

# *STATUS UPDATE OF CALIFORNIA'S BIOENERGY SECTOR*



Forest Vegetation  
Management  
Conference

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# PRESENTATION OVERVIEW

- Brief history and overview of California's biomass power sector
- Governor's 2015 proclamation and its implications
- Current status
- BioRAM I
- BioRAM II
- Community Choice Energy
- SB 1122
- Additional Resources
- Value Add Options
- Questions





# ABBREVIATED HISTORY OF THE CALIFORNIA BIOMASS POWER SECTOR



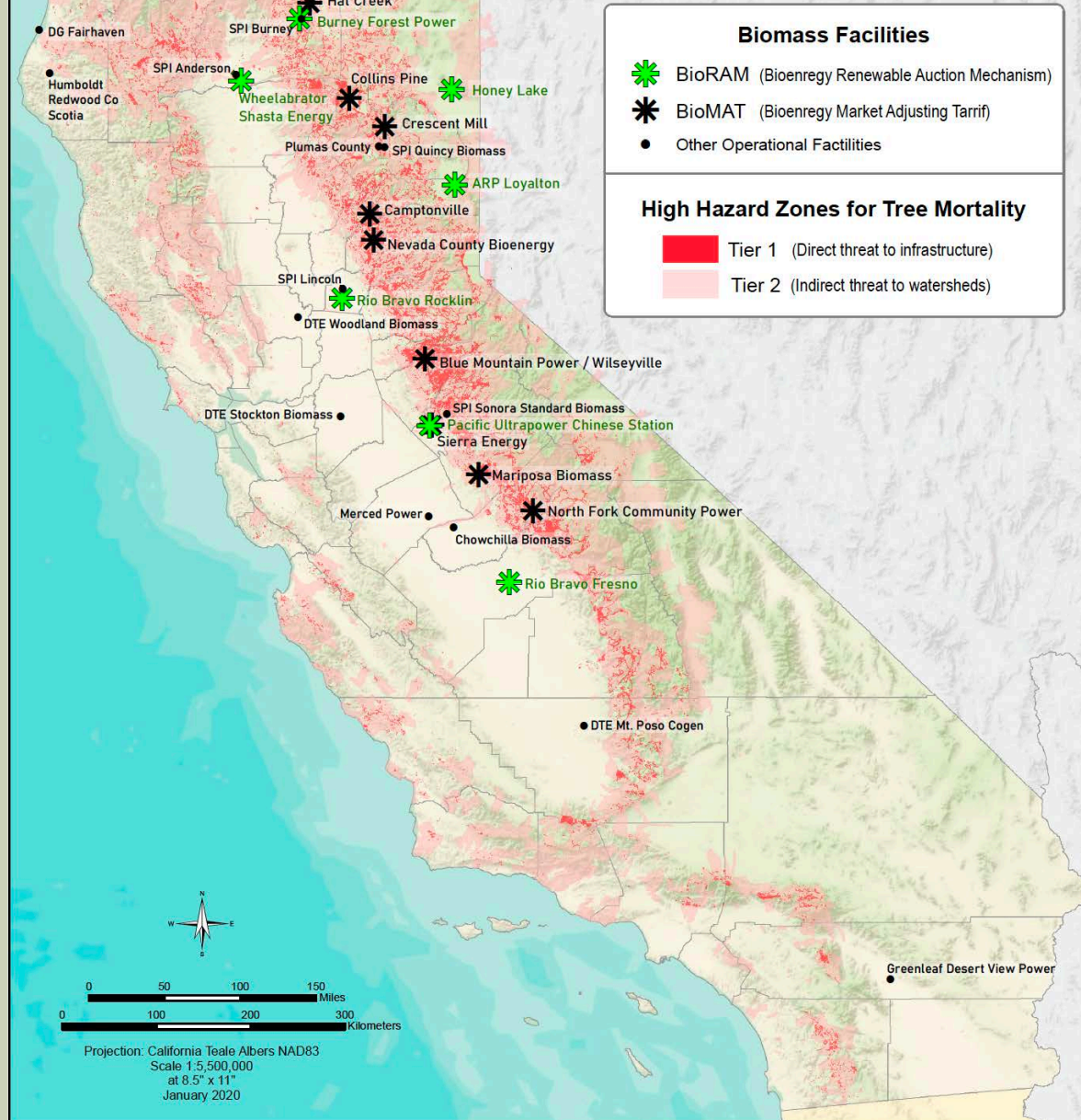
- Forest products sector was an early adopter.
- Public Utilities Regulatory Policy Act of 1978 (Federal).
  - Market response – 60+ new biopower plants (approx. 900+ MW of generation capacity).
- Power contract buyouts.
- CA Renewable Portfolio Standard – 60% renewable by 2030 and 100% carbon free by 2045.
- Senate Bill 1122.
- Gov's Proclamation results in SB 859 and BioRAM PPA contracts. (Bioenergy Renewable Auction Mechanism)
- SB 901
- Currently 22 operating plants (approx. 560 MW of capacity).



