



Biogas State Profile: Michigan

Biogas Potential

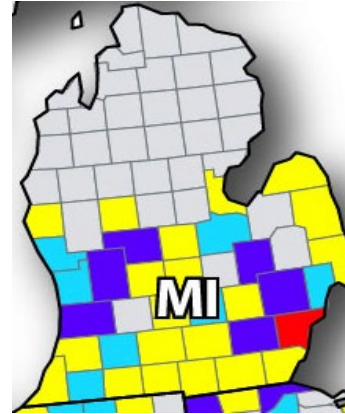
Michigan ranks #12 among U.S. states for methane production potential from biogas sources.¹

Currently Michigan has 127 operational biogas systems. We see the potential for more than 647 new projects to be developed based on the estimated amount of available organic material.

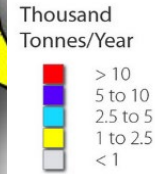
Constructing this many projects would generate \$1.9 billion in capital investment, and create 16,175 short-term construction jobs, 1,294 long-term jobs, and numerous industry-supporting jobs.

If fully realized, these biogas systems could produce enough electricity to power 44,823 homes (738.5 million kWh) or enough renewable natural gas to fuel 64,527 vehicles.

They would also collectively reduce greenhouse gas emissions by the equivalent of 13.6 trillion tons of carbon dioxide, the same as growing 13,3 million tree seedlings for ten years or the amount 443,157 acres of U.S. American forest sequester each year.²



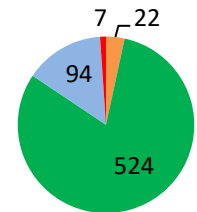
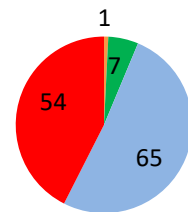
This analysis illustrates the methane generation potential by county from the following biogas sources: landfills; animal manure; wastewater treatment; and industrial, institutional, and commercial organic waste (IIC).



U.S. Energy Rankings

Energy	
Total CO2 Emissions ¹²	Ranks 10 th in U.S., 2.91% share
Per Capita Energy Consumption ¹³	Ranks 35 th in U.S.
Renewable Electricity Generation ¹⁴	Ranks 25 th in U.S.
Energy Prices Rank ¹⁵	Ranks 30 th in U.S.

Operational Systems Potential Systems



Food Waste Agriculture Waste Water Landfill

Biogas Systems

Food Waste

Operational food waste biogas systems ³	1
Potential food waste biogas systems ⁴	22

Agriculture

Operational biogas systems on farms ⁵	7
Potential dairy farm biogas systems ⁶	416
Potential swine operations biogas systems ⁷	108

Waste Water

Operational biogas systems at water resource recovery facilities ⁸	65
Potential biogas systems at WRRFS ⁹	94

Landfills

Operational landfill gas systems ¹⁰	54
Potential landfill gas systems ¹¹	7

Feedstocks

Manure

Total Manure Volume ¹⁶	11.4 million gallons per day
Total Dairy Manure ¹⁷	7.2 million gallons per day
Total Swine Manure ¹⁸	1.6 million gallons per day
Total Beef Manure ¹⁹	1.2 million gallons per day

Food Waste

Total Food Waste Generated ²⁰	1,090,100 tons per year
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Waste Water

Average flow from WRRF's ²¹	2.1 million gallons per day
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* All citations are available on AmericanBiogasCouncil.org.

Michigan Green Policies

Governor Rick Snyder is hoping to see as much as 40 percent of the state's power from renewable sources and use reduction over the next 10 years.²²

Michiganders use 38 percent more power than the national average and pay 6 percent more for it.²³

State RPS ²⁴	10% by 2015
Statutes & Regulations	Fuel Mix and Emissions Disclosure Interconnection Standards Net Metering
Sustainability Commitments	Clean Cities Coalition City of Ann Arbor- Green Power Purchasing City of Lansing- Green Power Purchasing Policy City of Grand Rapids- Green Power Purchasing Policy
State Funding Opportunities	Public Benefits Fund Renewable Energy Renaissance Zones Biomass Gasification and Methane Digester Property Tax Exemption Energy Revolving Loan Fund- Energy Fund Lean and Green Michigan PACE Consumers Energy- Experimental Advanced Renewable Program

Biogas Companies Located in MI

[Anaergia](#)
[Digested Organics LLC](#)
[Ecotek](#)
[MTU Onsite Energy](#)
[Scenic View Dairy, LLC](#)
[Specialty Concrete Construction](#)
 + Dozens More

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

Michigan Biogas Resources:

[Grand Valley State University- Michigan Alternative & Renewable Energy Center](#)

MAREC's biomass initiative started shortly after its inception with research conducted to evaluate a variety of anaerobic bio-digesters. These technologies utilize natural microbial activities to digest biomass waste and produce biogas: methane and carbon dioxide.

[Michigan- Department of Agriculture and Rural Development](#)

The Michigan department of Agriculture and Rural Development works to grow Michigan's agricultural sector. They provide resources for business growth, farming information, and general information for agricultural technologies. It includes a section on biogas and Anaerobic Digesters.

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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/Michigan/st26_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/Michigan/st26_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 ABC Biogas Potential Calculator)
 - 21 <http://resourcerecoverydata.org/>
 - 22 http://www.michigan.gov/documents/150313_Energy_Message_FINAL_484033_7.pdf
 - 23 <http://www.michigan.gov/snyder/0,4668,7-277--349790--,00.html>
 - 24 <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx#mi>

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