



**AMERICAN  
BIOGAS  
COUNCIL**

# Biogas State Profile: Pennsylvania

## Biogas Potential

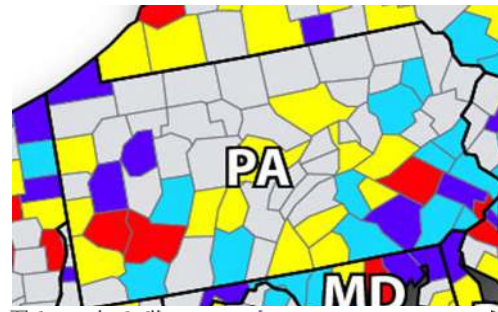
Pennsylvania ranks #9 among U.S. states for methane production potential from biogas sources.<sup>1</sup>

Currently Pennsylvania has 173 operational biogas systems. We see the potential for more than 348 new projects to be developed based on the estimated amount of available organic material.

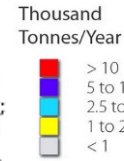
Constructing this many projects would generate \$1 billion in capital investment, and create 8,700 short-term construction jobs, 696 long-term jobs, and numerous industry-supporting jobs.

If fully realized, these biogas systems could produce enough electricity to power 151,586 homes (2 billion kWh) or enough renewable natural gas to fuel 151,586 thousand vehicles.

They would also collectively reduce greenhouse gas emissions by the equivalent of 18.1 trillion tons of carbon dioxide, the same as growing 35.6 million tree seedlings for ten years or the amount 1,187,211 acres of U.S. American forest sequester each year.<sup>2</sup>



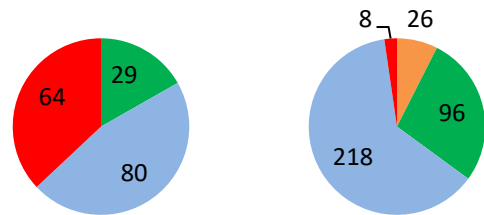
This analysis illustrates the methane generation potential by county from the following biogas sources: landfills; animal manure; wastewater treatment; and industrial, institutional, and commercial organic waste (IIC).



## U.S. Energy Rankings

Energy	
Total CO2 Emissions <sup>12</sup>	Ranks 3 <sup>rd</sup> in U.S., 4.52% share
Per Capita Energy Consumption <sup>13</sup>	Ranks 30 <sup>th</sup> in U.S.
Renewable Electricity Generation <sup>14</sup>	Ranks 17 <sup>th</sup> in U.S.
Energy Prices Rank <sup>15</sup>	Ranks 16 <sup>th</sup> in U.S.

## Operational Digesters Potential Digesters



Food Waste Agriculture Waste Water Landfill

## Biogas Systems

### Food Waste

Operational food waste biogas systems <sup>3</sup>	-
Potential food waste biogas systems <sup>4</sup>	26

### Agriculture

Operational biogas systems on farms <sup>5</sup>	29
Potential dairy farm biogas systems <sup>6</sup>	60
Potential swine farm biogas systems <sup>7</sup>	36

### Waste Water

Operational biogas systems at water resource recovery facilities <sup>8</sup>	80
Potential biogas systems at WRRFS <sup>9</sup>	218

### Landfills

Operational landfill gas systems <sup>10</sup>	64
Potential landfill gas systems <sup>11</sup>	8

## Feedstocks

### Manure

Total Manure Volume <sup>16</sup>	41.8 million gallons per day
Total Dairy Manure <sup>17</sup>	9.5 million gallons per day
Total Swine Manure <sup>18</sup>	1.6 million gallons per day
Total Broiler Manure <sup>19</sup>	27.1 million gallons per day
Total Turkey Manure <sup>20</sup>	1.7 million gallons per day
Total Beef Manure <sup>21</sup>	1.6 million gallons per day

### Food Waste

Total Food Waste Generated <sup>22</sup>	1.3 million tons per year
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### Waste Water

Average flow from WRRF's <sup>23</sup>	8.7 million gallons per day
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\* All citations are available on [AmericanBiogasCouncil.org](http://AmericanBiogasCouncil.org).

## Pennsylvania Green Policies

RPS <sup>24</sup>	18% alternative energy resources by compliance year 2020-2021
Statutes and Regulations	<p>Net Metering            Fuel Mix Disclosure            Public Benefits Program            Interconnections Standard            Building Energy Code            Biodiesel Infrastructure Certification</p>
Sustainability Commitments	<p>City of Philadelphia-Green Power Purchasing            University of Pennsylvania            Penn State University            Drexel            Villanova University            University of Pittsburgh            Duquesne University            Allegheny University            City of Pittsburgh</p>
State Funding Opportunities	<p>Sustainable Development Fund Financing Program            West Penn Power SEF Commercial Loan Program            Alternative and Clean Energy Program (Grant)            Alternative and Clean Energy Program (Loan)            Alternative and Clean Energy Program (Industry recruitment/Support)</p>

## Biogas Companies Located in PA

[BioCycle](#)  
[Cambi, Inc.](#)  
[Effluential Synergies LLC](#)  
[Northeast Energy Systems/Western Energy Systems](#)  
[Ryan Equipment](#)  
[Turning Earth LLC](#)  
[West Penn Power Sustainable Energy Fund](#)  
 + Dozens More

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

### Pennsylvania Biogas Resources:

#### [Penn State Extension](#)

Penn State Extension within the College of Agricultural Sciences offers information and resources in a variety of fields. This includes a section dedicated to biogas and anaerobic digestion.

#### [PA Biomass](#)

The PA Biomass Energy Association is a non profit, industry-driven organization working to advance the use of biomass for clean and for combined heat & power applications. They also have resources dedicated to biogas.

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- 1 <http://www.nrel.gov/docs/fy14osti/60178.pdf>
  - 2 (See ABC Biogas Potential Calculator)
  - 3 (See ABC Food Waste Digester Excel Spreadsheet)
  - 4 (See ABC Biogas Potential Calculator)
  - 5 <http://epa.gov/agstar/projects/index.html>
  - 6 [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Pennsylvania/st42\\_1\\_017\\_019.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Pennsylvania/st42_1_017_019.pdf) (Farms with 500 to 999 milk cows)
  - 7 [http://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Pennsylvania/st42\\_1\\_020\\_023.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Pennsylvania/st42_1_020_023.pdf) (Farms with 5,000 or more hogs)
  - 8 <http://resourcerecoverydata.org/>
  - 9 (See Above)
  - 10 <http://www.epa.gov/lmop/projects-candidates/operational.html>
  - 11 <http://www.epa.gov/lmop/projects-candidates/candidates.html>
  - 12 <http://www.eia.gov/state/rankings/?sid=CA#series/226>
  - 13 <http://www.eia.gov/state/?sid=CA#tabs-5>
  - 14 (See Above)
  - 15 <http://www.eia.gov/state/rankings/#/series/31>
  - 16 (See EQIP State Matrix Livestock Inventory)
  - 17 (See Above)
  - 18 (See Above)
  - 19 (See Above)
  - 20 (See Above)
  - 21 (See Above)
  - 22 (See ABC Biogas Potential Calculator)
  - 23 <http://resourcerecoverydata.org/>
  - 24 <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx#pa>

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