Promoting Organic Waste-to-Energy and other Low-Carbon Technologies in SMMEs: Accelerating Biogas Market Development

Update on Project Preparation Activities

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Outline of Presentation

• Background of the Project
• Project Objectives
• Project Structure: Components
• Implementation of the Project Preparation Phase
  – Consultation Process
  – Verification and Design
  – Detailed Project Document Preparation
  – Validation Process
  – Submission to GEF CEO
• DoE – REIPPPP has shown the potential economic and energy security benefits of renewable energy. Developing small-scale projects has been a challenge and is being addressed (e.g. FIRST).

• DEA – The implementation of the National Climate Change Response Strategy is moving forward, particularly on the mitigation side. Improving waste management practices is a specific area receiving attention.

• DTI – renewable energy, SMMEs and agro processing sectors are receiving support. iPAP has placed great emphasis on Green Industries.
Strategic Partners

• Relevant Government Departments – Some to be appointed to the Steering Committee of the Project

• State Owned Entities (SOEs) – as co-implementers of Project Activities

• Industry (Biogas) Representative Bodies – Safeguard special interests and set agenda
Critical Stakeholders

- SMMEs interested in biogas (Producers, Users, Service Providers)
- Agro-Processors (with feedstock potential of at least 500kW)
- Farmers (with feedstock potential for at least 100kW)
- Project Developers
- Financial Institutions
- Development Extension Institutions
- Academic Institutions
- Civil Society Organizations
Why use WtE in Agro-Based Industry

- Availability of waste feedstock from agricultural operations – Agro-Waste
- Enterprises are heavily affected by blackouts
- Ideal for enterprises in off-grid/remote areas.
- More storable/dispatch-able than other RE resources
- High conversion efficiency if used directly (not converted to electricity) – heat/transport
- Enterprises are facing increasing power tariffs
- Widening of revenue streams by the generation of heat and power at the local level
- Increased productivity through technology and skills upgrading that would be associated with adoption of new technologies
- Reduction of environmental challenges with organic waste
- Reduction of costs associated with transporting organic waste to landfill
- Creation of local jobs through waste sorting/collection schemes as well as fertilizer distribution.
- Digestate and the effluent could be used as fertilizer and for irrigation respectively
Interlinked barriers to be addressed by the Project

- Inadequate baseline information on quantity, quality and location of organic waste
- Regulatory and approval processes too bureaucratic
- Technical feasibility and commercial viability
- Shortage of relevant skills at critical points of project development
- Financial access constraints
- Existing incentives not effective for attraction of investment
- Regulatory and approval processes too bureaucratic
Project Objective and Qualification Criteria

- Promote Market-Based Adoption of Integrated Biogas Technology in Small and Medium and Micro-Scale Enterprises (SMMEs) in South Africa.
- The focus of this project is enterprises in the Agro processing sector.
- Feedstock: Wet-waste from agro-processing and food-waste
- Enterprise size: 500kW – 3MW
- Stage: Prefeasibility/Feasibility needing some capacity building
- Defining attribute: High prospects for growth
- Location: Rural; Peri-Urban; and/or Urban - (country representation)
- Output: Gas for heat; electricity; CNG (vehicle and industry)
- Promotion of wide acceptance and use of biogas from organic waste
Project Structure: Components

1. Capacity Building and biogas technology Support System
2. Biogas Market Development and Regulatory
3. Technology Demonstration
4. Scaling up
Project Component 1: Capacity Building and biogas technology Support System

**Expected Outcome**: Capacity of market players and enablers strengthened and biogas technology support system established

**Expected Outputs**:  
- Build capacities in provinces and private landfill operators to be able to accurately report and categorize waste  
- Carry out a detailed *assessment and characterization of waste* streams from agro-processing enterprises  
- Provide *training to market players* on integrated biogas systems  
- Strengthening of *biogas and low-carbon technology support center* at a selected institution that is already in existence  
- The *decision support tools* and operation manuals will be developed and disseminated through dedicated web portal  
- Toolkits, decision support tools and maintenance plan will be developed providing practical guide on how to check for methane leakage  
- *Regional training workshop* (SADC) for biogas enterprises
Project Component 2: Biogas Market Development and Regulatory Framework

**Expected Outcome**: Market environment strengthened and regulatory framework developed

- Quality standards for plants developed and disseminated.
- Guidelines and regulation supporting the valorisation of digestate and effluent.
- An inter-disciplinary committee reviews current regulations (environment, energy, industry, financing).
- Regulatory framework on access to the grid by small to medium scale biogas projects developed and presented to local authorities
Project Component 3: Technology Demonstration

**Expected Outcome**: Technical feasibility and commercial viability of waste to energy and other low-carbon technologies

- Support the implementation of demonstration projects to achieve about 3 MW of installed capacity.
- Focus on combined heat and power (CHP) plants and use of sludge and effluent.
- Focus on agro-industries (primary and processing) like breweries, poultry, piggery, dairy, abattoirs, beef (feed-lots), wineries and cropping residues.
- Support the development of detailed feasibility studies of the 4 demonstration projects.
- Depending on the findings of the feasibility study, project can provide some capital grant support.
- Monitor and support (technically) implementation of the demonstration projects.
- Develop a best practice manual and disseminate.
- To engage local communities by integrating activities like the gathering and sorting of waste or the selling of fertilizer – South Africa Waste Pickers Association.
Project Component 4: Scaling up

**Expected Outcome:** Investment to waste to energy and other low carbon technologies promoted

- Develop a national *investment strategy* for integrated biogas projects in enterprises and other sectors
- Provide *technical assistance* to potential investors using the already tried and tested business models
- Approach banks and other *sources of financing* such as the Green Fund, Industrial Development Corporation, Development Bank of Southern Africa as well as private financial providers to discuss financing requirements with project developers
- Create and support a portfolio of at least 25 viable investment projects to *sustain interest* in waste to energy and other low-carbon technologies.
- Support the design of financial mechanism that will support investments in waste to energy and other low-carbon technologies could imply establishing partnerships between public funds such Green Fund (www.sagreenfund.org.za) and commercial financial services providers
- National biogas investment forum organised regularly
Implementation of the Project Preparation Phase

- Consultation Process
  - Direct stakeholder consultation
  - Consultation Workshop (19 November 2014)
  - Follow-up of matter arising from Workshop
- Verification and Design
  - Detailed engagement with specific stakeholders
  - Synthesis of data into solution design
  - Matching with the project mandate
- Detailed Project Document Preparation
  - Production of first draft (in progress)
  - Internal discussion of the draft
  - Circulation of the draft to selected stakeholders
- Validation Process – Convene a Validation Workshop (May/June 2015)
- Submission to GEF CEO – Submit detailed proposal to GEF CEO (June/July 2015)
THANKS!

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