

*ENERGY RELATED CHALLENGES AND ACTIVITIES  
IN THE CITY OF TSHWANE MUNICIPALITY  
EXPERIENCE EXCHANGE WORKSHOP  
STUTTGART*

---



**CITY OF TSHWANE**

"we are the same"

N S MUTSWARI  
SEED ADVISOR  
14 JULY 2006

---



# PURPOSE

- To give a brief overview of the challenges and activities in Tshwane in as far as sustainable energy is concerned.

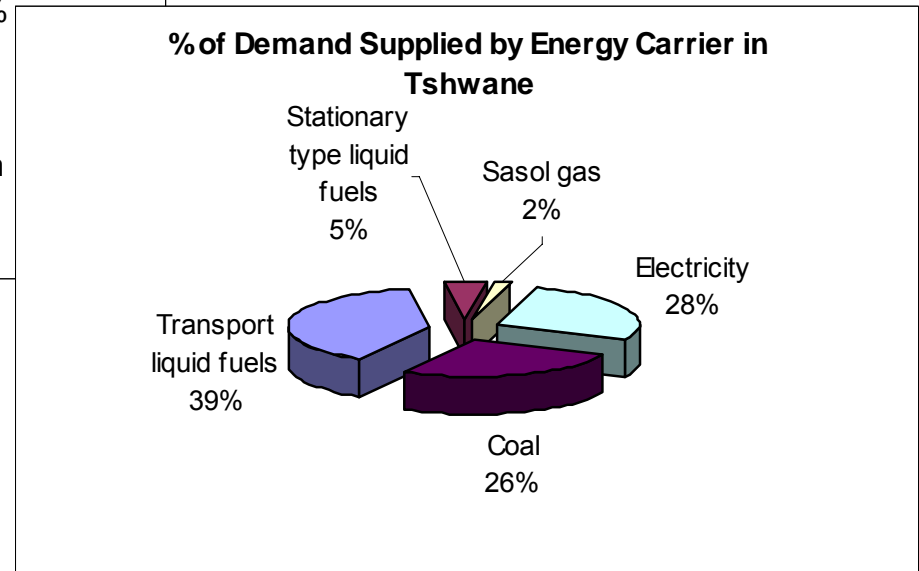
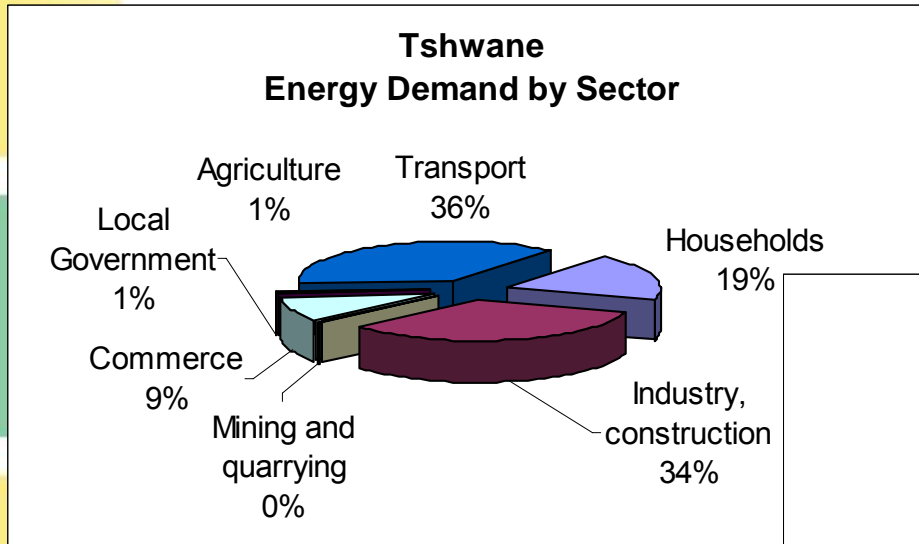


# TABLE OF CONTENT

- State of Energy Report
- Identified Key Projects
- Challenges
- Recommendations
- Conclusions/REEEP and/Enerkey Project



