Carbon Capture and Storage

What is Carbon Capture and Storage (CCS)?

- A technological approach to reducing carbon emissions by extracting carbon dioxide (CO_2) from smokestacks of fossil fuel facilities, transporting it through pipelines, and injecting it underground for permanent storage.
- *Carbon Capture Utilization and Storage (CCUS)* - when captured carbon is used for other purposes before storage.

Four Corners Power Plant Context

- Built in the early 1960s; one of the largest coal-fired power plants on Colorado Plateau
- Current Ownership: Arizona Public Service (63%), Public Service Company of New Mexico (13%), Salt River Project (10%), Tucson Electric Power (7%), Navajo Transitional Energy Company (7%).
- Navajo Transitional Energy Company (NTEC) is proposing CCS retrofitting at Four Corners Power Plant.
- The Navajo Nation owns Navajo Mine which is the sole supplier of coal to FCPP. Navajo Mine is a surface mine that supplies 4.7 million tons of mine mouth thermal coal annually.
- NTEC is a Navajo Nation Corporation that was created under Navajo Nation law in 2013.

NTEC's "NavEnergy Hub" Proposal:

- Retrofit Four Corners Power Plant with Carbon Capture & Storage technology.
- Claims it would reduce carbon emissions by 95%.
- Proposes utilizing capture CO_2 for greenhouses, beverage carbonation, dry ice, pharmaceuticals
- Recently announced potential partnership with 8 Rivers Capital to develop a gigawatt of "decarbonized coal power"

KEY CONCERNS RAISED BY CCS PROPOSAL:

1. Technical Feasibility:

- No evidence of any CCS facility achieving 95% capture rate
- Four Corners Plant (1,540 MW) would be unprecedented scale for CCS
- Plant is already 55+ year old with declining Performance

2. Cost and Economic Viability:

- Requires 30% more "parasitic power" to operate CCS systems
- Estimated retrofit costs of $1.50 - 2 billion based on similar projects
- Four Corners already one of the most expensive coal plants in the country

3. Environmental Concerns:

- Massive water usage in an already water-scarce region
- CCS only addresses CO_2, no other pollutants (mercury, nitrogen oxide, particulates)
- Pipeline ruptures and storage risks

4. Environmental Justice Concerns:

- Continues environmental burdens on Navajo communities
- Diverts resources from renewable alternatives
- Questions about true community benefit

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ALTERNATIVE VISION: JUST TRANSITION

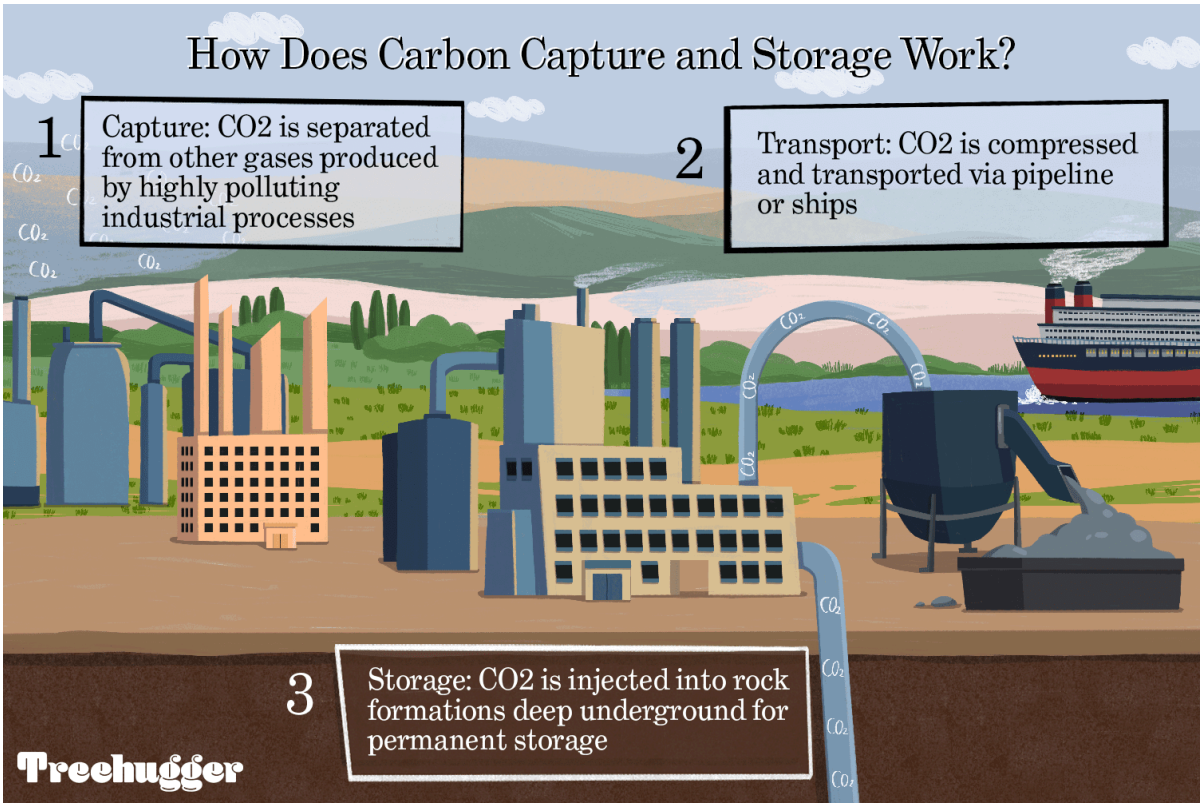
Renewable energy development (e.g., Kayenta Solar - 55MW currently operational)

Economic diversification beyond coal (agriculture, tourism, etc.)

Community-led decision making

- Ask questions about who benefits from CCS
- Consideration of the impacts to land, water, and health
- Transparency about risks

Water and health protection



KEY VOCABULARY:

- **Parasitic Power:** Additional energy required to run the CCS system, reducing net power output
- **FEED Study:** Front End Engineering Design study - preliminary analysis of retrofitting feasibility
- **Capacity Factor:** Measure of actual power produced compared to maximum possible
- **Sequestration:** Long-term storage of captured carbon dioxide underground
- **Just Transition:** Framework for fair shift from fossil fuels to sustainable alternatives

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