

BIOMASS CONVERSION FACILITIES



Mt. Poso Cogeneration Plant, Bakersfield (Source: California Biomass Energy Alliance)

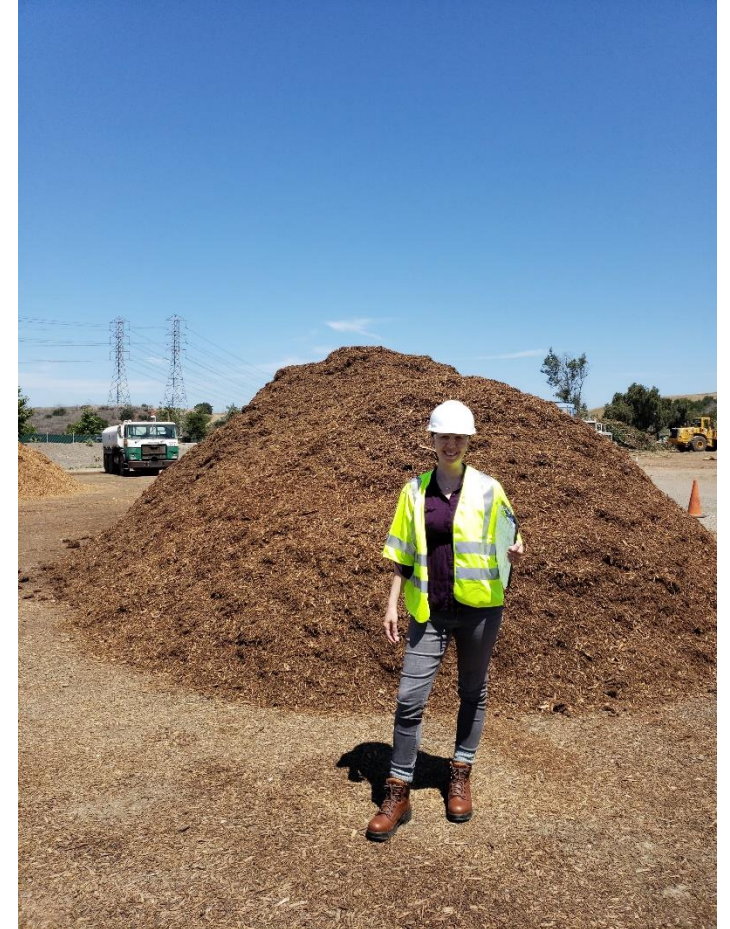
Chip Clements, Principal
Kate Downey, Regulatory Specialist
Clements Environmental
April 2019

Clements Environmental Corp.

Founded: 1989

Environmental consulting and engineering
solid waste, recycling, and renewable
energy projects

- Up Front Project Development
- Project Feasibility Analysis
- Site Design
- Local and State Permits
- Continuous Environmental Compliance

