I. CALL TO ORDER / ROLL CALL

II. PLEDGE OF ALLEGIANCE TO THE FLAG

III. APPROVAL OF MINUTES
   1. WC Democratic Caucus - Regular Meeting - Jun 20, 2019 8:45 AM

IV. OLD BUSINESS

V. NEW BUSINESS
   1. Discussion of County Board Agenda
   2. Presentation Re: RNG (Dean Olson)

VI. OTHER NEW BUSINESS

VII. PUBLIC COMMENT

VIII. EXECUTIVE SESSION

IX. ADJOURNMENT

NEXT MEETING - AUGUST 15, 2019
Will County (“the County”) has the opportunity to increase the revenue-generating potential of the methane gas produced by its Prairie View Landfill (PVL) by switching from a landfill gas-to-energy (LFGTE) facility to a landfill gas-to-pipeline (LFGTP) facility. Due to low electricity prices in the ComEd territory and low renewable energy credit (REC) pricing for the electricity produced at the PVL LFGTE facility, the County would benefit from taking advantage of lucrative federal incentives through the Federal Renewable Fuel Standard (RFS) for the production of renewable natural gas (RNG) by cleaning and compressing PVL’s landfill gas and flowing it into a nearby natural gas pipeline.

Making this determination is extremely time sensitive given the opportunity cost of not converting from a LFGTE facility to a LFGTP facility at PVL is a growing $44,600 per day, an amount greater than the County earns monthly from PVL’s existing LFGTE facility. Each day, the amount of landfill gas produced by PVL increases through the growing amount of landfilled municipal solid waste (MSW) and the recirculation of leachate, the liquid collected at the bottom of a landfill that increases the decomposition rate of MSW, and therefore increases the production of landfill gas. Low profitability of LFGTE at PVL means that WM has no intention to expand the existing LFGTE facility, therefore the revenue-generating potential of PVL’s landfill gas is steadily increasing while the capacity of PVL’s LFGTE facility to generate revenue from the landfill gas has plateaued.

While the primary hurdle to qualifying this potential transition is legal in identifying a mutually-agreed-upon termination of the County’s existing Gas Purchase Agreement (GPA) with Waste Management, Inc. (WM), both parties understand the benefit to be derived from RNG and the County’s outside legal counsel, Chuck Helsten, that has assisted the County extensively in the past on landfill-related matters, has determined that there exists a way to peaceably carry out such a termination. In order to avoid a $44,600 per day loss, staff is requesting the approval of the Will County Board (“the Board”) to proceed with the following actions:

1. Retain technical expertise through professional services that will enable Will County to ascertain a nearby natural gas transportation pipeline to offtake RNG from PVL.
2. Work with technical experts to present ownership options and risk assessment models for review by the Board (100% Will County ownership is staff’s recommendation).
3. Negotiate the termination of the existing PVL GPA once the LFGTP facility is commissioned.
4. Draft an RFP for consideration by the Board for design/build of a LFGTP facility at PVL.

For more detailed information, please see the “Will County Prairie View Landfill Gas-to-Pipeline: Detailed Project Overview” packet.
Will County Prairie View Landfill Gas-to-Pipeline Facility:
Detailed Project Overview

In December 2011, Will County (“the County”) commissioned its landfill gas-to-energy (LFGTE) facility at the Will County-owned and Waste Management, Inc. (WM)-operated Prairie View Landfill (PVL). Waste Management Renewable Energy, Inc. (WMRE) operates the LFGTE. This facility was designed to take methane gas collected from the landfill, created through the decomposition of municipal solid waste (MSW), and use it to fuel three Caterpillar engines that generate electricity which is sold back to ComEd at a fair market price (average $24/MWh).

PVL’s production of landfill gas is depicted in the chart below (Figure 1.1), showing an average annual increase from 2014-2018 of 244.50 standard cubic feet per minute (scfm). The existing PVL LFGTE facility is only capable of utilizing roughly 50% of the current landfill gas being generated, meaning the remaining landfill gas is flared.

