

# Renewable Energy Catalogue for eThekweni Municipality

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# RE Catalogue for eThekwin

- This presentation is made on behalf of the project consultants:

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- Their input to the project is gratefully acknowledged

# **Objectives of this presentation**

- To provide a background to the project
- Describe the project Objectives & Outputs
- Describe the project Methodology
- Overview the main Conclusions and Outcomes

# Background to the Project

- Input to formulation of the Energy Strategy for eThekweni Municipality
- Energy Efficiency and Renewable Energy included
- Targets for energy efficiency improvements, based on CO<sub>2</sub> reductions
- Detailed Action Plans for each Sector
- Project funding through Danida Programme

# Objectives

- Immediate objective:

*To provide eThekweni Municipality decision makers and officials with the proper technical guidance on the potential of today's renewable energy (RE) technologies as well as guidelines for implementation*

- Development Objective:

*To ensure that the eThekweni Energy Strategy will include the development and the implementation of these RE technologies*

# Outputs

- The main output of the project was described as:  
*“...a Catalogue of the sources of RE which are fit for eThekwini.”*
- The catalogue was expected to:  
*“...focus on the technical and financial aspects only (leaving the policy issues to the politicians).”*

However in discussion with the client it was agreed that while recommendations regarding broad National Policy issues should not be a part of the analysis, some consideration must be given both to National Policy as it influences Local Policy, to Local Policy itself and in particular the institutional frameworks required to implement effective RE policies in eThekwini.

# General Approach

1. An understanding of the National White Paper for RE and relevant updates of this document;
2. The physical, technical and socio-dynamic situations of the eThekweni Municipality Area;
3. International strategies and know-how for development of RE sources, including the most recent technical information on the effectiveness of various RE technologies;
4. An overview of the availability of specific RE resources within the eThekweni Municipality and adjacent areas, including particularly wind, solar and biomass resources

# Methodology

- A list of 10-20 potential technology development proposals
- A set of criteria for the prioritisation of these, including:
  1. Potential to contribute to the comprehensive energy supply of eThekweni with a focus on energy security
  2. Potential to reduce environmental, economic, social strains to informal settlements
  3. Potential to create jobs
  4. Sustainability
  5. Implementation and development costs in relation to the eThekweni Municipality
- A selection & prioritisation of between 4 and 8 of the technology developments which are technically most feasible to pursue for the eThekweni Municipal Area
- An analysis and a development scenario for each of the selected (4-8) technologies.

# Short-listed Technologies

1. Solar thermal: low- and medium-income housing
2. Solar thermal: commercial buildings
3. Biofuels: bioethanol from cane and bio-diesel from algae
4. Sewage/wastewater: electricity generation and/or pelletised solids.
5. Bagasse to electricity

The short-listed technologies were reviewed in detail resulting in specific recommendations (proposals) for implementation

# Recommendations - Solar

- *Implement separate low-income and middle-income solar hot water projects*, the former to be based primarily on applications to new (RDP) housing, and the latter primarily on retrofits of existing housing; use programmatic CDM and the newly-announced Eskom DSM programme for solar to reduce costs to the municipality and the end-user.
- *Implement a solar hot water project for commercial/institutional buildings*, starting with the Municipality's own building stock and treating this as part of an overall energy audit process to ensure that solar is implemented rationally as part of an overall savings package.

# Recommendations - Biofuels

- *Develop a procurement programme for transformation of the municipal petrol-fuelled vehicle fleet to a 10% bio-ethanol blend*, taking advantage of the proximity of bio-ethanol production in KZN.
- *Develop a procurement programme for transformation of the municipal diesel-fuelled vehicle fleet to 100% bio-diesel*, using only bio-diesel from sustainable sources such as algae (once it becomes commercially established) or other sources that do not compete with food production.

# Recommendations - Waste

- *Institute a feasibility assessment of opportunities for the use of sewage gas and sewage solids as energy sources*, including particularly the expanded use of methane to produce electricity and the potential of dried solids to either (a) produce charcoal for use as a transitional fuel for rural/peri-urban households or (b) substitute for coal in industrial uses such as cement kilns.
- *Institute a feasibility assessment to compare opportunities for using landfill gas from Buffelsdrei* to either (a) generate electricity as per established programmes in eThekweni or (b) generate higher calorific-value gas from the direct conversion of organic waste at this site to methane using pyrolysis, which can then be used for electricity generation.

# Thank You



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