UNIVERSITY of HOUSTON

The Law of Direct Air Capture and Climate Change Regulation

Prof. Tracy Hester

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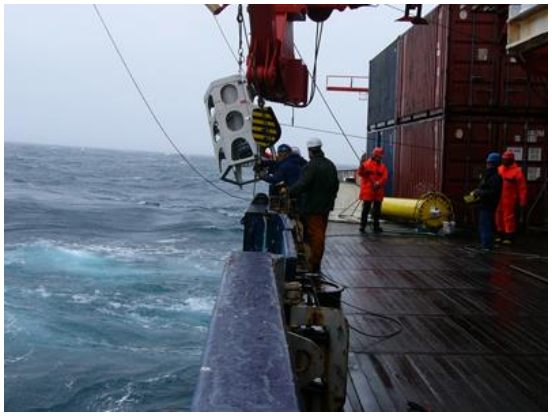
The Varieties of Direct Air Capture



- Mechanical Direct Air Capture
- Carbon Capture & Storage (CCS)
- Biological Energy + CCS (BECCS)
- Ocean Iron Fertilization
- Biochar
- Soil enhancement
- Ocean CO_2 entrainment
- Afforestation
- Air Fuel Capture

Direct Air Capture and Environmental Law

- Possible international legal issues
- U.S. environmental law and DAC
  - Authorizations and permits for DAC process itself
  - Requirements and liabilities for environmental impacts from DAC
- Pathways ahead

Direct Air Capture and the Paris Agreement

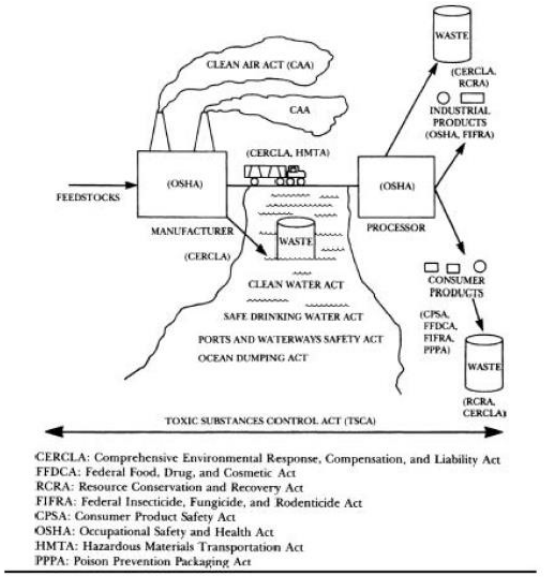
1. Implementation of Paris Agreement – update on Bonn
2. 1.5 degree target, NET and NDCs
3. ITMOs, NETs and unfinished business
4. Other treaties
5. Sustainable Development Goals

Governance under U.S. environmental laws: regulation by surrogate

- Note that all of short-term regulatory options will likely focus on regulating DAC through its environmental side effects.

- Consequence of the black box model to U.S. environmental regulation, which consciously seeks not to regulate the production process itself

  - Clean Air Act (BACT, MACT, LAER)
  - Pollution Prevention Act of 1990
  - Toxic Substances Control Act



Governance by Environmental Surrogate

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To the Proposed Defendants:

The undersigned attorneys represent Proposed Plaintiffs (listed below) and complain under the statutory "citizens' suit" provisions of the federal Clean Water Act, §505(a), 33 U.S.C. §1365(a) *et seq.* (CWA), and Safe Drinking Water Act, §1449(a)(1), 42 U.S.C. 300f *et seq.* (SDWA) (collectively, as amended, the "Statutes") of past and continuing violations of the Statutes by Proposed Defendants (listed below) in the State of California, including, without limitation, Shasta, Placer, Siskiyou and Santa Cruz Counties. Upon the expiration of the 60-day statutory waiting period required under both Statutes, and in the absence of adequate remedial effort by Proposed Defendants, Proposed Plaintiffs will file one or more citizens' suits in the United States District Court for the State of California under the applicable provisions of the Statutes, as follows:

A. PRELIMINARY STATEMENT

Initial legal posture for Direct Air Capture

- Legal Advantages of DAC
  - Pace
  - Reversibility
  - Familiar
- Likely focus of initial challenges
  - Permits and approvals for the capture process itself
  - Management of captured CO2
  - Legal status of products or materials generated from captured CO2

Permits for Direct Air Capture Process Itself

- All heavily dependent on facts of individual process
- In general, same environmental constraints as for any industrial process (air emissions, spent media). Not insurmountable.
- But some quirks:
  - Clean Air Act content and certification requirements for fuels
  - Integration of captured CO2 into existing GHG permit programs
    - “Backdoor BACT”
  - Environmental Impact Statements and analyses

Environmental Legal Requirements for Captured CO2

- Driven by CCS debate
- Example: RCRA conditional exclusion for captured CO2
  - Heavily keyed to ultimate fate of CO2
  - Class VI vs Class I wells
  - Limited to CO2 captured from source
  - Feedstock and commercial use exemptions
  - Solid waste management requirements
  - Tort liability
- TSCA notification and premanufacture approvals

Legal status of projects manufactured from captured CO2

- Rule of capture for ownership
- Derived-from rule (if hazardous waste)
  - Fuels
  - Placed onto ground
- Ownership upon injection for disposal?

Thought Experiment

Possible paths for reform

- Exemptions from environmental requirements for research-scale projects
- Continued regulatory development of carbon capture and storage
- Deep Decarbonization Pathways Project
- Proposals for regulatory roadmap or coordination memorandum
- Increasing likelihood for carbon trading or tax

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