To our supporters

It’s hard to feel good about this year.

It feels wrong to count wins in a year that so clearly laid bare the daunting and systemic problems we face — as communities, as a country, as a planet.

And yet, 2020 was year 1 of CarbonPlan. We are where we are because of your generosity, support, and partnership, and I’m thrilled to share this report on the progress our team made in 2020.

CarbonPlan was born out of the belief that a specific set of principles and skills — around open science, data science, scientific rigor, transparency, and accountability — could be key to accelerating climate solutions. We’ve now assembled a team committed to that vision, spanning climate science, research, software, program analysis, and policy. And we’re establishing organizational practices that will set us up to grow in the years ahead.

We’ll need to grow, because there’s so much to do!

For much of this year we focused on carbon dioxide removal. We leapt into the middle of a rapidly growing ecosystem, and helped bring open data, scientific rigor, and transparency to the conversation. And we’re seeing tangible evidence of our work shifting narratives and influencing decisions — among corporations, carbon removal projects, investors, and policymakers.

Looking ahead, we need to do even more of what is already working well. We also want to expand into new domains where our values and skills could have new leverage and impact — and do so while growing an organization that continues to prioritize science, transparency, diversity, and justice.

We have so much to do to tackle the problems in front of us, and we can’t wait to share more soon.

Sincerely,

JEREMY FREEMAN
Executive Director
What we do

Ensuring the scientific integrity and transparency of climate solutions through open data and tools

Some of the solution areas we work on...

- Forests
- Soils
- Biomass
- Oceans
- Mineralization
- Direct Air Capture
How we do it

RESEARCH
Domain-specific analysis and cross-cutting synthesis, in close collaboration with external experts. The output is open data and open source tools.

COMMUNICATION
Explaining complex technical concepts to new audiences, and providing timely commentary on newsworthy events with potential policy impacts.

ENGAGEMENT
Partnering with organizations in the public and private sector to evaluate projects and help design programs. We help organizations achieve their goals — but ensure they do so with transparency, accountability, and rigor.
Who we are

Team

JEREMY FREEMAN
Executive Director

DANNY CULLENWARD
Policy Director

JOE HAMMAN
Technology Director

ORIANA CHEGWIDDEN
Research Scientist

FREYA CHAY
Program Analyst

Collaborators

GRAYSON BADGLEY
Columbia University

ANNA TRUGMAN
UC Santa Barbara

BILL ANDEREGG
University of Utah

BARBARA HAYA / JARED STAPP / CLAUDIA HERBERT
UC Berkeley

JENNIFER WILCOX / NOAH MCQUEEN / CALEB WOODALL / HELENE PIOGRE / BEN KOLOSZ
University of Pennsylvania

ANDREW BERGMAN / TOLY RINBERG
Harvard University

Board

JEREMY FREEMAN
CarbonPlan

ZEKE HAUSFATHER
Breakthrough Institute

KELLY GANNON
Global Fund for Women

JENNIFFER PETT-RIDGE / ERIC SLESSAREV
LLNL / UC Berkeley

EMILY GRUBERT
Georgia Tech

JONNY BLACK / RICHARD ROCHE
Ordinary Things
Open science

Everything we produce is public and every number in every analysis can be traced to public data and code. We believe more transparency will help bolster the climate solutions that are working — and press pause on the ones that are not.

Repositoriess 49 People 5 https://github.com/carbonplan

Pinned repositories

**research**
datasets, tools, explainers, and commentary on carbon removal

- JavaScript

**reports**
reports on carbon removal projects and technologies

- JavaScript

**api**
an API for our data on projects, technologies, and more

- Python

**data**
data catalogs and utilities for preprocessing datasets

- Jupyter Notebooks

**notebooks**
Jupyter notebooks for sharing analyses and research

- Jupyter Notebooks

**forests**
statistical models of forest carbon potential and risks

- Python
By the numbers

2 ENGAGEMENTS
8 GRANTS
4 DONATIONS $25K+
5 RESEARCH ARTICLES + TOOLS
4 POLICY COMMENT LETTERS
1 ACADEMIC PUBLICATION
2 BOOKS
8 MEDIA STORIES

BUILT BY 5 TEAM MEMBERS
What we did

Research

Insights from our first project reports
We analyzed proposals for the first major corporate procurement of carbon removal. PAGE 09

Carbon offsets burning
We analyzed a large fire in Oregon to understand its impact on a forest carbon offset project. PAGE 10

Getting soil carbon right
We analyzed a soil carbon offset protocol and wrote comment letters raising concerns. PAGE 11

Carbon removal mechanisms
We develop and explain a typology for comparing different carbon removal strategies. PAGE 11

Permanence calculator
Our interactive tool helps compare the long-term cost of temporary and permanent carbon removal. PAGE 11

Engagements

Striped
Provided guidance on program design for a carbon removal procurement.

Generation IM
Helped develop a framework for rigorously evaluating climate benefits from investments.

Major grants

Climate TRACE (coming 2021)
Quantifying carbon emissions in the forestry sector from satellite data.

Microsoft AI for Earth (coming 2021)
Building tools and datasets for mapping forest carbon potential and risks.

CDR Primer (coming 2021)
The first foundational textbook on carbon removal, both in print and online as an open source book source book.

