

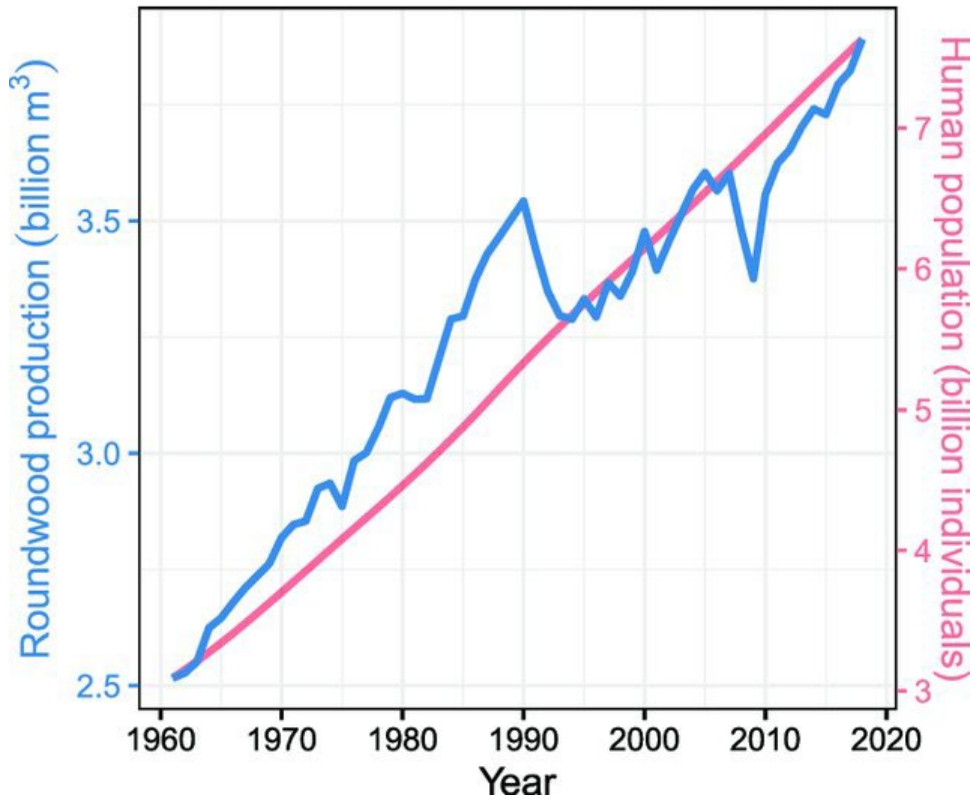


# Pyrolysis and forest residuals

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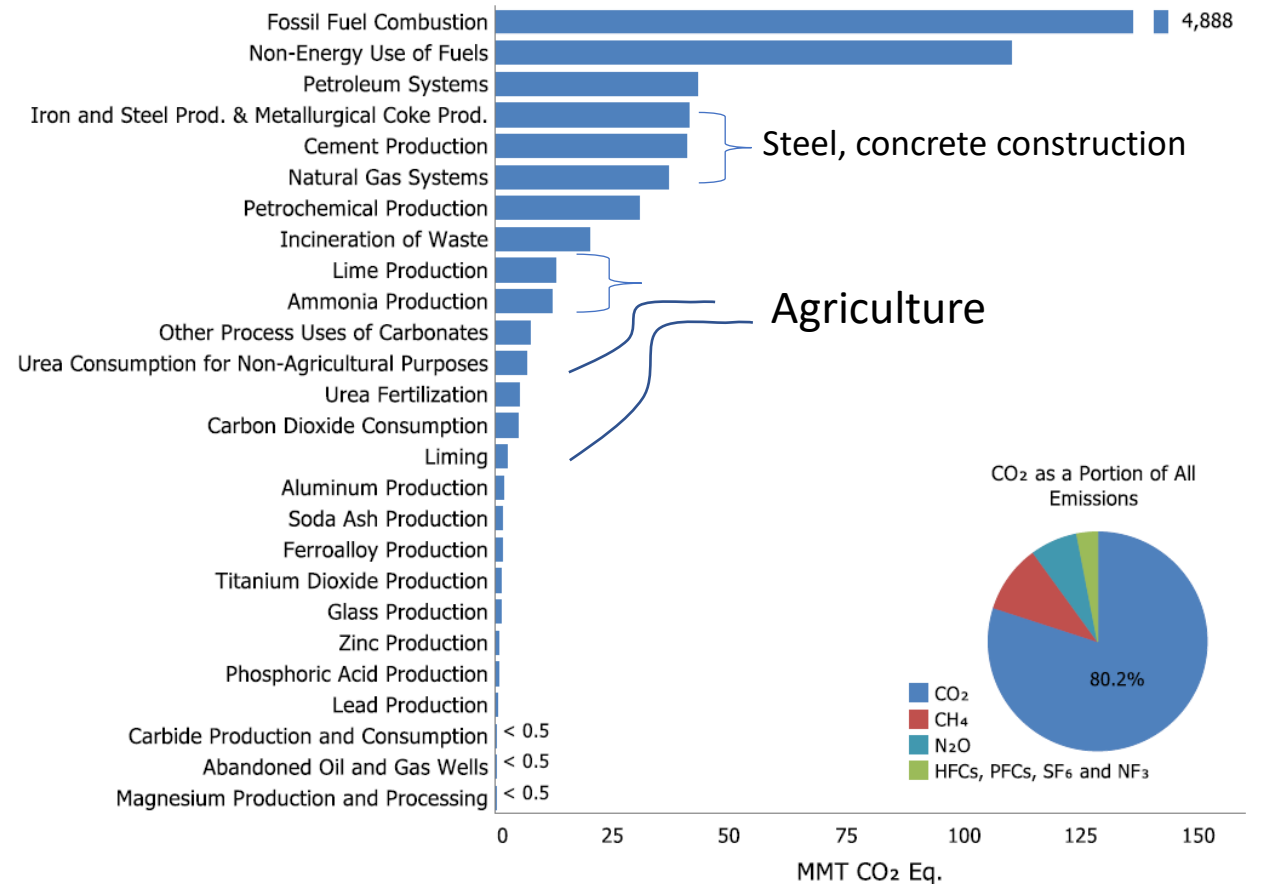
# US carbon emissions, forest product demand

