

## **Durban's Landfill Gas to Electricity CDM project**

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### **Abstract**

This is the first Clean Development Mechanism (CDM) registered landfill gas to electricity project in Africa. This Project was registered with the UNFCCC's (United Nations Framework Convention on Climate Change's) CDM Executive Board (CDM EB) in December 2006. The project owner is the eThekweni Municipality. The project is developed and operated by the Department of Cleansing and Solid Waste (DSW) and all electricity generated is fed into the eThekweni Electricity 11 kV network via an internal Power Purchase Agreement. The project comprises the extraction of landfill gas through gas wells and interlinking pipework installed into the Mariannhill and La Mercy landfill sites and the generation of electricity by purpose-built spark ignition engines of 1,000 kW and 500 kW capacity respectively.

The project will bring about the reduction in the release of harmful Greenhouse gas (GHG) emissions of approximately 700,000 tons of carbon dioxide equivalent (CO<sub>2</sub>eq) over a period of some 10 years. Reductions will be attributed to the destruction of methane gas and the displacement of coal-derived electrical power to the Durban Municipal grid by this "green energy". Total project capital expenditure is some R19.5 million and operational costs will be some R1.2 million per annum. Total project income revenue will be some R33.9 million realised from the sale of carbon credits (some R20.7 million) and the sale of electricity (some R13.2 million).

Sustainable development advantages are substantial. Social benefit is derived through the "Home Grown Expertise" initiative whereby several bursaries have been granted to young up-and-coming engineering professionals. The Mariannhill Landfill, in the eThekweni Municipality of Kwazulu-Natal, presents a landfill development where landfill-engineering methods have successfully combined with the daily-operation to realise South Africa's first landfill site conservancy.