NASA Pangeo-ML (coming 2021)
Open source machine learning tools to analyze large geoscience data.

Media

Grist
Rolling Stone
New York Times
GreenBiz Media
MIT Technology Review
ArsTechnica
Bloomberg
Green
TIME Magazine's Best Inventions of 2020

Outreach

Oxford
Columbia
Stanford
CICERO
My Climate Journey Podcast
ARPA-E
VERGE Conference
NASA HQ
Lawrence Livermore National Laboratory
Project evaluation

Several large companies took first steps in 2020 towards procuring carbon removal. As a notable example, the technology company Stripe did so under a radically different paradigm from traditional carbon offset programs: rather than asking how to purchase credits as cheaply as possible to achieve a neutrality goal, they asked how to spend a fixed amount of money on the highest quality solutions. We were excited to help advise on Stripe’s overall program design as well as to produce an independent analysis of the project proposals they received, all of which have been made publicly available. This helped us start a database of CDR project reports, which we are now in the process of expanding to create an up-to-date window on the state of the CDR ecosystem and transparent resource for evaluating project quality.

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CDR PROJECT REPORTS
ARTICLE ON LESSONS LEARNED
STRIPE PROGRAM ANNOUNCEMENT
There's a lot of excitement about forest carbon as a climate change mitigation strategy. A key theme of our work in 2020 was making sure to balance this enthusiasm with scientific reality, especially as it concerns risks to forest carbon — including fire, drought, and insects, all of which are getting worse with climate change. These risks must be taken into account when evaluating the potential of forest carbon strategies and when designing systems for crediting forest carbon. We co-authored a review paper published in Science on risks to forest carbon, and analyzed the consequences of a large fire in Oregon (pictured above) that burned through a forest project that earned offset credits in California's cap-and-trade program. We're now building open datasets and tools to map these risks comprehensively.
One of our key goals in 2020 was to shift the narrative around carbon removal by bringing scientific integrity and quality issues into the forefront, across the public and private sector. We did a deep-dive analysis of a soil carbon sequestration protocol and submitted multiple comment letters, calling out issues related to transparency, additionality, sampling, and financial conflicts of interest. We wrote an explainer on how to differentiate avoided emissions from carbon removal, and why it matters when accounting for the climate impact of projects. And we built an online calculator to more accurately compare the cost of temporary and permanent carbon removal strategies (illustration above). We’re already seeing evidence that our work is influencing corporate buyers and policy makers as they evaluate different strategies and trade-offs.
Finances

We are committed to financial transparency, and to maximizing the impact of our generous donors. Here we list 2020 revenue and expenses by category. These data will be made available as part of our public 2020 tax filings. Note that a substantial fraction of our 2020 revenue was for work that will continue into 2021.

Revenue

$2,185,020

- Project-specific (contracts) (36.5%)
- Project-specific (grants) (14.3%)
- Unrestricted donations (individuals) (30.7%)
- Unrestricted donations (corporate) (11.4%)
- Consulting (7.1%)

Expenses (by type)

$537,409

- Staff (salary + benefits) (64.7%)
- Services (legal + design + consulting) (31.7%)
- Operations (computing + SaaS) (3.6%)

Expenses (by program)

$537,409

- Research and development (58.8%)
- Administration and fundraising (33.6%)
- Decision support (7.5%)
Thank you

Our work wouldn’t be possible without the generous support of our donors and partners. Here we list funding sources in 2020 greater than $1000, all of which are included in the totals listed previously. We received additional funding in 2020 to support projects that were not completed or announced in 2020 and will be announced in 2021. Those sources are included in the 2020 revenue totals on the previous page but are not listed here, and will instead be featured in our next report. See carbonplan.org/funding for an up-to-date list reflecting all announced projects.

Unrestricted donations

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Project-specific funding

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<td>Permanence calculator</td>
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<td>STRIPE</td>
<td>Negative Emissions Purchase 2020</td>
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<td>GENERATION IM</td>
<td>Guidance on climate benefits analysis</td>
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2021

Last year was just the start. Much more is coming soon. Major projects we started in 2020 will be released in early 2021. Looking ahead, we’re planning to build on our strengths and also explore new directions. Here’s a preview.

**CDR Primer**

We’ve helped edit, author, and produce the first-ever textbook on carbon dioxide removal, as part of a project led by co-editors Jennifer Wilcox and Ben Kolosz with contributions from nearly 40 authors. Follow [cdrprimer.org](http://cdrprimer.org) for the release of a digital open source book and a print version in 2021.

**CDR Database**

We started a database in 2020 to track reports on carbon removal project proposals. In 2021 we’ll be expanding that resource both in quantity and functionality, with the goal of establishing a clear set of standards on quality and improving the transparency of carbon removal procurements.

**Forest and soil carbon**

Excitement continues to build around forest and soil carbon. We want to ensure protocols, programs, and policies reflect the science. In early 2021 we’ll release data products on forest carbon risks, and we’re also building new cloud-based resources for forest carbon mapping more broadly.

**New explorations**

We spent much of 2020 focused on carbon removal. In 2021, we plan to broaden the scope of climate solutions that we work on, finding new opportunities where our skills and values can have significant impact. A lot is on the table — just transitions in decarbonization, methane leakage in natural gas, data liberation for uneconomic power generation, and open source energy modeling. Stay tuned.