

Metro Methane Recovery Facility

January 2009

In 1994, Metro Waste Authority partnered with Waste Management of Iowa, Inc., and Mid American Energy to build and operate the Metro Methane Recovery Facility. By establishing the facility, MWA and its partners are able to produce a renewable energy source that is both produced and consumed locally.

Basics

- The methane generated by the decomposition of garbage in MWA's landfill is used to create electricity for close to 10,000 homes, businesses, and schools in Eastern Polk County in Central Iowa.
- MWA's methane recovery facility produces the energy equivalent of approximately 112,000 barrels of oil per year.
- Since 1994, the methane recovery facility has been online 99.2 percent of the time, providing an extremely consistent and reliable source of energy.
- The capital cost of the recovery project was approximately \$9 million.
- The project has an expected life of more than 40 years.
- The back-up disposal option for the methane is flaring.



The methane is used to create electricity for about 10,000 homes, businesses and schools.

There are 8 generators that run 24 hours a day, 7 days a week.

The flare is used to control the vacuum that is applied to the waste mass, not necessarily to flare excess landfill gas.

Technical Facts - Power Plant

- Prime Movers: Caterpillar #3516 SITA-LE 1150 HP Engine Generator Sets
- Power Output Rating: 800 Kilowatts, 1000 Volt-ampere at 4, 160 Volts, 3 PH 60 Hertz
- Fuel Consumption: 3,200,000 cubic feet/day of landfill gas
- Heat Rate: 12,200 British Thermal Unit/Kilowatt per hour
- Number of Prime Movers: 8
- Gross Plant Output: 6,600 Kilowatts
- Net Plant Output: 6,400 Kilowatts
- Utility Interconnect Voltage: 13,200 Volts
- Annual Production: 36,000 Megahertz per watt
- Energy Equivalent: 112,000 barrels of oil per year

Technical Facts - Landfill Gas Collection System

Number of Gas Extraction wells: 120

Cumulative Length of Piping: Approximately 12 miles

Fuel Gas Compressor Design Criteria

Suction: 80 inches of water column

Discharge: 5 pounds per square inch

Flow: 2,200 cubic feet per minute

Gas Composition

Methane: 57%

Carbon Dioxide: 42%

Nitrogen: 1%

Oxygen: 0.2%

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Mission Statement

Metro Waste Authority is the leader in environmental stewardship and cost-effective waste management.

