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Green Power from Landfill Gas

Helping build a sustainable energy future while improving the environment

Landfill gas (LFG) energy projects have been around since the late 1970s, providing renewable energy in the form of electricity and alternative fuel to citizens, businesses, and industry. In 2009 alone, more than 520 operational LFG energy projects in 46 states supplied:

- 13 billion kilowatt-hours of electricity, and
- 99 billion cubic feet of LFG to end users.

More than 35 green pricing programs include LFG, and at least 36 states accept LFG energy in their renewable portfolio standards or goals. LFG is a good fit for green power programs:

- LFG is a recognized renewable energy resource (e.g., by the Green-e certification program for green power products [www.green-e.org]; EPA's Green Power Partnership [www.epa.gov/greenpower]).
- LFG serves as the "baseload renewable" for many green power programs, providing online availability exceeding 90 percent.
- Landfills that can support projects are available in most states.
- LFG energy tends to be one of the more cost-competitive forms of renewable energy.

EPA is interested in developing LFG energy for many reasons:

- Projects help destroy methane, a potent greenhouse gas, and offset the use of non-renewable resources such as coal, natural gas, and oil.
- Many cost-effective options exist for reducing methane emissions while generating energy.
- Projects help reduce local air pollution.
- Projects create jobs, revenues, and cost savings.

The estimated annual environmental benefits associated with projects operational in 2009 are equivalent to:

- Carbon sequestered annually by 19,800,000 acres of pine or fir forests, or
- CO₂ emissions from 216,600,000 barrels of oil consumed, or

- Annual greenhouse gas emissions from 17,800,000 passenger vehicles, or
- CO₂ emissions from burning 486,000 railcars' worth of coal.

LFG energy projects also have a substantial impact on economic growth and cost savings. A typical 3 megawatt LFG electricity project is estimated to have the following economic and job creation benefits during the construction year:

- Add more than \$1.5 million in new project expenditures for the purchase of equipment.
- Directly create at least 5 jobs for the construction and installation of the equipment.
- Considering a ripple effect, will increase the state-wide economic output by \$4.3 million and employ 20-26 people.

However, much remains to be done. EPA estimates that at least 500 other landfills present economically attractive opportunities for LFG energy project development, with the potential to generate an additional 1,100 megawatts of LFG energy—utilizing an otherwise wasted resource to benefit the environment and the economy!

Look Who's Using LFG



EPA's Landfill Methane Outreach Program (LMOP) is a voluntary assistance and partnership program that promotes the use of LFG as a renewable energy resource. By preventing emissions of methane—a potent greenhouse gas—through the development of LFG energy projects, LMOP helps businesses, states, and communities protect the environment and build a sustainable energy future. For more information about LMOP, visit www.epa.gov/lmop.