## California Biomass Facilities

BioRAM / BioMAT Program Participation

as of January, 2020



# CURRENT OPERATING FACILITIES

- 22 biomass plants in commercial service – about 560 MW capacity.
- Utilize a blend of urban, ag and forest feedstocks. Urban feedstock is the low price leader, then ag, with forest biomass as the highest priced.
- 15 idle plants with about 260 MW capacity.
- Most recent entry is ARP Loyalton at 20 MW.





# RESPONSE TO GOVERNOR'S EMERGENCY PROCLAMATION

- CA Legislature Response:
  - Senate Bill 859 is signed by the Governor in Sept 2016.
- CA PUC and Utility response:
  - Directed investor owned utilities (PG&E, SCE, SDG+E) and publicly owned utilities (SMUD, LADWP, IID, MID, etc.) to procure power from facilities that source forest biomass using the Renewable Auction Mechanism.
  - BioRAM only applies to IOU's and POU's with at least 100,000 customers.
  - Target allocation is at least 180 MW.
  - Applies only to biomass power plants on line before June 1, 2013.
  - Power Purchase Agreements for BioRAM facilities (six) term out by 2027 & 2028.



# BIORAM I AND BIORAM II DETAILS

- Power Purchase Agreements are a minimum of five years duration targeting 180 MW (minimum).
- BioRAM I fuel Requirements:
  - At least 80% from HHZ.
- BioRAM II fuel Requirements:
  - 80% from “sustainable” forest management with at least 60% from HHZ.
- Fuel tracking protocols require plants to report quarterly to the IOU’s.
- If BioRAM plants do not meet minimum fuel sourcing requirements then the energy price drops to \$89.23/MWh (down from about \$120/MWh).
- SB 901 allows BioRAM plants to request a five year PPA extension (if not located in a federal severe nonattainment airshed).



# BIORAM FACILITIES

| FACILITY                           | SCALE<br>(Net MW) | ANNUAL FEEDSTOCK USAGE<br>(BDT/YEAR) |
|------------------------------------|-------------------|--------------------------------------|
| <b>BIORAM I FACILITIES</b>         |                   |                                      |
| Pacific Ultrapower Chinese Station | 18                | 144,000                              |
| Rio Bravo Fresno Biomass           | 24                | 192,000                              |
| Rio Bravo Rocklin Biomass          | 24                | 192,000                              |
| Burney Forest Power                | 29                | 232,000                              |
| <b>BIORAM II FACILITIES</b>        |                   |                                      |
| Wheelabrator                       | 34                | 272,000                              |
| Greenleaf Power / Honey Lake       | 24                | 192,000                              |
| ARP Loyalton                       | 18                | 144,000                              |



# BIORAM FACILITY FUEL MANAGERS

| FACILITY                              | Fuel Manager    | Email address                  | Phone        |
|---------------------------------------|-----------------|--------------------------------|--------------|
| Pacific Ultrapower<br>Chinese Station | Dennis Serpa    | dserpa@chinesestation.net      | 209.984.4660 |
| Rio Bravo Fresno<br>Biomass           | Hector Lara     | hlara@rbfresno.com             | 559.264.4575 |
| Rio Bravo Rocklin<br>Biomass          | Scott Pedersen  | spedersen@rbrocklin.com        | 916.645.3383 |
| Burney Forest Power                   | Jeff Oldson     | jeffo@crcforestry.com          | 530.921.3219 |
| Wheelabrator                          | Alan Jacobson   | alanj123@aol.com               | 530.339.7600 |
| Honey Lake Power                      | Steve Kozlowski | skozlowski@greenleaf-power.com | 530.260.0252 |
| American Renewable<br>Power Loyalton  | Jim Turner      | jim.turner@amerpower.com       | 530.941.2796 |

# COMMUNITY CHOICE ENERGY

- Also known as Community Choice Aggregation (CCA). Currently authorized in CA, OH, MASS, NJ, NY and RI.
- Allows communities to procure power on behalf of residents – both residential and commercial. Power is still delivered using existing infrastructure provided by the existing utility provider.
- Currently 19 CCA's in CA. Marin County was the first to adopt this business model (2010). 11 communities are now considering CCA.
- Most CCA's focus on procuring power (primarily renewable) from a variety of sources.
- Some procure biomass power (Redwood Coast Energy Authority).

