

**AMERICAN  
BIOGAS  
COUNCIL**

# Biogas State Profile: California

## Biogas Potential

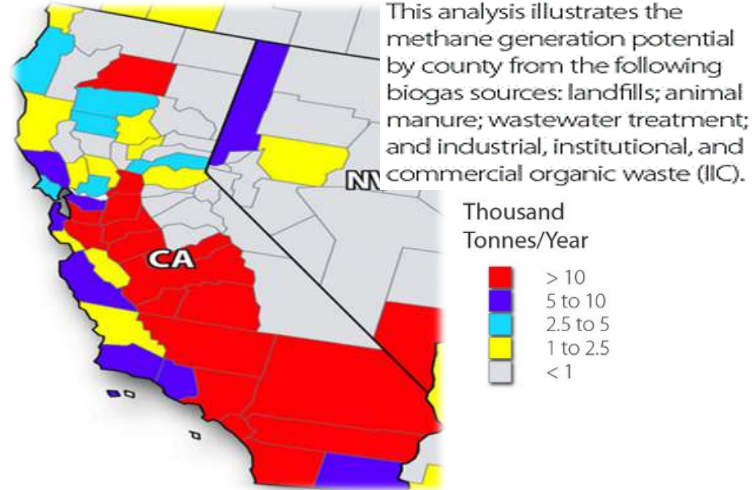
California ranks #1 among U.S. states for methane production potential from biogas sources.<sup>1</sup>

Currently California has 276 operational biogas systems. We see the potential for more than 1,187 new projects to be developed based on the estimated amount of available organic material.

Constructing this many projects would generate \$3.5 billion in capital investment, and create 29,675 short-term construction jobs, 2,374 long-term jobs, and numerous industry-supporting jobs.

If fully realized, these biogas systems could produce enough electricity to power 182,071 homes (3.0 billion kWh) or enough renewable natural gas to fuel 435,506 vehicles.

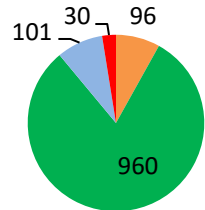
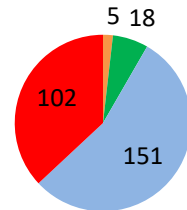
They would also collectively reduce greenhouse gas emissions by the equivalent of 58.2 trillion tons of carbon dioxide, the same as growing 54.9 million tree seedlings for ten years or the amount 1,831,338 acres of U.S. American forest sequester each year.<sup>2</sup>



## U.S. Energy Rankings

Energy	
Total CO2 Emissions <sup>12</sup>	Ranks 2 <sup>nd</sup> in U.S., 6.7% share
Per Capita Energy Consumption <sup>13</sup>	Ranks 21 <sup>st</sup> in U.S.
Renewable Electricity Generation <sup>14</sup>	Ranks 2 <sup>nd</sup> in U.S.
Energy Prices Rank <sup>15</sup>	Ranks 48 <sup>th</sup> in U.S.

## Operational Systems Potential Systems



■ Food Waste ■ Agriculture ■ Waste Water ■ Landfill

## Biogas Systems

### Food Waste

Operational food waste biogas systems <sup>3</sup>	5
Potential food waste biogas systems <sup>4</sup>	96

### Agriculture

Operational biogas systems on farms <sup>5</sup>	18
Potential dairy farm biogas systems <sup>6</sup>	958
Potential swine farm biogas systems <sup>7</sup>	2

### Waste Water

Operational biogas systems at water resource recovery facilities <sup>8</sup>	151
Potential biogas systems at WRRFS <sup>9</sup>	101

### Landfills

Operational landfill gas systems <sup>10</sup>	102
Potential landfill gas systems <sup>11</sup>	30

## Feedstocks

### Manure

Total Manure Volume <sup>16</sup>	47.9 million gallons per day
Total Dairy Manure <sup>17</sup>	32 million gallons per day
Total Swine Manure <sup>18</sup>	165 thousand gallons per day
Total Beef Manure <sup>19</sup>	6.6 million gallons per day
Total Broiler Manure <sup>20</sup>	6.3 million gallons per day
Total Turkey manure <sup>21</sup>	2.7 million gallons per day

### Food Waste

Total Food Waste Generated <sup>22</sup>	6.1 million tons per year
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### Waste Water

Average flow from WRRF's <sup>23</sup>	17.9 million gallons per day
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\* All citations are available on [AmericanBiogasCouncil.org](http://AmericanBiogasCouncil.org).

Program; Advancing Clean Energy  
from Biogas; CDFA DDRDP

## California Green Policies

In September of 2014, Gov. Jerry Brown signed Assembly Bill 1826 which increases California's already bustling composting and anaerobic digestion infrastructure. This bill takes effect on January 1, 2016, and requires all commercial producers of at least 200 tons of organic waste/year to arrange to have their waste composted and/or digested anaerobically. <sup>24</sup>

California is currently proposing a new renewable gas standard, which would require a certain percentage of all gas produced/used in the state to be biogas.

