



SOLID WASTE

Landfill Gas to Energy-Request For Expressions of Interest Summary

October 20th, 2023

Agenda

1. Review Of November 2021 Landfill Gas to Energy Action Items
2. Review Landfill Gas to Energy Project Timeline
3. Current Landfill gas to Energy financials
4. Landfill Gas to Energy Request for Expressions of Interest (REOI) Timeline Review
5. Landfill Gas to Renewable Natural Gas- Dominion Energy Pipeline Update
6. REOI Respondents Summary
7. Key Takeaways and Next Steps

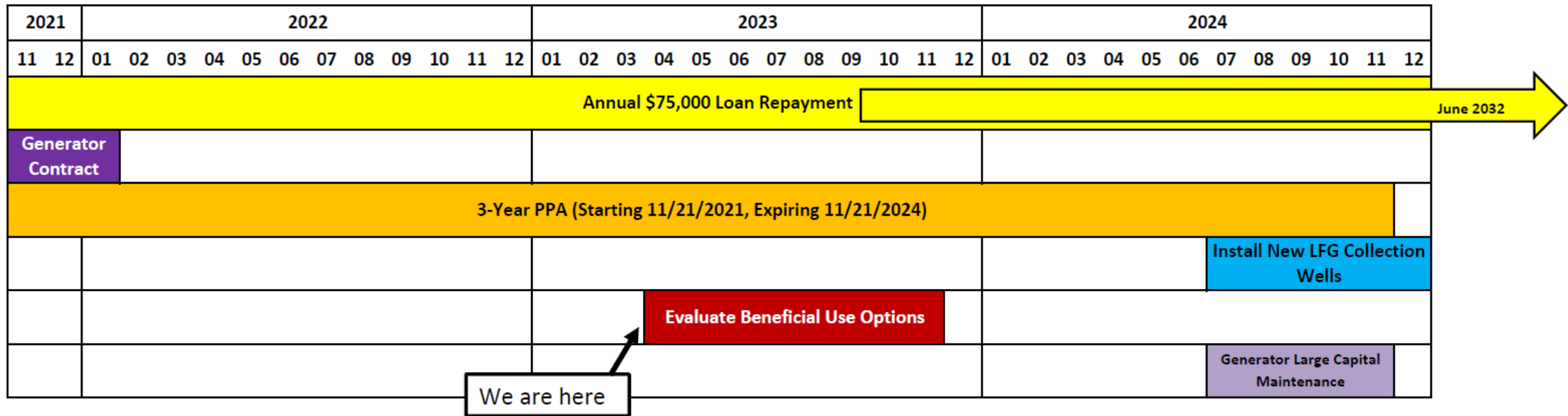


Review of November 2021 Action Items

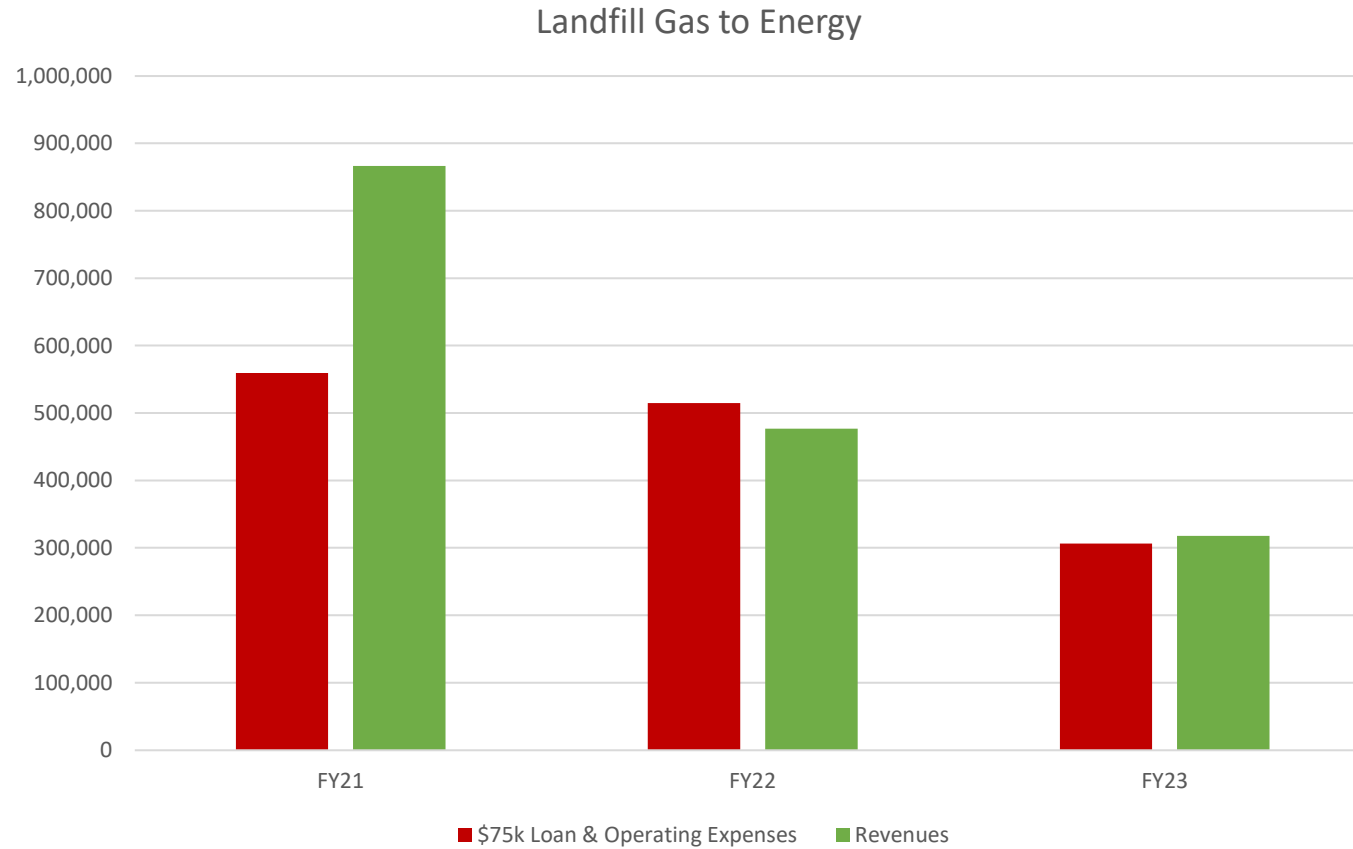
- 3 year PPA contract executed-continuing renewable electricity production through November 21, 2024
- Evaluate additional beneficial uses of landfill gas
- Return to the board in 2023 to discuss long-term strategy for LFGTE project



Review Of Project Timeline



Landfill gas to Energy Financials since 2021 PPA



Request For Expressions of Interest Timeline Review

- May 4 2023: A Request For Expressions of Interest (REOI) was issued to determine the level of interest and feasibility of an alternative beneficial use of landfill gas. Any and all ideas and concepts from experienced and qualified firms were eligible to respond to the REOI
- May 24 2023: Mandatory pre-submittal meeting held at Buncombe County Landfill
