

Prairie View Landfill Renewable Energy Project

**Presentation to Will County
February 11, 2010**



**Goal is to achieve
both Will County and WM interests
in promoting green energy
and meeting compliance,
while sharing in financial returns**



- Corporate business unit within Waste Management, Inc., responsible for:
 - Developing and constructing new projects
 - Owning the power plant assets
 - Managing the operations
 - Marketing the energy and renewable energy credits
 - Performing all accounting and financial obligations
- WMRE coordinates with and is supported by WM technical and management staff at the landfill:
 - Coordination with landfill operations
 - Landfill gas supply
 - Compliance
 - Community relations



Waste Management Experience



- Built first power plant in 1987
- Own 51 plants, with 262 MW
 - 9 plants in Illinois, with 33 MW
- Current Activity
 - 9 Construction and commissioning
 - 8 Engineering and design
 - 30+ Permitting and Feasibility studies



From everyday collection to environmental protection, Think Green.SM Think Waste Management.

- The size of the plant is a function of the amount of landfill gas available as fuel
- As the landfill gas flow increases, engines are added to maximize the output of the plant
- Engines will be Caterpillar G3520 engines, 1.6 MW each
- Each engine requires 600 cubic feet per minute of LFG



First Phase: Engines 1 - 4



- There is currently enough gas to support 2 engines
- We expect enough gas for 3 engines in 2011- 2012
- We expect enough gas for 4 engines in 2014 or 2015

Size the initial plant with room for 4 engines,
install 3 engines at initial construction,
add 4th engine when there is sufficient gas.



