



Hilbert, WI

LFG Direct Use

Project

Wisconsin LFG-to-Energy Workshop

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Renewable Energy Program VISION

*Make renewable energy
a mainstream energy option*



The Wisconsin Energy Environment

- Lowest electricity prices in Upper Midwest
- Incremental restructuring - not de-reg!
- Renewable portfolio standard
LFG is lowest priced



Renewable Energy Statute Direction

- Allocates about \$2.8 million per year for customer-sited electricity production
 - Encouraging customer applications of RE
 - Educating customers on RE
 - Encouraging uses of RE by customers
 - Encouraging research technology transfers of Renewable Energy



Renewable Energy Program Components

- Information Clearinghouse
- Education & Training (consumers, students, professionals)
- Facilitation, Technical Assistance
- Financing
- Marketing
- Other: Market assessment, R&D, Institutional Barriers, Credit trading



Renewable Energy Budget

Renewable Electricity

- 2001/02: \$2.6 million
- 2002/03: \$2.4 million
- 2003/04: \$2.8 million

TOTAL: \$7.8 Million

Renewable Thermal

~ \$2 million

~ \$2 million

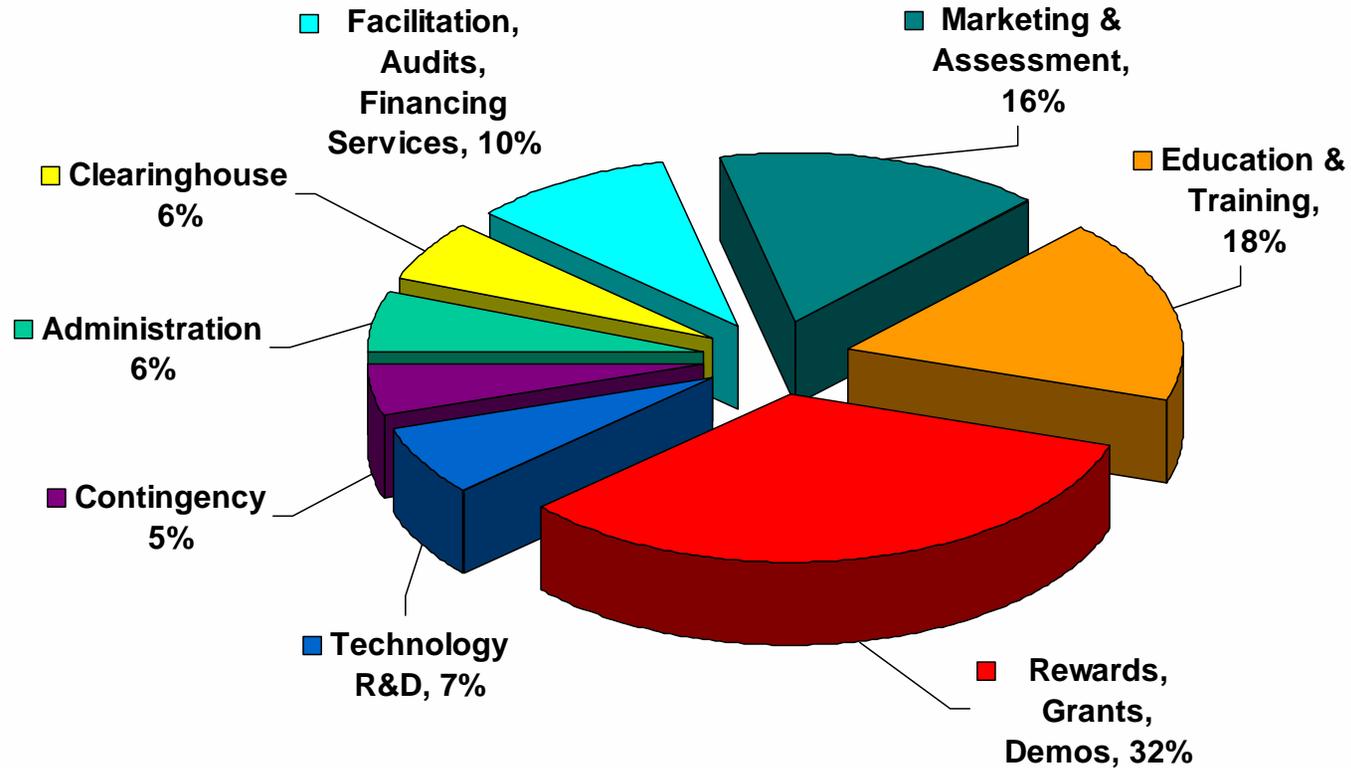
~ \$2 million

~ \$6 million

TOTAL: For All Renewable Energy: ~ \$14 million



Budget By Program Element (Draft)



EMCON/OWT Solid Waste Services



How does LFG fit in?

