



**IHI POWER SERVICES CORP.**

# CALIFORNIA BIOMASS

“Biomass Energy, Cleaning the Air, Reducing Greenhouse Gas,  
Minimizing Waste”

2017 Western Statewide Wood Energy Team Forum

# Introduction to IHI



- Founded: 1853
- Headquarters: Tokyo
- Employees: 27,562
- Four Business Areas:
  - Aerospace
  - Energy
  - Social Infrastructure
  - Machinery



# IHI Power Services Corp

## IHI Biomass Power Plants

Chinese Station  
Jamestown, California

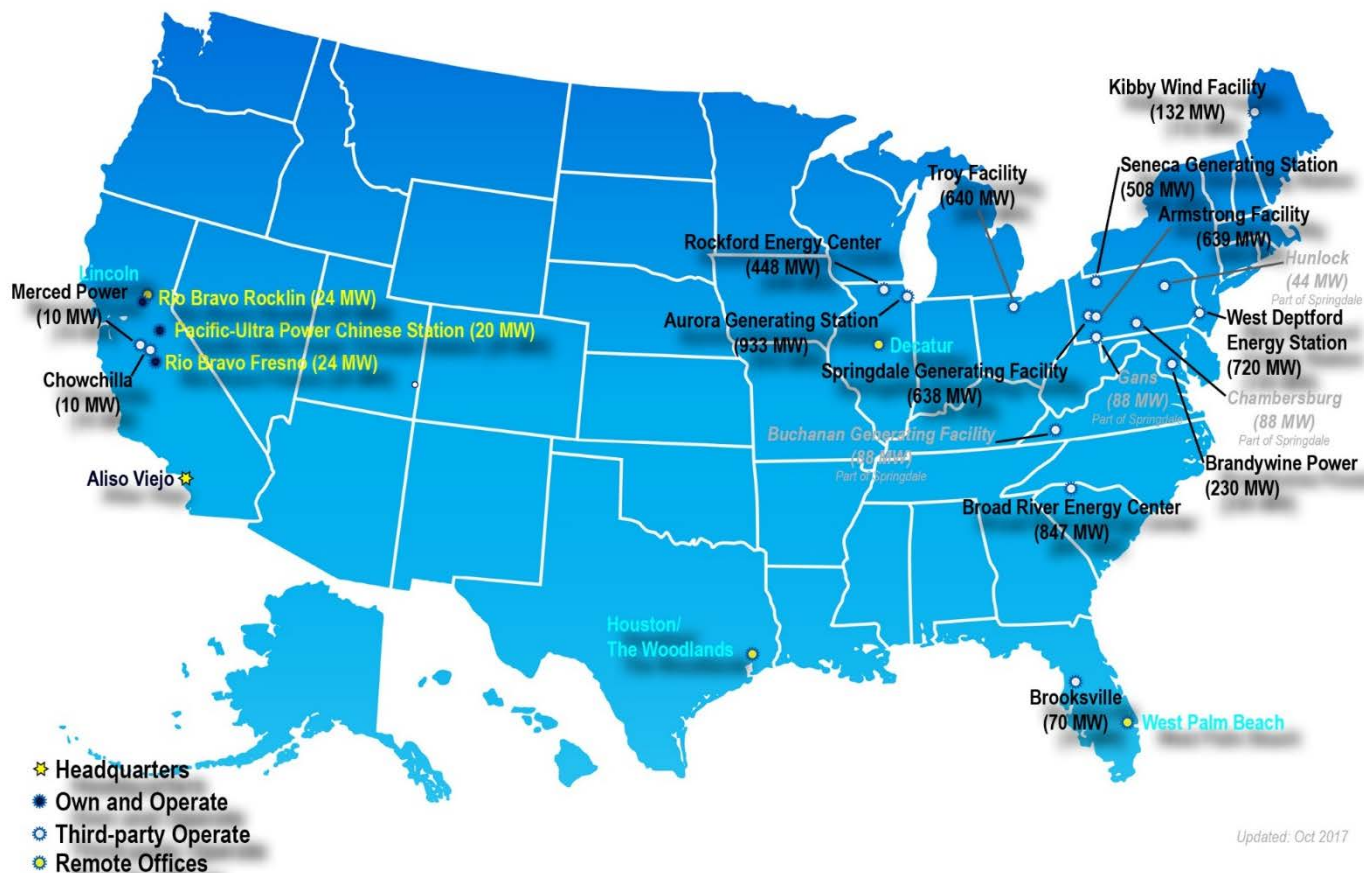
Rio Bravo Fresno  
Fresno, California

Rio Bravo Rocklin  
Lincoln, California

Florida Power Development  
Brooksville, Florida

Merced Power  
El Nido, California

Chowchilla Biomass  
Chowchilla, California



Updated: Oct 2017

# IHI Power – Rio Bravo Fresno



|                    |                            |
|--------------------|----------------------------|
| Plant Manager      | Rick Spurlock              |
| Compliance Manager | Andrew Luna                |
| Location           | Fresno, California         |
| Type of Plant      | Biomass – CFB Boiler       |
| Capacity           | 24.3 MW                    |
| COD                | 1988                       |
| Fuel Source:       |                            |
|                    | Agricultural               |
|                    | Urban/C&D                  |
|                    | Forest (High Hazard Trees) |

## History – California Biomass Power

- 1980 – Governor Jerry Brown sets policy for 12 cent/kWh price floor
- 66 Power plants constructed over the next 10 years
  - Operating capacity nearly 1,000 MW
  - 8 million bone dry tons of biomass
- 2007 – Governor Schwarzenegger – Bioenergy Action Plan, called for doubling the operating capacity of Biomass power
  - **Outcome – continued decline of industry**
- 2012 – Governor Brown updates Bioenergy Action Plan calling for increase from 623 MW to 930 MW
