



**AMERICAN  
BIOGAS  
COUNCIL**

# Biogas State Profile: Wisconsin

## Biogas Potential

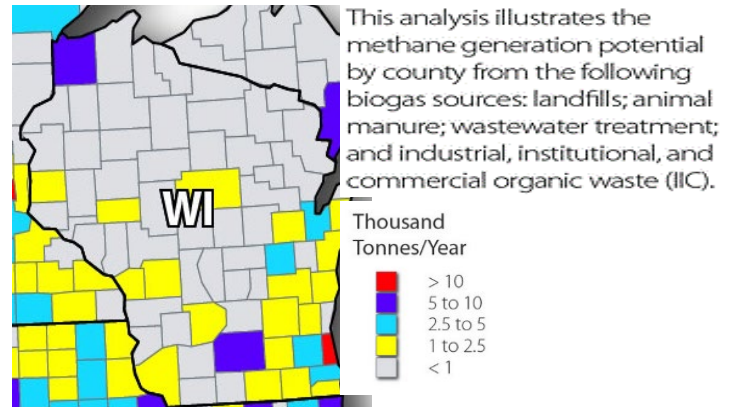
Wisconsin ranks #27 among U.S. states for methane production potential from biogas sources.<sup>1</sup>

Currently in Wisconsin there are 139 operational biogas projects. We see the potential for more than 1,341 new projects to be developed based on the estimated amount of available organic material.

Constructing this many projects would generate \$4.0 billion in capital investment, and create 33,525 short-term construction jobs 2,682 long-term jobs, and numerous industry-supporting jobs.

If fully realized, these biogas systems could produce enough electricity to power 109,410 homes (1.3 billion kWh) or enough renewable natural gas to fuel 195,238 vehicles.

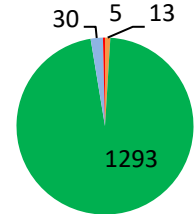
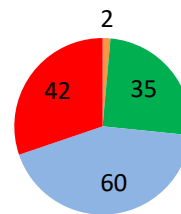
They would also collectively reduce greenhouse gas emissions by the equivalent of 8.6 trillion tons of carbon dioxide, the same as growing 24.2 million tree seedlings for ten years or the amount 806,944 acres of U.S. American forest sequester each year.<sup>2</sup>



## U.S. Energy Rankings

Energy	
Total CO2 Emissions <sup>12</sup>	Ranks 20 <sup>th</sup> in U.S., 1.8% share
Per Capita Energy Consumption <sup>13</sup>	Ranks 24 <sup>th</sup> in U.S.
Renewable Electricity Generation <sup>14</sup>	Ranks 27 <sup>th</sup> in U.S.
Energy Prices Rank <sup>15</sup>	Ranks 31 <sup>st</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>	2
Potential food waste biogas systems <sup>4</sup>	13

### Agriculture

Operational biogas systems on farms <sup>5</sup>	35
Potential dairy farm biogas systems <sup>6</sup>	1262
Potential swine farm biogas systems <sup>7</sup>	31

### Waste Water

Operational biogas systems at water resource recovery facilities <sup>8</sup>	60
Potential biogas systems at WRRFS <sup>9</sup>	30

### Landfills

Operational landfill gas systems <sup>10</sup>	42
Potential landfill gas systems <sup>11</sup>	5

## Feedstocks

### Manure

Total Manure Volume <sup>16</sup>	34.4 million gallons per day
Total Dairy Manure <sup>17</sup>	23.0 million gallons per day
Total Swine Manure <sup>18</sup>	450 thousand gallons per day
Total Broiler Manure <sup>19</sup>	8.0 million gallons per day
Total Beef Manure <sup>20</sup>	million gallons per day

### Food Waste

Total Food Waste Generated <sup>21</sup>	633,238 tons per year
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### Waste Water

Average flow from WRRF's <sup>22</sup>	6.1 million gallons per day
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\* All citations are available on [AmericanBiogasCouncil.org](http://AmericanBiogasCouncil.org).

+ Dozens More

## Biogas Potential (cont'd)

### Landfills

Wisconsin generates 4,291,503 Tons/year of municipal solid waste. The total potential waste to energy materials going to state landfills is 1,806,439 tons per year or 42 percent of all materials.

### Dairy

The Wisconsin dairy sector has been a leader in using digesters to manage waste, but there is still a lot of room for expanding usage. Biogas is an important part of the future of Wisconsin's \$28 billion dairy industry by managing waste, increasing the sustainability of dairy farms and increasing farm income. With over 10,000 licensed dairies, however, biogas has only scratched the surface of this state's potential<sup>23</sup> Dairy cow manure biomass feedstock represents 4.77 million dry tons available per year, the energy equivalent of replacing a large-scale coal plant. The Energy Center of Wisconsin (ECW) analyzed the 20 Wisconsin counties and found that 112 CAFOs in those counties could generate 45 MW of energy with onsite anaerobic digestion. Graduate students assisting with this project calculated that if all the 23 million tons of manure generated by Wisconsin dairy cattle were run through digesters and converted to natural gas, it could produce nearly 4.4 percent of the state's natural gas needs. This represents a \$185 million under-utilized opportunity. (See Got Gas? Analysis of Wisconsin's Biogas Opportunity paper) A potential generation stretch goal for the longer-term, of 1000 digesters in Wisconsin, could produce about 250 MW of energy, especially if other feedstock's are added to prime the pump. Under a status quo scenario, Wisconsin would only add about three to ten digesters a year or with higher utility buy-back rates of about ten cents per kWh (or more) could add 20 to 30 dairy digesters per year, according to developer testimony in Public Service Commission rate cases.<sup>24</sup>