Figure 1.1

Will County owns the gas asset produced by the landfill activity at PVL. Because of the revenue-generating potential of landfill gas, it is referred to as an asset with an associated monetary benefit. WMRE and the County have a partnership in the LFGTE facility—WMRE owns and operates the LFGTE facility and the County is the landlord and an investor with a $1 million stake. The County’s investment dollars in the LFGTE facility at PVL were received through the County’s 2009 award of U.S. Department of Energy (DOE) Energy Efficiency & Conservation Block Grant (EECBG) funding. Because WMRE requires landfill gas to fuel the LFGTE facility, the County and WM amended the PVL Host Agreement to include a Gas Purchase Agreement (GPA) that stipulates the method by which the County sells landfill gas to WMRE for operation of the LFGTE facility.

The GPA has bound the County to selling landfill gas to WM only in quantities necessary to operate the LFGTE facility until 2031 (20 years). There are several sections of the GPA that would enable a mutually beneficial termination of the GPA due to low electric and renewable energy credit (REC), an environmental attribute of producing energy using renewable fuel sources that are bought and sold to meet various mandated and voluntary renewable energy procurement goals in the State of Illinois and across the county, sale prices that have not made the LFGTE profitable for WMRE. WMRE pays Will County a fixed price of $12/Megawatt hour (MWh) of electricity produced by the LFGTE facility. On average, Will County is paid ~$455,000 annually for the use of its landfill gas in the production of electricity at the PVL LFGTE facility. This means that WMRE is earning a slightly greater annual revenue for the electricity and associated RECs produced by the LFGTE facility and
sold while still incurring all associated costs for the operation of the PVL LFGTE facility, causing a break-even or near loss net profit/loss.

Given the lower-than-projected profitability of the PVL LFGTE facility, WMRE is not interested in expanding the LFGTE facility to include more engines to make use of the growingly available and flared landfill gas. This means as more profit-yielding landfill gas is produced as PVL continues to be landfilled and MSW continues to decompose, which is occurring at a faster-than-normal rate due to a PVL siting amendment that allows the recirculation of leachate, the liquid that collects at the bottom of a landfill, increasing the rate at which MSW settles and decomposes. This practice saves WM significant dollars in the treatment of leachate that would normally be treated as wastewater if it were not recirculated. As previously stated, nearly 50% of all landfill gas produced at PVL is currently flared and the percentage of total landfill gas that is flared will continue to escalate unless a change is made to make use of this valuable asset.

After consulting with landfill industry and renewable natural gas (RNG) experts (APTIM Consulting and EcoEngineers, respectively), the Will County Land Use Department Resource, Recovery, and Energy Division staff have identified a potential solution for the low-profitability, and related lack of landfill gas revenue optimization, of the existing LFGTE facility: a landfill gas-to-natural gas pipeline project. Landfill gas that has at least 50% methane chemical composition can be cleaned and transported to a nearby transportation natural gas pipeline for use in fueling various forms of transit (i.e. natural gas trucks). While the pricing for purchase of natural gas in today’s current market is similar to that of the sale of electricity per unit of energy (mmBTU), federal incentives and certain states’ incentive programs for the production and sale of natural gas environmental attributes called renewable identification numbers (RINs) make the RNG market far more lucrative. RINs are similar to the RECs associated with the production of electricity from a renewable fuel source at the current PVL LFGTE facility.

The primary differentiating feature of RINs and RECs is value: REC value is tied to Illinois State Programs and are often priced low. RIN value is primarily associated with the U.S. Federal Renewable Fuel Standard (RFS).

Congress first established the RFS with the enactment of the Energy Policy Act of 2005 (EPAct, P.L. 109-58). This initial RFS (referred to as RFS1) mandated that a minimum of 4 billion gallons be used in 2006, rising to 7.5 billion gallons by 2012. Two years later, the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) greatly expanded the biofuel mandate volumes and extended the date through 2022. The expanded RFS (referred to as RFS2) required the annual use of 9 billion gallons of biofuels in 2008, rising to 36 billion gallons in 2022, with at least 16 billion gallons from cellulosic biofuels, and a cap of 15 billion gallons for corn-starch ethanol.

