COUNTRY REPORT FOR UGANDA

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Course: Energy Policy

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1.0 INTRODUCTION

- Uganda is bordered to the east by Kenya, to the north by Sudan, to the west by the Democratic Republic of Congo, to the southwest by Rwanda, and to the south by Tanzania.
- total area of 236,040 km^2
- 2009 population estimate was 32,369,558
- Population density of 137.1/km^2.
- GDP Growth Rate: 5%

2. KEY ISSUES IN THE ENERGY SECTOR

- Over 90% of the Energy from Biomass the majority using inefficient technologies a situation not sustainable.
- About 50% of the power is produced from expensive thermal diesel power plants that came in as a short term measure to address power shortage. The tariffs are unaffordable a situation that demands government to subsidize.
- Need to Increasing Generation Capacity to meet the growing demand.
- Electrification access remains very low standing at about 12% nationally and only 6% in rural areas.
- Country is well endowed with renewable energy sources that are largely unutilized.

3. POLICY FRAMEWORK IN THE ENERGY SECTOR

A: THE ENERGY POLICY FOR UGANDA

- GOAL:
  - To meet the energy needs of Uganda's population for social and economic development in an environmentally sustainable manner
- OBJECTIVES:
  - To establish the availability, potential and demand of the various energy resources in the country
  - To increase access to modern affordable and reliable energy services as a contribution to poverty eradication
  - To improve energy governance and administration
  - To stimulate economic development
  - To manage energy-related environmental impacts

Strategies to meet the Objectives

Objective 1: *To establish the availability, potential and demand of the various energy resources in the country*.

To meet this objective, Government shall:

- Prepare a database on all the available energy resources and energy consumption patterns.
- Build the necessary local capacity to acquire the required data and assess and evaluate the resources.

***Objective 2**: To increase access to modern affordable and reliable energy services as a contribution to poverty eradication*.

To achieve this objective the Government shall:

- Attract private capital and management into the energy sector.
- Promote competition between energy service providers.
- Promote the development of markets in energy technologies and services.
- Put in place a conducive environment to accelerate rural energy supply and access..
- Intensify provision of consumer information, education and technical advice in the use and conservation of energy.
- Work with financial institutions to establish sustainable financing mechanisms for energy programmes.

Objective 3: *To improve energy governance and administration.*

To achieve the above objective Government shall:

- Clarify the roles and functions of the various institutions involved in the energy sector.
- Create a transparent legal and regulatory framework
- Build capacity at the national and local levels for better formulation and implementation of energy policies and programmes.
- Build the capacity of regulatory agencies to provide even-handed and predictable regulation.
- Develop incentives to retain local human resource for the energy sector.

Objective 4: *To stimulate economic development.*

In order to achieve the above objective, Government will adopt the following strategies:

- Encourage competition within the energy markets to achieve efficiency.
- Attract investments in energy services provision by providing appropriate incentives.
- Ensure energy supply security and reliability.
- Promote energy trade within the region.

Objective 5: *To manage energy-related environmental impacts.*

To meet the above objective, Government shall:

- Promote the use of alternative sources of energy and technologies which are environmentally friendly.
- Sensitise energy suppliers and users about the environmental issues associated with energy.
- Work towards the establishment and acceptance of broad targets for the reduction of energy-related emissions that are harmful to the environment and energy users.
- Promote efficient utilisation of energy resources.
- Strengthen the environment-monitoring unit in the energy sector.

B: RENEWABLE ENERGY POLICY FOR UGANDA 2007

- It aims to provide a framework to increase in significant proportions the contribution of renewable energy in the energy mix.

Main features:

- Introduced the feed in tariffs.
- Standardized Power Purchase Agreements.
- Obligation of fossils fuel companies to mix products with biofuels up to 20%.
- Tax incentives on renewable energy technologies.

Key Principles of the Renewable Energy Policy

The Key Principles on which this Policy is based are:

- Energy is essential for poverty eradication, regional equity and socioeconomic development.
- Reliability, efficiency and sustainability are essential in the successful deployment of renewable energy technologies.
- Renewable energy enhances energy diversity, security and independence.
- Public-private partnerships will form the basic mechanism for renewable energy investments.
- Energy pricing will be based on full economic, social and environmental costs,
- The avoided cost principle will be used for determining feed in tariffs.
- Integrating the gender dimension in renewable energy planning and management.
- Enhancement of stakeholder participation.
- Enhancement of market competitiveness of renewable energy technologies.
- Ensurering the sustainable supply and utilization of energy resources.