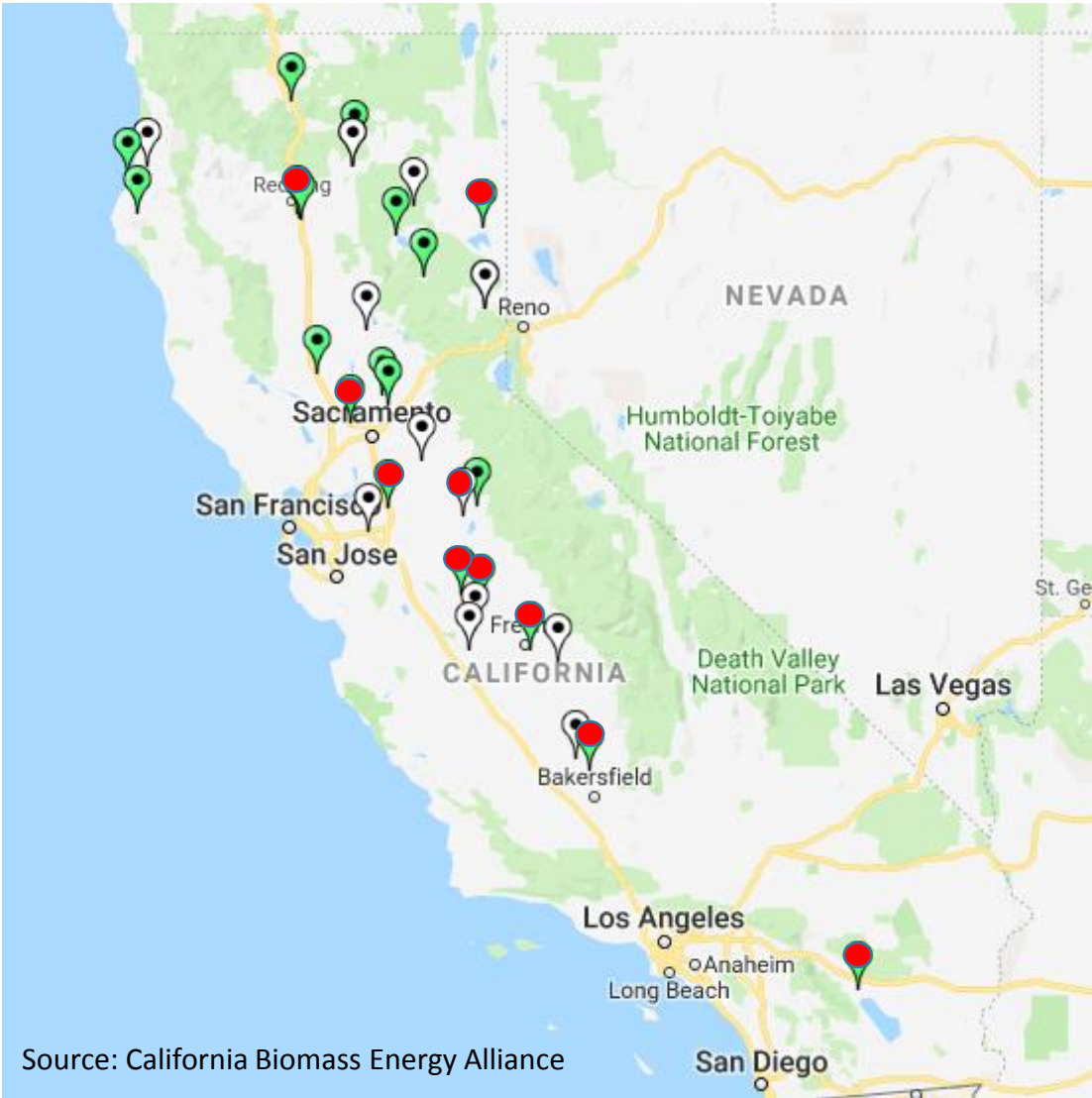


Overview

- Current status of biomass combustion plants
- Reasons for decline of biomass combustion plants
- Permitting requirements for new biomass conversion facilities
- Strategies to encourage development in LA County and throughout California



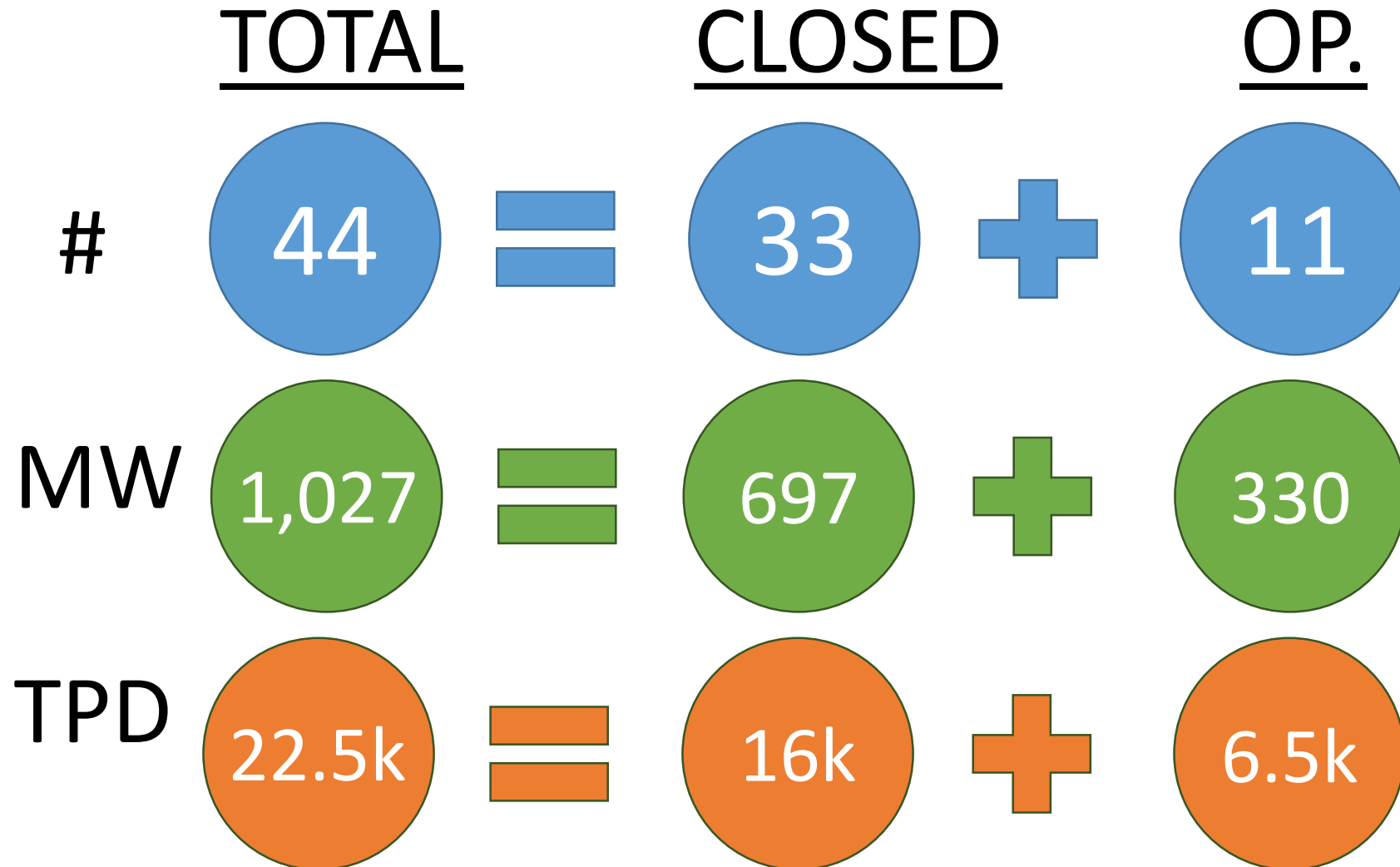
Location of Existing Biomass Power Plants



