



valley vision

Community Inspired Solutions



Cleaner Air Partnership



CAPITAL REGION CLIMATE READINESS COLLABORATIVE

Biomass & Beyond: The Future of Our Forests and Working Lands



Welcome and Introduction

**Caitlin Blockus, Project Manager
Valley Vision**

**Renee John, Managing Director
Valley Vision**

We Prosper Together Regional Plan



www.tinyurl.com/WPT-plan



We Prosper Together Regional Plan:

Strategies for a Thriving and Inclusive Economy



Thank you

to all of our supporters



Cleaner Air
Partnership



LOS RIOS
COMMUNITY
COLLEGE DISTRICT



California
Community
Colleges



CAPITAL REGION
CLIMATE READINESS
COLLABORATIVE



SETA





Guest Speaker

Eric Guerra
California Air Resources Board



the
**Watershed
Center**

Biomass 101

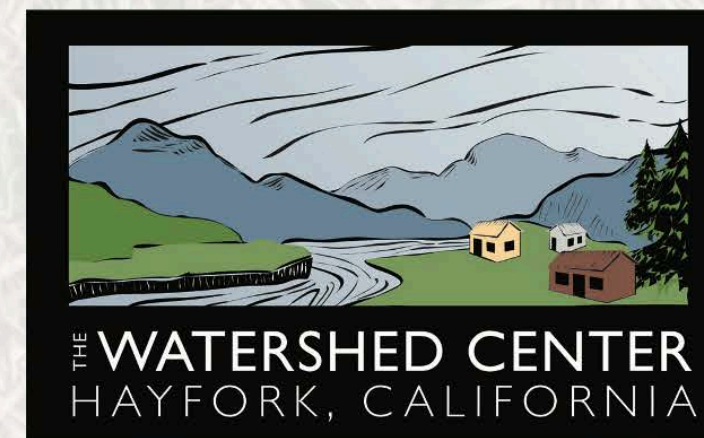
Martin Twer
The Watershed Center

**Biomass & Beyond:
The Future of Our Forests and Working Lands**

Biomass 101

“If you can't grow it, you have to mine it”

Martin Twer
Biomass Program Director



Why Biomass Utilization?

Biomass—Renewable Energy from Plants and Animals

Biomass is renewable organic material that comes from plants and animals. Biomass can be burned directly for heat or converted to liquid and gaseous fuels through various processes.

U.S. Energy Information Administration

Role in the circular economy

Biomass is becoming a pillar of the circular economy because it allows us to use what was once considered waste as a renewable energy resource.

“If you can't grow it, you have to mine it”

Sources of Biomass

- Trees
- Energy crops (woody; crops like corn, sugarcane, rapeseed, purpose-grown grasses, etc.)
- Agricultural wastes (manures, dairy waste, rice and corn stalks, etc.)
- Algae
- Landfill waste

Sources of Biomass

“Dry” / lignocellulosic materials

→ thermal, thermochemical conversion (combustion, gasification)

- Trees
- Energy crops (woody, e.g. willows)
- Purpose-grown grasses (e.g. switchgrass)

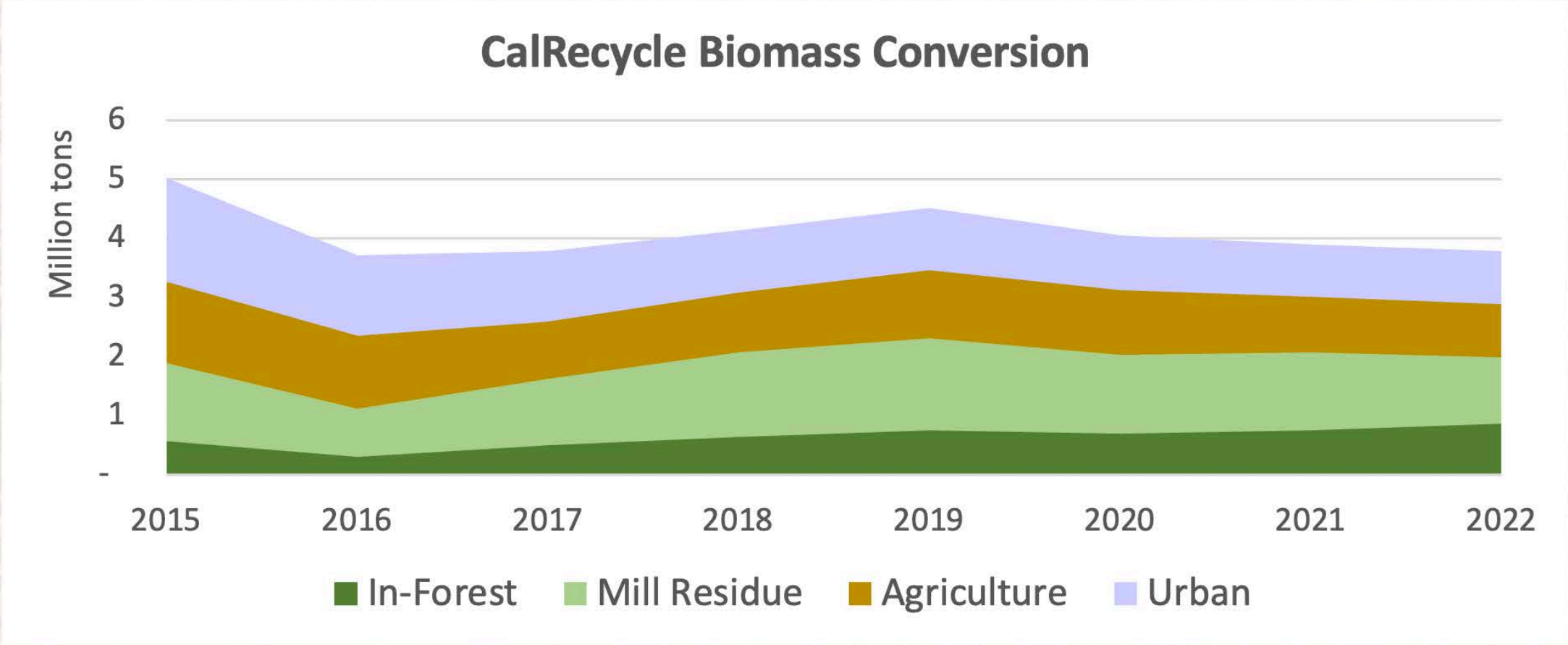
Landfill waste

“Wet”

→ biochemical conversion (anaerobic digestion)

- Agricultural wastes (e.g. manures, dairy)
- Algae
- Energy crops (corn, sugarcane, rapeseed, etc.)

