



Renewable Energy Vermont

Biogas Factsheet: *Power from cows, municipal waste and more*

What is Biogas?

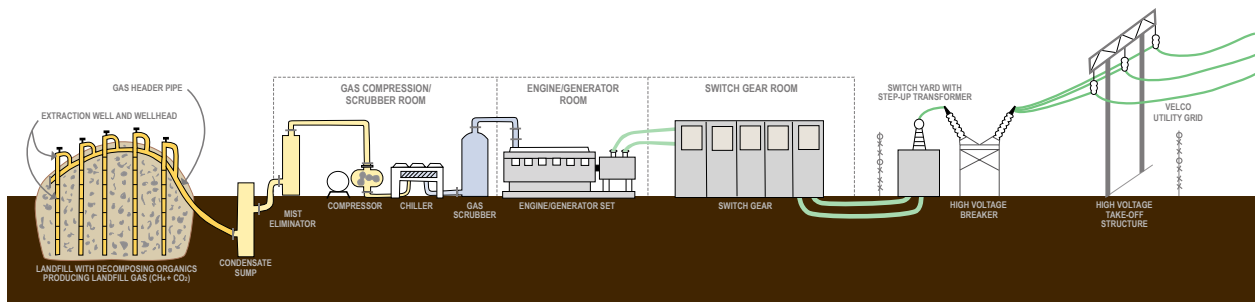
Biogas is the gas produced by the biological breakdown of organic matter in the absence of oxygen, typically in an anaerobic (oxygen free) digester. Feedstocks for biogas can come from a variety of sources, but the main two currently include animal manure and the breakdown of trash at waste management facilities.



Cow manure is one source of biogas power

How Do You Get Electricity From Biogas?

The anaerobic digester produces a gas mix of mostly methane, and lesser parts hydrogen and carbon dioxide. This gas mix is fed directly into a gas-fired combustion turbine, which in turn powers a turbine generator, producing electricity.



Here is an example of a biogas system now in use at the Coventry Landfill in Northern Vermont

What Else Can Be Produced From Biogas?

Biogas can be compressed into liquid natural gas and used to heat homes and power compressed natural gas vehicles. The methane content in biogas can also be concentrated and upgraded to create bioethanol, another alternative fuel for cars, trucks, and busses. Here in Vermont, Carbon Harvest is experimenting with using the power and heat from a Brattleboro landfill-based biogas facility to run a green house, aqua culture and algae biofuels research center.

Where is Biogas Electricity and Fuel Produced and Consumed?

Biogas is produced at farms and waste management facilities around the world. According to the Department of Energy, the United States consumed 147 trillion btu of energy from landfill gas in 2003, around a half percent of national natural gas consumption. Worldwide, biogas is being upgraded to fuel-quality compressed and liquefied natural gasses, with 12,000 vehicles running on biogas throughout Europe in 2007.

What Are the Benefits of Using Biogas?

Decomposing manure releases nitrous oxide and methane, gases that warm the atmosphere 310 times and 21 times more than carbon dioxide, respectively. Harnessing that energy potential in biogas plant eliminates the impact of those gasses, while generating “free” electricity and fuel. Taping this domestic supply of biogas electricity and fuel also offers freedom from the political woes of foreign fossil fuels, and a reduction in the environmental and economic impact of oil exploration and spillage.



Pipes, equipment, and a biogas power generator

Did You know?

Customers of Vermont utilizes like Green Mountain Power and CVPS already get some of their electricity from biogas. Electricity produced from biogas at the Coventry landfill, seen here, provides two thirds of Washington Electric Co-op's supply!



Washington Electric Co-Op's Coventry Landfill biogas plant in Northern Vermont

Want to Find Out More About Biogas?

We've got more information, links and resources at <http://www.revermont.org/main/technology/bioenergy/biogas/>

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