## Global roundwood production



Betts et al 2021

## US Carbon emissions: Forest sector a carbon sink



US EPA 430-R-21-001: Inventory of US greenhouse gas emissions and sinks (1990 – 2019)

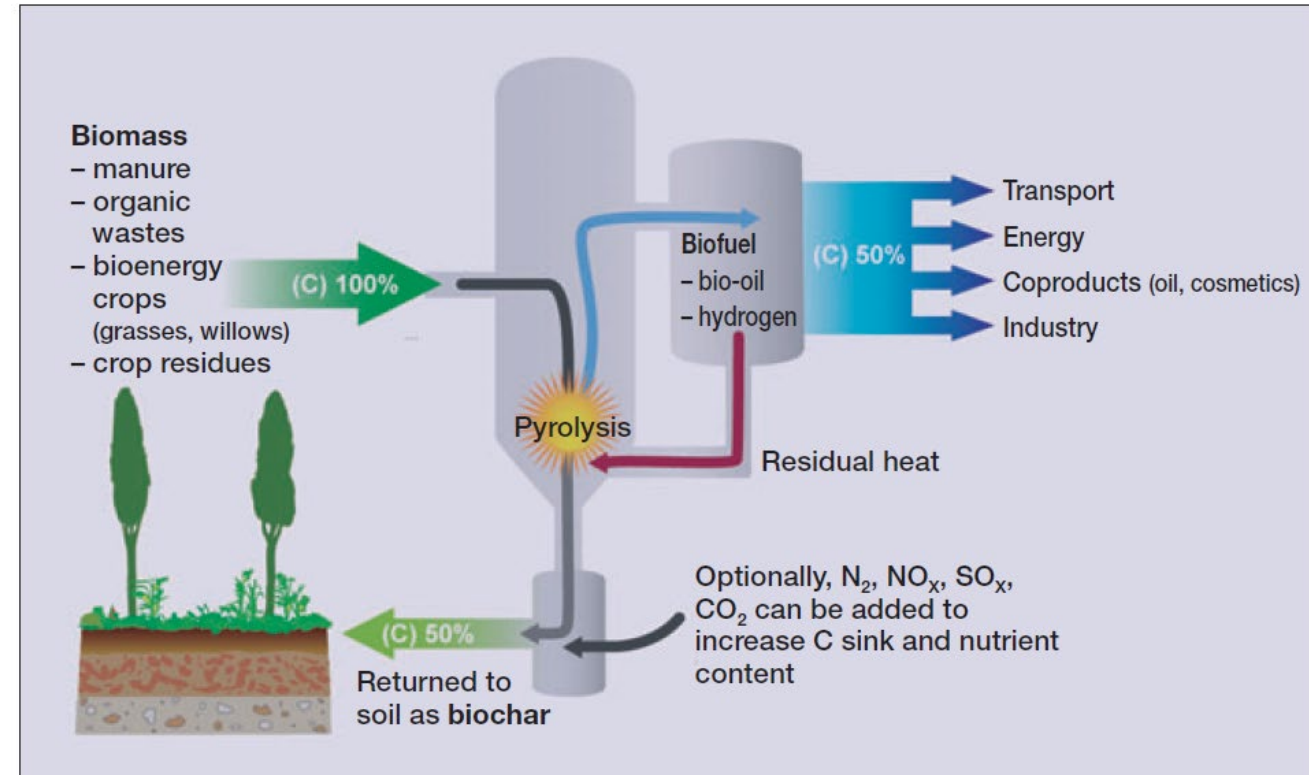
## Nearly 30 million acres of forested land in Oregon

- 10 million acres of private forest lands
- 30 million acres of state and federal
- Harvest about 3-4 bbf per year
- ~40% biomass remains as harvest residues
- We burn ~ 1.2 million tons of residues= 2.2 million tons CO<sub>2</sub>e lost to the atmosphere (assuming 50% C)
- What if that biomass were energy?