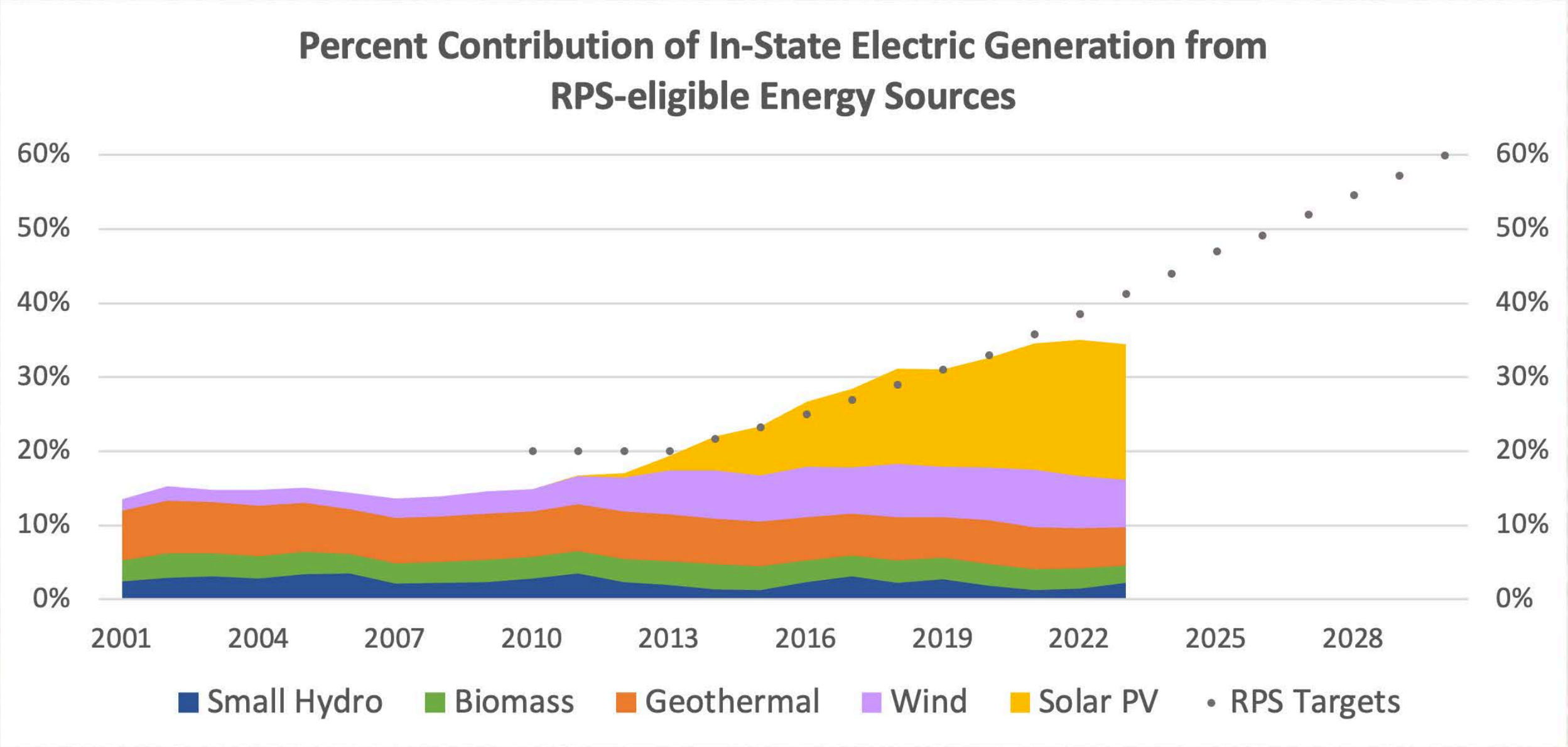
Sources of Biomass



Biomass Products, Uses, and Market Streams

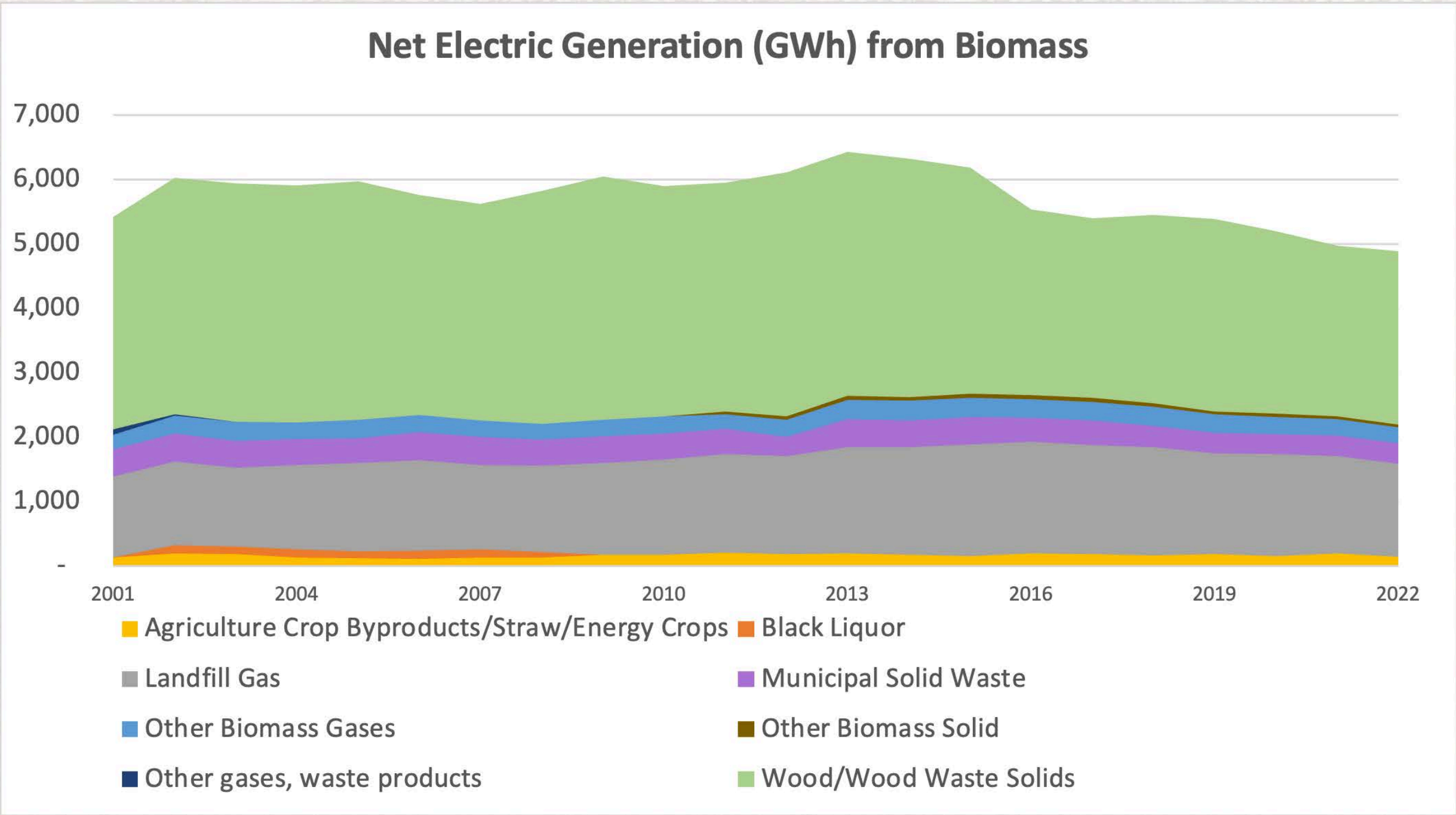
- Electricity generation
- Heating / Cooling
- Renewable natural gas
- Transportation fuels
- Hydrogen production