- Addendum Review: LFG to RNG-Dominion Energy Pipeline “Gas Quality Standards for Renewable Gas/Rules and Regulations
- June 29 2023:Deadline to submit
- July 2023: Evaluate Responses
- August 2023: EPA’s RFS (Renewable Fuel Standard) ruling-requested respondents to provide information on any potential impacts to proposals



Landfill Gas to Renewable Natural Gas

- On average, Landfill Gas (LFG) flow rates for Renewable Natural Gas (RNG) developers is 3,000 standard cubic feet per minute (scfm), ranging from 1100-7700 scfm. Buncombe County currently operates at 500 scfm
- Representatives from Dominion Energy were onsite for the mandatory pre-submittal meeting held at the landfill and provided the following information:
 1. If a pipeline were constructed from Buncombe landfill site to nearest connection point:
 1. In DOT right of way: considered an operator and subject to same rules, regulations and standards as DENC , Piedmont Natural Gas, or any other natural gas utility
 2. In DENC Franchise Territory, an agreement would have to be negotiated
 3. Nearest potential connection point for pipeline is **7 miles**, an estimate of the cost to extend the necessary facilities is between **\$2-3Million/mile (\$14-21 Million)**
 2. Dominion Energy Provided Pipeline Gas Quality Standards for Renewable Gas/Rules and Regulations



