Energy Regulatory Commission

Promoting Renewable Energy Development: An Introductory Workshop for Energy Regulators

Kenyan Country Report

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Structure of Presentation

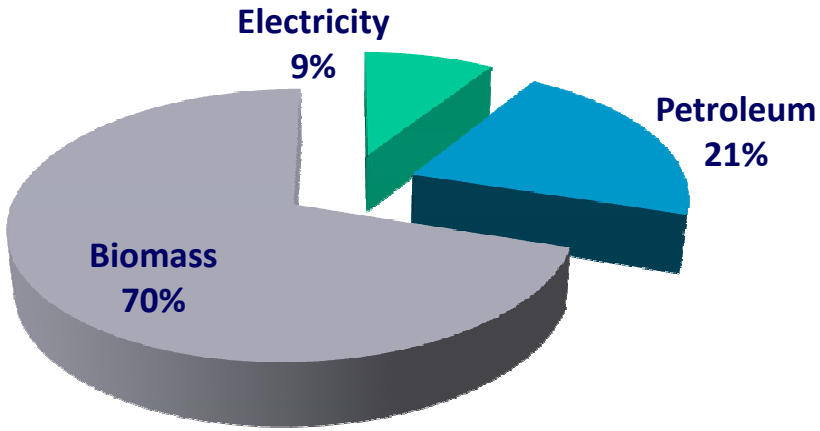
- ERC Objects and functions
- Energy Supply in Kenya
- RE Potentials vs Installed Capacity
- Policy and Regulatory Framework for RE
- Government Plans/Strategy for RE Sub-sector
- RE FIT Tariffs Policy
- Ongoing/Planned RE initiatives
- Barriers/Challenges vs Interventions

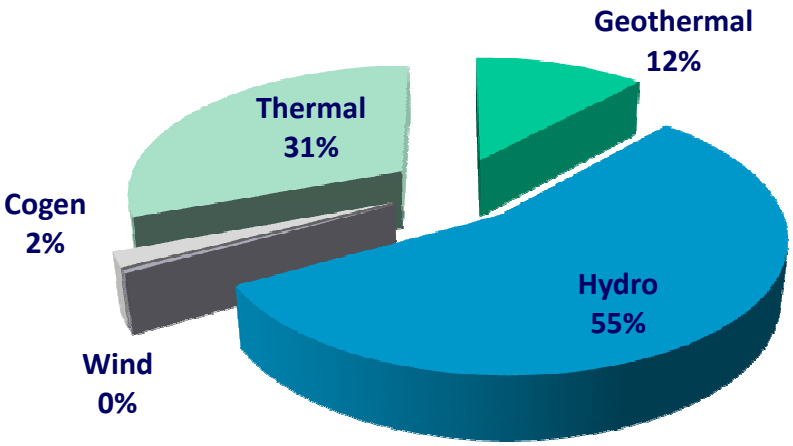
ERC Objects and Functions

- Energy Regulatory Commission (ERC) established under the Energy Act, 2006 to:
  - Regulate Economic and technical aspects of electric power, renewable energy, and downstream petroleum sub-sectors.
    - Production, distribution, supply and use of renewable and other forms of energy
  - Protect interest of consumer, investor and other stakeholders
  - Monitor, ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities
  - Prepare indicative national energy plan
  - Maintain energy database

Energy Supply in Kenya

- Energy supply characterized by high dependence on renewable energy (RE) ~ 78% of total primary energy
- Scenario Renewable but NOT Sustainable
- Biomass supply mainly to SMEs, rural and urban households
- More focus on biomass needed to ensure sustainability of energy supply





RE Potentials & Installed Capacities

Renewable Energy Technology/ Resource	Potential Resources	Installed Capacity
Solar electricity	Between 700kWh/m2/year & 2,650kWh/m2/year	4MW
Solar thermal	Between 700kWh/m2/year & 2,650kWh/m2/year	140,000 SWH Systems
Wind	n/a	More than 8MW
Geothermal	7,000 MW	168MW
Bioenergy (i.e. charcoal, fuelwood, biofuels, biogas)	n/a	n/a
Large Hydro	1,500MW	677.3MW
Small hydro	3,000MW	6.3MW

Policy and Regulatory Framework for RE

- The Sessional Paper No. 4 on Energy provides the policy framework for renewable energy and energy efficiency in Kenya.
- Encourages wider adoption and use of renewable energy technologies to enhance their role in the country's energy supply matrix.
- The Energy Act, 2006 provides the regulatory framework for renewable energy in Kenya.
- Mandates the Energy Regulatory Commission (ERC) with the responsibility of regulating production, distribution, supply and use of renewable and other forms of energy.