Policy Objectives

In order to achieve the Policy Vision and Goal, the following supporting objectives will be pursued:

- Maintain and improve the responsiveness of the legal and institutional framework to promote renewable energy investments.
- Establish an appropriate financing and fiscal policy framework for RET investments.
- Mainstream poverty eradication, equitable distribution and gender issues in renewable energy strategies.
- Acquire and disseminate information in order to raise public awareness and attract investments in renewable energy sources and technologies.
- Promote research and development, international cooperation, technology transfer and adoption of standards in renewable energy technologies.
- Utilize biomass energy efficiently, so as to contribute to the management of the resource in a sustainable manner.
- Promote the sustainable production and utilization of biofuels.
- Promote the conversion of municipal and industrial waste to energy.

4. KEY PROGRAMES BEING IMPLEMENTED

Government's Priorities in the Sector

In line with the Energy Policy, Government has set as the major priorities as:

- to increase electricity generation capacity;
- to increase access to modern energy services and in particular Rural electrification; and
- to promote efficiency in energy utilization.

Status of the Bujagali Hydropower Project

- The Bujagali plant 250MW is being developd by BEL a private developer
- Salini of Italy is the main contractor of the EPC.
- Commissioning of the first turbine of 50 MW is expected in Oct 2011.
- Government provided US$17.5 million out of the Energy Fund to implement the Resettlement Action Plan (RAP) for the Bujagali Transmission lines.
- Challenge is high tariffs by private developer.

Other Large hydros Being Developed.

- **Karuma Hydropower Project (600MW):** The Studies for this project have been concluded. The procurement process to acquire a contractor to do the construction has started. Construction is expected to start in 2012. This is being developed as a pure public project using locally generated funds.
- **Isimba Hydropower Project (120 MW):** This is the third project being developed. It has an estimated capacity of 120 MW. Feasibility studies for the site will be completed in end of 2011. This project will be developed in partnership with the private sector.
- **Ayago Hydropower Project (600):** This project is the fourth project to be developed soon. The prefeasibility studies were completed with the support of the Japanese government. With JICA support full feasibility studies will now be undertaken later this year. Project to be developed as a Public Private Partnership

Renewable Energy Projects

The following renewable energy projects are under development:

- Kakira Sugar Works Cogeneration facility currently provides a total of 12MW to the grid.
- Kinyara Sugar Works has a Cogeneration facility providing a total of 5MW to the grid
- Nyagak small hydropower project 3.5 MW is under construction. When completed it will provide power to the West Nile region replacing the 1.5 MW thermal plant in Arua.
- Bugoye 13MW small hydropower project in Kasese district: construction was completed and plant commissioned on 7th Oct 2009.

Renewable Energy Projects Cont'd

- Mpanga 18MW small hydropower project in Kamwenge district: Construction is in progress. Plant was commissioned early 2011
- Buseruka 10MW Small hydropower project in Hoima District: Construction is in progress. Plant to be commissioned by Mid 2011.
- Kikagati 10MW small hydropower project in Isingiro distrrict: Construction to commence soon.
- 6.5 MW Ishasha small hydropower project in Kanungu: Construction is in progress. Plant to be commissioned by Mid 2011.
- Kisizi micro hydro power project in Rukungiri district was upgraded from 60KW to 300KW (0.3MW).

Renewable Energy Projects Cont'd

- Other co-generation: The two sugar industries namely Lugazi and Kinyara with current generation capacities of 1.6MW and 1.7MW respectively will have their capacities upgraded in order to supply to the minigrid.
- With factory expansion Lugazi has potential to produce 8MW while Kinyara can produce 20MW.

Promotion of Efficient Biomass Technologies

- Institutional stoves can save more than 50% of wood consumption needed for cooking.

- They are free from smoke which is responsible for respiratory diseases arising from indoor pollution.

