

# ENVIRONMENTAL POLICY ON ENERGY EFFICIENCY AND CONSERVATION IN NAIROBI



NAIROBI CITY  
COUNTY

Dr. Leah Oyake-Ombis  
Sustainable Energy for All Initiative  
29-30<sup>th</sup> October, 2015  
Tokyo, Japan

Customer Care:  
0725 624 489 / 020 344 194

Email: [info@nairobi.go.ke](mailto:info@nairobi.go.ke)  
[www.nairobi.go.ke](http://www.nairobi.go.ke)

Twitter: [@county\\_nairobi](https://twitter.com/county_nairobi)  
Facebook: [NairobiCityCounty](https://www.facebook.com/NairobiCityCounty)

**“The City of choice of to invest, work and live in”**

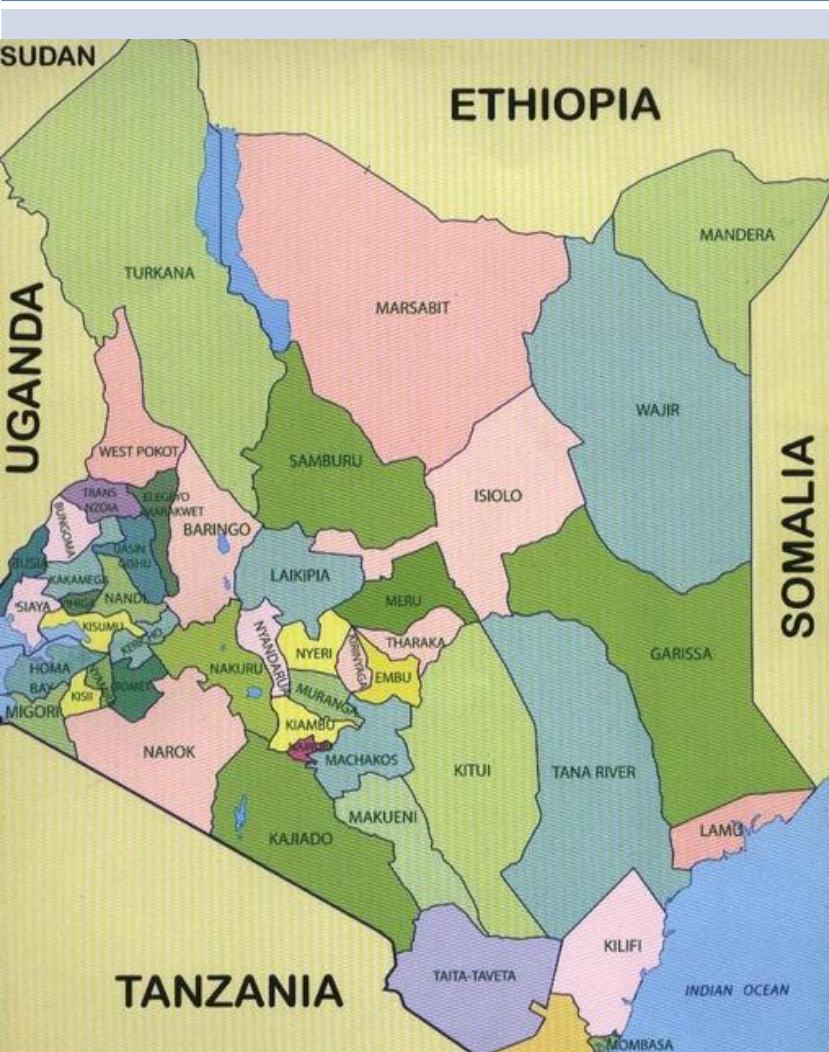
# Content

- Background
- Current situation
- Other untapped source of energy
- Opportunity for energy from municipal SW in Nairobi
- Challenges in achieving energy efficiency & conservation
- Potential benefits in energy efficiency & conservation



## Background

# Characteristics of Kenya and its capital (Nairobi City County)



- Population : 42 million; 4 million (Nairobi)
- Political system: Unitary state; multiparty democracy; devolved governance
- Divisions: 47 counties; 17 Sub-counties in Nairobi
- Area: 582,646 Km<sup>2</sup>; Nairobi is 696Km<sup>2</sup>
- Official language: English and Kiswahili
- Climate: Lies on the equator experiencing a range of tropical to temperate conditions
- Currency: Kenya Shilling

# Background (2)

## Main Energy Policy in Kenya:-

- National Energy Policy of 2014- whose overall objective is to ensure sustainable, adequate, affordable, competitive, secure and reliable supply of energy to meet national and county needs at least cost, while protecting and conserving the environment.
- Some of the salient issues related to this policy include, improved access to quality, reliable and affordable energy services; promotion of energy efficiency and conservation; prioritize and promote development of indigenous primary and secondary energy resources; ensure that prudent environmental, social, health and safety considerations are factored in energy sector developments amongst others.

