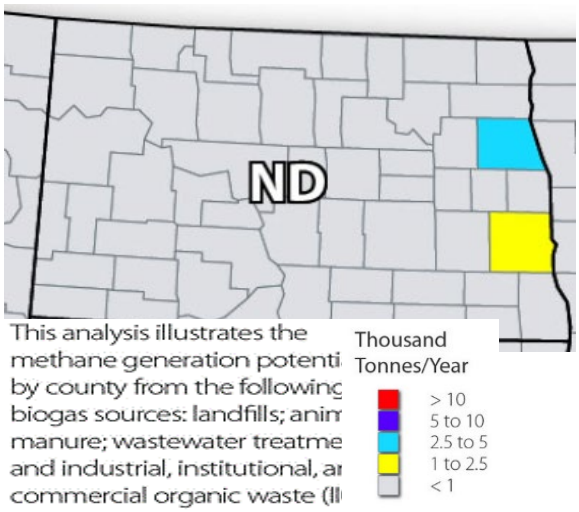
Biogas State Profile: North Dakota



Biogas Potential

North Dakota ranks #48 among U.S. states for methane production potential from biogas sources.[1]

Currently North Dakota has 4 operational biogas systems. We see the potential for more than 39 new projects to be developed based on the estimated amount of available organic material.

Constructing this many projects would generate $117 million in capital investment, and create 975 short-term construction jobs, 78 long-term jobs, and numerous industry-supporting jobs.

If fully realized, these biogas systems could produce enough electricity to power 2,966 homes (52.7 million kWh) or enough renewable natural gas to fuel 7,651 vehicles.

They would also collectively reduce greenhouse gas emissions by the equivalent of 1.1 trillion tons of carbon dioxide, the same as growing 948,729 million tree seedlings for ten years or the amount 31,624 acres of U.S. American forest sequester each year.[2]

Biogas Systems

Food Waste	
Operational food waste biogas systems[3]	-
Potential food waste biogas systems[4]	2

Agriculture	
Operational biogas systems on farms[5]	-
Potential dairy farm biogas systems[6]	7
Potential swine farm biogas systems[7]	9

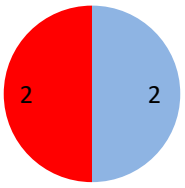
Waste Water	
Operational biogas systems at water resource recovery facilities[8]	2
Potential biogas systems at WRRFS[9]	20

Landfills	
Operational landfill gas systems[10]	2
Potential landfill gas systems[11]	1

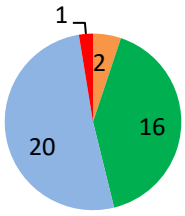
U.S. Energy Rankings

Energy	
Total CO2 Emissions[12]	Ranks 35th in U.S., 1.1% share
Per Capita Energy Consumption[13]	Ranks 4th in U.S.
Renewable Electricity Generation[14]	Ranks 22nd in U.S.
Energy Prices Rank[15]	Ranks 46th in U.S.

Operational Systems



Potential Systems



Food Waste Agriculture Waste Water Landfill

Feedstocks

Manure	
Total Manure Volume[16]	10.4 million gallons per day
Total Dairy Manure[17]	288 thousand gallons per day
Total Swine Manure[18]	207 thousand gallons per day
Total Beef Manure[19]	9.9 million gallons per day

Food Waste	
Total Food Waste Generated[20]	81,344 tons per year

Waste Water	
Average flow from WRRF's[21]	9.5 million gallons per day

* All citations are available on AmericanBiogasCouncil.org.

Last Updated: 8/7/15

North Dakota Green Policies	
RPS[22]	10% by 2015
Statutes and Regulations	Net Metering Renewable and Recycled Energy Objective
Sustainable commitments	University of North Dakota Minot State University North Dakota State University Bismarck State College City of Bismarck
State Funding Opportunities	Sales and Use Tax Exemption for Gas Processing Facilities Renewable Energy Tax Credit

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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/North_Dakota/st38_1_017_019.pdf (Farms with 500 milk cow herd size)
[7] http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/North_Dakota/st38_1_020_023.pdf (Farms with 5,000 hog herd size)
[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.ncsl.org/research/energy/renewable-portfolio-standards.aspx#nd

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