Biomass Products, Uses, and Market Streams



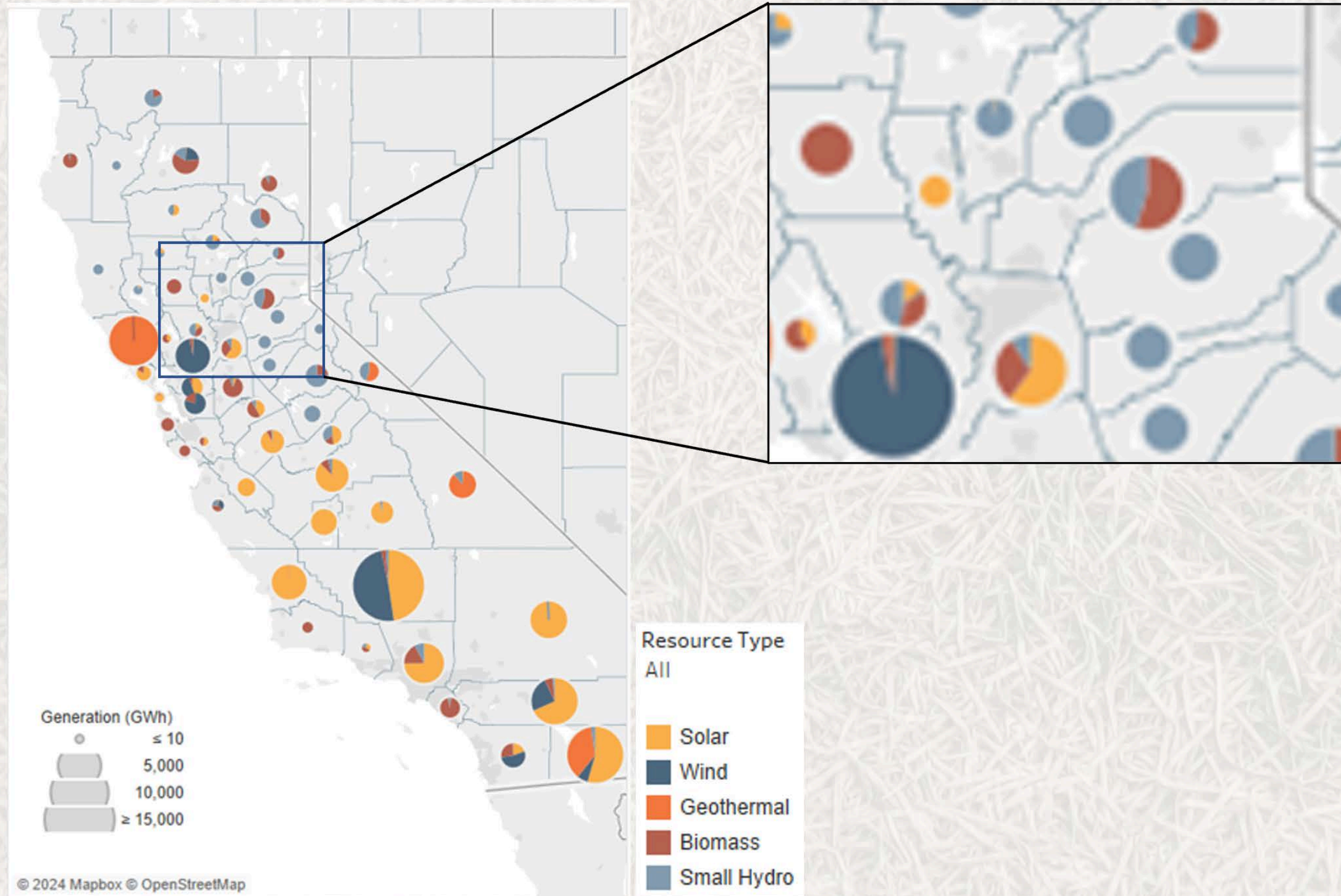
California Energy Commission, Energy Almanac

