

Landfill gas to energy project

A J-V Sotravic - Bilfinger Birger's Project

Mare Chicose

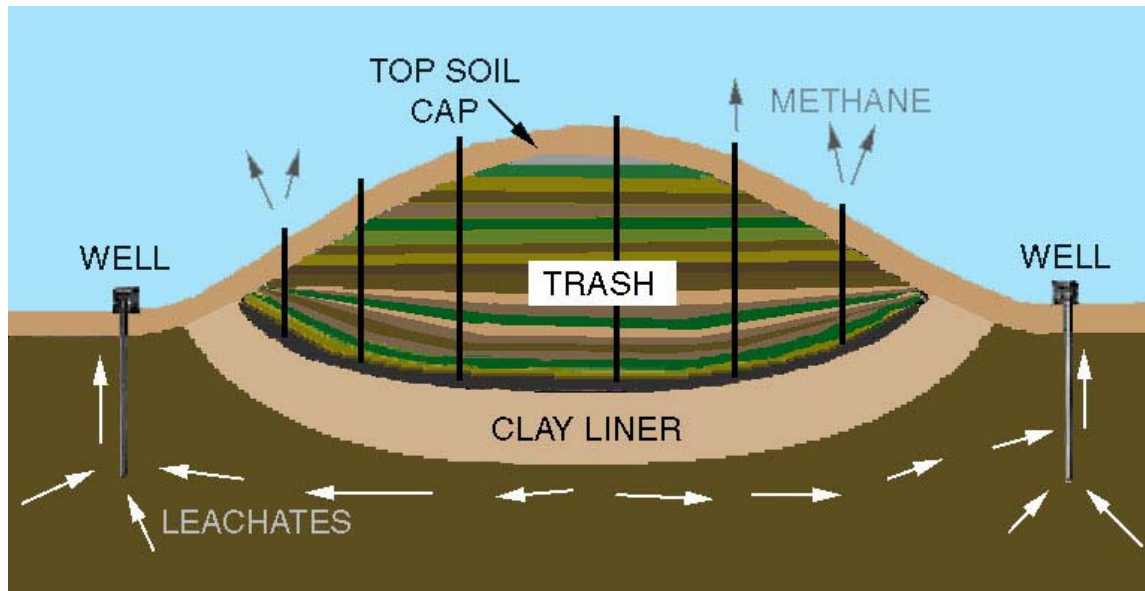
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Plan

- > Milestones
- > Tender requirements
- > Sotravic's project (JV Sotravic-Bilfinger Berger)
- > Additionality
- > Baseline scenario
- > CER potential
- > Next steps
- > Q & A

Milestones

- > Previous Management: STAM: Initial biogas management system
- > Government's tender: Request for improvement
- > Sotravic's project: maximum optimisation – beyond tender's requirements



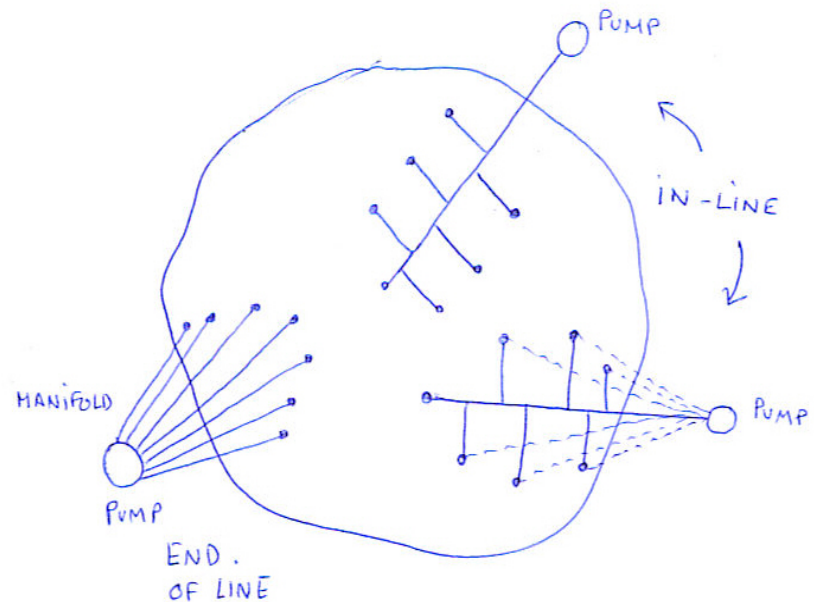
Tender requirements

- > In-line extraction system
- > Increase number of wells
- > 60% biogas collection
- > 75% flaring efficiency
- > 95% of the time
- > Of the *accepted estimated landfill gas production* (see baseline discussion)



JV Sotravic-Bilfinger Berger's (Sotravic) project

- > 20% more wells than requested
- > Manifolds to control wells
- > End of line system
- > 90%+ flare efficiency
- > Maximum extraction of biogas
- > Valorise biogas 2 ENERGY.



Additionality: OK

- > Sotravic bears all costs beyond tender requirements
 - Better flare
 - Manifolds
 - Extra wells and drilling
 - Extra piping
 - Specialised consulting
- ⇒ 30-45 million Rupees invested at risk
 - Electricity generators (3 MW capacity)
 - High tension lines
 - Risky business
- ⇒ 100s of million Rupees investment



Baseline scenario: complicated

- > **Tender: *accepted estimated landfill gas production***
- > Not a “new project”... Baseline could be:
 - STAM historical extraction levels
 - Government requirements – but based on which model....?
 - Anything between these two levels.
- > Previous monitoring was not precise enough to baseline ourselves
- > Methane content of gas = historically low, new levels are double... can historical data be used...
- > Expert consultants and ground work analysis needed to determine baseline properly.

CER potential

> Depends on baseline:
*“Annual averages over
 10 years”*

Baseline	Methane CER	Energy CER	Total CER
High	1-2,000	20-25,000	21-27,000
Middle high	15-20,000	20-25,000	35-45,000
Middle low	35-55,000	20-25,000	55-80,000
Low	50-85,000	20-25,000	70-110,000

Next steps

- > Set Baseline and get it validated by Government first, then validator
- > Finish PDD – baseline pending
- > Letter of Approval of DNA
- > Stakeholders' meeting
- > Validation
- > Registration

- > Planned date for Validation = Dec08-Jan09
- > Planned date for registration = April09-June09

Q&A

**Thank you for your attention.
Your questions are welcomed**

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