Energy Policy/ strategy Extracts……

Action	Objective	Timeframe	Status
Implement a competitive power market structure for generation, supply and distribution of electricity	To promote competition, enhance efficient utilisation of financial resources and create customer choice	Short-term (2004-2007)	Achieved (Unbundling—entrance of IPPs). Kenya has about 6 IPPs)
Establish a Geothermal Development Company	To undertake geothermal resource assessment including steam-field appraisal and development for sale to IPPs	Short-term	Achieved (Identifying potential wells for geothermal exploitation> Reduce exploration costs for geothermal power generation and thus attract IPPs)
Make available pre-feasibility study reports on geothermal, hydro, wind and other sources of energy;	To undertake feasibility studies to inform on potential sites	Short-term	Ongoing/completed (Several wind masts installed in potential areas to collect data wind availability, speeds etc) Some hydro and geothermal studies completed
Legislate a new Energy Act	To, among other things, create a common energy sector regulator, the Energy Regulatory Commission	Short-term	Achieved (Mandate of the Energy Regulator expanded to include petroleum and renewable energy sub-sectors.

Energy Policy/ strategy Extracts……

Action	Objective	Timeframe	Status
Draw appropriate plans for biomass energy development including biomass resource assessments and surveys;	To show biomass potential areas for planning purposes	Short-term (2004-2007)	In the process of starting (EU to fund)
Target of 300MW of co-generation capacity-by-2015 and incorporate the same in the least cost power development plan;		Short-term	Ongoing - 60 MW installed
Establish a pilot cogeneration investment programme		Short-term	Ongoing
License charcoal trade to encourage sustainable production	To regulate the charcoal industry	Short-term	Process started . ERC to regulate commercial charcoal production
Develop local manufacturing capability for advanced renewable energy technologies (such as PV and wind power turbines for electricity generation) both for domestic and export markets;		Long-term (2004-2024)	PV manufacturing facillity commissioned 2011. It will produce PV modules ranging from size 13Wp to 125Wp

RE FiT Policy

- Intended to promote generation of electricity from renewable energy sources.
- Allows sale of RE generated electricity to a distributor at a pre-determined fixed tariff for a given period of time (20 yrs).

Technology Type	Plant Capacity (MW)	Max. Tariff (US$/Kwh)	
		Firm Power	Non-Firm Power
Geothermal	Up to 75	0.85	-
Wind	0.5-100	0.12	0.12
Biomass	0.5-100	0.08	0.06
Small Hydro	0.5-0.99	0.12	0.10
	1-5	0.10	0.08
	5.1-10	0.08	0.06
Biogas	0.5-100	0.08	0.06
Solar	0.5-10	0.2	0.1

FIT Policy Progress

- 47 proposals approved for development under the policy, with combined total capacity of 2,050 MW :
  - 13 small hydro power -250 MW; 16 wind - 1,350 MW; 6 biomass - 220 MW; 1 Solar- 50 MW
- 5 finalized feasibility study, 2 PPAs signed
- Poor progress for majority of projects attributed to challenges including: a) access to land; b) hoarding of sites; c) capacity of proposers to develop projects including PPA negotiations ; d) unattractive tariffs

Economic and Technical Study for Grid Connected REs being undertaken to review exiting policy and develop FiTs and rules of engagement that will accelerate market responsiveness

Ongoing RE initiatives

Player	Initiative
Office of the Prime Minister	• Green Energy Fund set up at in 2010 to ensure the expansion of green and clean energy and address issues of high upfront cost and human resource constraints in renewable energy development
Ministry of Energy	• National Biomass and Biofuels Policy and Strategies to promote and harmonize development of sustainable biofuels in Kenya. • Rural Electrification by Solar PV and wind power for social institutions (i.e. schools and hospitals) in rural areas
Energy Regulatory Commission	• Regulations for Solar Water Heating, Solar PV, Energy Management , Charcoal, and Biogas
Private sector	• Pilot Net metering projects using solar PV; SOS Children's (45kW) and UNEP Gigiri complex (500Kw) • Lake Turkana Wind Power Project 300 MW
GDC	• Geothermal prospecting and drilling

R E & EE Sector Challenges

- Insufficient data on RE resource availability, potential and utilization.
- Lack of coordination among RE&EE stakeholders and regulatory authorities.
- Lack of specific RE Policy, regulations and technical standards
- Limited trained and qualified personnel to implement and support RE&EE initiatives and technologies.
- Lack of appropriate and affordable financing option or knowledge thereof
- Maintaining competitive, efficient and equitable tariffs especially for green energy projects;
- Attractive incentives to mobilize investments in energy infrastructure projects;
- Delivering committed projects on time and within budgets
- Unstable end user tariffs due to global fuel price variations.

Thank You

Energy Regulatory Commission