# THE STATE OF ENERGY REPORT Demand by Sector and Carrier



Transport sector and liquid fuels represent greatest demand and supply respectively



# How can Tshwane deal with GHGs?

- Support improvements in air quality and energy efficiency, particularly in transport & industry
- Clean Development Mechanism (CDM) offers opportunities for direct financial benefits from GHG reduction
- What is a CDM project?
  - Market mechanism
  - Can sell GHG emissions reductions to GHG emitters in developed countries
  - Programmatic CDM

Compares with 18 million tpa for EMM and 17 million tpa for Cape Town

Total from Energy and Transport (Tshwane, 2004)	
tCO <sub>2</sub>	12,542,832
tCH <sub>4</sub>	766
tN <sub>2</sub> O	504
<b>Total tCO<sub>2</sub> equivalent emissions</b>	<b>12,715,215</b>



# Potential CDM Initiatives in Tshwane

- Landfill gas (LFG) flaring or electricity generation from LFG
- Similar uses for methane from industrial digesters/sewage plants
- Substantial replacement of incandescent lighting with fluorescent or other energy efficient forms of lighting
- Conversion from coal to gas for steam use in industry
- Retrofit of commercial buildings
- Use of more energy efficient streetlighting
- Use of energy-efficient technologies in new residential buildings – programmatic CDM



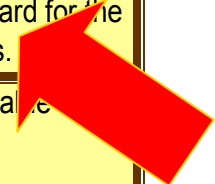
# Industry and Commerce

ISSUE	POTENTIAL SUPPORT MEASURES/INITIATIVES
<p>Industry also contributes to undesirable emissions in CTMM.</p>	<p>Large industry is sensitive to energy-related greenhouse gas emissions and aware of increasing supply options. Many industries have signed the National Business Initiative (NBI) - Department of Minerals and Energy (DME) Energy Efficiency Accord. Several CTMM companies have initiated CDM projects which will result in reduced GHG emissions.</p>
<p>Record-keeping regarding industrial fossil fuel-fired generation within CTMM is not supportive of emissions quantification.</p>	<p>The DME has commissioned studies in Industrial Energy Management and is working together with Standards South Africa (StanSA) to develop energy efficiency standards and Codes of Practice for:</p> <ul style="list-style-type: none"> <li>□ Fossil fuel fired, non-utility steam-raising boilers</li> <li>□ AC motors</li> <li>□ Insulated pipe systems</li> </ul> <p>DME is also moving towards implementation of a data collection system to support the EE Accord and the targets of the national EE Strategy.</p>
	<p>There is significant funding available through Eskom Demand Side Management (DSM), although this has not been accessed in a significant way in CTMM.</p>
	<p>The Air Quality Management Plan addresses licensing and monitoring of industrial polluters and enforcement of the Air Quality Act.</p>



# Households

ISSUE	POTENTIAL SUPPORT MEASURES/INITIATIVES
Housing design in CTMM does not yet take into account energy efficiency considerations.	DME is collaborating with StanSA to finalise the standard for the energy efficient design of naturally ventilated buildings.
Energy services for low-income households have historically been inadequate, and many households in the North still use alternatives to electricity for heating, cooking and lighting due to pricing and perceived affordability issues.	DME is rolling out its energy efficiency (EE) and renewable energy (RE) strategies.
Households suffering unemployment and poverty rely on less convenient and often unhealthy fuels, which also have a deleterious effect on the environment.	DME is examining pricing of liquid fuels to incentivise use of LPG over IP.
Coal use in urban areas results in indoor air pollution as well as adding to South Africa's net contribution to CO2 emissions, and therefore to climate change.	Restructuring of the Electricity Distribution Industry (EDI) into Regional Electricity Distributors (REDs) is expected to introduce efficiencies and harmonise tariffs nationally.
Most decisions on the choice of household energy carriers are taken by women.	Eskom has carried out extensive domestic load research for NRS 034, which gives SA's first in-depth view on gender effects for domestic load growth.





