Biomass as CDR: Harms, Protections, and Opportunities

Five Key Criteria

- Cost
- Jobs
- Climate impact
- Environmental impact
- Justice

Healthy Soils/Composting

- Cost - $15/ton
- Jobs – Ag workers are poorly paid (but don't have to be!); a *lot* of jobs if done at scale
- Climate impacts – Carbon stored in soil
- Environmental impacts – Reduced need for pesticides, fertilizer, and irrigation water, improved soil sustainability
- Justice – Local benefits in disadvantaged communities

Policy Protections

- Provide labor guarantees to ensure jobs are better (e.g., higher wages, local hire, etc.)
- Local protections for compost production
- Require long-term commitment for healthy soil management

BECCS – Cost, jobs, and climate impacts

- $500/ton (unlikely to benefit much from economies of scale)
- Very few jobs (I've seen 5-45 at proposed local projects)
- High opportunity cost
- Phony "reductions" that hide real emissions
  - Biomass to energy/fuel is very much net positive
- Moral hazard/mitigation deterrence

Climate Risks and Policy Protections

Risk	Protections
Moral hazard/mitigation deterrence	• No offsets
Under real-world conditions, net positive	• Full lifecycle analysis to ensure net reductions in carbon • No EOR • Reduce waste biomass • Only use waste biomass • Very limited trucking of materials • No BECCS
Opportunity cost	Limit public spending

BECCS: Environmental impacts and justice

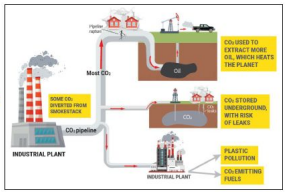
Logging/thinning forests

Trucking (often long distances)