# SB 1122 BIOENERGY MARKET ADJUSTING TARIFF (BIOMAT)

- Signed into law Sept 2012.
- Bioenergy specific carve out for 250 MW of small-scale (3 MW or less) distributed generation.
  - Urban sourced – 110 MW
  - Dairy and other Ag sourced – 90 MW
  - Forest sourced – 50 MW
- Designed to address waste diversion and air emissions reduction goals of the CA Energy Commission, CalRecycle, CA Air Resources Board and the State's Bioenergy Action Plan.
- Administered by the CA Public Utilities Commission.
- BioMAT Category 3 auction currently underway.



# SENATE BILL 1122 FEEDSTOCK REQUIREMENTS FOR FOREST BIOMASS

- At least 80% sourced as byproducts of “Sustainable Forest Management”
  - Sustainable Forest Management as designated by CPUC
  - Verified by third party
- Other 20% of feedstock:
  - Byproducts of agricultural operations
  - Clean urban wood waste
- Annual Reporting to the CPUC
  - Volume by feedstock type







Phoenix Energy 500 kWh Gasification Unit at  
Merced, CA

# COMMUNITY-SCALE BIOPOWER FACILITY EXAMPLE – NORTH FORK COMMUNITY POWER

- 2 MW project being considered at North Fork, California.
- New plant construction cost around \$15 million.
- Will consume about 46 BDT/day (approx. 1BDT/MWh burn rate).
- Biomass transported approx. 30 - 40 miles (one way).
- Achieved financial close on 12/31/19.
- EQTEC is strategic partner and will supply gasifier technology.
- Commercial operations should commence Q2 2021.
- Energy price with BioMAT PPA: \$199/MWh





# SB 1122 CATEGORY 3 PROJECTS IN DEVELOPMENT

| Facility                               | Scale (MW) | Annual Feedstock Usage (BDT/Year) | Location       |
|--|------------|-----------------------------------|----------------|
| North Fork Community Power             | 2          | 16,000                            | North Fork     |
| CHIPS Value-Added Product Yard         | 3          | 24,000                            | Wilseyville    |
| Burney Hat Creek Bioenergy             | 3          | 24,000                            | Burney         |
| Crescent Mills Wood Utilization Campus | 3          | 24,000                            | Crescent Mills |
| Collins Pine                           | 3          | 24,000                            | Chester        |
| Camptonville Community Partnership     | 3          | 24,000                            | Camptonville   |
| Nevada County Bioenergy                | 3          | 24,000                            | Grass Valley   |
| Mariposa Biomass Project               | 2          | 16,000                            | Mariposa       |
| <b>Totals</b>                          | <b>22</b>  | <b>176,000</b>                    |                |

# OTHER VALUE-ADDED USES

- District heating and power
  - Quincy
  - Bridgeport
- Transportation Fuels
  - Red Rock Biofuels
- Fuel pellets
  - RCRC initiative
- Animal bedding
  - American Wood Fiber
- Landscape cover
- Soil amendment
  - Mulch
  - Biochar
- Firewood
- Post and poles



# ADDITIONAL RESOURCES

California CCA

<https://leanenergyus.org/new/california/>

Statewide Wood Energy Team

<http://ucanr.edu/sites/swet/>

Placer Co Air Pollution Control District

<http://www.placer.ca.gov/departments/air/apcdbiomass>

CA Biomass Energy Alliance

<http://www.calbiomass.org/>

Bioenergy Association of California

<http://www.bioenergyca.org/>

UC Division of Ag and Natural Resources

<http://ucanr.edu/sites/WoodyBiomass/>

CA Biomass Collaborative

<http://biomass.ucdavis.edu/about/>



# QUESTIONS or HECKLING REMARKS?



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