Biomass Products, Uses, and Market Streams



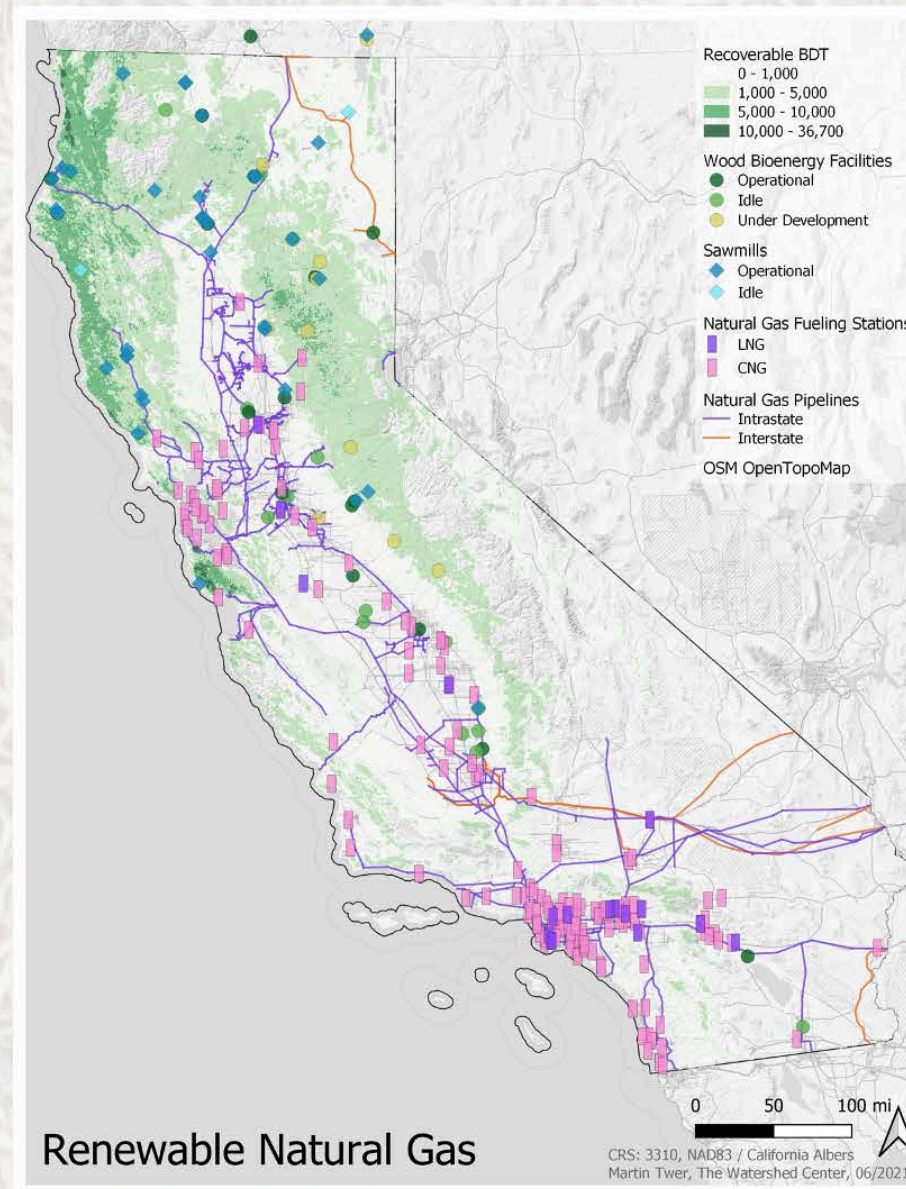
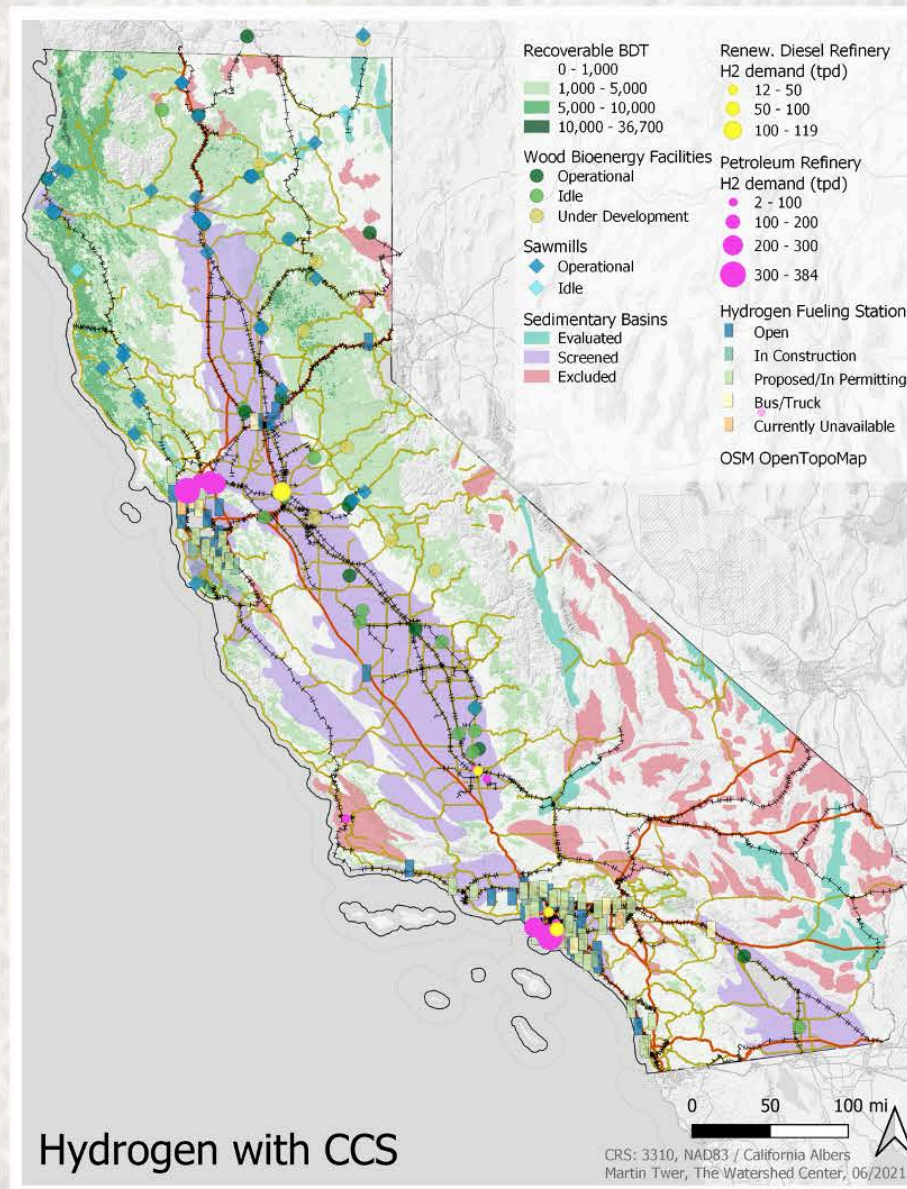
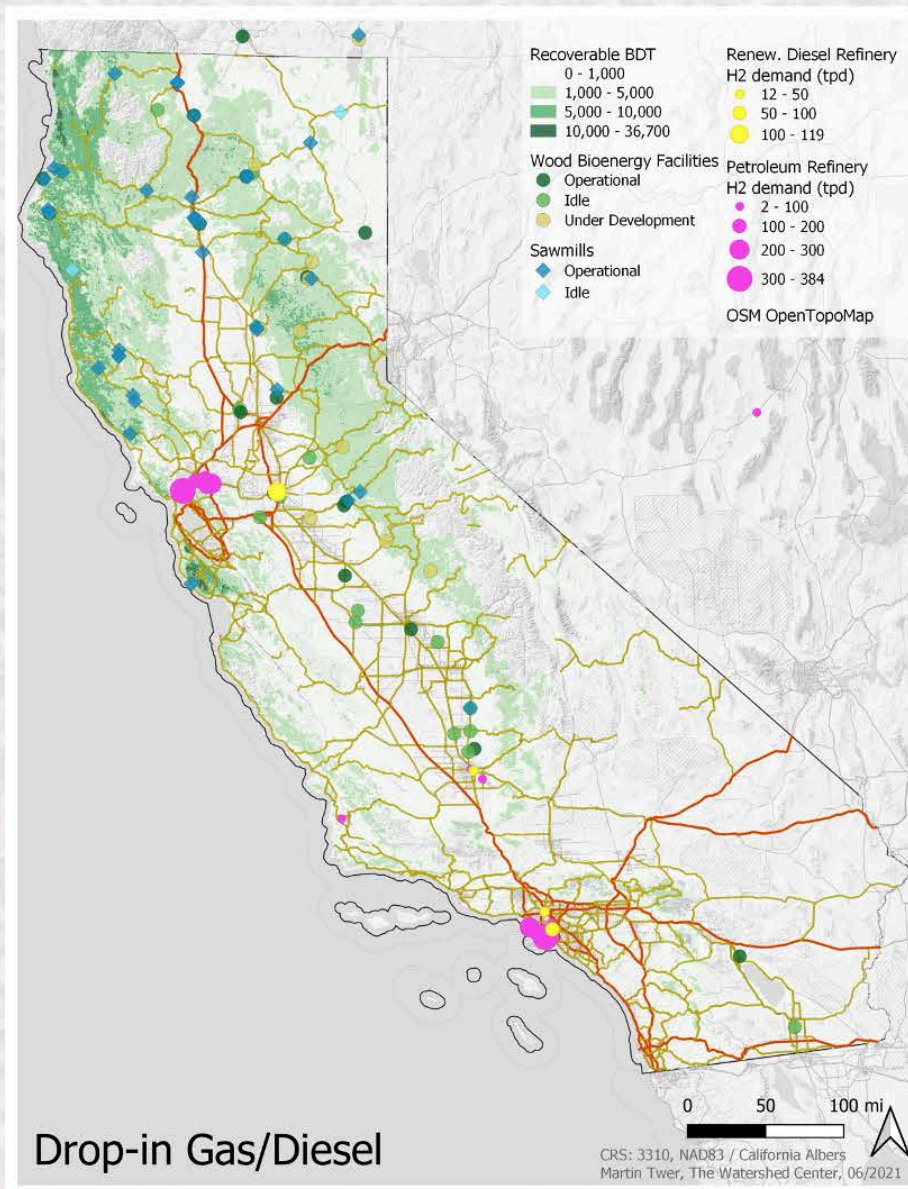
California Energy Commission, Energy Almanac

