GEOENGINEERING 101

CLIMATE JUSTICE ALLIANCE
COMMUNITIES UNITED FOR A JUST TRANSITION

CARBON CAPTURE AND STORAGE

A clear and present danger . . .

Overview

The term “Geoengineering” refers to a set of proposed technologies to deliberately intervene in and alter Earth systems on a mega-scale. It is a desperate, potentially catastrophic, attempt to manipulate the climate to roll back some of the effects of climate change. The fossil fuel industry supports geoengineering because it claims to address climate change without reducing dependence on the extraction and consumption of coal, oil, and gas--thereby protecting the industry’s profits.

Geoengineering climate manipulation includes a number of proposed technologies. Some of these proposals are not yet do-able, while others are moving forward with potentially dangerous real world experiments. The entire range of geoengineering is unprovable, making it all the more dangerous to rely on. What all geoengineering ideas have in common is that they do not include a plan to lower the extraction and consumption of fossil fuels. In fact, they maintain business as usual while letting “entrepreneurial innovation” play at the problems through speculative, unproven, profit-driven “techno-fixes.” No wonder the fossil fuel industry is promoting it!

A Techno-Fetish of the Fossil Fuel Industry

Carbon capture is promoted by the fossil fuel industry to avoid the necessary transition to clean, renewable, democratically-controlled energy. It builds on a logic of desperate measures to address the carbon dioxide (CO_2) emissions that are among the main drivers of climate disruption.

Desperate Measures

Carbon capture is rapidly being inserted into both federal and state legislation, despite the fact that the technology is unproven as a safe way to sequester carbon, and is also inordinately expensive. Industry falsely claims that carbon capture can be used to boost local economies, but we know that profits will stay in the pockets of Big Oil, while the fossil fuel industry continues to pollute our communities and raise the Earth's temperature through carbon emissions.

An Array of False Solutions

Carbon Capture and Storage

In Carbon Capture and Storage (CCS), carbon dioxide (CO2) is collected from industrial smokestacks, compressed into a liquid and transported by pipeline to a site where it can be pumped underground for storage in saline aquifers, oil or gas reservoirs, or beneath the ocean. This is a dangerous practice. There is no guarantee the CO2 will stay underground. Imagine, for example, an earthquake under a CCS storage site that causes a release of large ammounts of CO2 into the atmosphere.

CCS was developed over 40 years ago for use in enhanced oil recovery (EOR), a practice in which oil companies pump liquid CO2 into old, nearly depleted wells to access deep pools of oil and keep the wells producing. In the U.S., oil companies get hefty tax breaks and subsidies for buying CO2 and using it for EOR. Big Oil ends up profiting twice. Under the current administration, these subsidies have been greatly increased, pointing to even more profit for the industry, with no end to extraction in sight.[1]

Use of captured carbon for EOR defeats the point of removing carbon from the atmosphere. Even industry-backed studies show that the carbon emitted from the extracted oil far exceeds the carbon pumped underground.

Carbon Capture, Use, and Storage

CCUS uses CO2 that is removed from the atmosphere to make feedstock for manufacturing. Feedstocks derived from oil are used in the production of chemicals, synthetic rubber, and some plastics. The captured CO2 ends up being stored in the manufactured goods. While the emissions are removed and temporarily isolated, they become embedded in products and eventually get released back to the environment and atmosphere when these products are incinerated or decompose. This is (at best) postponing the problem of CO2 emissions and perpetuating the problem of acute environmental injustice from these polluting operations. CCUS creates more emissions than it reduces[2] and contributes to the production of plastics and other polluting materials. Even if some of the emissions are temporarily captured, all the problems with CO2 storage remain.