State RPS <sup>25</sup>	33% by 2020, Includes AD.
Western Climate Initiative (WCI)	Return to 1990 levels by 2020; 80 % below 1990 levels by 2050.
Green House Gas Cap & Trade Market <sup>26</sup>	Requires major emitters in CA to participate in abatement activities (covers roughly 85% of emissions).
California's 75% Initiative <sup>27</sup>	75 % of solid waste generated be source reduced, recycled, or composted by the year 2020. <sup>28</sup> (~50% of waste scraps is source reduced, recycled, or composted).
Statutes & Regulations	<a href="#">Organics Recycling Law</a> ; <a href="#">California Global Warming Solutions Act</a> ; <a href="#">Bio-methane Rules</a> ; <a href="#">Bioenergy Feed-in Tariff</a> ; <a href="#">Renewable Energy Definition Amendments</a> ; <a href="#">Cap &amp; Trade Allowance Allocation</a> ; <a href="#">Air Quality &amp; Pollution Controls</a>
Municipal Legislation	<a href="#">San Francisco Organics Recycling Law</a> ; <a href="#">Oakland Zero Waste Plan</a> ; <a href="#">San Jose Zero Waste Plan</a>
Sustainability Commitments	<a href="#">Green California</a> ; <a href="#">CPUC Energy Efficiency Strategic Plan</a> ; <a href="#">Zero Net Energy Buildings</a> ; <a href="#">2012 BioEnergy Action Plan</a> ; <a href="#">Clean Cities Coalition</a> ,
State Funding Opportunities	<a href="#">Public Benefits Fund</a> ; <a href="#">CalRecycle Grants &amp; Loans</a> ; <a href="#">California's DRIVE</a>

## Biogas Companies Located in CA

[Bioenergy Association of California](#)

**Biogenic Energy Development Company (BEDC)**

[CH4 Power, Inc](#)

[Clean Energy Fuels](#)

**Clean Fuel Partners**

[CleanWorld](#)

[Colony Energy Partners](#)

[CR&R Incorporated](#)

[Engine, Fuel, and Emissions](#)

[Engineering, Inc.](#)

[ES Engineering, Inc.](#)

[GreenTech Frontiers](#)

[Harvest Power](#)

[Holt of California](#)

[LANDTEC North America, Inc](#)

[MT-Energie USA Inc.](#)

[Oberon Fuels](#)

[Organic Waste Systems](#)

[PerkinElmer](#)

[RealEnergy, LLC](#)

**SCS Energy**

**Strategic Management Group**

**Strategic Solutions**

[Tetra Tech](#)

[Zero Waste Energy LLC](#)

+ Many More

[Visit www.AmericanBiogasCouncil.org](http://www.AmericanBiogasCouncil.org) for the full Biogas Industry Directory

## California Biogas Resources

[CEC on Anaerobic Digestion](#)

The California Energy Commission is the state's primary energy policy and planning agency.

[California Public Utilities Commission \(CPUC\)](#)

The CPUC regulates privately owned electric, natural gas, water, & transportation companies.

[CalRecycle](#)

California's Department of Resources Recycling and Recovery's (CalRecycle) goal is to achieve the highest waste reduction, recycling and reuse rates in the nation.

CalRecycle's [CalMAX portal](#) connects businesses, organizations, manufacturers, schools, and individuals with the most effective online resources for exchanging materials.

[Organics Material Exchange](#)

This site allows organics waste producers and users on the Central Coast to exchange materials.

[Bioenergy Association of California](#)

BAC focuses on promoting sustainable bioenergy development through policy advocacy, public education and outreach, research, and industry best practices.

[Western United Dairymen](#)

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Western United Dairymen is a voluntary membership organization representing more than 60% of the milk produced in California

- <sup>1</sup> <http://www.nrel.gov/docs/fy14osti/60178.pdf>
- <sup>2</sup> (See ABC Biogas Potential Calculator)
- <sup>3</sup> (See ABC Food Waste Digester Excel Spreadsheet)
- <sup>4</sup> (See ABC Biogas Potential Calculator)
- <sup>5</sup> <http://epa.gov/agstar/projects/index.html>
- <sup>6</sup> [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/California/st06\\_1\\_017\\_019.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/California/st06_1_017_019.pdf) (Farms with 500 to 999 milk cows)
- <sup>7</sup> [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/California/st06\\_1\\_020\\_023.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/California/st06_1_020_023.pdf) (Farms with 5,000 or more hogs)
- <sup>8</sup> <http://resourcerecoverydata.org/>
- <sup>9</sup> (See Above)
- <sup>10</sup> <http://www.epa.gov/lmop/projects-candidates/operational.html>
- <sup>11</sup> <http://www.epa.gov/lmop/projects-candidates/candidates.html>
- <sup>12</sup> <http://www.eia.gov/state/rankings/?sid=CA#series/226>
- <sup>13</sup> <http://www.eia.gov/state/?sid=CA#tabs-5>
- <sup>14</sup> (See Above)
- <sup>15</sup> <http://www.eia.gov/state/rankings/#/series/31>
- <sup>16</sup> (See EQIP State Matrix Livestock Inventory)
- <sup>17</sup> (See Above)
- <sup>18</sup> (See Above)
- <sup>19</sup> (See Above)
- <sup>20</sup> (See Above)
- <sup>21</sup> (See Above)
- <sup>22</sup> <http://www.calrecycle.ca.gov/Publications/Documents/General/2009023.pdf>
- <sup>23</sup> <http://resourcerecoverydata.org/>
- <sup>24</sup> <http://www.biocycle.net/2014/09/30/californias-new-laws-to-accelerate-organics-recycling/>
- <sup>25</sup> <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx#ca>
- <sup>26</sup> <http://www.c2es.org/docUploads/calif-cap-trade-01-14.pdf>
- <sup>27</sup> <http://www.calrecycle.ca.gov/75Percent/>

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