Biomass Products, Uses, and Market Streams



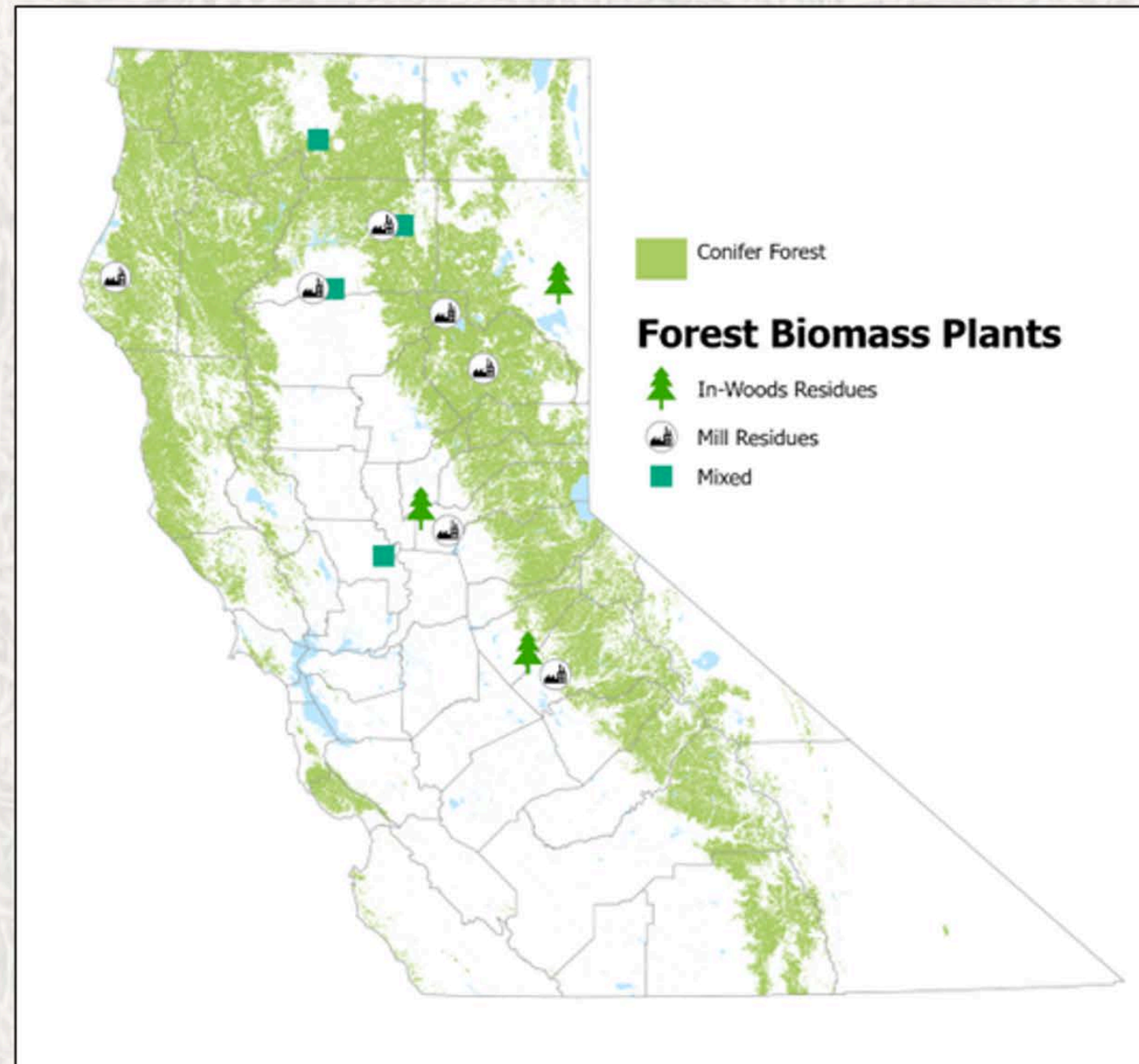
2020 RPS-certified renewables map. Data source: California Energy Commission 2023.

Biomass Products, Uses, and Market Streams



Sanchez, D.; Gilani, H. 2021. Advancing collaborative action on forest biofuels in California. Joint Institute for Wood Products Innovation. Sacramento, CA: UC Berkeley, Board of Forestry.