REOI Responses Summary

6 Responses Received

- | | |
|---------------------------------|--|
| 1. Ameresco, Inc.- | LFGTE + RECs + eRINS (Developer, owner, operator) |
| 2. Pyro-Green-Gas, Inc. | LFG to RNG (No specific information provided, supplier of equip) |
| 3. Enerdyne Power Systems, Inc. | LFG to RNG (Developer, owner, operator) |
| 4. Northern Biogas, LLC | LFG to LFGTE or LFG to RNG (Developer, owner, operator) |
| 5. Vespene Energy | LFGTE Self Sustaining Microgrid. (Developer, owner, operator) |
| 6. Vision RNG | LFG to RNG (Developer, owner, operator) |

*LFGTE: Landfill Gas to Energy

**REC: Renewable Energy Credits

***eRIN: Electric Renewable Identification Number (transportation fuel)

****RNG: Renewable Natural Gas-pipeline quality gas that is fully interchangeable with conventional natural gas



REOI Comparisons

1. Ameresco

- LFG to LFGTE proposal to replace the current LFGTE Facility with all new equipment
- Developer, owner, operator
- Sell electricity, RECs and eRINs. Proposed revenue share (24%-32% royalty payments)
- Project timeline: 18 months
- eRIN market impact: Encourage the county to wait for the EPA to issue its upcoming rules on eRINs before proceeding with the project.

2. Pyro Green Gas

- Provided Company history and background
- Information packet on RNG processing
- Suppliers of equipment, no specific plan provided
- eRIN market impact: none, suppliers of equipment

3. Enerdyne

- LFG to RNG utilizing natural gas pipeline on landfill property (Nearest pipeline is 7 miles away)
- Developer, owner, operator.
- Sell RNG through RIN markets (transportation fuel) or voluntary markets for end use customers (utilities). Proposed revenue share (10%-30% royalty payments)
- Project timeline: 18-24 months
- eRIN market impact: do not anticipate any eRIN production as a part of development associated with this project



REOI Comparisons

4. Northern Biogas

- Plans to market to voluntary purchases (utilities)
- Developer, owner, operator
- Discusses 2 options: LFG to LFGTE or LFG to RNG, has concerns regarding both options
- Suggests Buncombe partner with Northern Biogas to further analyze LFG to RNG option
- Project timeline: 13 months LFGTE or 18 months RNG
- eRIN market impact: no change. “Prudent for the County to delay a final decision on their LFGTE solution until the final ruling by the EPA is published, estimated to be in early 2024.”

5. Vespene

- LFG to LFGTE Self-Sustaining Microgrid for modular data centers. 3 phase approach
- Developer, owner, Buncombe operates GCCS
- 15% royalty share
- Project timeline: 12 months
- eRIN market impact: No impact

6. Vision RNG

- LFG to RNG is not economical at this time, either as direct pipeline or “virtual pipeline”
- Developer, owner, operator
- Proposed royalty structures ranging from 10%-30%
- eRIN market impact: does not change our interest, need to fully evaluate. “does make all landfill gas power projects much less attractive”



Key Takeaways

- Majority of responses were not favorable towards Renewable Natural Gas
 - Amaresco: “The county should be wary of any developer claiming an economic approach using RNG because a project this small without the availability of LCFC cannot feasibility support the gas interconnection, parasitic electric load, and the ongoing O&M costs”
- 50% of responses suggested the County should wait until early 2024 for the EPA to issue its upcoming rules on eRINs
- All respondents, except 1, were developers offering a project with royalty payments to County
- Dominion Energy provided pipeline connection distances, estimated cost per mile and their specification for pipeline quality RNG.



Next Steps

- Continue operating the LFGTE Facility, monetizing carbon credits and electricity sales
- Engage Duke in PPA renewal beginning November 21, 2023
- Additional interviews or studies with potential developers
- Await EPA's update to eRINs in early 2024



Landfill Gas To Energy Next Steps

Buncombe County

Landfill-Gas-to-Energy Facility

Request for Expressions of Interest and Next Steps

Schedule

	2023												2024							
	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08		
REOI issued on May 4, 2023			X																	
LOIs received on June 29, 2023				X																
LOIs Summary Presentation on October 20, 2023								X												
November 2023 - Engage Duke Energy in PPA discussions									X											
February 2024 - EPA guidance scheduled for release on eRIN guidance											X									
April 2024 - Staff to present recommendations/summary													X							

