

## **Athens-Clarke County Landfill Gas Collection System** **Fact Sheet**

### **BASIC INFORMATION**

According to the EPA, landfill gas (LFG) is generated during the natural process of bacterial decomposition of organic material contained in municipal solid waste (MSW) landfills. A number of factors influence the quantity of gas that a MSW landfill generates and the components of that gas. These factors include, but are not limited to, the types and age of the waste buried in the landfill, the quantity and types of organic compounds in the waste, and the moisture content and temperature of the waste. Temperature and moisture levels are influenced by the surrounding climate.

By volume, LFG is about 50 percent methane and 50 percent carbon dioxide and water vapor. It also contains small amounts of nitrogen, oxygen, and hydrogen, less than 1 percent non-methane organic compounds (NMOCs), and trace amounts of inorganic compounds. Some of these compounds have strong, pungent odors (for example, hydrogen sulfide). NMOCs consist of certain hazardous air pollutants (HAPs) and volatile organic compounds (VOCs), which can react with sunlight to form ground-level ozone (smog) if uncontrolled. Nearly 30 organic hazardous air pollutants have been identified in uncontrolled LFG, including benzene, toluene, ethyl benzene, and vinyl chloride. Exposure to these pollutants can lead to adverse health effects. Thermal treatment of NMOCs (including HAPs and VOCs) and methane through flaring or combustion in an engine, turbine, boiler, or other device greatly reduces the emission of these compounds.

Source: EPA - <http://epa.gov/lmop/faq/landfill-gas.html>

Landfill gas capture systems have grown in numbers over the past few years in part to reap the benefits of reduced methane emissions from landfills by encouraging the recovery and beneficial use of landfill gas (LFG) as an energy resource.

### **HISTORY**

Prior to the construction of the ACC Landfill Gas Collection System the ACC Landfill passively vented landfill gas. The ACC Solid Waste Department in conjunction with SCS Field Services and Blue Source partnered to install a landfill gas collection system at the ACC Landfill. Blue Source, a company working to offset the impact of businesses on the global climate, provided the capital and labor for the project. Energyneering Solutions, Inc. took over managing the system in 2014.

The ACC Landfill system consists of 43 gas extraction wells that have been installed below ground throughout the landfill, a blower system, a flare, and a generator. The installation of the wells and flare were complete in December 2011 with the generator added to the system in late 2013. The blower system draws landfill gas out of the earth and pipes it to the generator, which processes and cleans the gas by removing moisture and particulates. The gas is burned to drive a

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generator and produce electricity. The generator pumps the electricity to a transformer and distributes it to local homes for usage.

### **BENEFITS**

The benefits are multi-faceted. For example, the reduction of methane in the ground beneath the landfill should make for cleaner groundwater. Additionally, one hundred percent of the electricity produced will be purchased by Green Power EMC, a local electric membership corporation created to provide environmentally-friendly power options for Georgia. It is anticipated that 1.3-1.5 megawatts of electricity will be generated. Each megawatt of electricity produced by the landfill gas-fueled power station is equal to providing power for 636 homes, taking 8,339 cars off the road, or planting 11,882 acres of forest.

The initial revenue earned from selling the converted electricity largely goes to reimburse the funds used to create this project, although ACC receives a small sum monthly. After the initial funds have been repaid, ACC will see a significant increase in revenue.

For additional information, please contact the ACC Landfill at (706) 613-3508.

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