What is “Carbon Management?”

The term “carbon management” conflates two different things, Carbon Capture and Storage (CCS) and Direct Air Capture (DAC).

Why is Carbon Capture and Storage (CCS) a Bad Idea?
Carbon capture and storage (CCS) is a technology to remove carbon dioxide from smokestacks of fossil fuel burning facilities, and bury it in the ground. Here’s why it’s such a bad idea:

- **It’s ineffective and expensive**: The Intergovernmental Panel on Climate Change (IPCC), a global scientific body, has found that CCS is one of the least effective and most expensive ways to cut emissions in both the electricity generation and industrial sectors.¹

- **It hasn’t been proven to work.** High-profile CCS projects have been expensive failures:
  - The Boundary Dam CCS-equipped coal-fired power plant in Canada.²
  - The Petra Nova CCS-equipped coal-fired power plant in Texas.³
  - The Gorgon liquefied natural gas (LNG) export terminal with CCS in Australia.⁴

- **It’s energy and water intensive.** CCS has an “energy penalty” (meaning, a facility with CCS requires more energy input for a given energy output than it would have required without CCS), and adding CCS to power plants could increase their water consumption between 25% and 200%.⁵

- **It increases methane emissions.** Methane leakage from oil and gas drilling is underestimated by official data.⁶ This is a serious problem, because the warming impact of methane is 81 times more than CO₂ over a 20-year window, and 28 times more than CO₂.

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over a 100-year window. The energy penalty of CCS will require more oil and gas production for a given energy output, worsening methane emissions.

- **It may be used to extract even more oil!** 73% of captured CO₂ is used to extract more oil out of depleted oil wells in a process called “enhanced oil recovery,” wiping out the climate benefits of capturing the CO₂ in the first place.

- **It doesn’t address other serious environmental impacts.** CCS is designed only to address greenhouse gas emissions (ineffectively), and leaves in place other harmful impacts of fossil fuels, such as air and water contamination from oil and gas drilling, and toxic pollution from power plants. There are serious racial and economic disparities in exposure to these harmful impacts.

- **It creates new hazards.** CCS technology requires transporting CO₂ in pipelines to underground injection sites. These pipelines are susceptible to catastrophic fractures that can release large amounts of CO₂, an asphyxiant gas. Since CO₂ is denser than air, a CO₂ discharge can stay at ground level, posing a serious threat to communities. Incidents such as the CO₂ pipeline explosion in Mississippi will become common if CCS is widely adopted. Injecting CO₂ underground can contaminate groundwater, threatening the water supply of communities.

**Why is Direct Air Capture (DAC) a Bad Idea?**

Direct Air Capture (DAC) is a term for industrial processes to remove carbon dioxide that’s already in the air. DAC has some of the same hazards as CCS, such as carbon pipeline ruptures and groundwater contamination. It also has other harmful consequences, including:

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13 Zegart, Dan, “The Gassing Of Satartia,” Huffpost, 8/26/2021, available at: https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0dcd6f

• **It isn’t proven to work at scale.** There is only one commercial-scale DAC facility in the world (in Iceland), and scientific studies have raised serious questions about whether DAC is even feasible at scale. It’s dangerous to depend on DAC to solve climate change.

• **It is highly energy intensive.** The IPCC has found that operating DAC worldwide at scale may require up to one-sixth of the world’s current energy output.

• **The false promise of DAC can delay the needed energy transition.** Even if DAC never becomes feasible, the promise of DAC being operational in the future gives fossil fuel corporations the excuse they need to keep increasing production and delaying (or even sabotaging) the needed energy transition. This could lead to the very dangerous possibility of growing emissions based on expectations of future cuts that don’t materialize.

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