

# BIOENERGY FUELS CALIFORNIA

## JOBS & ECONOMIC DEVELOPMENT

California's diverse bioenergy market plays an important role in helping the state achieve its climate protection goals while fostering economic growth and creating new job opportunities—many of which are in disadvantaged communities.

### LOCALLY SOURCED LABOR

Bioenergy production facilities are built locally and create permanent jobs in operations, maintenance, management, sales, and other in-state direct and indirect employment opportunities.



### DIVERSE JOB OPPORTUNITIES

The bioenergy sector is supported by an array of positions—from waste collection to construction, engineering, onsite management, maintenance, and more.

### FOSTERS COMMUNITY INVESTMENT

Because every community generates organic waste, each can attract investment in local bioenergy projects that convert these recycled feedstocks into low carbon energy for transportation, homes and businesses.

**Bioenergy** is a renewable energy source produced by several different types of organic materials.

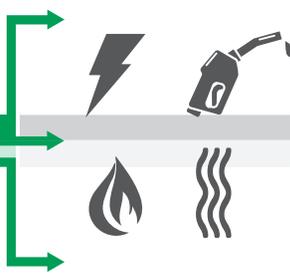
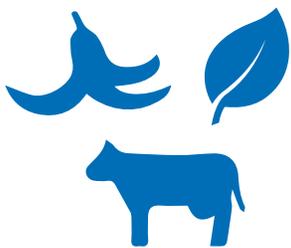
**Diversity** leads to project development and private investment in communities throughout the state.

#### Feedstocks

#### Conversion

#### Output

#### End Uses



- Animal Manure
  - Dairy
  - Poultry
- Food Production Wastes
- Municipal Wastewater
- Landfills
- Food & Green Waste
- Forest Waste
- Agricultural Wastes

- Anaerobic Digestion (AD)
- High Solid AD
- Fermentation
- Gasification
- Pyrolysis

- Heat
- Steam
- Electricity
- Gas
- Renewable Fuels
  - Biomethane
  - Hydrogen
  - Sustainable Aviation Fuel

- Transportation
  - Light-Duty Vehicles
  - Medium-Duty Vehicles
  - Heavy-Duty Vehicles
  - Off-Road Vehicles
  - Ocean Going Vessels
  - Aircraft
- Commercial
  - Industrial
  - Residential
  - Backup Generators
  - Microgrid
  - Energy Storage

# SPOTLIGHT ON CALIFORNIA BIOENERGY PROJECTS



Phoenix Energy owns and operates on-site biomass gasification plants in partnership with businesses in the agricultural, waste, and forestry industries.

**California Sites:** Sierra foothills, Central Valley

**Local Construction Jobs:** 65

**Local Permanent Bioenergy Jobs:** 15

**Annual Pay for Permanent Jobs:** \$922,320

**Pay for Construction Jobs:** \$1.9 million (2021)



California BioEnergy is operating and building more than 60 dairy digesters to convert manure into renewable vehicle fuel and electricity.

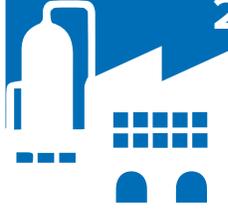
**California Sites:** San Joaquin Valley

**Local Construction Jobs:** 991

**Local Permanent Bioenergy Jobs:** 50

**Annual Pay for Permanent Jobs:** \$5.8 million

**Pay for Construction Jobs:** \$122.8 million



**200+ BIOENERGY FACILITIES**

are operating or underdevelopment throughout California.

**>\$1 BILLION IN LOCAL INVESTMENT**



to build 160 California-based RNG production facilities from 2020 to 2024.

**12,000+ JOBS**

could be created just by the organic waste diversion requirements of SB1383, per CalRecycle.



Ameresco develops and operates landfill gas facilities that produce both renewable vehicle fuel and electricity.

**California Sites:** Northern and Southern Cal.

**Local Construction Jobs:** 81

**Local Permanent Bioenergy Jobs:** 12

**Past In-State Project Investment:** \$157.5 million

**Additional Future In-State Investment:** \$200 million



San Joaquin Renewables converts agricultural waste biomass through gasification into RNG for transportation use.

**California Sites:** McFarland

**Local Construction Jobs:** 275

**Local Permanent Bioenergy Jobs:** 50

**Annual Pay for Permanent Jobs:** \$5.5 million

**Pay for Construction Jobs:** \$40 million



Anaergia collects, processes and converts food and green waste into renewable vehicle fuel and electricity.

**California Sites:** Rialto

**Local Construction Jobs:** 200

**Local Permanent Bioenergy Jobs:** 35

**Annual Pay for Permanent Jobs:** \$4.55 million

**Local Investment:** \$180 million