Source: https://fas.org/sgp/crs/misc/R40155.pdf

In 2022, the amount of gallons of renewable fuel to be procured nationally through the RFS is to be reassessed by the U.S. Congress and may be adjusted to change the number of gallons of renewable fuel to be incentivized nation-wide. There is very little ability to predict how the 2022 U.S. Congressional Review will affect the number of RINs available to renewable fuel-producing entities. While there is some risk assumed by participating in the RIN market given the aforementioned details regarding incentive-enabling legislation, it is reasonable to conclude that the 2022 U.S. Congressional Review of the Federal RFS is not anticipated to eliminate the RIN market, but rather
will likely adjust the per year procurement targets for gallons of renewable fuel to more realistically align with the production capacity of renewable fuel in the U.S. (NOTE: The RFS procurement target goals for years past have been set far in excess of the renewable fuel-generating capacity of the U.S.).

While RINs fluctuate on a volatile market demand and supply basis, much like U.S. stock markets, average annual pricing for these environmental attributes will be used in any revenue forecasting to compare different uses of the landfill gas produced at PVL for revenue generation. Given the long-term nature of these projects, it would be inaccurate to use monthly, quarterly, or even biannual pricing in forecasting project profitability, similar to assessing the success of one’s retirement investments by review progress over longer periods of time rather than reacting or planning based on short-term market changes.

Revenue-wise, per mmBTU of energy, a LFGTP facility is projected to generate over $20 more than the current PVL LFGTE facility (See Table 1.1).

<table>
<thead>
<tr>
<th>Electric</th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7.04/mmBTU</td>
<td>$3/mmBTU</td>
</tr>
<tr>
<td>($3.52 to WC)</td>
<td>($3 to WC)</td>
</tr>
<tr>
<td>$? / REC ($0 to WC*)</td>
<td>$21 /RIN ($21 to WC)</td>
</tr>
<tr>
<td>Total value to WC = $3.52/mmBTU</td>
<td>Total value to WC = $24/mmBTU</td>
</tr>
</tbody>
</table>

Net difference = $20.48/unit of energy

*Unless average per MWh electric + REC sale price > $53, then 50% cost sharing.

For this reason, staff is requesting that Will County Leadership enable staff to work with a project team comprised of both internal and external technical experts to self-finance a competitively-bid, design-build LFGTP facility that will be operated by a third-party LFGTP operator, which could be WMRE. If WMRE operated the LFGTP facility, it would ensure the County’s landfill partner has control over the handling of PVL landfill gas that contributes to the safe operation of the landfill wholly. Due to the industry standard of 5-10% revenue sharing for a zero-percent equity partner in the development of a LFGTP facility, if WMRE were to develop and own a LFGTP facility at PVL, Will County would only receive 5%, or approximately $800,000 in annual revenue. However, if Will County were to own a LFGTP facility at PVL without any investment partners, approximate annual revenue is projected at $16,800,000. For this reason, staff is advising pursuit of a 100% County equity ownership of a LFGTP facility at PVL.

There are a variety of ownership models in the pursuit of a LFGTP facility at PVL, and Will County has engaged the technical expertise of EcoEngineers, an engineering firm specializing in third-party assistance of market projection modeling, feasibility analysis, quality and compliance, strategic planning, and more related to LFGTP facilities to assist in assessing the financial implications of these ownership models. EcoEngineers does not benefit from the development or sale of RINs by its clients, keeping EcoEngineers truly third-party in their consulting services. Attached to this overview is a Revenue Projection Chart (Figure 1.2) that demonstrates different potential equity splits for the development of a LFGTP facility at PVL between the County and WM and the associated net profit for each scenario. **Due to the significantly greater benefit to the taxpayers**
of Will County of a 100% County equity ownership of the aforementioned LFGTP facility, this is the recommendation of staff.

