



Webinar: ***LFGcost-Web, Version 3.0***

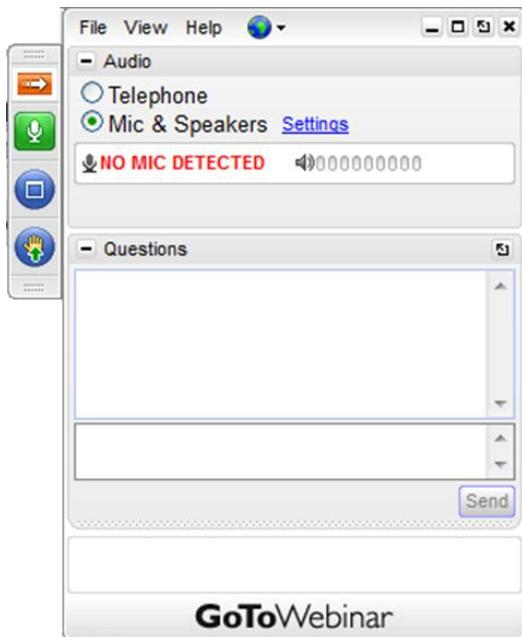
February 3, 2015

Presenter:

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Tips

- All participants will be muted at the beginning of the webinar
- Please do not put this call on hold
- Questions submitted during the webinar will be reviewed during a general discussion at the end of the webinar



To submit a question or if you are experiencing technical difficulties, let us know using the **Questions pane**

← **Enter your question**

Welcome

- **Introductions**
- **Review of Agenda**

Webinar Agenda

Overview of *LFGcost-Web* – New Version Released December 2014

Review of New and Enhanced Features of Version 3.0

Online Demonstration - Example Scenarios

Discussion

- Questions and Answers
- Wrap-up & Conclusion

Mention of any company, association, or product in this presentation is for information purposes only and does not constitute a recommendation of any such company, association, or product, either express or implied, by EPA.

What is *LFGcost-Web*?

- **Software tool that provides preliminary cost estimates for landfill gas (LFG) energy projects**
- **12 LFG beneficial-use technologies and option to include costs for new gas collection and flaring system**
 - Direct LFG utilization (direct-use)
 - Boiler retrofit
 - Processing LFG into high Btu gas (pipeline quality)
 - Converting LFG into compressed natural gas (CNG)
 - Leachate evaporation
 - Electricity generation
 - Standard turbine
 - Standard reciprocating engine
 - Microturbine
 - Small reciprocating engine
 - Combined heat and power (CHP) turbine
 - CHP reciprocating engine
 - CHP microturbine

Model Inputs

- **Required Inputs**
 - Landfill open and closure years
 - Acreage of landfill to supply project (assumes 1 acre = 1 gas well)
 - Waste acceptance
 - Annual average – entered or calculated from waste-in-place
 - Disposal history
 - Project type and start year
 - Include collection and flaring costs?
 - Pipeline distances for Direct-use, High Btu, and CHP projects
 - Project-specific inputs for Leachate Evaporator and Boiler Retrofit projects
- **Types of Optional Input Parameters**
 - Landfill
 - LFG generation/collection
 - Project
 - Financial

Model Results

- **Economic**
 - Project size
 - Installed capital cost
 - Annual costs (O&M)
 - Internal rate of return
 - Net present value (NPV)
 - NPV payback
- **Environmental – lifetime and annual average**
 - Amount of methane collected and destroyed
 - CO₂ equivalents of methane utilized in project
 - Amount of CO₂ from avoided energy generation
- **Printable Results**
 - Inputs / Outputs (INP-OUT)
 - Summary report (REPORT)
 - Detailed cash flow analysis (RPT-CASHFLOW)

Improvements to Version 3.0

- **Updated costs (in 2013\$'s)**
 - Gas collection and flaring system (new, not expansion of existing system)
 - Direct-use project
 - Standard engine project
- **New project type (in 2013\$'s) for onsite CNG production and fueling station**
 - LFG → alternative vehicle fuel
- **Unlocked several optional user inputs and updated defaults**
- **More transparent model allowing users to view all parameters, calculations, and assumptions**
- **Made model and user's manual available to all stakeholders on LMOP's website**

Download *LFGcost-Web*

<http://www.epa.gov/lmop/publications-tools/lfgcost>

Software Tools

LFGcost-Web - Landfill Gas Energy Cost Model

Evaluate the initial economic feasibility and environmental benefits of an LFG energy project using this software model. ***Analyses performed using LFGcost-Web are considered preliminary and should be used for guidance only.***

LFG Energy Benefits Calculator

This calculator estimates the direct methane, avoided carbon dioxide and total greenhouse gas reductions attributable to an LFG energy project for the current year, calculated from the project size entered by the user. Based on the estimated emission reductions, the tool provides environmental benefit values to put the reductions in more understandable terms, such as an equivalent quantity of acres of forests, railcars of coal or gallons of gasoline. Based on the project size, the calculator also estimates an energy benefit value in terms of homes powered or homes heated.

Interactive Conversion Tool

This tool can be used to conduct unit conversions, such as standard cubic feet per minute (scfm) to million standard cubic feet per day (mmscfd) or short tons of methane to million metric tons of carbon dioxide equivalents (MMT_{CO₂E}). It can also be used to estimate LFG energy potential from a municipal solid waste (MSW) landfill, including tons of waste-in-place (WIP) to scfm of LFG or megawatt (MW) capacity, and much more.



Software Requirements

- **Microsoft Excel® platform [2000, 2002 (XP), 2003, 2007, 2010, 2013]**
- **Read-only property**
 - Intended to preserve original model file for users
 - Must save .zip file to computer and save extracted .xls file to computer
- **To maintain full model functionality,**
 - Enable macros
 - Save as “Excel 97-2003 Workbook (*.xls)”

Live Demonstration

- **Example Scenarios**
 - Standard engine project – 3 MW
 - CNG project – 300 ft³/min LFG



Questions and Answers



Wrap-up & Conclusion

- To request assistance using *LFGcost-Web*, use form on LMOP's website
<http://www.epa.gov/lmop/lmopf8.html>
- To learn more about EPA's LMOP and its activities to encourage the recovery and beneficial use of LFG as a renewable energy resource, visit LMOP's website at <http://www.epa.gov/lmop/>
- For information, data and tools, visit LMOP's website at <http://www.epa.gov/methane/lmop/publications-tools/index.html>
- Please fill out the online webinar evaluation form – your feedback is much appreciated!

LMOP National LFG Energy Workshop

- **LMOP is collaborating with the Solid Waste Association of North America (SWANA) to organize the workshop in conjunction with their upcoming 38th Annual Landfill Gas & Biogas Symposium**
- **Half-day workshop on Thursday, March 19, 2015 in New Orleans, Louisiana**
- **Workshop will highlight recent successes in LFG energy projects and recognize the 2014 LMOP Project and Partner of the Year awardees**

Preliminary agenda is available at:

www.epa.gov/lmop/workshops/nationalworkshop.html

Online registration is open!

www.tradeshowregistrar.com/regsystem18/?event=swana2015



**LANDFILL METHANE
OUTREACH PROGRAM**

**National Landfill Gas
Energy Workshop**

to be held
in conjunction with