  - **Outcome – continued decline of industry**
- Current State:
  - 22 operating plants
  - 11 power plants not in operation



## California Biomass Energy Alliance

- Created over 20 years ago with a charter to promote biomass energy as a means to reach the environmental and economic goals of California.
- The sole advocate of the solid fuel biomass power industry through California's energy crisis, the introduction and implementation of renewable standard and waste reduction mandates though to today's carbon constrained proceedings ruled by AB 32/SB32's greenhouse gas emissions reduction requirements.
- CBEA played a prominent role in each of these important public policy changes and educating policy makers on the myriad benefits of avoiding conventional fuel disposal and open-burning and the jobs it creates.

# Biomass An Endangered Clean Energy Source

- 33 operational biomass electric generating plants in California, distributed across 19 counties. 22 are currently operating.
- Combined generating capacity of over 532 MWs
- Biomass power is around 6%\* of California's renewable electricity.
- Employs about 700 direct jobs at the facilities and 1,000 to 1,500 dedicated indirect jobs in the fuel supply infrastructure.



## Responds to Tree Mortality Emergency

- Governor Issued Emergency Proclamation, October 30, 2015
- CPUC Direction
  - Utilize authority to extend contracts on existing forest bioenergy facilities receiving feedstock from high hazard zones.
  - Take expedited action for new forest bioenergy facilities.
  - Facilitation of expedited interconnection agreements for forest bioenergy facilities.
- CPUC Response - Resolution E-4770
  - Obligates the 3 IOUs to hold targeted RAM solicitation for contracts for biomass generators that use forest fuels from high hazard zones for at least **50 MWs**.
    - 40% in 2016, 50% in 2017, 60% in 2018 and 80% for each subsequent year