Furthermore, there are 3 additional Revenue Projection Charts produced by EcoEngineers attached that assume the staff-recommended 100% County equity ownership of the LFGTP facility with two different options for sale of natural gas commodity and RINs: Current Market Conditions (Figure 1.3) and Long Term, Fixed Price Structure (Figure 1.4), which represent two profit pathways that the County could take assuming moderate and low risk, respectively. The Current Market Conditions Chart (Figure 1.3) demonstrates the concept of selling RINs on the index, meaning allowing the value of the County’s sale of RINS to fluctuate on the ever-changing RIN market, and selling the natural gas commodity on the index, again, meaning allowing the value of the County’s sale of natural gas produced to fluctuate on the ever-changing natural gas commodity market. This pathway would assume an annual net profit after financing of $16,837,000. The Long Term, Fixed Price Structure Chart (Figure 1.4) demonstrates the concept of selling natural gas and the associated RINs produced by a the County’s LFGTP facility on a fixed price structure to voluntary RNG market buyers. On the voluntary market, there are several buyers of RINs and RNG that purchase these attributes/commodities not because they are required to by the Federal RFS, but rather because they wish to procure RNG and its environmental attributes to meet organizational sustainability goals (similar to how the County purchases 50% of its procured electricity from renewable sources). This pathway eliminates a significant amount of risk associated with the beyond-2022 value of RINs, but also assumes a much lower annual net profit after financing of approximately $6,330,000. The County may also choose to combine the above two profit pathways and sell some of its RNG and RINs on the index and some on a fixed price structure to create a sales structure that best aligns with Will County Leadership’s desired risk assumption and prioritization of debt repayment. Also attached to this overview is an Aggressive Market Conditions Revenue Projection Chart (Figure 1.5), which demonstrates that if natural gas commodity pricing remains the same as today’s market value, but RIN pricing escalates to historically higher values, the County could earn as much as $29,771,000 net profit after financing annually if selling RNG and RINs on the index.

In order to avoid an opportunity cost of $44,600+ per day at the County owned PVL, staff needs feedback from the Will County Board on its recommendation to move forward (steps outlined on the Will County Prairie View Landfill Natural Gas Conversion Memo) toward transitioning the LFGTE facility to a LFGTP facility.

Recent County RNG Projects for Reference:
1. Dane County: https://www.nbc15.com/content/news/Dane-Co-completed-its-landfill-biogas-project-509067171.html
### Financial Analysis for 100% County Owned Project

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
<td>2021</td>
<td>2022</td>
<td>2023</td>
<td>2024</td>
<td>2025</td>
<td>2026</td>
<td>2027</td>
<td>2028</td>
<td>2029</td>
</tr>
<tr>
<td>Days of Operation per Year</td>
<td>347</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg NG Forward Price (FGT 23)</td>
<td>5.00</td>
<td>3.06</td>
<td>3.12</td>
<td>3.18</td>
<td>3.25</td>
<td>3.31</td>
<td>3.38</td>
<td>3.45</td>
<td>3.51</td>
<td>3.59</td>
</tr>
<tr>
<td>D3 RIN Price</td>
<td>51.50</td>
<td>1.53</td>
<td>1.56</td>
<td>1.59</td>
<td>1.62</td>
<td>1.66</td>
<td>1.69</td>
<td>1.72</td>
<td>1.76</td>
<td>1.79</td>
</tr>
</tbody>
</table>

#### Revenue
- Gross NG Revenue: $3,781,000
- Gross D3 RIN Revenue: $22,175,000
- Gross LCF Credit Revenue: $-
- Fixed Price, Voluntary Market Revenue: $-

#### Expense
- Total RIN Expenses: $2,872,000
- Utilities: $1,500,000
- Materials & Maintenance: $1,000,000
- Labor/Operations: $750,000
- Misc/Contingency: $750,000