Biomass Products, Uses, and Market Streams

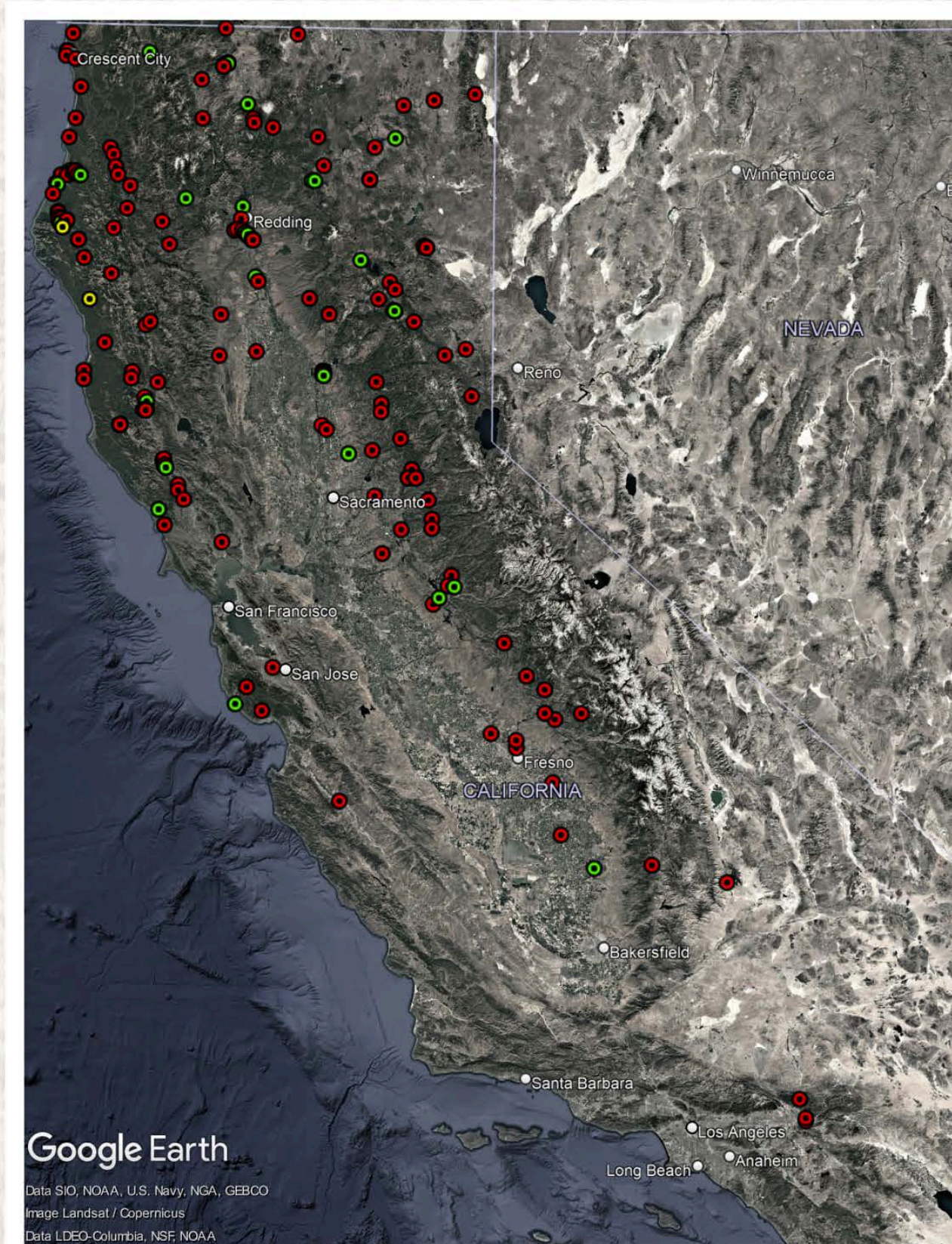


Forest biomass energy facilities. Includes biomass energy and co-generation plants that produce electricity primarily from in-forest residues and/or mill residues.

Opportunities & Challenges for Biomass Utilization

- Continue to support research to fully account for and better quantify (both physically and economically) both the positive and negative aspects of energy production from (forest) biomass, compared to the alternative fate of the waste biomass, including feasibilities and impacts.
- Continue to develop and support policies that recognize the potential of (forest) biomass energy projects to improve forest health, reduce wildfire threat, contribute to rural economies, and provide other benefits.
- Quantify emissions (air and climate pollutants) from open burning and wildfires and incorporate the value of avoided emissions into cost-benefit analyses of biomass energy.
- Consider a biochar protocol to recognize the carbon value of biochar production and use.
- Develop a strategy to convert forest waste biomass to hydrogen and Sustainable Aviation Fuel.
- Continue to explore opportunities for forest biomass to contribute towards the state's Low Carbon Fuel Standard Program.
- Increase the requirement for firm, renewable power or create separate price tracks for firm renewables and intermittent renewables to recognize the different grid benefits they provide and the fact that firm renewables don't require backup generation or energy storage.
- Consider requiring ceramic catalytic air filters on all combustion facilities, or all facilities in extreme non-attainment districts.

Opportunities & Challenges for Biomass Utilization



Opportunities & Challenges for Biomass Utilization

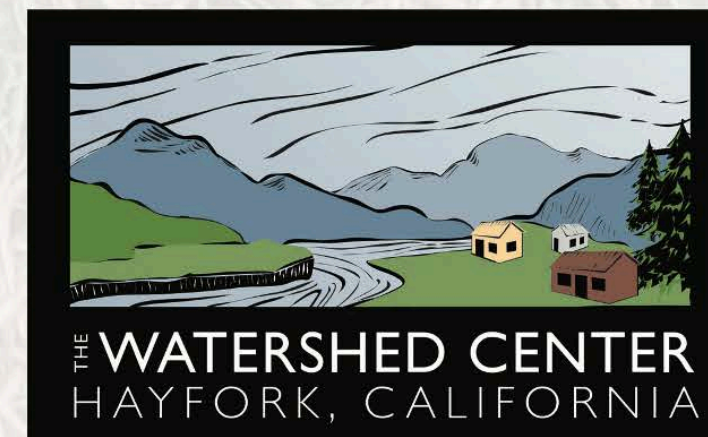


Biomass & Beyond: The Future of our Forests and Working Lands

“If you can't grow it, you have to mine it”

Thank you.

Martin Twer
Biomass Program Director
martin@thewatershedcenter.com



Facilitated / Audience Q&A



Erik White
Placer County Air Pollution Control District

Mentimeter Activity

Enjoy your Lunch!
12:00 - 12:30 PM



valley vision

Community Inspired Solutions



**Cleaner Air
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**CAPITAL REGION
CLIMATE READINESS
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Biomass & Beyond: The Future of Our Forests and Working Lands

Case Studies Panel



Gloriamar Gamez
BEAM Circular



Kerri Timmer
Placer County



Elizabeth Bentancourt
California
Department of Conservation



BEAM CIRCULAR

BIOECONOMY • AGRICULTURE • MANUFACTURING

Transforming waste into community prosperity and a healthy environment for all



**BIO
ECO
NOMY**



**MANU
FACTU
RING**



**AGRI
CUL
TURE**



BioEconomy, Agriculture, & Manufacturing (BEAM) Initiative:
a regional strategy for global leadership in the circular bioeconomy

BEAM Portfolio

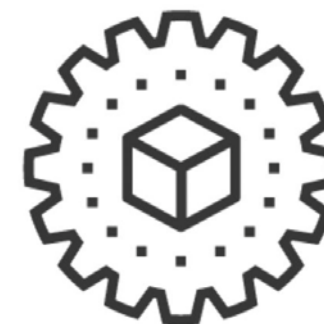
Public-private programs and investments that enable growth of the circular bioeconomy, create jobs, and support a healthy environment