Source: California Biomass Energy Alliance

● Operational

Status of Biomass Power Plants



Existing Operational California Biomass Power Plants

FACILITY NAME	CITY	STATUS	TECH.	MWh	TPD
Colmac	Mecca	Operational	Combustion	47	1,095
Mt Poso Cogeneration	Bakersfield	Operational	Combustion	44	1,012
Rio Bravo Fresno	Fresno	Operational	Combustion	25	767
Phoenix Energy	Merced	Operational	Gasification	0.5	10
Chowchilla	Chowchilla	Operational	Combustion	12.5	287
Merced Power	El Nido	Operational	Combustion	12.5	287
Honey Lake Power	Wendel	Operational	Combustion	35.5	781
Pacific Ultrapower Chinese Sta.	Jamestown	Operational	Combustion	22	484
Wheelabrator Shasta Energy	Anderson	Operational	Combustion	58	176
DTE Woodland Biomass Power	Woodland	Operational	Combustion	25	550
DTE Stockton Biomass Power	Stockton	Operational	Combustion	50	1,100



Reasons for Decline

- Competition from less expensive renewable energy sources (wind and solar)
- Expiration of long-term PPAs
- Operating facilities relying on “temporary” subsidies for forest wood



Thermal Biomass Conversion Technologies

Gasification to Power

Example Facilities

- Phoenix Energy – Calaveras County, CA (operating)
- Phoenix Energy – Madera County, CA (in construction)
- West Coast Waste/Zero Point – Fresno, CA (in permitting)

Incentives

- Bioenergy Market Adjusting Tariff (BioMat) Program



Phoenix Energy, Placer County (Source: International Biochar Alliance)

Thermal Biomass Conversion Technologies

Gasification to Fuel

Example Facilities

- West Coast Waste/Enerkem – Madera County (in permitting)
- Aemetis/InEnTec – Stanislaus County (in final permitting)

Incentives

- Renewable Identification Number (RINs)
- Low Carbon Fuel Standard Program (LCFS)
- Ag wood crisis
- Clean air alternatives



InEnTec Gasification Technology (Source: InEnTec)

Thermal Biomass Conversion Facility Permitting Requirements

PERMITTING AUTHORITY	TYPE	SCHEDULE	COST
Planning Department	CUP/CEQA (MND)	6-12 months	\$75,000
	CUP/CEQA (EIR)	12-24 months	\$200,000
Building & Safety	Building Permits	9 months	\$50,000
Public Works	Public Works Permits	6 months	\$15,000
CalRecycle	None required		
	Chip/Grind Notification	One week	\$5,000
	Chip/Grind Registration	2 months	\$15,000
	Chip/Grind SWFP	6 months	\$25,000
Regional Water Quality Control Board	Industrial General Permit	1 month	\$10,000
	Individual NPDES Permit	9 months	\$50,000
Air Quality Management District	Permit to Construct	6 months	\$25,000
	Permit to Operate	6 months	\$50,000



Strategies for Jurisdictions to Encourage Development

- Facilitate communication between permitting agencies on specific requirements
- Develop plainspoken guidance documents on permitting process
- Draft specific guidance to facilitate CEQA
- Review local zoning and general plans to identify site opportunities for future facilities
- Use General Plan or Specific Plan EIR revisions to facilitate siting and approval of biomass conversion facilities



Clements Environmental Corp.

Dedicated Team: -16°



Enerkem Alberta Biofuels, Edmonton, AB Canada

QUESTIONS?