### Food Waste

If only half of the food waste in the state were diverted to anaerobic digesters it would generate 2.13 E6 MMBtu.<sup>25</sup>

## Biogas Companies Located in WI

[Baker Tilly](#)  
[Big Ox Energy](#)  
[BIOFerm Energy Systems](#)  
[Clear Horizons LLC](#)  
[Cornerstone/BioCNG](#)  
[Dane County Department of Public Works, Highway and Transportation](#)  
[DVO, Inc](#)  
[Environmental Research & Innovation Center \(ERIC\)](#)  
[Guenther Supply Inc](#)  
[Inland Power Group](#)  
[InSinkErator](#)  
[University of Wisconsin](#)  
[Wisconsin State Energy Office](#)

## Wisconsin Green Policies

Wisconsin has also been an early pioneer at finding new uses for biogas, and SEO-awards have helped convert biogas from the Dane County Landfill and the Janesville Wastewater Treatment Plant into CNG fuel.

Wisconsin households use 15% more than the U.S. average.<sup>26</sup>

Homegrown, renewable energy is important for Wisconsin as there are no naturally occurring fossil fuels in the state. As a result, Wisconsin sends over \$18 billion out-of-state to pay for energy.<sup>27</sup>

Dairy operators spend \$48.5 million annually on manure management to protect Wisconsin's watersheds.<sup>28</sup>

The state of Wisconsin is leading the industry in the number of on-farm anaerobic digester projects and that leadership can be attributed in part to supportive state-level public policies..<sup>29</sup>

State RPS <sup>30</sup>	10% by 2015, Includes AD. Statutory requirement varies by utility
Compliance Market <sup>31</sup>	Yes. MRETS regional tracking mechanism
Statutes & Regulations	<a href="#">Biogas Property Tax Exemption</a> ; <a href="#">Focus on Energy</a> ; <a href="#">WA 1584 Compost Rule</a> ; <a href="#">Ch. 287: Solid Waste Reduction, Recovery, and Recycling</a> ; <a href="#">Customer-Owned Renewable Generation in Wisconsin</a>
Municipal Legislation	<a href="#">Madison, WI, ReFresh MKE, Legacy Communities: A Green Tier Charter</a>
Sustainability Commitments	<a href="#">Clean Cities Coalition, WI ECO-Municipal Resolutions</a>
State Funding Opportunities	<a href="#">RECIP Grant; Renewable Energy Revolving Loan Fund</a> ;

## Wisconsin Biogas Resources

[Wisconsin Alternative Fuels and Advanced Vehicle Technologies Use Report \(2012\)](#)  
[USDA Census of Agriculture, Wisconsin Anaerobic Digestion on Swine Operations: Assessing Current Barriers and Future Opportunities](#)  
[Biogas: Rethinking the Midwest's Potential](#)

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## Spotlight on Biogas: Policies for Utilization and

Deployment in the Midwest <sup>30</sup><http://www.dsireusa.org/incentives/incentive.cfm?IncentiveCode=CA25R>  
Business Materials Exchange (BME) Code=CA25R  
Madison Stuff Exchange <sup>31</sup><http://www.betterenergy.org/sites/www.betterenergy.org/files/Biogas%20report%20PDF.PDF>

- <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/Wisconsin/st55\\_1\\_017\\_019.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Wisconsin/st55_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/Wisconsin/st55\\_1\\_020\\_023.pdf](http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Wisconsin/st55_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 ABC Biogas Potential Calculator)
- <sup>22</sup> <http://resourcerecoverydata.org/>
- <sup>23</sup> <http://lc.legis.wisconsin.gov/media/1134/biogasflyerwagenda.pdf>  
<http://lc.legis.wisconsin.gov/symposia-trainings/archive/>
- <sup>24</sup> [https://energy.wisc.edu/sites/default/files/pdf/Biogas%20Opportunity%20in%20Wisconsin\\_WEB.pdf](https://energy.wisc.edu/sites/default/files/pdf/Biogas%20Opportunity%20in%20Wisconsin_WEB.pdf)
- <sup>25</sup> [https://energy.wisc.edu/sites/default/files/pdf/WI\\_Strategic\\_Biomass\\_Assessment\\_WEB.pdf](https://energy.wisc.edu/sites/default/files/pdf/WI_Strategic_Biomass_Assessment_WEB.pdf)
- <sup>26</sup> <http://www.eia.gov/state/?sid=WI>
- <sup>27</sup> [http://www.sage.wisc.edu/pubs/reports/GotGas\\_FINAL\\_3march.pdf](http://www.sage.wisc.edu/pubs/reports/GotGas_FINAL_3march.pdf)
- <sup>28</sup> [http://www.sage.wisc.edu/pubs/reports/GotGas\\_FINAL\\_3march.pdf](http://www.sage.wisc.edu/pubs/reports/GotGas_FINAL_3march.pdf)
- <sup>29</sup> <http://www.betterenergy.org/sites/www.betterenergy.org/files/Biogas%20report%20PDF.PDF>

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