# Estimating the Value of Your Landfill Gas to Energy Project

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# Why Estimate Project Value?

- Critical for capital investment decisions
  - Minimum return threshold to secure financing
  - Demonstrate accountability to taxpayers and constituents
- Identify and quantify risks
  - Varying revenue streams (RECs, carbon, indexed fossil fuels)
  - O&M (collection, utilization, transmission, conditioning)
  - Escalating costs and revenues
- Self-develop or partner with third-party

# Key Questions: Technical Feasibility

- Is the Gas There? - Generation
- Can the Gas be Captured?
  - Use conservative generation and collection factors
- What are the End Use Options?
- What Conditioning is Required?
  - Choose constituents based on end-use
  - Consider pressure & moisture as well
- Where is the End-Use? - Transmission

# Revenue Streams

- Avoided Cost – Power Generation
  - $/MW
  - Published rates for QFs
- Fuel Sales
  - $/MMBtu
  - May be indexed to fossil fuel
- Royalty Payment
  - From end-user or developer
  - Inclusive of credits/incentives?

# Credits and Incentives

Combined Effect to Increase Interest in LFGE

- Renewable Energy Credits
- Carbon Credits
- State and Federal Tax Credits
- Grants and other Incentives

# Capital Costs

- Collection System
  - Include periodic expansion?
  - Flare equipped to generate carbon credits?
- Energy Conversion
  - Gensets
  - Retrofit to boilers/process heaters
  - Conditioning/treatment
  - Transmission costs
- Other Costs
  - Engineering/design/permitting
  - Construction/installation
  - Interconnection/R.O.W

# O & M

- Collection system
- Gensets/Boilers
  - Determines availability
  - Weigh O&M against treatment costs
- Transmission Pipeline
- Treatment/Conditioning Skid
- Include Power Usage
  - Electrical demands of blowers, chillers, etc.
  - Offset from project or buy from grid?

# Economic Analysis

- Beyond Simple Cashflow and Payback
- Net Present Value
  - Compare today's dollar to tomorrow's

$$NPV = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} - C_0$$

- Internal Rate of Return
  - The expected project rate of growth
  - Can be adjusted to "zero out" NPV
- Simple Spreadsheet Tools to Calculate NPV and IRR
  - LMOP LFGCost Model
  - Customized Workbook Models

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# Workbook Demonstration

Walk through elements of previous slides and how they are input into a simple spreadsheet model

# Results of Analysis: Should Project Proceed?

- Is the project technically **and** economically feasible?
  - Does the project meet minimum return on investment?
  - Is project a wise use of taxpayer money?
- Are project risks identified and understood by stakeholders?
  - Can owner assume risks?
  - Should development partner be solicited?

# Questions?

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