# Renewables and Energy Efficiency

<i>ISSUE</i>	<i>POTENTIAL SUPPORT MEASURES/INITIATIVES</i>
There are still few renewable energy equipment suppliers in CTMM.	The Innovation Hub could be leveraged to fast track development of SME renewable equipment manufacturers.
Renewable energy is not as affordable to the consumer as conventional energy	Funding could be sourced from the DME Renewable Energy Finance and Subsidy Office (REFSO)
Solar hot water heating in particular is significantly underutilised.	CDM might provide a source of funding to reduce the front-end costs of solar domestic hot water (DHW).
CTMM's landfill sites presently emit substantial methane which is not flared and hence presents a significant odour and health risk.	CTMM's landfill sites and solid waste management represent Clean Development Mechanism (CDM) project as well as additional energy generation opportunities.



# City Vision and Mission

## VISION

The leading international African capital of excellence that empowers the community to prosper in a safe and healthy environment.

## MISSION

To enhance the quality of life of all the people in the City of Tshwane through a development system of local government and the rendering of efficient, effective and affordable services.



# Strategic Pillars

- *Sustainability*: Enhance energy sustainability, accessibility and affordability to residents and municipality.
- *Cleaner, more efficient and diverse energy use and supply*: Encourage and promote shift to cleaner (emitting less pollutants and GHGs), more efficient and diverse energy use and supply.
- *Economic growth and development*: Support economic growth and development in CTMM, especially in the North, through smarter energy use.
- *Innovation*: Encourage the development and use of innovative tools, products and solutions for energy use.
- *Integration*: Integrate energy planning and information/knowledge management with national/ private sector/other municipal initiatives.



# Key Projects

<i>Pillar</i>	<i>Key Projects</i>	<i>KPIs for Project Success</i>
<p><b>Sustainability:</b> Enhance energy sustainability, accessibility and affordability to residents and municipality</p>	<p>Facilitate supply of safe, reliable and affordable energy services to households, both formal and informal.</p>	<p>Air Quality Act enforced Households informed on energy choices Call centre and web links established</p>
	<p>Disseminate information and develop awareness on sustainable housing and commercial building design and construction methods</p>	<p>Standards applied</p>
	<p>Disseminate information and develop awareness on RE, EE and DSM technologies and applications</p>	<p>National RE and EE strategy targets are met or exceeded</p>
<p><b>Cleaner, more efficient and diverse energy use and supply:</b> Encourage and promote shift to cleaner (emitting less pollutants and GHGs), more efficient and diverse energy use and supply</p>	<p>Transform CTMM into a Green City</p>	<p>Policies and incentives in place Projects and new city initiatives reviewed for SE/CC/AQ impact</p>
	<p>Facilitate and support less energy intensive transport in CTMM</p>	<p>Systems and incentives in place</p>
	<p>Facilitate and support “energy smart” municipal services</p>	<p>National EE and RE targets met or exceeded</p>
	<p>Facilitate and support cleaner, more efficient and diverse energy use in the commercial/ industrial sectors</p>	<p>Improved energy choices</p>
	<p>Facilitate and support cleaner, more efficient and diverse energy use in the household sector</p>	<p>Improved energy choices</p>
	<p>Promote and facilitate the availability of less GHG intensive energy use throughout CTMM</p>	<p>Diverse, clean energy carriers available</p>



# Key Projects

<i>Pillar</i>	<i>Key Projects</i>	<i>KPIs for Project Success</i>
<b>Economic growth and development:</b> Support economic growth and development in CTMM, especially in the North, through smarter energy use	Encourage CTMM businesses to develop “Energy Smart” products and services	CTMM businesses can be branded “Energy Smart” CTMM businesses sell RE, EE and DSM solutions
	Provide an Energy Smart environment for investors, developers, businesses and workers	Investment and Gross Geographic Product increase
<b>Innovation:</b> Encourage the development and use of innovative tools, products and solutions for energy use	Develop leading Energy Smart innovative capacity	CTMM recognised as Energy Smart
<b>Integration:</b> Integrate energy planning and information/knowledge management with national/private sector/other municipal initiatives	Develop and implement web-based SE/CC/AQM Knowledge Management System for CTMM	Information on SE/CC/AQ is available and accessible
	Coordinate SE/CC/AQM activities with national government	Activities are coordinated
	Integrate SE/CC/AQM planning, targeting, monitoring and impact assessment into all CTMM strategic planning	Activities are integrated