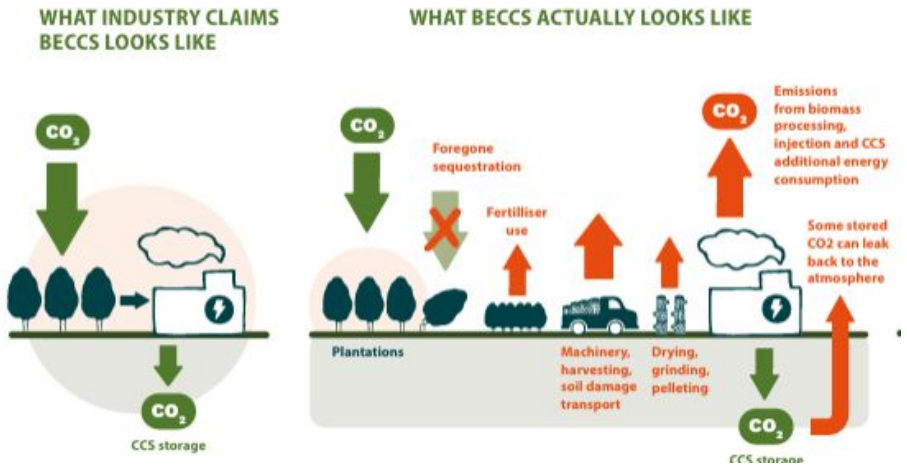
Cutting, chipping, drying

Chip storage piles emitting methane


Combustion, gasification, pyrolysis



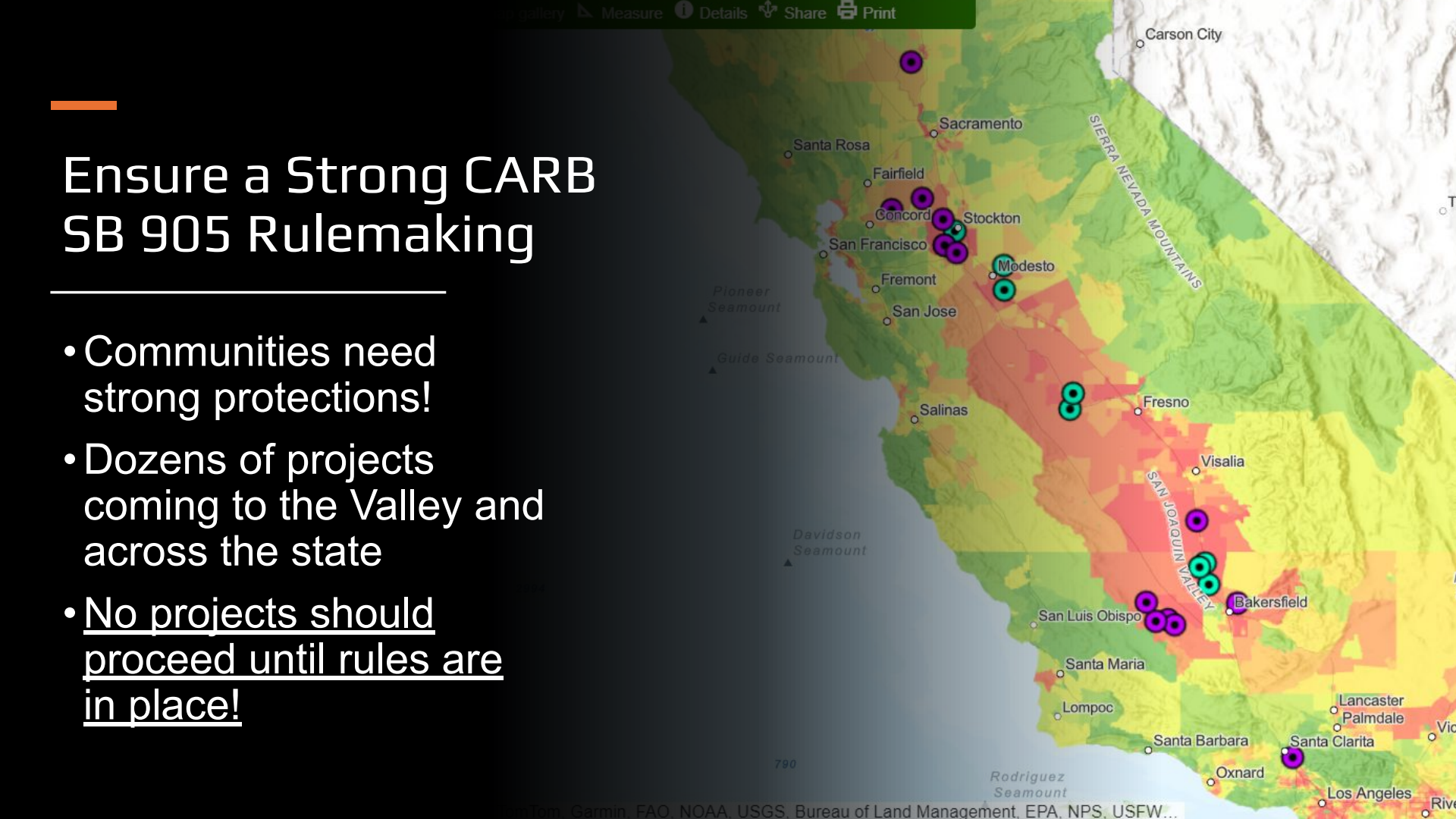
Carbon Capture and Storage (CCS)



- "Waste" – Incentivizing cutting down forests and growing crops for BECCS
- Old biomass plants – when operating, the worst point sources in the nation's worst air basin
- Pyrolysis and gasification – the same processes used in chemical recycling, potentially *worse* than incineration
- Siting these projects in disadvantaged communities—where almost all are being planned—contributes to the nation's worst air pollution in low-income communities of color

Ensure a Strong CARB SB 905 Rulemaking

- Communities need strong protections!
- Dozens of projects coming to the Valley and across the state
- <u>No projects should proceed until rules are in place!</u>

