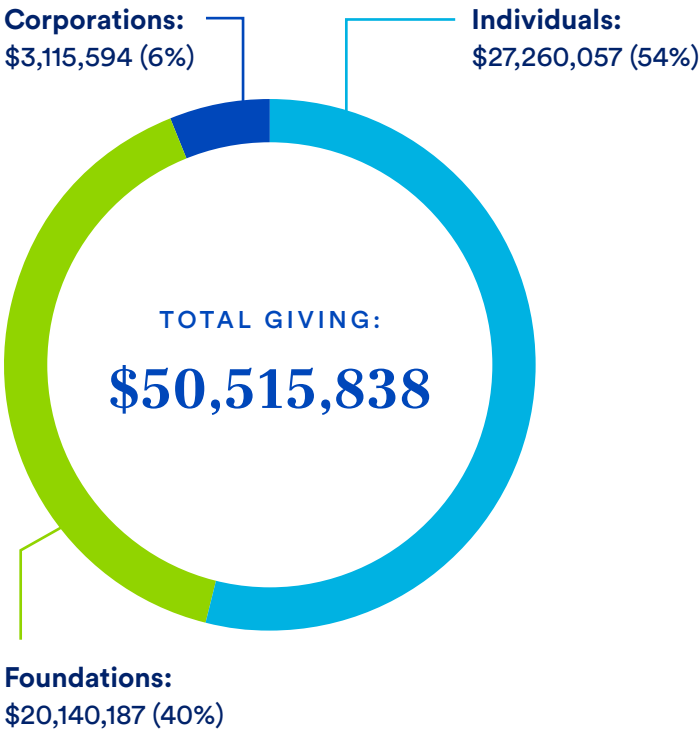
Powering our clean energy future

Clean Air Task Force is 100% powered by generous philanthropic support from individuals, foundations, corporations, and collaborative funding groups from around the world. Every accomplishment shared in this report is directly attributable to the generosity of people who care deeply about addressing climate change and protecting clean air.

Clean Air Task Force is committed to deploying those investments quickly and effectively to attain the highest, most important outcomes that lead to reduced emissions and increased affordable access to clean energy around the world.

We are deeply appreciative of the support from charitable individuals and institutions and work every day to effect meaningful change on their behalf.

Total giving



Endorsements

- Founders Pledge
- Giving Green
- Vox
- GuideStar Gold Rating
- Charity Navigator Four Star Rating

Aggregators and effective altruism partners

- 1% for the Planet
- Ayuda Efectiva – Spain
- Causeway Charitable Foundation
- Cauze/One4All Charitable Fund
- Centre for Effective Altruism – U.S., U.K., Netherlands
- Charities Aid Foundation (CAF)
- Climate Giving
- Doneer Effectief – The Netherlands and Belgium
- Double Up Drive
- Effective Altruism Australia
- Effektiv Spenden – Germany, Czech Republic, Switzerland
- Founders Pledge
- Ge Effektivt – Sweden
- Generous Charitable
- The Gift Trust – New Zealand
- Give Lively Foundation
- Givinga Foundation
- Giving What We Can
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- High Impact Athletes
- legacies.now – Germany
- The Life You Can Save
- Milkywire and WRLD Foundation
- Rethink Charity: RC Forward – Canada
- Simple Generosity
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DONOR HIGHLIGHTS

11,700
total donors

7,494
first time donors

48
countries represented by our donors

\$27 million
donated by individuals

Corporate Donors

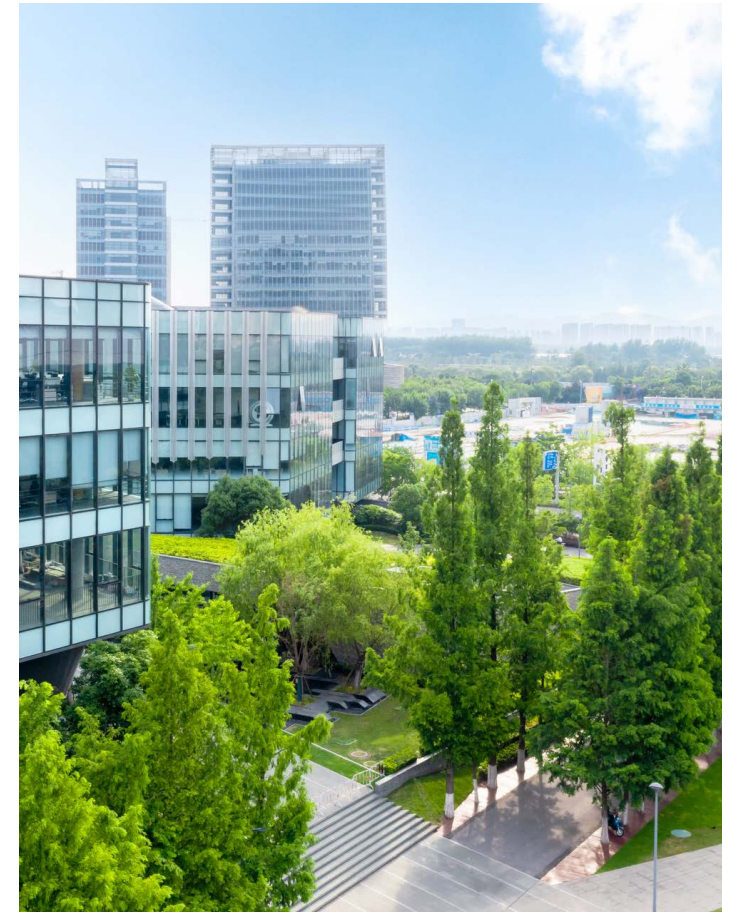
The business community has a critical role to play in addressing climate change, and Clean Air Task Force appreciates efforts by companies to reduce emissions, educate consumers, and provide tools for action.

Donations coming from companies and employee groups have been carefully reviewed to ensure that each entity is a good fit. 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 corporate donations over \$10,000.

2022 corporate donors

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- craigslist Charitable Fund
- Evolution
- Flatiron Health
- Goodr
- Heitman LLC
- Nordstrom Charitable Giving
- OneStream Software
- PA Consulting
- Paramount Pictures
- Pennymac
- Pure Good Foundation
- Quantedge
- Tomorrow
- Zühlke Engineering





⊕ I dearly hope all contributions to Clean Air Task Force will lead to a better and cleaner future not only for our current generation, but all generations after. I believe climate change is an essential issue that must be put into focus.

— MIRA, CATF DONOR, U.S.



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