Second Phase: Engines 5 - 8

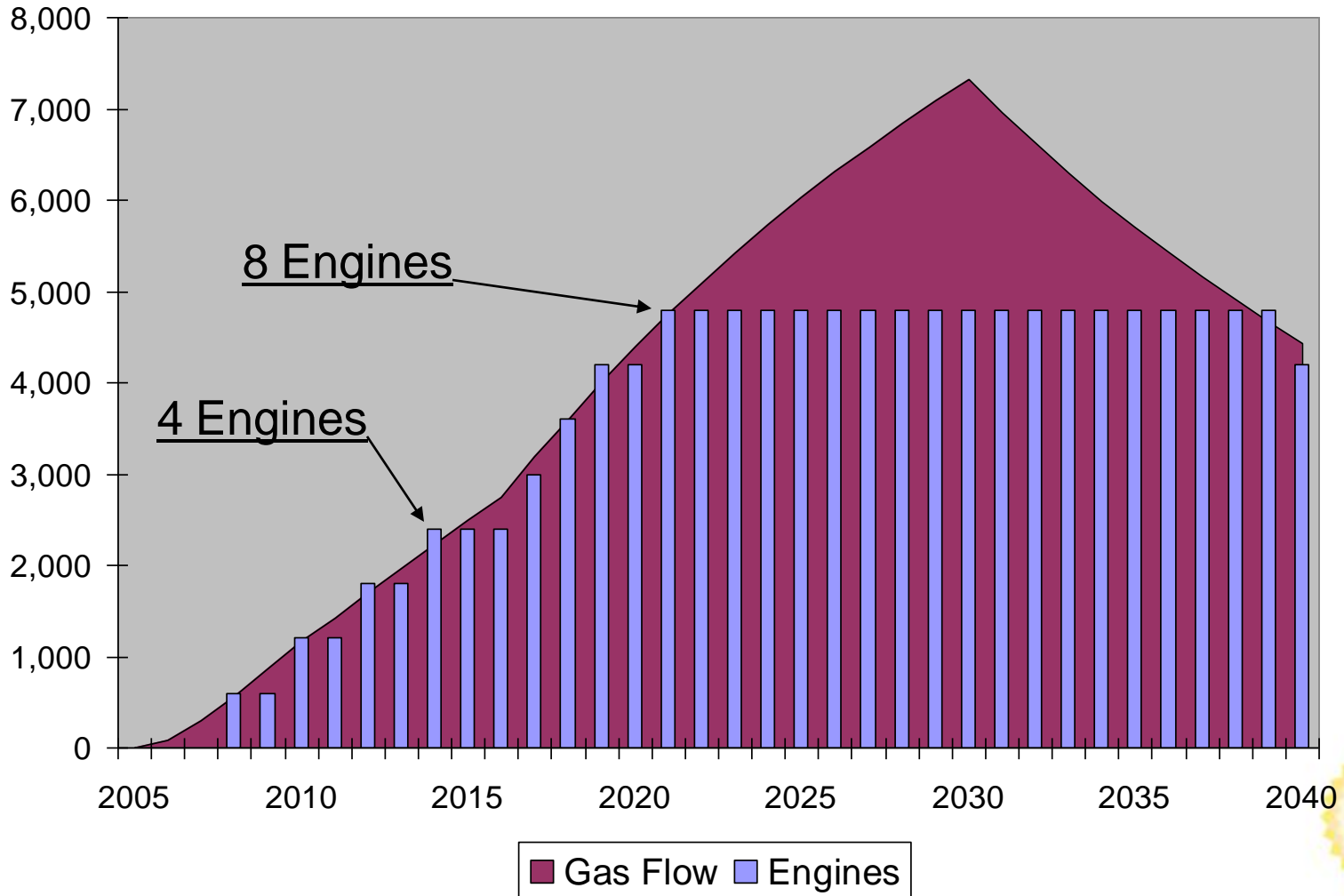


- Based on a gas flow model of the current operations, waste type, and expected waste stream, we expect enough gas for the 5th and 6th engines in 2017 – 2018
- Contract allows for a build-out of 8 engines

Size the expansion plant for 4 engines, install engines 5 & 6 at initial construction, add engines 7 & 8 as gas increases.