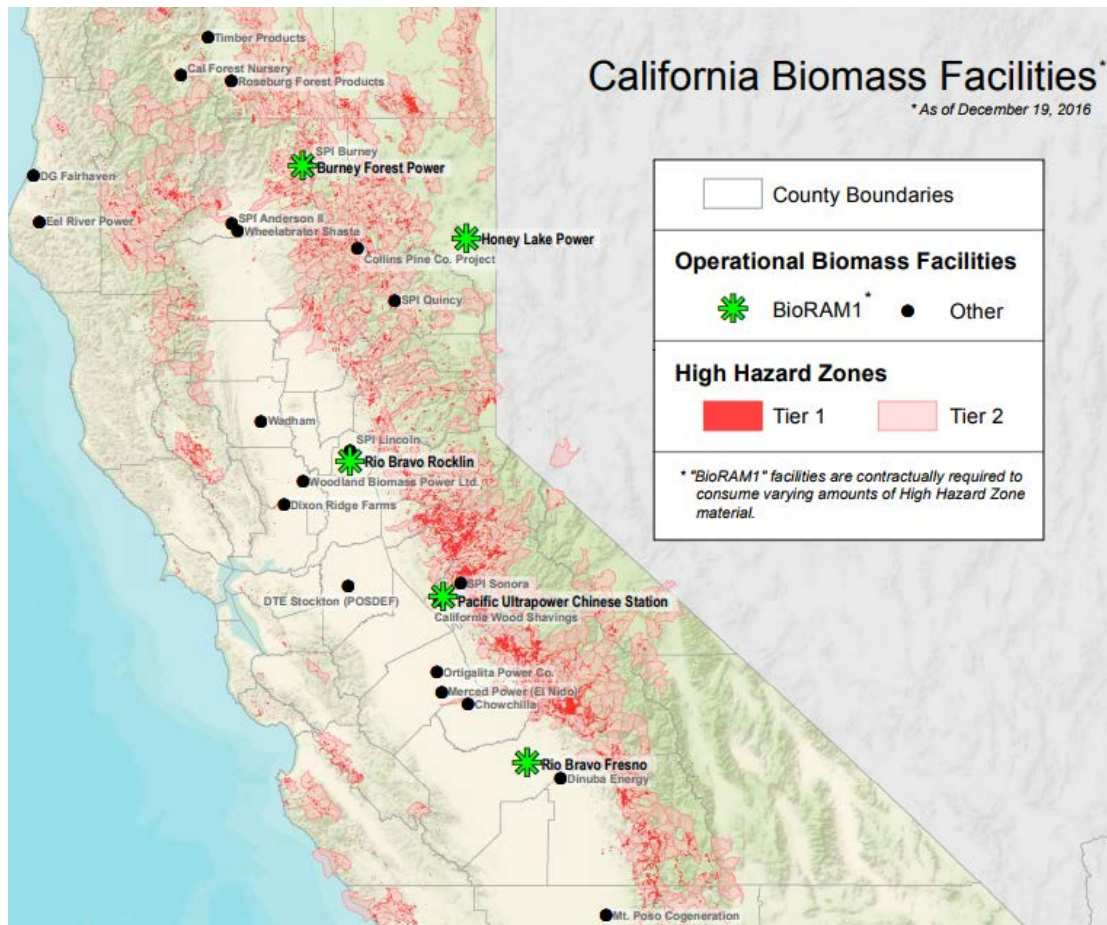


# Responds to Tree Mortality Emergency

- Legislative Response
  - SB 859 (Committee on Budget, 2016)
    - Additional **125 MWs** using similar prescribed amounts of dead and dying trees in high HHZs as feedstock (60%).
    - Includes both IOUs and POUs
    - Allows capacity procured in excess of the BioRAM I solicitation
    - Requires that the procurement costs to satisfy this requirement be recovered from all customers on a non-bypassable basis.
    - At least 80 percent of the feedstock of an eligible facility, on an annual basis, shall be a byproduct of sustainable forestry management
      - CalFire definition in consultation with CalForests

# Direct Result of Emergency Proclamation

- BioRAM 1
  - Burney Forest Power
  - Honey Lake Power
  - Rio Bravo Rocklin
  - Chinese Station
  - Rio Bravo Fresno
- BioRAM 2
  - Wheelabrator Shasta
  - Loyalton





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