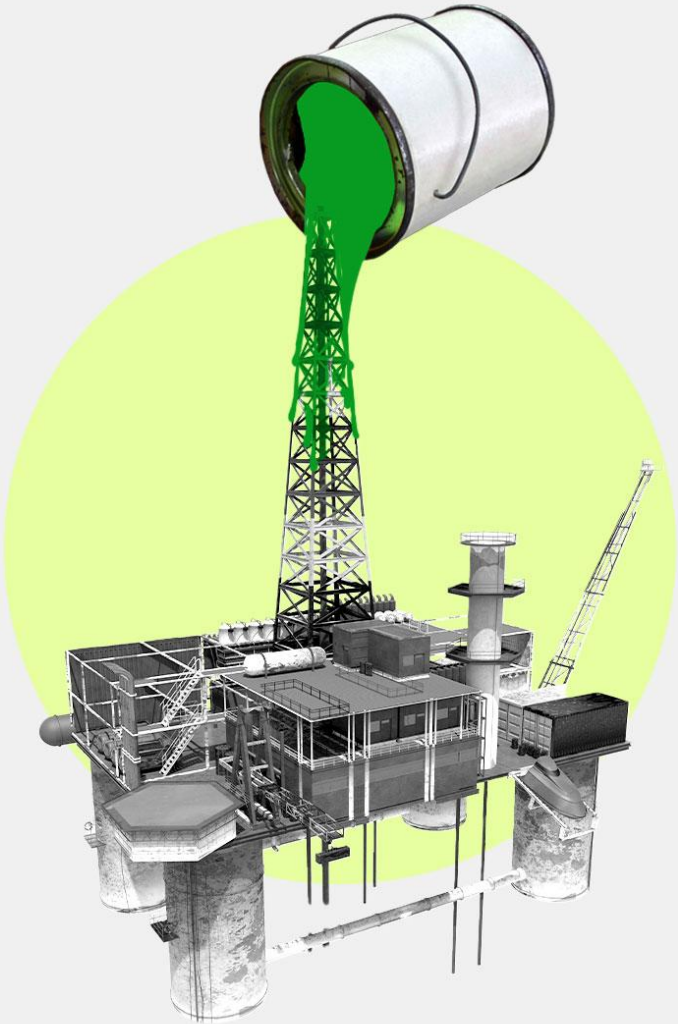


Community Protections Needed

- Can’t increase local air and water pollution
- At least 10 miles between homes and capture, storage, or pipelines
- Powered by excess, clean, renewable energy
- Financial assurances that do not count on a company maintaining strong fiscal health for over a century (bonds, 3rd party ins)
  - Responsive to continuous reevaluation of costs of closure, remediation, and leaks/other harms

Protections Needed for CCUS and DAC

- Government process
  - Ensure it's not used to drag our heels on direct emission reductions (e.g., no offset crediting)
  - Ensure additionality
  - Polluter pays, not consumers through increased utility rates or gas prices. **This is a serious affordability issue!**



Protections Needed for CCUS and DAC

- Informed consent and good process
  - Notify community members at least 6 months before permit application
  - At least 3 public workshops before gov decisions made
  - Community benefits required
  - Full EIR on all projects
  - Require worst-case scenario modeling