#### Total O&M Expenses
- $4,000,000

#### EBITDA
- $19,082,000

#### Debt Service (5% 20 yrs. $35 mil)
- $2,080,000

#### Net Profit After Financing
- $16,274,000

#### 50/50 Split with Waste Management
- Opportunity Cost, Net Profit ($/day): $8,137,000
- $8,339,000
- $8,545,000
- $8,756,000
- $8,969,000
- $9,188,000
- $9,413,000
- $9,641,000
- $9,875,000
- $10,112,000
- $17,500,000

#### 75/25 Split (25% to County)
- Opportunity Cost, Net Profit ($/day): $12,206,000
- $12,508,000
- $12,817,500
- $13,134,000
- $13,454,250
- $13,782,750
- $14,119,500
- $14,461,500
- $14,812,500
- $15,168,000
- $17,500,000

#### 75/25 Split (25% to County)
- Opportunity Cost, Net Profit ($/day): $4,069,000
- $4,169,000
- $4,272,500
- $4,378,000
- $4,484,750
- $4,596,250
- $4,706,500
- $4,820,500
- $4,937,500
- $5,056,000
- $8,750,000

#### 5/95 Split (5% to County)
- Opportunity Cost, Net Profit ($/day): $814,000
- $833,900
- $854,500
- $875,600
- $896,950
- $918,850
- $941,300
- $964,100
- $987,500
- $1,011,200
- $8,750,000
### Figure 1.3

**Will County - Biogas to RNG Revenue Projections**

**June 2019**

**Current Market Conditions**

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Operation per Year</td>
<td>347</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg NG Forward Price (FGT Z3)</td>
<td>$3.00</td>
<td>$3.06</td>
<td>$3.12</td>
<td>$3.18</td>
<td>$3.25</td>
<td>$3.31</td>
<td>$3.38</td>
<td>$3.45</td>
<td>$3.51</td>
<td>$3.59</td>
</tr>
<tr>
<td>D3 RIN Price</td>
<td>$1.50</td>
<td>$1.53</td>
<td>$1.56</td>
<td>$1.59</td>
<td>$1.62</td>
<td>$1.66</td>
<td>$1.69</td>
<td>$1.72</td>
<td>$1.76</td>
<td>$1.79</td>
</tr>
<tr>
<td>Avg LCFS $/Credit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary Market Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assumed Carbon Intensity (CI)</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Revenue**

- Gross NG Revenue: $3,781,000
- Gross D3 RIN Revenue: $22,173,000
- Gross LCFS Credit Revenue: $
- Fixed Price, Voluntary Market Revenue: $
- Gross Total Revenue: $25,954,000

**Expenses**

- 3rd Party Offtake & RIN Sales: $(2,771,625)
- Compliance & RIN Management: $(100,000)
- Voluntary Market Verification: $
- Total RIN Expenses: $(2,872,000)

**Gas Upgrading O&M Costs**

- $4,000,000
- Total O&M Expenses: $(4,000,000)

**Net Revenue Before Financing**

- $19,082,000

**Debt Service (2.5%, 20 years)**

- $(2,245,000)

**Net Profit After Financing**

- $16,837,000
### Figure 1.4

**Will County - Biogas to RNG Revenue Projections**  
June 2019  
Annual Cash Flow Projections  
Long Term, Fixed Price Structure

#### Financial Analysis for 100% County Owned Project

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
<td>2021</td>
<td>2022</td>
<td>2023</td>
<td>2024</td>
<td>2025</td>
<td>2026</td>
<td>2027</td>
<td>2028</td>
<td>2029</td>
</tr>
<tr>
<td>Days of Operation per Year</td>
<td>367</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg NG Forward Price (FGT Z3)</td>
<td>$3.00</td>
<td>$3.06</td>
<td>$3.12</td>
<td>$3.18</td>
<td>$3.25</td>
<td>$3.31</td>
<td>$3.38</td>
<td>$3.45</td>
<td>$3.51</td>
<td>$3.60</td>
</tr>
<tr>
<td>D3 RIN Price</td>
<td>$1.50</td>
<td>$1.53</td>
<td>$1.56</td>
<td>$1.59</td>
<td>$1.62</td>
<td>$1.66</td>
<td>$1.69</td>
<td>$1.72</td>
<td>$1.76</td>
<td>$1.80</td>
</tr>
<tr>
<td>Avg LCFS $/Credit</td>
<td>$10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary Market Price</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
<td>$10.00</td>
</tr>
</tbody>
</table>