- Meets two of four statutory provisions
 - Increase reliability by distributing generation
 - Rural economic development by strengthening local business activity and smaller landfills
- Community renewable projects
 - LFG is a local resource, like wind or hydro
- Training, facilitation



Past, current, and ... future

- Grants for bulk power generation
 - Winnebago, Outagamie, and Dane Counties
 - 3.0, 2.5, 2.2 MW; feasibility and construction
- Grant for feasibility assessment for small county landfill for direct use.



Feasibility Study: Using LFG to provide heat and electric power for the Hilbert, WI school system

By

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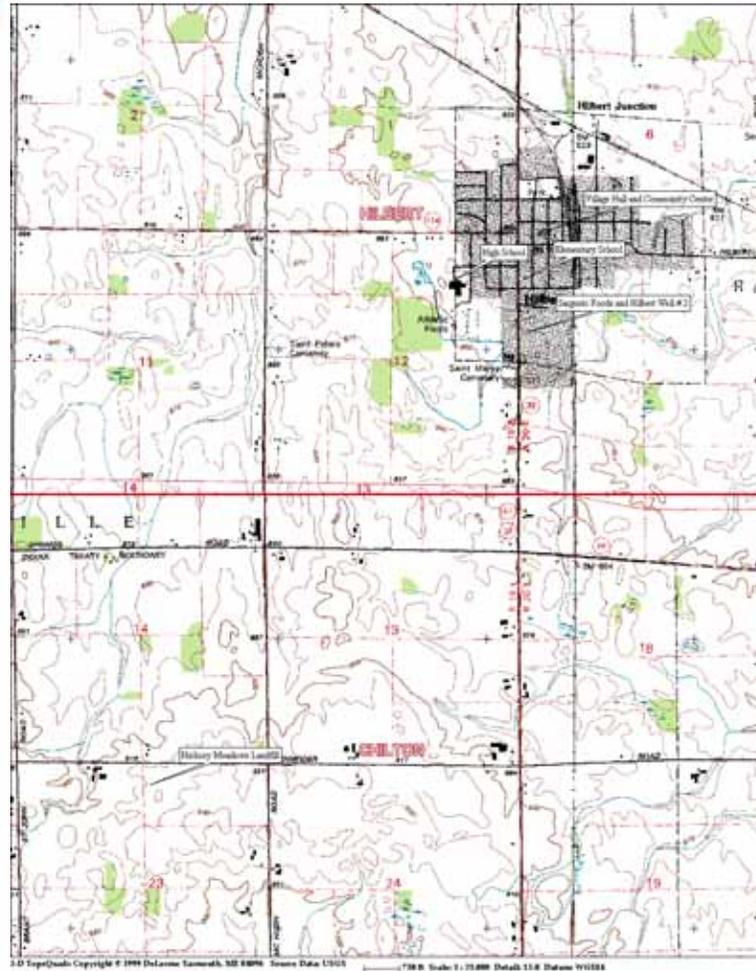
Purpose

Evaluate technical & economic feasibility of using LFG to provide heat & electric power to Hilbert High School and Middle School and other users in the community.



Why focus on Schools ?

- Educational value
- Proximity to landfill
- One of largest local loads



Project Location

EMCON/OWT Solid Waste Services



Project Approach

- Solicit interest & energy use data from interested parties
 - Electric
 - Natural Gas



Community Response

- Very positive
- Three participants representing 6 of 8 largest energy users in Hilbert



Project Approach

- “Normalize” data
- Estimate past / current energy use
- Project future energy use
- Estimate LFG generation rate
- Compare energy use to LFG generation rate.



Project Approach

- Evaluate technology
 - Generate electric power
 - @ landfill versus @ user
 - Provide fuel gas



LFG available

- Landfill can meet own needs thru 2003
- By 2003, landfill can meet energy needs of High School / Middle School (and LFG based energy systems).
- By 2005, landfill can meet energy needs of Elementary School.
- By 2007, landfill can meet energy needs of Sargento Foods and Village Well # 2.



Barrier(s) to project development

- ***Cost***

- Fuel gas

- Capital \$1,527,000

- Annual O&M \$41,000



Barrier(s) continued

- Cost
 - Adder to generate electric power at High School
 - Capital \$2,707,000
 - Annual O&M \$275,000



Barrier(s) continued

- Cost
 - Total
 - Capital \$4,234,000
 - Annual O&M \$315,000