Community & Collaboration



Workforce Development



Enabling Infrastructure



Innovation



Access to Capital

Case Study: \$55+ million in public and private capital mobilized for BEAM portfolio since launch Jan 2023

- \$10 million investment from Stanislaus County
- \$3.6 million Economic Development Pilot Grant (CA Jobs First)
- \$1 million National Science Foundation Engines Development Award
- \$1.5+ million in early private/philanthropic grants to BEAM Circular
- \$9.7 million award from Schmidt Sciences & FFAR

**\$25.8M
grants**



local gov.



state



federal



industry



philanthropy

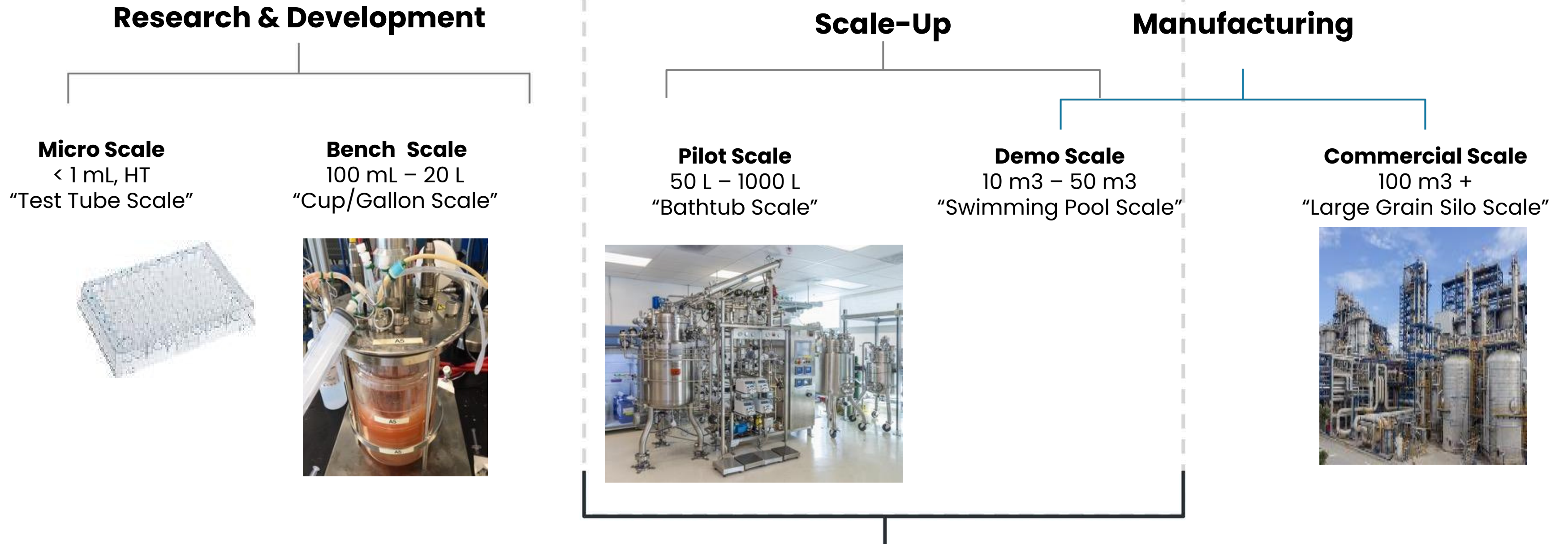


\$30 million in venture capital committed by HawkTower to support circular bioeconomy startups in the North San Joaquin Valley over the next decade.

CBIO Collaborative – Diverse Partner Network



BIOTECHNOLOGIES FACE BARRIERS TO SCALE



BEAM Focus: Industry Gap / Valley of Death

R&D has outpaced commercialization and biomanufacturing scale-up. Gaps include a lack of key pilot/demo-scale manufacturing infrastructure, as well as policy and economic solutions that help bridge the "valley of death".

Policy Enablers

1. Regional & State Sector Prioritization of Circular Bioeconomy
2. Address Regulatory Complexity and Permitting Delays
3. Nurture End-Markets for Bio-Based Products
4. Support Financing for Circular Bioeconomy Projects and Supply Chain Infrastructure
5. Align State Carbon Reduction Programs
6. Insufficient Workforce Development and Training
7. Support Data and Measurement



BEAM CIRCULAR

BIOECONOMY • AGRICULTURE • MANUFACTURING

Let's collaborate!

www.beamcircular.org





Biomass & Beyond: The Future of Our Forests and Working Lands



Taking the Next Steps – Cal FRAME Project Need

- **Urgency**

- More projects □ more material
- Limited local biomass outlets □ more pile burning; more fuel left in the forest; more severe fires

- **Challenges for Biomass Facilities**

- Inconsistent and risky biomass supply chain
- Limited capital access for market expansion



Addressing Supply Chain Risks

- **TCS Cal FRAME Pilot**

- Leads: PCWA & Placer County
- Goals: Improve feedstock logistics and reduce risk through aggregation

- **Project Scope:**

- Engage stakeholders to understand challenges and opportunities
- Conduct feasibility study for planned facility at Ophir Road
- Assess roles of water agencies in forest health & biomass
- Explore legal entities for long-term contracting



Key Findings & Proposed Models

- **Regional Interest:** Strong support for a biomass aggregation entity
 - Need for a flexible, fast-acting structure
 - Desire for additional services environmental review, grants, and residential greenwaste management
- **Water Agencies:** Critical for forest health and wildfire resilience
- **Biomass Potential:** 100,000+ BDT/yr currently; up to 320,000 BDT/yr possible in future
- **Evaluated JPA Models:** Watershed Authority, State Agency, Three-County, Wildfire Prevention Authority.



Hub Implementation Strategy

- **Phased Approach:**
 - Start with informal JPA (Agreement) for member agencies to confirm key functions and develop strategic plans
 - Consider a separate legal JPA (Authority) for broader services
- **Funding:**
 - Initial: Member contributions
 - Future: Grants and service fees if legal JPA entity formed
- **Next Steps:**
 - Local government outreach in early 2025
 - Develop a Contract Guarantee Fund & pricing mechanisms
 - Collaborate on BDO Zone Rating to attract investment





Questions?



The logo for the California Department of Conservation features a stylized map of California divided into three vertical sections. The left section is dark blue, the middle is yellow, and the right is green. Each section contains a landscape scene: mountains, a river, and a field. Below the logo, the text "California Department of Conservation" is written in a dark blue, serif font.