#### Revenue

- Gross NG Revenue
- Gross D3 RIN Revenue
- Gross LCFS Credit Revenue
- Fixed Price, Voluntary Market Revenue

| Total Revenue | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 | $12,605,000 |

#### Expenses

- 3rd Party Offtake & RIN Sales
- Compliance & RIN Management
- Voluntary Market Verification

| Total RIN Expenses | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) | $(50,000) |

#### Gas Upgrading O&M Costs

| Total O&M Expenses | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) | $(4,000,000) |

#### EBITDA

| EBITDA | $8,555,000 | $8,495,000 | $8,434,000 | $8,372,000 | $8,309,000 | $8,245,000 | $8,180,000 | $8,114,000 | $8,047,000 | $7,979,000 |

#### Debt Service (5%, 20 years)

| Debt Service | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) | $(2,808,000) |

#### Net Profit After Financing

| Net Profit After Financing | $5,747,000 | $5,687,000 | $5,626,000 | $5,564,000 | $5,501,000 | $5,437,000 | $5,372,000 | $5,306,000 | $5,239,000 | $5,171,000 |
## Figure 1.5

**Will County - Biogas to RNG Revenue Projections**

**June 2019**

### Aggressive Market Conditions

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
<th>2029</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Operation per Year</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
<td>$347</td>
</tr>
<tr>
<td>Avg NG Forward Price (FGT Z3)</td>
<td>$3.00</td>
<td>$3.06</td>
<td>$3.12</td>
<td>$3.18</td>
<td>$3.25</td>
<td>$3.31</td>
<td>$3.38</td>
<td>$3.45</td>
<td>$3.46</td>
<td>$3.59</td>
</tr>
<tr>
<td>D3 RIN Price</td>
<td>$2.50</td>
<td>$2.55</td>
<td>$2.60</td>
<td>$2.65</td>
<td>$2.71</td>
<td>$2.76</td>
<td>$2.82</td>
<td>$2.87</td>
<td>$2.93</td>
<td>$2.99</td>
</tr>
<tr>
<td>Avg LCFS $/Credit</td>
<td>$185.00</td>
<td>$188.70</td>
<td>$192.47</td>
<td>$196.32</td>
<td>$200.25</td>
<td>$204.25</td>
<td>$208.34</td>
<td>$212.51</td>
<td>$216.76</td>
<td>$221.09</td>
</tr>
<tr>
<td>Assumed Carbon Intensity (CI)</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

### Revenue

- **Gross NG Revenue**: $3,781,000, $3,857,000, $3,934,000, $4,013,000, $4,093,000, $4,175,000, $4,259,000, $4,344,000, $4,431,000, $4,519,000
- **Gross D3 RIN Revenue**: $36,954,000, $37,693,000, $38,447,000, $39,216,000, $40,001,000, $40,801,000, $41,617,000, $42,449,000, $43,298,000, $44,164,000
- **Gross LCFS Credit Revenue**: $ - $ - $ - $ - $ - $ - $ - $ - $ -
- **Gross Total Revenue**: $40,735,000, $41,550,000, $42,381,000, $43,229,000, $44,094,000, $44,976,000, $45,876,000, $46,793,000, $47,729,000, $48,683,000