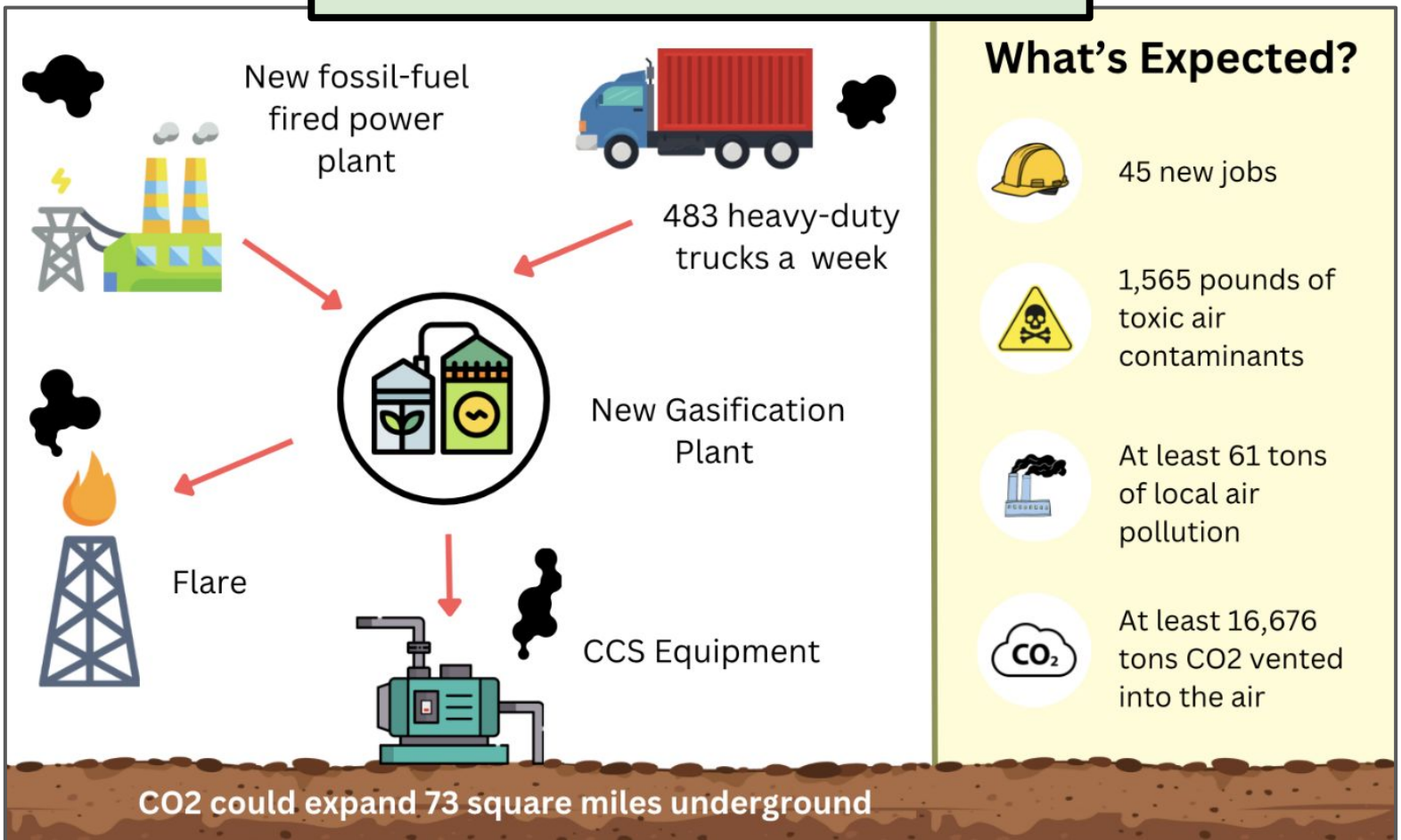
STORAGE: Protections Needed for DAC and BECCS

- Study storage statewide before beginning (e.g., safe storage rates, minimizing leakage and seismicity, distance from homes and sensitive receptors, impacts on microbiota in rock formations, etc.)
- Assess and prove stable geology—no leak risk, cause no increase in geological risks
- Permanent—at least 1,000 years
- Ensure proper site characterization
- Monitoring, reporting, and verification
  - Pause injections if plume extends beyond projected storage area until all rights attained and all applicable law met for new area
- Certify that project is unlikely to harm groundwater supplies

TRANSPORTATION: Protections Needed for DAC and BECCS

- **Keep moratorium in place**
- Add odorant (or colorant)
- Community burdens and resources must be considered during siting
- Prove stable geology where projects are to be sited
- CO_2 regulatory definition must apply to all phases
- Do not convert old pipelines to CO_2
- Require pure CO_2 streams
- Don’t use other modes of transportation

PROJECT A


New fossil-fuel fired power plant
483 heavy-duty trucks a week
New Gasification Plant
Flare
CCS Equipment
CO2 could expand 73 square miles underground
What's Expected?
45 new jobs
1,565 pounds of toxic air contaminants
At least 61 tons of local air pollution
At least 16,676 tons CO2 vented into the air

Guadalupe Martinez
Delano Resident

“This Community Benefit Agreement – that’s how they’re going to get us to accept. Because that’s the question you’re asking me. What would it take for us to give in? I won’t. Because that’s not the issue. When there’s a catastrophe, when there’s a disaster and you end up with people injured or dead. How are you going to pay with... What? With that community benefit agreement?

That should not be our goal. That’s not my goal. My goal is for you, engineer, agency, whoever you are, prove to me we’re not going to have these catastrophes. Prove to me it’s safe.

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