# Background (3)

## Other Legal frameworks related to the Energy Sector:-

- The Constitution of Kenya, 2010 which provides for a two tier structure of government, i.e. the National and the County Governments sharing some functions related to Energy Development. Energy policy including electricity and gas reticulation and energy regulation are still National Government functions while; County Governments shall be responsible for county planning and development including electricity and gas reticulation and energy regulation.
- The Energy Act, No. 12 enacted in 2006 and provide for the establishment, powers and functions of the Energy Regulatory Commission, the Energy Tribunal and the Rural Electrification Authority.
- The Geothermal Resources Act No. 12, enacted in 1982 to control the exploitation and use of geothermal resources and vests the resources in the National Government.
- The Petroleum (Exploration and Production) Act, Chapter 308 of the Laws of Kenya was enacted to regulate the negotiation and conclusion by the Government of petroleum agreements relating to the exploration for, development, production and transportation of, petroleum.
- The Environmental Management and Co-ordination Act, 1999, which regulates the environmental aspect of the energy sector.

# Current situation (1)

**Institutions related to Energy Policies whether environmental or otherwise:-**

- Ministry of Water, Environment & Natural Resources both at the National & County Levels;
- National Environment Management Authority- Environmental Regulatory institution;
- County Sector of Water, Energy, Forestry, Environment & Natural Resources- Electricity & Gas Reticulation;

**Energy sector:**

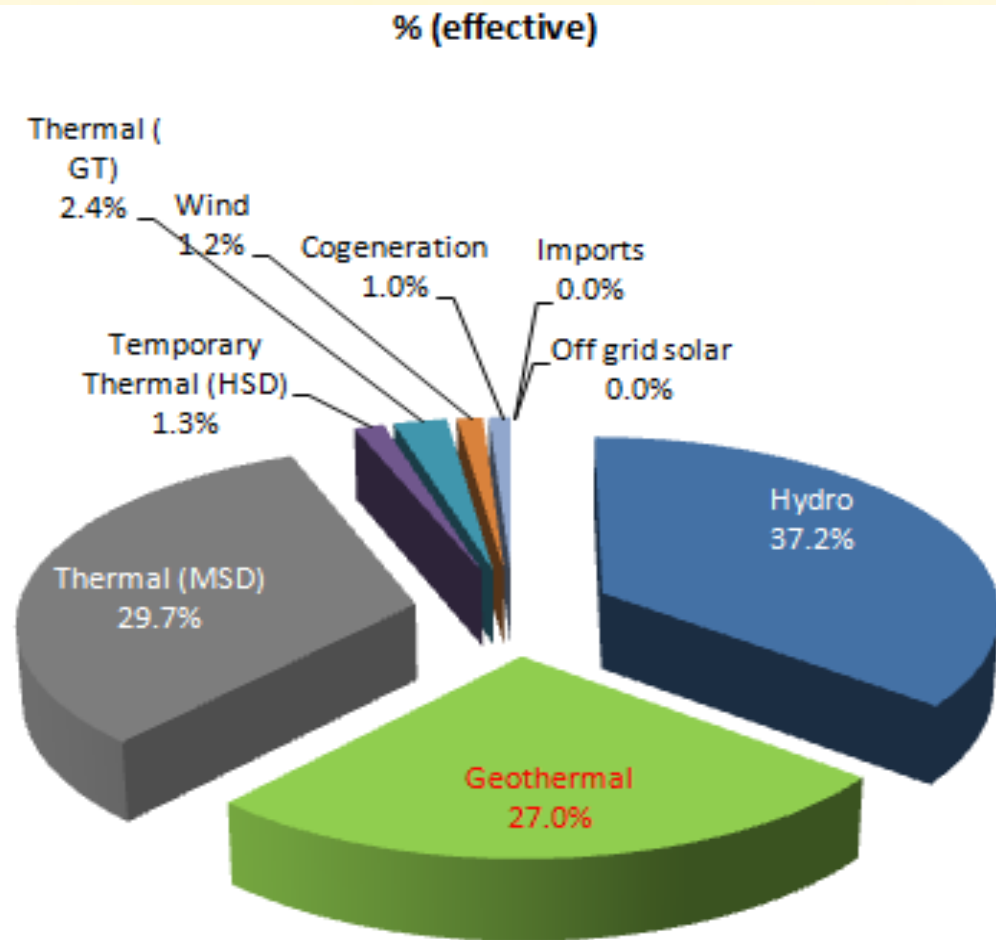
- Ministry of Energy & Petroleum- national policy formulation;
- Kenya Electricity Generating Company;
- Kenya Power & Lighting Company- Supply of electric power;
- Energy Regulatory Commission- Regulation of energy

