

100 Conversations

on Carbon Removal,
Decarbonization,
and Desired Futures

Discussion Paper
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Alaska
California: Northern Sierra
Maine
Oklahoma
West Virginia

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Carbon credits and MRV

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Today's talk

- Introduce you to this discussion paper and the study it is based on
- Share three big ideas that came up:

social infrastructure

social demonstration

uneven **social reality** of the energy transition

Study rationale

- Context: increasing geospatial analysis of the opportunities, constraints, and impacts of the energy transition
- Increasing emphasis on “place-based” policy
- How can we bring **social dimensions** to this mapping?

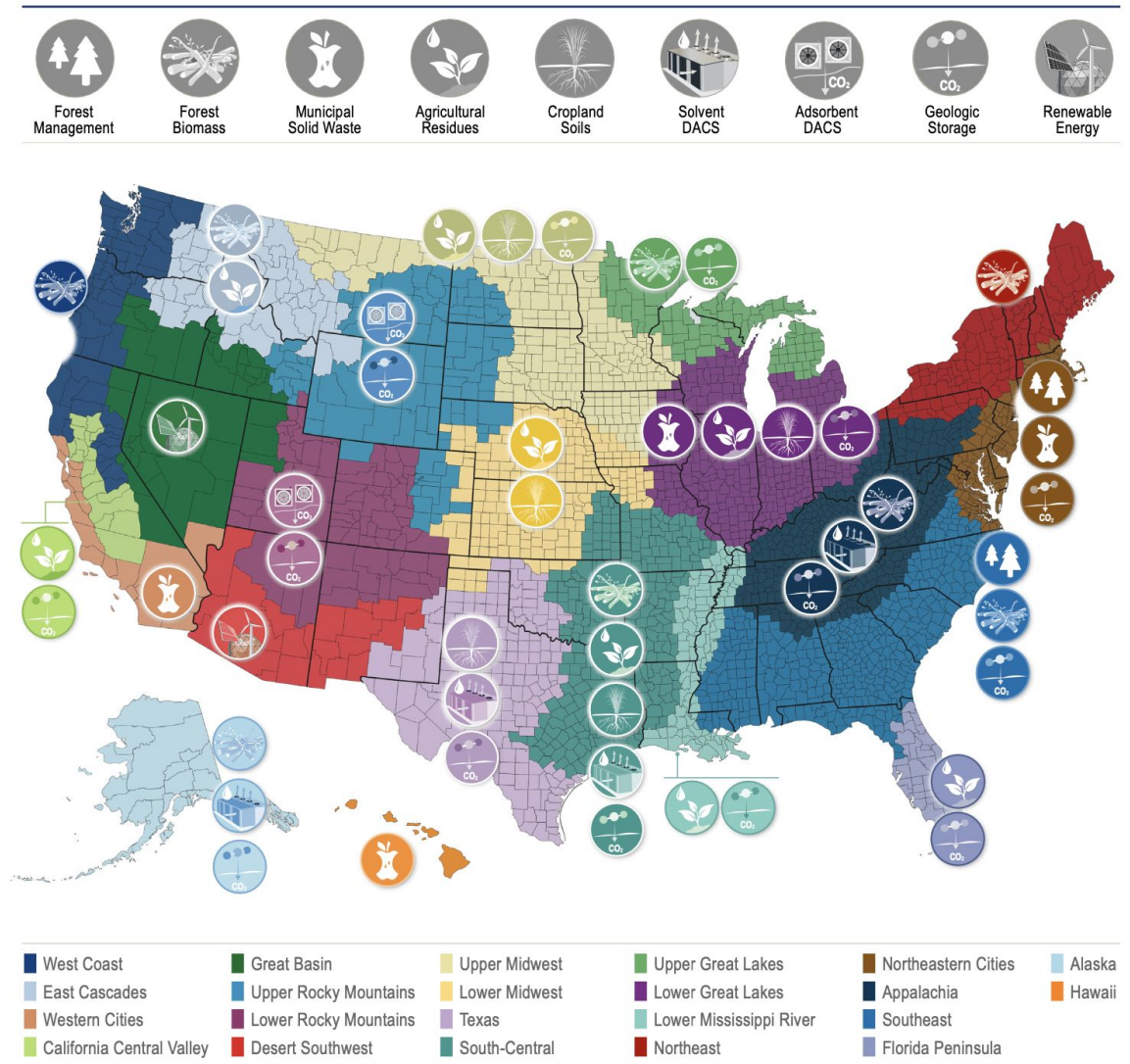
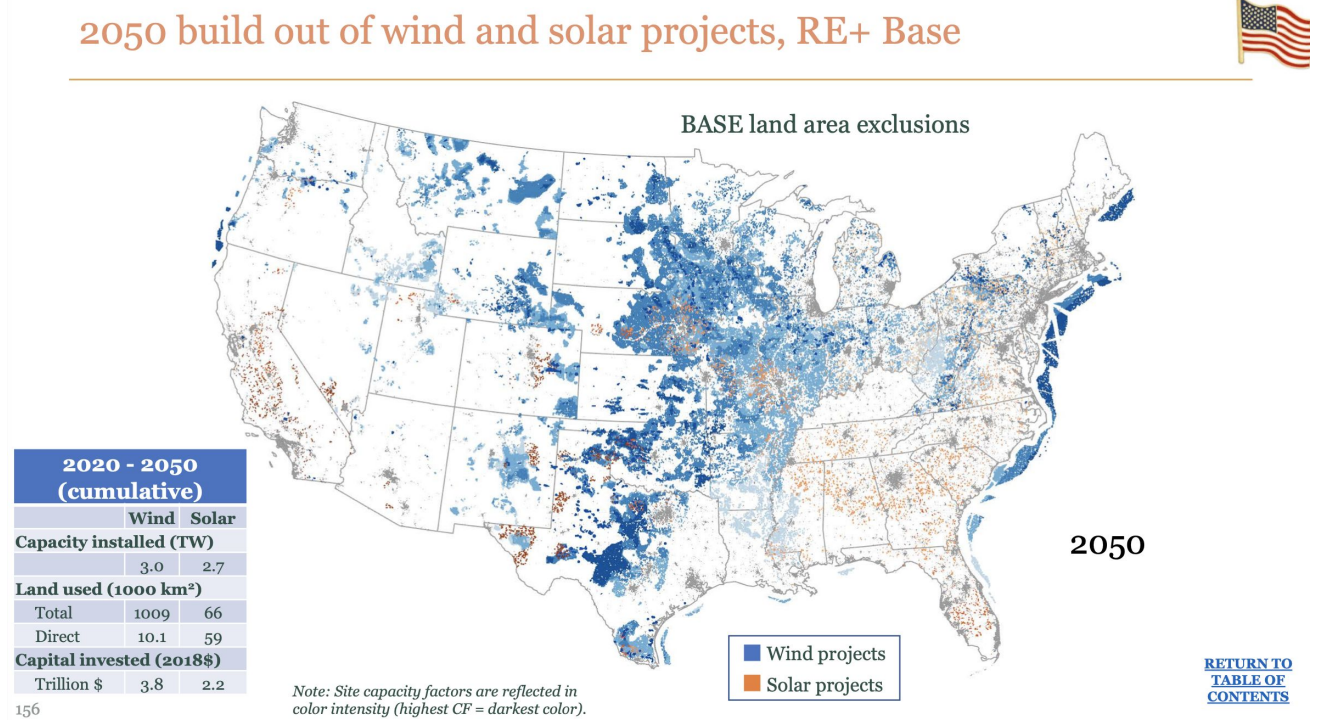
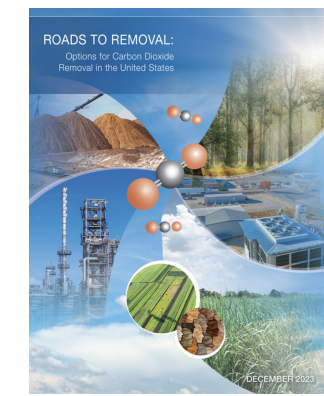