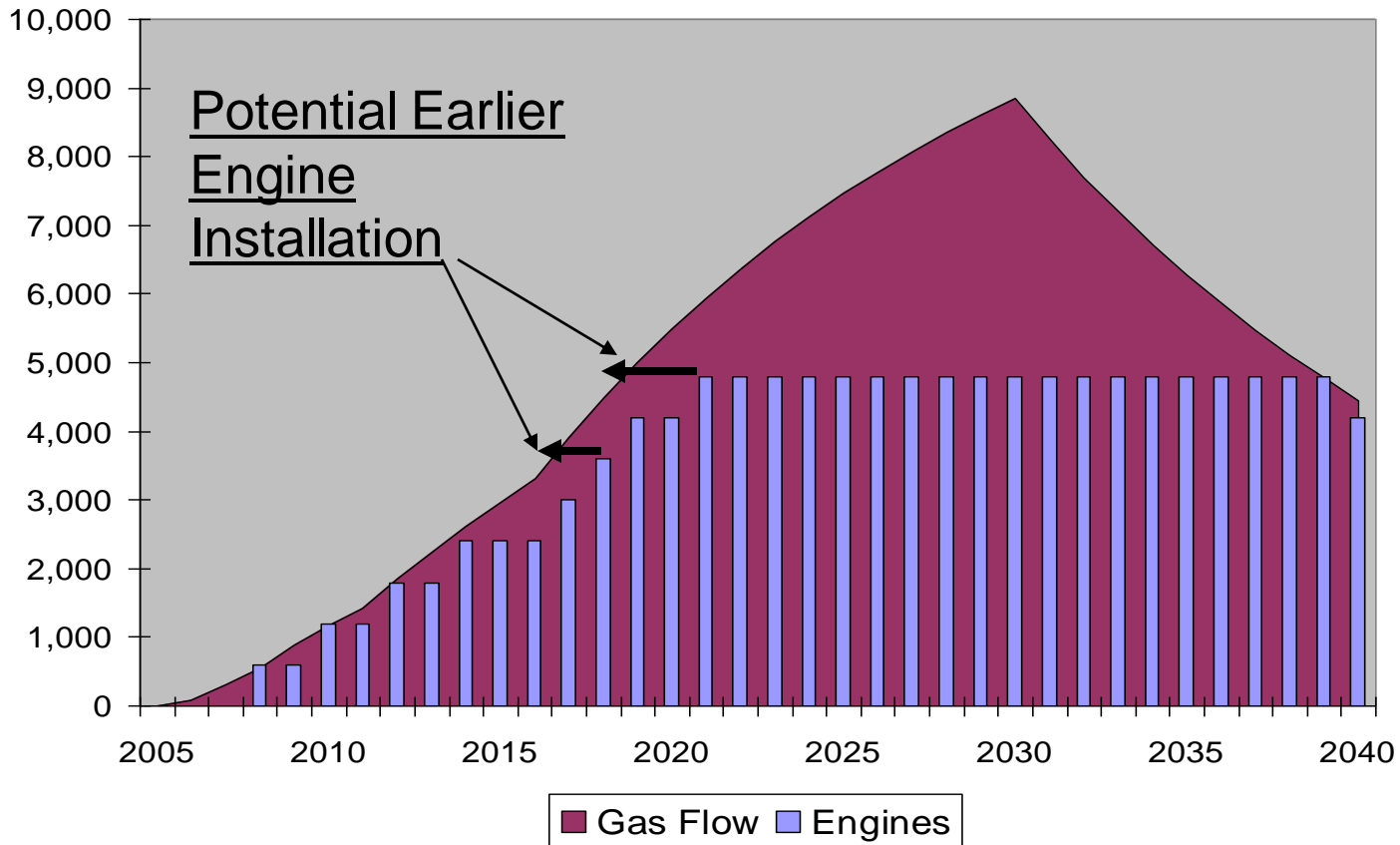


Engine Installation vs Gas Curve



From everyday collection to environmental protection, Think Green.SM Think Waste Management.

Possible with Leachate Recirculation



Example shown is for 15% to 20% increase in gas



Landfill Gas Purchase Agreement



WM will provide the capital to construct the plant.

Will County will, at its discretion, contribute to the capital cost of the plant in the form of a DOE grant, in return for a larger share of the plant revenue

The gas payment will have two components:

1. A base payment equal to \$12 for each megawatt-hour of electricity sold by WM to an energy buyer
2. Revenue sharing equal to 50% of gross revenue above a defined price of energy received by WM (revenue sharing threshold, varies with amount of grant)



Base Payment for LFG



Each engine is 1.6 MW

Parasitic Load is 5%

Budgeted Availability is 92%

Output per engine

= 1.6 MW x 8760 hrs/yr x (100% - 5%) parasitic x 92% Availability

= 12,250 MWH per year sold to third party

Base Payment = \$12/MWH x 12,250 MWH per engine-year
= \$147,000 per engine per year

2 engines = \$294,000 per year

3 engines = \$441,000 per year

4 engines = \$588,000 per year



Revenue Sharing Potential



4 Engines

50,000 mwh output per year

Revenue Sharing Threshold = \$53/mwh

Energy + REC Price

County Share

\$60

\$175,000

\$70

\$425,000

\$80

\$675,000



Prairie View RDF, Will County

Leachate Recirculation



Leachate: What is it? How is it formed?



- *Leachate is the liquid collected at the bottom of each landfill cell.*
- *Leachate is formed by:*
 - 1) The decomposition of waste*
 - 2) Rain water that comes in contact with waste*



Leachate Treatment Methods



- *Remove and treat at a local waste water treatment plant*
- *Recirculation within the landfill*



Benefits of Leachate Recirculation



- *Increases methane gas production by as much as 30% .*
- *Increases daily waste compaction rates*
- *Increases landfill capacity:
 Additional 1.1M tons or 1.5 yrs of life
 (represents 5% of total site capacity)
 Additional \$4.3M in revenue to Will County*