## Current situation (2)-Sources of Energy in Kenya

Target: 5000MW by 2017

Nairobi's energy consumption = 60%

Energy Source	Installed MW	Effective* MW	% (effective)
Hydro	820.714	797.594	35.7%
Geothermal	588.04	579.9	26.0%
Thermal (MSD)	746.76879	724.6	32.4%
Temporary Thermal	30	30	1.3%
Thermal (GT)	60	54	2.4%
Wind	26.16	26.11	1.2%
Cogeneration	26	21.5	0.96%
Off grid solar	0.55	0.212	0.01%
Imports	0.0	0.0	0.00%
Total Capacity MW	1478	1436	100.00%



# Current situation (3)

- There is high wastage and losses of energy in our industries, commercial buildings and institutions which account for about 35%. This can be interpreted to 525MW of our installed capacity.
- There is a low understanding of the need to observe and implement energy conservation measure among major energy consumers.
- Implementation of Energy Management Regulations, 2012 and adoption of energy efficiency and conservation measures in our industries, commercial and institution facilities can be able to save up to 35% of their primary energy inputs or deliver financial savings of over KES.2.5 billions per annum.



# Current situation (4)

The national Government recognizes the need to remove barriers and constraints to adoption of energy efficiency and conservation technologies and has committed to put appropriate measures in place including:-

- encouraging private sector participation in providing technical and financial support for energy conservation and efficiency;
- enhancing the provision of energy audits and advisory services by the Ministry of Energy and Petroleum to institutions and companies including sensitization of industries and financial institutions on benefits efficiency.

# Current situation (5)

Also, under the National Energy Management Regulations, 2012 the following are envisaged:-

- Facilitation of efficient use of energy through better understanding of supply and use, management, and the implementation of energy efficiency and conservation measures in industrial, commercial buildings and institutional facilities.
- Facilitation of the implementation of Energy Efficiency and Conservation measures.
- Governing of the operations of energy management and conservation and licensing of Energy Auditors and Audit firms

# Current situation (6)

- Under the National Energy (Solar water heating) Regulations, 2012 that aims to promote uptake and guide the incorporation of low temperature solar water heating (SWH) systems in industrial, commercial and residential buildings, there is recognition that:-
- The Uptake level of solar water heating systems in Kenya is extremely low compared to:
  - Enormous potential provided by the abundant availability of the solar energy resource
  - Demand for low temperature water for both domestic and commercial applications

# Other untapped source of Energy

- Despite all these policy statements and pieces of legislations related to energy, Kenya does not have a specific environmental policy targeting the energy sector.
- Nonetheless, at the County level, Nairobi City has drafted a Solid Waste Management Bill which has been approved awaiting gazetement that recognizes the need to exploit possibility of waste-to-energy



## Opportunities for Energy from MSW in Nairobi (1)

Solid waste streams ( JICA Survey, 2010)

Waste stream	Tonnage	%
Food	1497.6	62.4
Paper	336	14.0
Plastic	261.6	10.9
Others	252	10.5
Glass	36	1.5
Metal	16.8	0.7
<b>Total</b>	<b>2400</b>	<b>100</b>

# Opportunity for Energy from MSW in Nairobi (3)

- Dandora which is the final disposal site has received over 1.8 million m<sup>3</sup> against its capacity of 500,000 m<sup>3</sup>
- High possibility of methane gas accumulation since 1981



## Challenges in Achieving Energy Efficiency and Conservation

- Insufficient data on energy efficiency and energy utilization in industrial, commercial and institutions; limited number of trained, qualified and certified personnel to undertake energy efficiency assessment, project development and implementation.
- Low tariffs; inadequate financing; lack of incentives including financial barriers for energy efficiency projects; inadequate securities and guarantees; open and easy access for grid connected power supplies.
- Inadequate land & right of way for RES generated electricity; Inadequate infrastructure (Grid – Transmission & Distribution) to evacuate generated power.
- Minimal awareness on Renewable Energy Investment Opportunities
- Inadequacy of concise legal & regulatory frameworks

## Potential Benefits in Energy Efficiency and Conservation

- Reduction of energy wastage in our industries, commercial buildings and institutions hence, minimize the use of expensive emergency power.
- Increasing energy utilization index in our energy consuming facilities hence making our locally manufactured products competitive in the world market.
- Reduction of the cost of energy, improve energy security (by reducing dependence on imported petroleum) and improve competitiveness and mitigate climate change by lowering GHG emissions.





**NAIROBI CITY  
COUNTY**

**Thank You**