California
Department of Conservation

State Biomass Utilization to Energy: Policy Opportunities and Needs

Biomass and Beyond, November 20, 2024

Elizabeth Betancourt

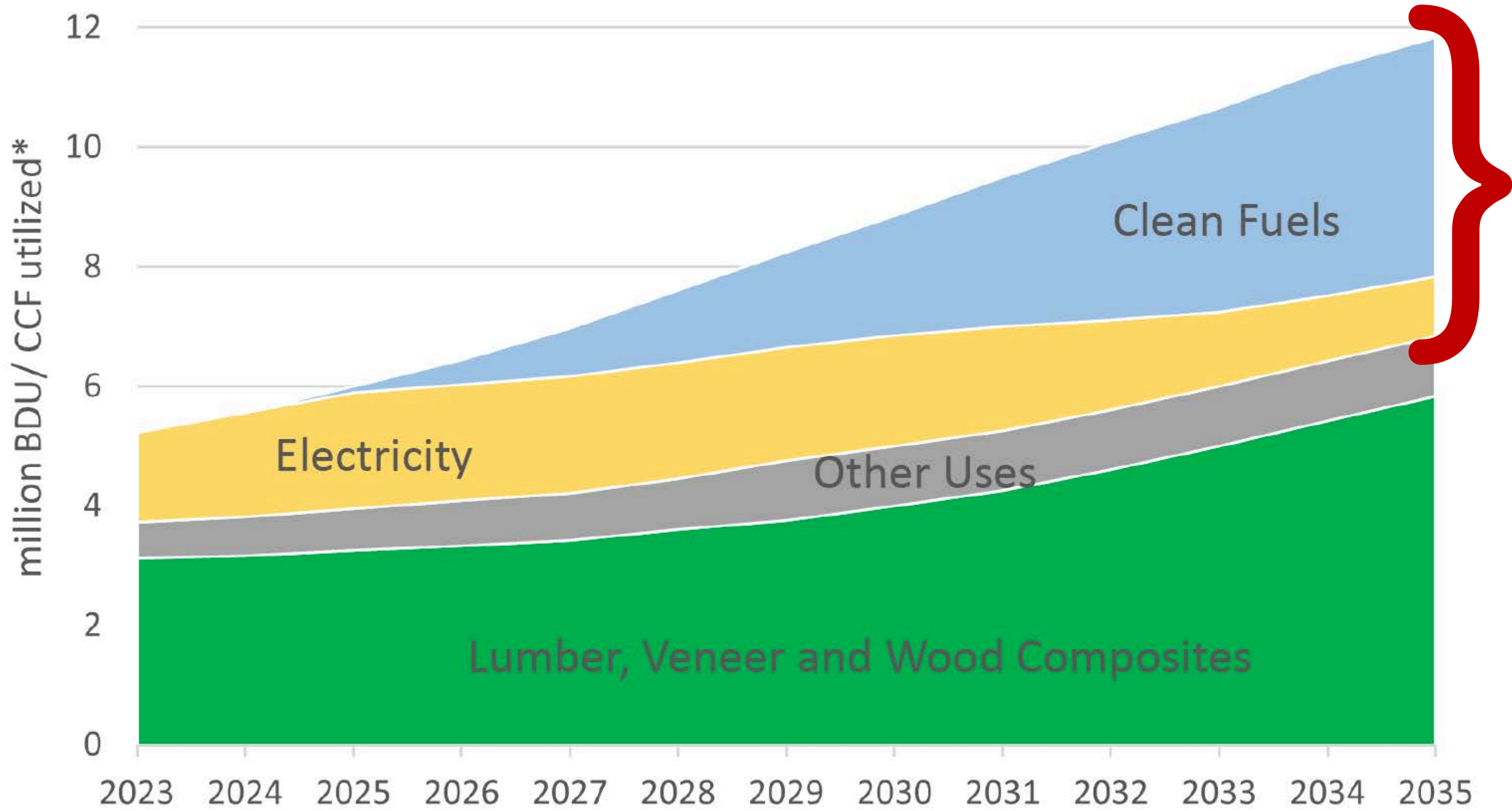
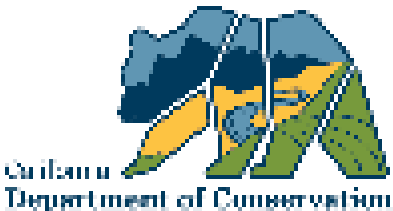
*Natural and Working Lands Policy Advisor
State Co-Chair, Wood Utilization Work Group*

A scenic view of a forest with a stream in the foreground and tall evergreen trees in the background. The stream flows through a lush green landscape with mossy banks and scattered rocks. The trees are tall and dense, creating a sense of depth and tranquility.

We create value from forest biomass to support a
greater number of acres treated

The objective of this work is
forest health

Biomass Utilization Pathways



California Bioenergy Policies & Plans

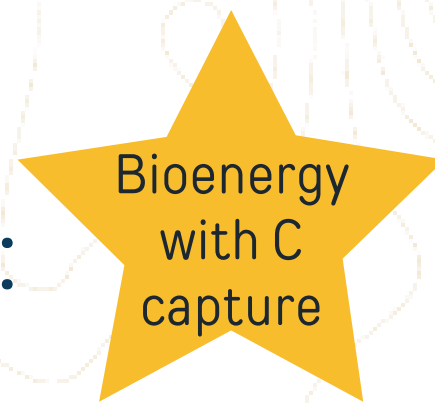


○ Existing:

- BioMAT and BioRAM: electricity procurement mandates (CPUC)
- SB 1440: biomethane procurement mandate (CPUC)
- Clean fleet mandate (CARB)
- Low Carbon Fuel Standard (LCFS) incentive program (CARB)
 - Now supporting woody biomass-sourced fuels!

○ Planning:

- Scoping Plan (CARB):



- Comprehensive report on H2 (SB 1075, CARB)
- ARCHES hydrogen hub – DOE award
- Draft Wood Utilization Strategy (Wildfire and Forest Resilience Task Force)

Needs: Policies and Partnerships

- Definitions, regulations, and authorities

- Biomethane
- Hydrogen
- CEQA streamlining

- Procurement mandates

- BioMAT extension

- Local government leadership

- Yuba County Water Agency (\$)
- Placer County Water Agency (policy)
- Placer APCD (policy)
- Stanislaus County (\$)
- S2J2 Jobs First region (\$, policy)

- Innovative partnerships and Tribal leadership

- Local-county-regional-State-federal partnerships and communication

- Fact-based
- All levels

- Public infrastructure investments:

- Gas pipelines – biogas and CO2
- Grid expansion/resilience where energy is produced



Thank you for your partnership!

Elizabeth Betancourt
Elizabeth.Betancourt@Conservation.CA.gov
916-767-8117



**WE PROSPER
TOGETHER**

Facilitated / Audience Q&A

Lindsey Nitta

We Prosper Together Leadership Council Member

Mentimeter Activity

Industry Panel

**Facilitator: Hilary Tellesen, Workforce Director
Valley Vision**



**Chris Quijano
Rio Bravo-Rocklin**



**Justin Britton
CAL FIRE**



**Kerri Timmer
Placer County**

Mentimeter Activity

Summary and Next Steps

**Adrian Rehn, Senior Project Manager
Valley Vision**

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We Prosper Together

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Help shape
future events
by completing
this post-
event survey!

SCAN BELOW