# Pyrolysis is proven technology

- Conversion of biomass into bio-oil, hydrogen, and biochar
- Biochar is a valuable soil amendment
- Increases soil carbon storage and improves soil physical properties



Lehmann 2007. *Frontiers in Ecol. Env.*

# Mobile kilns

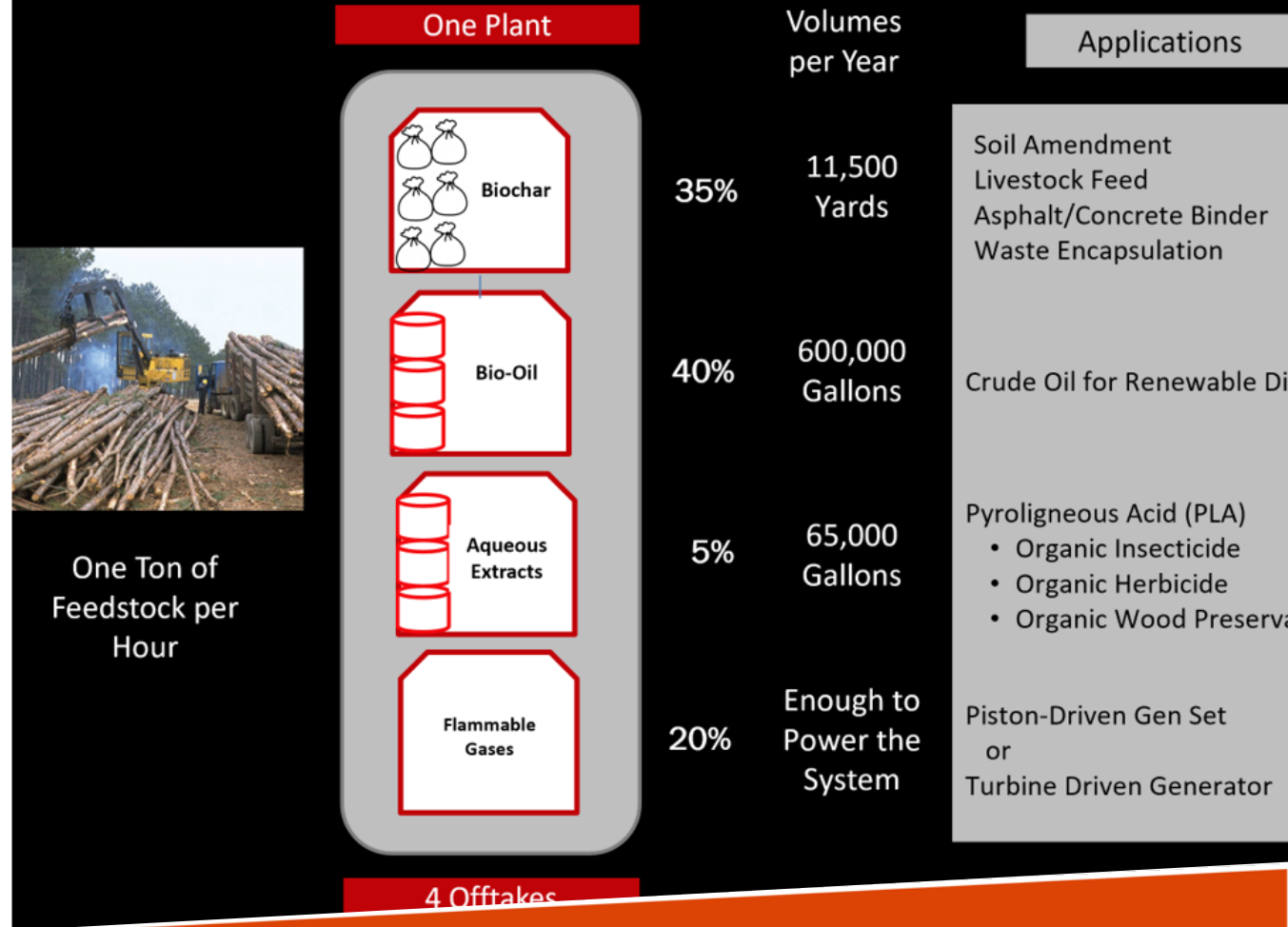
Distributed production

Past projects with centralized pyrolysis have failed

Biomass is bulky and expensive to transport

Mobile ComKilns: Transport energy dense biocrude = new opportunity to get it right

## Catalyst: ComKiln as an Anchor Tenant



## Summary

1. Oregon forestry produces with native species, environmentally sound, but can do better
2. Forest residues as a resource
3. Displacing fossil fuels with biomass = direct impact on C cycle
4. Mobile pyrolysis kilns provide opportunity, but requires research prior to investment



# Thank You!

Any Questions?



Oregon State  
University