Figure ES-5. Regions map with county grouping defined by primary carbon-removal resources. The icons qualitatively highlight key regional resources that can contribute to CO₂ removal. We determined the regional groupings on a quantitative basis with qualitative boundary conditions. First, we assessed the primary above-ground carbon resources at a county level with a coarse boundary between forests, agriculture, urban, and other areas. Second, we evaluated geographic carbon-storage potential in forest biomass, cropland soils, and geologic reservoirs. Third, we analyzed cross-cutting factors, including watersheds, energy-generation capacity, and current and potential transportation resources. Fourth, we considered regional land ownership and environment and population health. Finally, we made judicious decisions about where to merge, divide, stretch, and contract each region based on the cohesive story that could be told, while incorporating boundary conditions (e.g. we required each region to be contiguous, including bodies of water).



“Mapping the social landscape for net zero:” project areas

Five regions:

- **California** (northern Sierra)
- **West Virginia** (northern)
- **Maine**
- **Alaska** (railbelt)
- **Oklahoma** (north central)

Project methods

- **Interviews** with community leaders, 20-30 per area — government, NGOs / CBOs, agriculture, business, community development, local academic energy and environment experts
- **Observation:** event participation and site visits
- **Focus groups** with public (2 per site) — with and without visualization intervention
- Nationally representative **survey** with regional oversampling (n=3076)



Project questions

Grounding CDR in context: What pressing issues are communities facing, and how do these intersect with how climate projects are viewed or developed?

Feasibility: What technical, political, and social constraints do communities identify to scaling up climate technologies?

Benefit: What benefits do people see from clean energy or carbon removal developments? What would be necessary for those benefits to be realized, and not just hypothetical?

Vulnerability: Who is vulnerable to harms from climate tech projects or policies, and what can be done to address potential harms?

Social infrastructure needs to be supported for the energy transition — and carbon removal

What is social infrastructure?

- Reliable, continuous person-hours: human resources and **attention**

- **Connections** between people, and between institutions

Relates to concepts social scientists have written a lot about, like **care, emotional labor, and bureaucracy**

Social infrastructure needed for BIL / IRA success

Knowing how to apply for grants

Capacity for **spending** the funds

Engaging with the public on opportunities

Learning about opportunities

Reviewing and vetting projects

Evaluating what worked & how to do everything better / quicker

Hard questions about supporting social infrastructure

- Where are there opportunities for extending current capacity, vs. **new roles** that don't even have names yet?
- How does supporting social infrastructure not become creating a **bureaucracy** that extracts rents from the transition?
- How can social infrastructure work as a **public** effort — not just ending up outsourcing all of this social labor to NGOs with low accountability?
- How can our **university systems** be better leveraged in this?

Social demonstrations allow the public to...

**See that the
tech is working**

**Have an
embodied
experience with
others**

**Measure
potential harms**

**Experience
potential
benefits**


**Share the
story with other
regions**



Social demonstrations are critical

Examples we heard about

- Field days — demonstration plots
- Paying minoritized farmers to do conservation agriculture demonstration projects (Oklahoma)
- Home gardens
- Community solar (in Fairbanks)
- Electric city buses (involved maintenance people in decision-making)
- Fire resilient home building materials
- Community funding models for energy efficiency

- *At odds with demonstrating least-cost solutions*
 - *Requires more funding and a wider set of expertise*
- 

The social reality of the energy transition is uneven



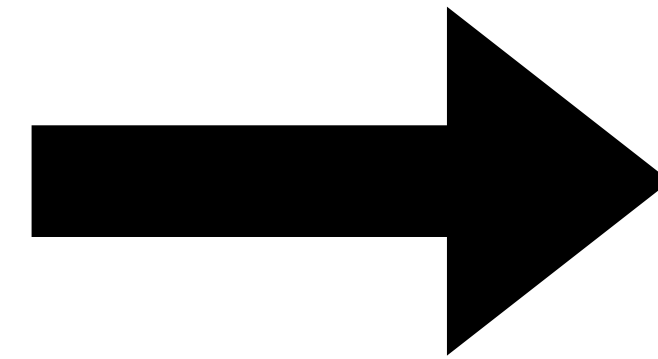
Sense of shared reality that the energy transition is happening, necessary, and desirable