Institutional Stove constructed in one of the Prisons

Dissemination of Solar Systems

Solar PV Systems installed at a Health Centre

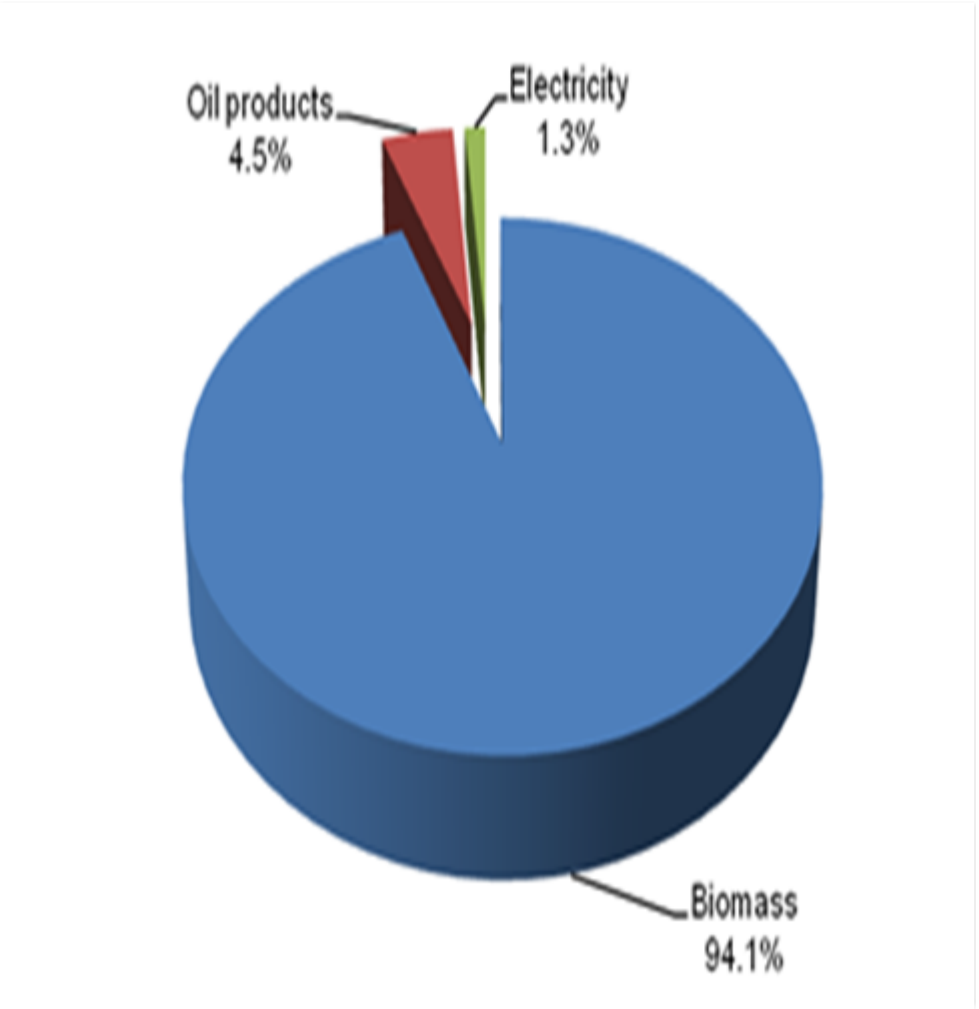
PROMOTION AND DEVELOPMENT OF NUCLEAR ENERGY

- With increasing demand for power, it is envisage that nuclear energy will play a major role in the power generation in the long-term.
- There are advantages with use of nuclear for power generation which include:
  - Limited Environmental Impacts such as greenhouse gases emissions, acid rains, and deforestation,
  - High Energy Density, hence requiring much less land per MW installed capacity,
  - Although having very dangerous wastes, the volumes of wastes are quite small make it easy to manage on site,
  - Low energy cost,
  - High reliability with high capacity factor.

5. KEY STATISTICS FROM THE ENERGY BALANCE

Uganda's Energy Supply Pattern

- Over 94% of the energy used is biomass
- 1.3% is electricity
- Oil products account for only 4.5%



Energy Consumption Pattern

- Total Energy consumption in 2010 was 10,588,068 ToE
- Peak demand of electricity is about 600 MW
- Demand is growing at 8% per annum
- Only 12% of population has access to electricity.
- Per Capita consumption of electricity is about 70 kWh.

Demand:	Energy	Electricity
Residential	69.40%	25.70%
Commercial	15.00%	14.80%
Industrial	12.40%	59.50%
Transport	3.10%	0.00%

6. BOTTLENECKS IN POLICY FORMULATION

- Lack of adequate statistics
- Current status is such that level of access to energy is low. Need to balance between meeting development goals while ensuring low carbon emission.
- While renewable energy sources contribute to reduction in emissions the issue of affordability remains a big challenge.
- Environmental concerns over the energy sources.
- Growing concerns by a number of Environmental lobbies

7. PROPOSED SUBJECTS TO STUDY

- Integrating climate change in energy policies. This is because of the growing concerns of increase in emissions arising out of energy production.

- Renewable energy policies: This is because fossil fuels will run out in future as well as the fluctuating prices, there is therefore need to diversify.

- Energy conservation. Its is cheaper to avail energy by energy conservation that to generate the same amount

Thank You for Your Attention !!!

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