

Municipal Solid Waste Diversion and Beneficiation Opportunities at Nelson Mandela Bay Metro Municipality



Client Team
Nelson Mandela
Bay Municipality (NMBMM)
Eskom Holdings SOC Ltd
National Treasury

Location
NMBMM, South Africa

Public Participation
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Project Description

Eskom and the NMBMM are committed to the development of renewable energy by employing waste-to-energy technologies, meeting targets on diversification of the energy mix and reducing carbon emissions. This project comprises a feasibility study of various phases for the proposed development of waste-to-energy in NMBMM. RHDHV are providing concept design and detailed reporting to allow the NMBMM to make key decisions on the adoption of an internal procurement process or alternatively an external PPP process. The feasibility study covers the full characterization assessment of the waste fuel, potential sites for the proposed WTE, technology options, energy off-take alternatives, environmental screening, project costs and financial modeling, and consideration of carbon management and financing.

The Challenge

The planning of waste management by the NMBMM adheres to the established waste management hierarchy. The planning of the waste fuel available to the proposed WTE plant, over an extended timescale presents a significant challenge. The location of the proposed plant(s), in an optimal economic and

environmental location is a marked challenge requiring detailed screening, technical assessment, logistics analysis, economics studies and physical inspection.

The Solution

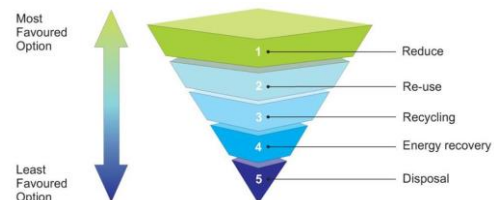
The project team aims to overcome these challenges by working with an integrated team of diverse professional expertise. RHDHV offers a team of key staff with experience in waste management, logistics, environmental sciences, public screening and economics.

The Outcome

The feasibility study is due for completion by October 2014. RHDHV's anticipated further involvement would include project procurement expertise and transaction advisory assistance on project financing, authorisations and implementation.

Impact

This project will achieve significant waste volume reduction for NMBMM and job creation by successful waste recovery at source and proposed Materials Recovery Facilities (MRFs).



Project Stats/Summary

Programme for the Project Feasibility:

Feb – Oct 2014

Estimated waste to be processed:

100,000 to 280,000 tons pa

Estimated Electrical Output:

Est. 7.5 to 20MWe

Estimated Thermal Output:

20 to 65MW thermal

Location:

4 to 6 possible sites in NMBMM

Fuel:

MSW, Selected Waste biomass and Commercial Wastes

Technology Option:

To be determined

Off-Take Options:

To be determined

Further Probable Milestones

- Submission of Project Feasibility Study to City Council
- Project Options Decision (by NMBMM / National Treasury / Eskom)
- Decision on Procurement Options
- Project Funding Process
- Project Location and Energy Off-take Agreements
- Environmental Authorizations

Site and Technology Selection

RHDHV would, in the proposed feasibility study, working with the NMBMM team, attempt to identify **potential sites** for the waste-to-energy project and perform an environmental screening and highlight on-site enablement issues that may result from project implementation and assist the NMBMM in developing the scope for any additional environmental studies which may be needed. Preliminary concept designs will be based on the potential sites identified with the technology applications that are appropriate for the project. The principal factors for the location of a WTE plant are, FEEDSTOCK / FUEL, LAND and ENERGY OFF-TAKE. Each one of these must be effectively *ticked off* prior to serious consideration of the development of the project. RHDHV will assess this approach for the NMBMM as follows (also refer to diagram below):

- I. **FEEDSTOCK** (availability, quantification, characteristics);
- II. **LAND** (availability, sufficient area, environmentally acceptable, close to fuel source and energy off-take points i.e. electricity sub-station and heat and/or steam off-take);
- III. **ENERGY OFF-TAKE** (purchase of electricity or heat/steam or gas and if applicable – bio-char and digestate).

RHDHV would determine and recommend the most appropriate location(s) for the development of the WTE facility in the Nelson Mandela Bay municipal area with a bias towards the NMBMM taking the following factors into consideration:

- Municipal owned land availability within the identified areas
- Close location to waste/feedstock that will be required within the operational life of the facility
- Efficient transportation and economical logistics
- Safety and security risks
- Surrounding industries/businesses and the residential communities
- Air Emissions: background data and modelling for the proposed activity