### Expenses

- **3rd Party Offtake & RIN Sales**: $-(4,619,250), $-(4,711,625), $-(4,805,875), $-(4,902,000), $-(5,000,125), $-(5,100,125), $-(5,202,125), $-(5,306,125), $-(5,412,250), $-(5,520,500)
- **Compliance & RIN Management**: $-(100,000), $-(105,000), $-(110,300), $-(115,800), $-(121,600), $-(127,700), $-(134,100), $-(140,800), $-(147,800), $-(155,200)
- **Total RIN Expenses**: $-(4,719,000), $-(4,817,000), $-(4,916,000), $-(5,018,000), $-(5,122,000), $-(5,228,000), $-(5,336,000), $-(5,447,000), $-(5,560,000), $-(5,676,000)

- **Gas Upgrading O&M Costs**: $-(4,000,000), $-(4,060,000), $-(4,121,000), $-(4,183,000), $-(4,246,000), $-(4,310,000), $-(4,375,000), $-(4,441,000), $-(4,508,000), $-(4,576,000)
- **Total O&M Expenses**: $-(4,000,000), $-(4,060,000), $-(4,121,000), $-(4,183,000), $-(4,246,000), $-(4,310,000), $-(4,375,000), $-(4,441,000), $-(4,508,000), $-(4,576,000)

- **Net Revenue Before Financing**: $32,016,000, $32,673,000, $33,344,000, $34,028,000, $34,726,000, $35,438,000, $36,165,000, $36,905,000, $37,661,000, $38,431,000

- **Debt Service (2.5%, 20 years)**: $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000, $2,245,000

- **Net Profit After Financing**: $29,771,000, $30,428,000, $31,099,000, $31,783,000, $32,481,000, $33,193,000, $33,920,000, $34,660,000, $35,416,000, $36,186,000
PRAIRIE VIEW LANDFILL: LANDFILL GAS-TO-ENERGY FACILITY OVERVIEW

JULY 18, 2019
TODAY: LANDFILL GAS-TO-ENERGY FACILITY

- **$1 million** in EECBG Funding contributed to Prairie View Landfill’s Gas-to-Energy Facility

- **Over $3.3 million** in revenue

- **Over 262 Gigawatt hours** of clean energy produced
Passenger Vehicles Driven for One Year: 393,338
Homes’ Energy Use for One Year: 221,844
Gallons of Gasoline Consumed: 208,464,025
TOMORROW: LANDFILL GAS-TO-PIPELINE

Landfill Gas to Renewable Natural Gas

HIGH BTU FACILITY
EVOLUTION: GAS-TO-ELECTRIC VS. PIPELINE

What’s changed?

- Electric prices **have not escalated** as projected.
- Renewable Energy Credits (RECs) for landfill gas-to-electric are **low**.
- Natural gas incentives, or Renewable Identification Numbers (RINs), are **higher**.

Conclusion:

- **It does not make economic sense to expand the current Prairie View Landfill Gas-to-Energy facility.**
## ASSET COMPARISON: ELECTRIC VS. NATURAL GAS

<table>
<thead>
<tr>
<th>Electric</th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7.04/mmBTU</td>
<td>$3/mmBTU</td>
</tr>
<tr>
<td>($3.52 to WC)</td>
<td>($3 to WC)</td>
</tr>
<tr>
<td>$? / REC ($0 to WC*)</td>
<td>$21 /RIN ($21 to WC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total value to WC</th>
<th>Total value to WC</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3.52/mmBTU</td>
<td>$24/mmBTU</td>
</tr>
</tbody>
</table>

Net difference = $20.48/unit of energy

*Unless per MWh average electric + REC price > $53, then 50% cost sharing.*
Prairie View Landfill (PVL) gas production is increasing, but the ability to optimize the revenue generating potential of the gas is remaining constant.

We are flaring the unused gas that could be generating revenue.

Solution: Transition use of the current landfill gas from electricity generation to direct-feed natural gas to a nearby pipeline.
TOMORROW: LANDFILL GAS-TO-PIPELINE

Gas quantity increases, capacity to generate revenue remains stagnant.