The “social reality” of the energy transition is uneven

Themes from interviews

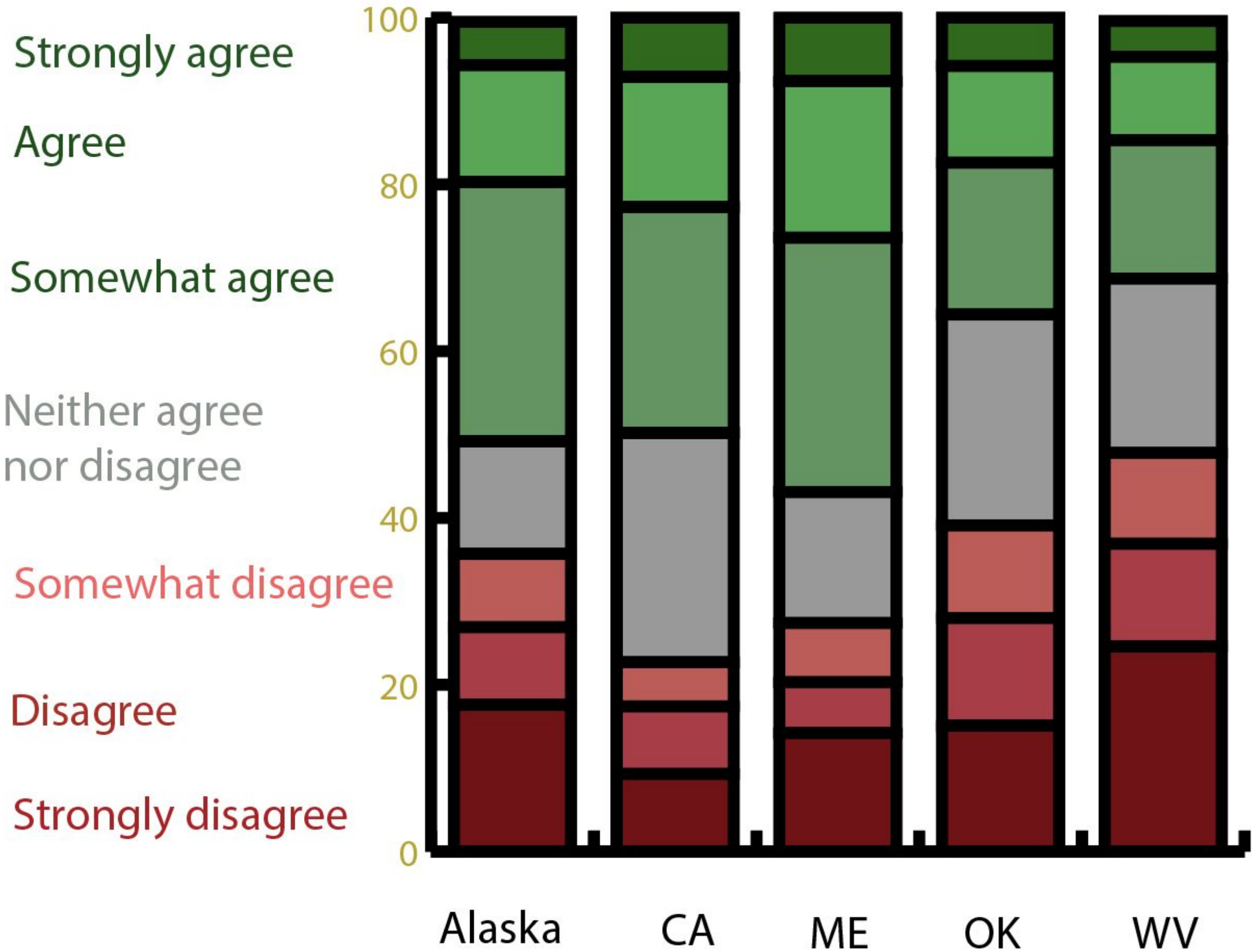
- Freedom
- Sacrifice
- Whether new industries are desirable / community support for industrial development
- What people want to be the economic base of their region



Survey hypotheses and questions

I believe that policies to achieve net zero...
will bring new economic opportunities to my region.

Percentage
of respondents



More carbon removal takeaways

- **Cost** is a concern — not just for project finance, but for the public

People need a mental model of how this will be paid for to take it seriously

- **Intersecting issues** far beyond carbon will determine the feasibility of gigaton scale industries — housing, workforce availability and training

- Carbon removal is seen as a **luxury item** when people have pressing infrastructural needs **right now.**

(Is it time to go back to “the future” and understand carbon removal as future-oriented research?)

What do we do with this?

Recommendations for funders, companies, researchers and policymakers

1. Imperative to develop a story beyond “net zero” — continue to research and demonstrate co-benefits or “core benefits”



What do we do with this? Recommendations for funders, companies, researchers and policymakers

2. Research, analytic, and communications gaps when it comes to how to **scaffold** the transition — people want **steps** (or to know about the steps that already exist).

The world's biggest carbon capture facility is being built in Texas. Will it work?

