

Estimating the Value of Your Landfill Gas to Energy Project

Matt Lamb

Richardson Smith Gardner and Associates



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

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?

Contact:

Matt Lamb

(919) 828-0577

matt@rsgengineers.com

www.rsgengineers.com