



Will County, Illinois and Waste Management to Develop Green Energy Plant at Landfill

Project Statistics

County: Will County, Illinois

Project Scope: Landfill gas-to-energy plant to initially generate ~36,750 MW/Hr a year

Project Cost: \$7,200,000 total implementation cost

(\$1 Million of EECBG funds, \$6.2 million contribution from Waste Management)

Completion Time: 17 month implementation period (includes negotiations, permitting, bidding, and construction phases); 6 month construction phase; to be operational late spring/early summer 2011

Project Manager: Curt Paddock, Will County Land Use Director

General Contractor: WM Renewable Energy LLC

Overview

Will County, Illinois and Waste Management are developing a landfill gas-to-energy plant at the existing Prairie View Recycling and Disposal Facility near Wilmington, Illinois. Electricity generated will be distributed over the area's electrical grid. Waste Management will build and operate the facility on county land. Will County will contribute \$1 million of their \$3.2 million EECBG allocation toward the project.

Challenge

Will County is one of the fastest growing counties in Illinois and the nation. The county is seeking alternative and reliable energy sources for residential households to help "ease strain on the grid."

Solution

The landfill gas-to-energy plant is an example of Will County's efforts to promote a greener environment by creating an alternative energy source locally. The facility is designed to manage all landfill gas generated and operate on a relatively continuous basis. To start, 3 engines will be operational at the plant. The plant will initially provide 36,750 MWhr per year—enough electricity to power 3,800 homes. Full build-out, between 4 and 8 engines, will be in 10-15 years. As enough gas is generated, the plant can eventually power up to 8,000 homes.

The gas-to-energy plant was noted as a future activity before the landfill facility became operational in 2004. EECBG funds allowed the county to begin on the existing plans and share in revenue earlier than expected. Without EECBG grant funding, this project would likely not have been built until sometime in 2012 or later.

Landfill Gas-to Energy

Landfill gas is a natural resource that can be harnessed to generate clean energy. Its use as an energy source is steadily increasing as counties discover its energy, environmental, and economic benefits.



Before: Current image of Prairie View Landfill



After: Rendering of future gas-to-energy plant.

According to the U.S. Environmental Protection Agency, municipal solid waste landfills are the second largest source of human-related methane emissions in the United States—21 times more potent than carbon dioxide. Unless landfill gas is captured and burned, either in a flare or converted to energy, it is emitted into the atmosphere where it contributes to greenhouse gas emissions.

In addition to producing energy and reducing greenhouse gas emissions, capturing landfill gas can reduce smog and odor and promote environmental leadership. Landfill gas-to-energy projects can potentially create revenue, cut cost, and create jobs for counties.

Additional EECBG Projects

In addition to the landfill-to-gas to energy project, Will County is undertaking several other sustainability projects worth noting, including:

- Retrofits of County buildings
- Green roof at County Office Building, Cool Roof to Court Annex Building
- Hired full-time environmental educator
- Public Outreach campaign

Developing the Workplan

1. Develop Strategy
2. Receive DOE Approval
3. Negotiate agreements
4. Contract work. This project is unique in that Will County and Waste Management already had a working relationship, which sped up their planning and contracting process.
5. Begin construction.

County Benefits

The project resulted in:

- \$1M annual revenue (will be used to fund county environmental education programs [1st year revenue: \$441,000])
- Landfill gas-to-energy plant to generate 36,750 MWhr of electricity per year
- Plant will power 3,800 homes (eventually 8,000 homes), off-setting of coal and natural gas use
- 20,000 tons of GHG mitigated per year
- Reduced local air pollution

Financial Benefits

When completed, the landfill gas-to-energy plant will return revenue throughout the period of significant gas generation by the landfill. The facility's net revenue is estimated to eventually reach \$1,000,000 annually. Will County and Waste Management have established a 50/50 revenue-sharing agreement for electricity sales. Revenue generated is being considered for additional energy projects, including funding for an Environmental/Sustainability Educator position and development of a highly interactive web-based sustainability education program.

Environmental Benefits

The gas-to-energy plant will offset 20,000 tons of greenhouse gases per year. Landfill gas-to-energy plant emissions typically contain fewer hazardous air pollutants than other fuels, which reduces local air pollution.

On-going Measurement and Verification

Will County recognizes the opportunity to increase awareness and utilization of alternative energy. As a result, it is establishing a new website dedicated exclusively to the county's greening efforts—including information on the power generated, power used, and environmental costs of their landfill-gas-to-energy project relative to local coal and nuclear plants with similar energy outputs. In addition, the county is utilizing social marketing efforts, print media, and radio/TV advertisements to raise awareness and build support among local residents. This initiative also aligns with the county's goal of increased transparency in local government operations and allows residents to observe the county's return-on-investment.

Lessons Learned

Dean Olsen, Direct of the Department's Resource Recovery & Energy Division, noted that the County has maintains a defined set of sustainability objectives. "By concentrating on projects that have both immediate and long-term impacts, the County is able to see quicker paybacks and use revenue from the Gas-to-Energy Plant to consider other green efforts," Olsen said. "We've been able to keep the ball moving."

Curt Paddock, Land Use Director for Will County, said that those involved in the gas-to-energy project challenged themselves to effectively engage the county leadership in the higher-level programming decisions and encourage the commissioners to develop some level of ownership for the project. "We have been learning how to engage leadership in the right ways so that they understand and are committed," Paddock said.

Will County has had a working relationship with Waste Management for years before entering into this rare public-private partnership. Paul Pabor, Vice President of Renewable Energy at Waste Management, said "This grant has helped us put together a project where the county gets the maximum benefit from Waste Management doing the work."

Links

<http://willcountygreen.com/>

<http://www.youtube.com/user/wastemanagement>