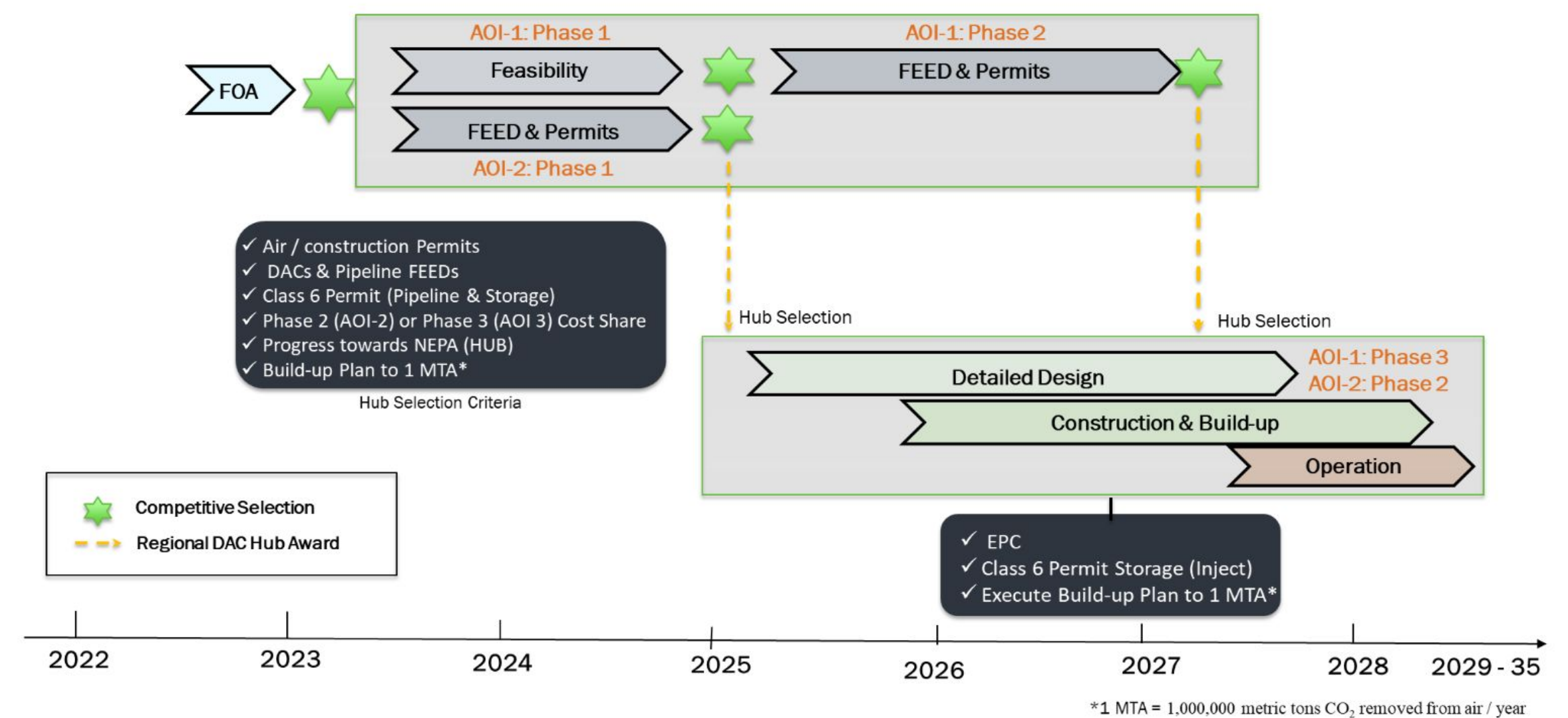
The plant will inject 500,000 tons of carbon dioxide into the ground each year - but is it just greenwashing from big oil?



A direct air capture system at the Carbon Engineering pilot facility in Squamish, British Columbia, Canada. Photograph: Bloomberg/Getty Images



A rendering of Climeworks' Generation 3 direct air capture plant. Image: Climeworks



What people see - Big Thing is coming

What people don't see - There are steps

What do we do with this?

Recommendations for funders, companies, researchers and policymakers

1. Imperative to develop a story beyond “net zero” — research and demonstrate **co-benefits** or “core benefits”
2. Research and analytic gap when it comes to how to scaffold the transition — people want **steps** (or to know about the steps that already exist).
3. More is needed to prepare **regional innovation systems** to deal with hard climate tech
4. Consider how to support first-of-a-kind **social demonstrations**
 - Resourcing meaningful engagement is a part of that

Thank you

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Research updates:
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