Direct Air Capture: The New False Hope

Direct Air Capture (DAC) is a largely theoretical technique to remove CO2 (and potentially other greenhouse gases) directly from the atmosphere, using chemical and mechanical means. The current proposed technique would use large fans to move air through a filter, where it passes through a chemical adsorbent to produce a pure CO2 stream that could be stored. To have any significant effect on global CO2 concentrations, DAC would have to be rolled out on a vast scale, demanding very large amounts of water and energy, and raising environmental justice concerns about the toxic impacts of the chemical absorbents used in the process. Once you've expended huge amounts of energy to remove the carbon, you are still stuck with the problem of what to do with it, which brings us back to the inherent issues of storage or re-use (see above). And like all other carbon capture schemes, guess who is behind it? Big Oil.[3]

Because DAC demands large quantities of energy, it could easily use up much of the renewable energy needed to electrify vehicles and the heating of

buildings, thereby hindering rather than facilitating the needed transition away from fossil fuels.

Bioenergy with Carbon Capture and Storage (BECCS)

BECCS is the proposed combination of bioenergy with CCS. BECCS is one of the most extreme – even outlandish – carbon capture proposals.[4] While it may not capture much carbon, it seems to have captured the imagination of industry and a number of U.S. congresspeople. BECCS involves planting and then burning biomass (organic matter, such as trees, wood, or agricultural products) for energy and capturing the carbon in geologic reservoirs. The biomass needed for a scaled-up BECCS would take up 35%-80% of current global cropland. It would displace vulnerable farmers and Indigenous peoples, cause food prices to rise, and increase food insecurity, especially in Africa, Latin America and Asia. Perpetuating the fantasy of building out BECCS technology promotes new profits for plantation companies, and allows fossil fuel extraction to continue, while delaying the urgent climate action we need.

Related to the idea of BECCS is the concept of carbon farming, in which growers are encouraged to use their farms as carbon offsets for polluters. Carbon offsets are part of the carbon market, in which a monetary value is placed on units of pollution. Through this system, corporations or states can purchase the right to continue polluting above an agreed-upon cap.[5] Carbon markets pay farmers for treating farmland as a carbon sink, ignoring innovative community-based approaches, local food production, and other important functions. It is documented that many offset products like this bring harm to local communities, especially those most impacted by climate change, including Indigenous Peoples, People of Color, impoverished communities, women, and forest-dependent communities. Soil carbon sequestration is impermanent, and carbon can be released any time conditions change.[6]

State and Federal Engagement

Direct Air Capture is being aggressively marketed to lawmakers and they are beginning to respond. Proposals for this costly, speculative false promise are being brought forth at the federal and state levels. At a hearing in February 2020, the head of California's Air Resources Board praised the concept of direct air capture, becoming the first major state leader to do so. Weeks later, a bill calling for California to subsidize direct air capture was introduced in the state legislature. Legislation like this essentially turns its back on cutting carbon emissions at the source. On March 30, 2020, the U.S. Department of Energy announced $22 million to finance research efforts aimed at commercializing DAC.

There are no shortcuts!

The only way to reduce greenhouse gas emissions as urgently and effectively as we need to AND tackle the acute environmental justice impacts of fossil fuel exploration, extraction, refinement, and consumption, is to cut emissions at the source by regulating dirty industry, beginning with the fossil fuels industry. But Big Oil does not want that, so it is promoting far-fetched schemes that maintain profits and perpetuate pollution.

Climate justice demands that we vigorously oppose geoengineering techno-fixes.

For more information on geoengineering, visit:

www.geoengineeringmonitor.org | www.climatejusticealliance.org | map.geoengineeringmonitor.org

Endnotes

1 - Oil Exchange International, *Expanding Subsidies for CO2-Enhanced Oil Recovery: A Net Loss for Community Taxpayers and the Climate*, Oct. 2017.

2 - Almuth, Erstiing and Oliver Munnion, "*Last Ditch Climate Option or Wishful Thinking?*" Biofuelwa5804tch/Heinrich Boll Foundation, April 2016.

3 - "*Carbon Capture is No Magical Climate Cure,*" Geoengineering Monitor.April 16, 2020

4 - "*Bio-Energy with Carbon Capture and Storage (BECCS),*" Geoengineering Monitor, May 14, 2018.

5 - *Carbon Pricing: A Popular Education Toolkit for Community Resistance, Volume 2*, Indigenous Environmental Network and CJA, November 2019.

6 - *Farming Carbon for Polluters: Planting the Seeds of Climate Chaos*, Sky Protector Briefing No. 7. Indigenous Environmental Network, August 2018.