PVL Gas Trends

Available gas for use in generating electricity/natural gas.

Current capacity for use of gas asset.

Gas Produced  G2E Capacity

Assuming a natural gas price of $3.00/mmBTU and a D3 RIN Price of $1.50/mmBTU, Prairie View Landfill could produce over $16.8 million in annual net profit after all expenses and financing costs.

- *Each day* Prairie View Landfill produces LFGTE instead of LFGTP = $44,600 lost
MAPPING: LANDFILL GAS-TO-PIPELINE

Potential RNG Plant Location

Guardian Interstate Pipeline

Sales Gas Pipeline (4.25 miles)

Point of Interconnection
1. Decide to switch from landfill gas-to-electric (LFGTE) to landfill gas-to-pipeline (LFGTP). This process takes approximately 2 years.

2. Determine ownership structure for LFGTP facility. Does the County want to be the sole investor or partner with another investor(s)?
   
   Note: 100% County-Owned LFGTP project will yield the highest ROI.
   
   • County’s current agreement is with Waste Management Renewable Energy, Inc. (WMRE).
     
     *Note: County owns gas rights.*

   • WMRE provided a proposal for 100% company ownership (0% County owned). Offer was approximately $800,000/yr in revenue. WMRE was also uncertain if a LFGTP facility would be constructed at PVL in the near future.
1. Verify with the pipeline owner available capacity and willingness to offtake.
2. Determine funding method (bonding?).
3. Begin RFP discussions for design/build services for LFGTP facility.
4. Should WM to operate the LFGTP facility regardless of contractor hired or County ownership (for coordination with landfill operations)?
5. Final interconnect approval for pipeline.
7. Mothball existing LFGTE facility once LFGTP facility is commissioned.
8. Collect revenue
   - 100% County-owned LFGTP facility current payback period is 2 years and 3 months! Landfill gas can be generated for 30+ years!
Dane County, WI
(Madison, WI)

- Facility size: 1,800 scfm
- Commission date: May 2019
- Cost: $29 million
- Payback: 4 years
- Financing method: Bonding
- Landfill ownership: County
- Landfill operation: County
- Own gas rights (Y/N): Y
- Revenue structure: 100% Index
- Tours available (Y/N): Y

Will County, IL (Projected)
(Wilmington, IL)

- Facility size: 5,200 scfm
- Commission date: July 2021
- Cost: $29-40 million
- Payback: 2-3 years
- Financing method: Bonding?
- Landfill ownership: County
- Landfill operation: Waste Management
- Own gas rights (Y/N): Y
- Revenue structure: Combo of Index & Fixed?
- Tours available (Y/N): Y
To avoid a $44,600 increasing loss each DAY, it is critical that the County Board (CB) voice their support for moving forward with the transition from LFGTE to LFGTP.

- Staff will work with a project team to determine WM’s degree of partnership/involvement with the PVL LFGTP project.
  - Report determination back to CB.
- Project team will determine funding options for LFGTP facility.
  - Report funding options back to CB for final pathway decision.
- Project team will develop a RFP for design/build.
  - Report RFP development and issuance back to CB for approval.
- Award RFP to CB-approved bidder and begin project execution.
TAKE A FIRST STEP: SUPPORT THE TRANSITION

Support County staff to continue conversations necessary for making the transition from LFGTE to LFGTP with the following parties:

• EcoEngineers: Technical consultant for market forecasting, project structuring, financing, RIN compliance, gas off-taker contacts, etc.

• APTIM: Landfill contract and gas purchase agreement advisor, strategic planning guide, etc.

• Hinshaw Law Firm: Legal support to staff and SAO for landfill-contract matters, etc.

• Waste Management, Inc.: Landfill operator and LFGTE partner.
QUESTIONS?

Dean Olson
dolson@willcountygreen.com
815-774-7891 – work

Sam Bluemer
sbluemer@willcountygreen.com
815-774-7893 – work
815-341-2541 – cell (call or text)