# Way Forward

- Implement CDM, EE/RE and DSM projects
  - Housing
  - Solid Waste Management
- World Commission on Sustainable Development
- Carbon Neutral for 2010
- Partnerships!





# Challenges

- Reliable and safe public transport.
- Poverty
- Attitudes, mindsets & lifestyles..
- Alternative types of fuel.
- Spatial planning issues.
- Realignment of policies & Strategies.
- Equitable provision of programmes.
- Partnerships: Private Sector/International/Nation



## Summation and wayforward.

- Propose that SE, CC, AQMP be managed under one unit.
- A study be conducted to finalise the appropriate implementation model.
- Related budget issues be addressed.
- A high level co-ordination committee of external and internal stakeholders be established to oversee the rollout of the strategies.
- Implementation Of Energy Strategy to be presented at Commission for sustainable dev in New York in 2007



# Comments Received.

- Almost all comments were positive and supportive to the recommendations made.
- For those not totally in agreement, meetings were arranged to iron out issues.
- HR will look at dovetailing the reports & integrating them with stage 3 of ASD investigation
- Housing ---insulation and Solar power issues.--- orientation of rooms.
- Others from Electricity, Transport, LED, EM, Emergency Services, IDP office, Legal, Finance, etc.



## VISIONS AND MISSIONS EMBRACED BY CORPORATE

- The rights of everyone to an environment not harmful to their well-being.
- The environment to be protected for present and future generations.
- CTMM –an acclaimed capital city of excellence empowering people to live in a clean and healthy environment.
- Clean air, smart energy and addressing of climate change.
- Proposed slogan 4 Energy = "Smart Energy"



# Recommendations

- That the strategies and their implementations be supported by CTMM.
- That all depts support these str.
- That they include SE,CC issues in their SEO' scorecards.
- That these issues be included in the IDP.
- That depts draw clear targets and indicators for implementation.
- ASD study investigates appropriate Strategic model



# Recommendations.

- That in the short term:
  - AQ officer be appointed in July 2006.
  - Also Atmos.scientist & 3 Technicians be appointed in 2006 as a matter of urgency.
  - That consultants train CTMM officials on maintenance and data-capturing.
  - Relations be esta. Between divisions and implementers to ensure speedy and effective implementation.
  - Purchase a dispersion modeling software.
  - Start with emission inventory data collection.



# CONCLUSION

## REEEP PROJECT PURPOSE

- “making the case” for RE and EE implementation – its social, economic development and reduction of emissions, meeting local and national energy and emissions targets.
- Ensuring awareness, knowledge and capacity is built at local and national govt level in terms of achieving RE and EE implementation.



# Expected outputs

1. Document clarifying potential of cities to lead RE and EE implementation, and potential contribution to national targets.
2. Detailed information and presentations on the economic, social and environmental case for RE and EE implementation at the city level.
3. Presentation and capacity building of staff in 5 study cities on potential of RE and EE in the development of their cities and practical steps for implementation of RE and EE.



## Expected impact

- Increased awareness about RE and EE potential in cities and increased political support for RE and EE programmes.
- Greater levels of RE and EE implementation at city level.
- Improved support to cities from national government and other stakeholders in achieving RE and EE implementation.



## Additional outputs, impacts and obligations

- Dissemination the information and experience to other cities via Reep and SEED networks - ongoing information capture.
- All partners to promote the project and list Reep as partner.
- Fairly tight financial and project reporting.
- Independent Project Impact Assessment by Reep appointed person.

Thank You