Case Study of Greenhouse Gas Credits from Landfill Gas Collection

“Cerro Patacon Landfill”
City of Panama, Panama

Presented by
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Project Manager

March 3, 2010
New Delhi, India
Outline of Presentation

• Landfill overview
• Operational challenges
• LFG project prefeasibility study
• Certified emission credits (CERs) as a beneficial opportunity
• Incentivizing using CERs
•Offsetting compliance costs with CERs
• Highlights
Landfill Overview

- Panama City Landfill
  - 20 year operational history
  - ~ 7 million tons of waste in-place
  - No gas collection system or venting wells
  - Large Scavenger community
- Operated by City of Panama
Operational Challenges

- Expense of compliance
- City’s limited budget
- Poor landfill operations
  - Equipment issues
  - Cover practices issues
  - Slope stability issues
  - Leachate collection and treatment system issues
  - Presence of ~400 scavengers
Prefeasibility Study

- Objective: Determine economic feasibility of LFG project under Kyoto Protocol CDM requirements.

- Analysis of two scenarios:
  1. Flaring only
  2. Energy Generation

- Results with a 0% investment and 6 years financing life and CER=$6:
  1. IRR =~ 40%
  2. IRR =~ 30%
CERs as an Opportunity

- CAF approach the City to invest on the development of the LFG project under the Clean Development Mechanism (CDM)
- CAF finance the prefeasibility study
- CAF proposed to finance portion of the landfill operations through some of the revenue from the CERs
- CERs provided the city with steady revenue source to help fund the landfill operations
Landfill Operations Tender

- Allowed city to solicit bids from contractors for design and operation of the landfill
  - International bid
  - 15 year contract
  - Based on cost per ton of waste, with minimum waste cap
  - All operational requirements to meet compliance
  - LFG recovery and control system included as part of the tender
  - CER incentive
Incentivizing using CERs

• City is using a potion of their CERs to incentivize Contractors performance
  – 100% of CERs – 0%
  – 150% of CERs – 5%
  – 175% of CERs – 10%
  – 200% of CERs – 15%

• To motivate the LFGTE Project, City has awarded all revenue from LFGTE project to Contractor and CERs from Offset of Fuel on LFGTE Project
Offsetting Compliance Costs with CERs

- Control of LFG migration to groundwater
- Improved liner systems
- Improvements of leachate collection
- Proper closure cap
- Relocation of scavengers
- Separation of medical waste
- Sludge drying
Highlights

• Set Backs
  – Long period of negotiation
  – Long tender process

• Results
  – Winning contractor proposed a cost per ton ~25% lower than expected
  – Signing of contract - January 2008
  – Notice to proceed - March 2008
  – Operator started implementation plan - March 2008
  – Engineering of LFG System - July 2008
  – Installation of LFG System – March 2009
  – LFG System Start Up – March 2010
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Thank You

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