



Landfill Gas-To-Energy

Information on Landfill Gas-To-Energy Projects

Republic Services, Inc. operates more than 76 landfill gas-to-energy projects nationwide. These facilities capture a renewable resource (landfill gas) and put it to use as a green energy source. Republic's facilities provide enough energy to meet the needs of 396,000 homes. Using this renewable energy source reduces emissions equivalent to taking more than 3.8 million cars off the road. To have the same effect, you would have to plant 4.7 million acres of pine or fir trees.



What is landfill gas (LFG)?

Landfill gas is created when organic waste in landfills decomposes. Garbage contains significant portions of organic materials that produce a variety of gaseous products inside landfills. Certain bacteria thrive in the landfill's oxygen-free environment and aid in the decomposition process, which results in the production of gases—primarily carbon dioxide and methane (the principal component of natural gas). Carbon dioxide, which is soluble in water, is most likely to leave the landfill with liquids. Methane, on the other hand, which is less soluble in water and lighter than air, is likely to migrate out of the landfill as a gas. Instead of allowing the gas to escape into the air, it can be captured, converted, and used as an energy source.

How can landfill gas be used for energy?

Landfill gas is a readily available, local, renewable energy source that offsets the need for non-renewable resources such as coal and oil. LFG is the only renewable energy source that, when used, directly prevents atmospheric pollution. LFG can be converted and used in many ways: to generate electricity, heat, or steam; as an alternative vehicle fuel to power fleets like buses, taxis, and mail trucks; or in niche applications like microturbines, fuel cells and greenhouses.

- Of the nearly 2,400 or so currently operating, or recently closed, municipal solid waste landfills in the United States, about 445 have LFG utilization projects.
- According to the U.S. Environmental Protection Agency (EPA), in 2007, landfill gas-to-energy projects prevented the release of more than 21 million metric tons of carbon equivalent into the atmosphere. This equivalent to the annual greenhouse gas emissions of more than 14 million passenger vehicles and has the same environmental benefit as preventing the carbon dioxide emissions from the consumption of nearly 182 million barrels of oil.¹

¹www.epa.gov/lmop/accomplish.htm



What are the environmental benefits of using landfill gas as an energy resource?

Converting LFG to energy offsets the need for non-renewable resources such as coal and oil, and reduces emissions of air pollutants that contribute to local smog and acid rain. LFG projects go hand-in-hand with community commitments to cleaner air and reductions in greenhouse gases.

What are the economic benefits of using landfill gas as a resource?

Landfill gas projects are a win-win opportunity for all parties involved, whether they are the landfill owner/operators, the local utility, the local government, or the surrounding community. LFG projects also create jobs. They involve engineers, construction firms, equipment vendors, and utilities or end-users of the power produced. Much of this cost is spent locally for drilling, piping, construction, and hiring operational personnel, providing additional economic benefits to the community through increased employment and local sales. Once the LFG system is in place, the captured gas can be used as heat source or fuel or be converted to “green” power.

What are the other benefits of using landfill gas as an energy resource?

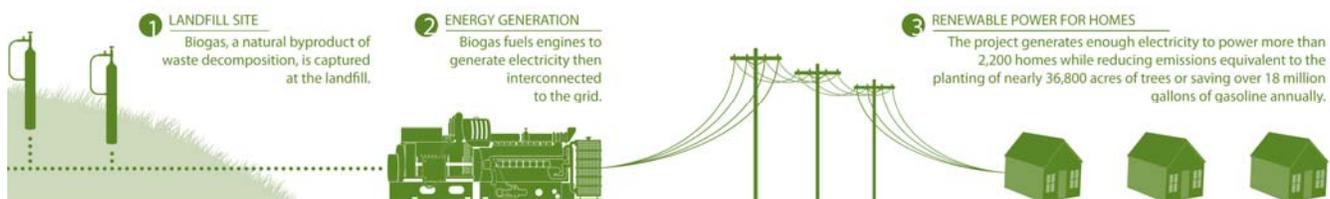
By participating in LFG project development, a community is being innovative and responsible with local resources, and can even enhance its image as an environmental leader. A community that uses its LFG is both a steward of the environment and a leader in ensuring the well being of its citizens.

Who uses recovered landfill gas?

Almost any entity can use LFG for a variety of purposes. One option is for utilities and power providers to purchase the electricity generated from the recovered LFG. Purchasing LFG enables utilities and power providers to add a renewable energy component to their energy portfolios. In addition, any entity (including municipalities, local industrial customers, and other organizations) that has a need for a direct and constant power supply is a good candidate for LFG use. Landfill gas can be piped directly to a nearby facility for use as either a boiler or an industrial process fuel. Direct use of LFG is reliable and requires minimal processing and minor modifications to existing combustion equipment.

Are landfill owners/operators required to develop LFG energy projects?

Current EPA regulations under the Clean Air Act require many landfill owners/operators to collect and combust LFG. To comply, landfill owners/operators can either burn the gas off, by flaring it, or install an LFG energy system.



For more information, please contact:

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