RETHINK PRIORITIES

Carbon capture landscape and challenges

We expect that reading the full report might be helpful for:

- Organizations or individuals seeking to understand the funding landscape and barriers to expansion of carbon capture technologies on a global scale

Context

In April 2022, Open Philanthropy commissioned Rethink Priorities to conduct research on the neglectedness of carbon capture technologies over a five- to ten-year horizon, as well as bottlenecks associated with the field and tractable interventions to overcome them.

Research process

Over the course of six weeks, we conducted:

- A desk review of the available (primarily gray) literature on the various sources of funding, including public, private, and philanthropic, being directed toward carbon capture technologies, and in which regions
- Two expert interviews, including interviews with a US carbon capture policy expert and an expert on the global CCUS landscape and outlook

Based on this research, our final ~65-page report provides a comprehensive overview of the funding landscape for carbon capture, an assessment of regional neglectedness (as of 2022), and a broad discussion of the primary bottlenecks we identified through desk research and expert interviews.

Final report and key takeaways

The International Energy Agency's Net-Zero 2050 scenario suggests a need for annual investments of $160 billion in carbon capture, utilization, and storage (CCUS) technologies. Our best guess at the time of writing was that about $39 billion in public funding (with an estimated 90% confidence interval of $20 billion to $90 billion, primarily in the US, Europe, and Canada), $1.3 billion in venture capital investments, and $100 million in philanthropic funding was being allocated toward CCUS annually. This number falls short of the IEA's suggested need, but we also observed an upward trend in funding allocation in recent years. When comparing CCUS funding to expected future emissions from fossil fuels, our findings suggest that funding is regionally neglected in Southeast Asia, the Middle East and North Africa, China, India, Russia, and South Africa (though fossil fuel data is largely missing in sub-Saharan Africa).

With respect to bottlenecks, our assessment is that the largest hindrance to large-scale deployment of CCUS remains the lack of an effective carbon price, followed by weak policy and regulatory infrastructure, strong opposition, and insufficient RD&D funding. Another potential bottleneck is public hesitation, particularly around the issue of moral hazard and fossil fuel perpetuation. We explore potential solutions to several of these bottlenecks,

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which primarily involve improved legal, regulatory, and policy environments as well as increased RD&D.

Our view based on this research is that the status quo of philanthropic funding, nonprofit presence, context-specific RD&D, and lobbying and advocacy for CCUS in fossil fuel-dependent regions is inadequate to facilitate meaningful deployment in line with most scenarios to reach the Paris goal of limiting warming to 1.5-2°C, and to avoid likely trillions of dollars in stranded assets.

Open Philanthropy

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The views expressed in the report are not necessarily endorsed by Open Philanthropy.