MINISTRY OF ENERGY

RENEWABLE ENERGY CENTRE –

REPUBLIC OF SIERRA LEONE

The Ultimate Goal of the Ministry of Energy

- The policy objective and ultimate goal of the Government of Sierra leone is

- To ensure the provision of modern Energy services for:

Increased Productivity

Wealth Creation and

Improved quality of life for all Sierra Leoneans

For Renewable Energy, in order to provide much needed modern Energy, the policy is aimed at

- Exploiting the vast renewable energy potential in
- Hydropower and Solar and also in Using Agricultural wastes

Role of the Ministry of Energy

- The Ministry of Energy plays a coordinating role in the implementation of the Energy policy.
- Therefore, the Ministry has been strengthened to provide the required experties needed in the energy sector
- A professional Division (Energy Division) has been created for the effective and comprehensive implementation of the Energy policy
- Staff have been recruited to provide professional services to the Ministry
- Currently engaged on the day to day monitoring and supervision of all projects in the Ministry
- Capacity development of staff of the Energy Directorate

RENEWABLE ENERGY CENTRE

- The centre was established in 2004, and have implement projects supported by the ministry of Energy and Education and technology. With support from DFID through the British Council in Sierra Leone, in the writing of a national certificate for the study of Alternative Energy Studies in tertiary institutions.

- We have completed this project and the country now has a national syllabus and partnered with all the tertiary institutions in doing this exercise. The body entrusted for certifying and examining National Council of Technical/Vocational and other Academic Awards (NCTVA) are the custody of this document.

AIMS AND OBJECTIVES

- Mission Statement: With the rising challenges of Energy and poverty the centre is created to assist and introduce the use of renewable energy facilities and with kin interest in producing them locally.
- To train and facilitate in the creation of employment of graduates.
- To complement the effort of policy makers and support them in their drive towards introducing the use of RE equipment's.
- To support and coordinate entrepreneurs in realising their business potentials
- To create the awareness for the use of RE
- To produce a national capacity in the production, installation of RE equipment's

MINISTRY OF ENERGY

- We have worked with the Ministry of Energy since the inception of the centre and have contributed in all energy activities of the country.
- The Ministry of Energy has been our main supervisory body. Quit recently, we have agreed, for the MOE to have a role in the activities of the centre and create a strong link in overseeing our work in a monthly basis, we area stakeholder in the activities of energy in Sierra Leone.
- We have worked with the ECOWAS Centre for renewable Energy and Energy Efficiency and have been the competence centre since 2009. We have worked closely with ECREEEE in all its activities based on RE as a whole.

ACTIVITIES/PARTNERSHIP

- We sent a project proposal to ECREEE for the installation of solar water heaters in Peri Urban Health Centres in Sierra Leone as a pilot project, but had some problems and we are confident that the project will be implemented this year.
- We have also worked with both local and international organizations like UNDP, GEF, Geres, EFA to name a few. One of the awareness issues have been raising was a policy in RE with emphasis to solar thermal technology.
- Within our training strategy, we have contributed in international peace keeping by training our gallant men and women in our Armed Force participating in peace keeping missions; supervise students in the universities studying Energy and supporting rural energy installations. We have been the only RE institute in Sierra Leone.

CONCLUSION

- In the issue of solar thermal, we are the only institution working in this field and has not got the expected scope by both the public and the Government as a whole. We do produce equipment's using local materials and especially producing flat plate collectors.
- Energy has been one of the biggest challenges of prosperity in my country. With the introduction of a regional and national policy in RE and solar thermal is big welcome news for us at the centre.

Out line of Presentation

- Background information / Energy situation about Sierra Leone
- The Energy Policy
- Energy demand-Subsector
- Challenges and Opportunities
- Activities of the Ministry of Energy

Map of Sierra Leone

Background information/Energy situation about Sierra Leone

Tropical Country	Borded by ▪Guinea to the North and East ▪Liberia to the Southeast and ▪The Atlantic Ocean to the West and Southwest
Total Area	71,740 Km (27,699 sq mi)
Population	6.4 Million
Rely – Farming	85 %
Access to Electricity	**Not > 15% for Rural and Western Areas**
	Rural Areas 5 % **Western Area 10 %**
Forested land area	38.5 % of Total land Area is forested

Structure of Energy Consumption

Sector	Fuelwood	Charcoal	Petroleum	Electricity
Agriculture			6 %	
Mining			6 %	38 %
Industry	3 %	10 %	15 %	40 %
Transport			49 %	
Household	97 %	90 %	24 %	22 %
TOTAL	100 %	100 %	100 %	100 %

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- The Centre Aims

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Implementation of Mini-Hydro and thermal plants

- Construction of 2.0 MW Hydro Power Plant Charlotte about 50% completed
- Construction of 2MW Hydro Power Plant Bankasoka about 60% completed
- Construction of 250KW Hydro Power Plant Yele – Currently operational
- Construction of 500KW Hydro Power Plant at Makali in progress
- Construction of 32KW Biomass Power Plant at Kychom completed.
- Government has embarked on the construction of 6 MW thermal plants in Lungi Town (North) and Koidu City (East). Work is making progress
- Makeni city is now considerably enjoying electricity supply, while work on the installation of thermal plants and substations in Lunsar Town is making progress.
- Development of a hybrid system to supply electicity to a rural community in the Western Area, supported by ECREE

Solar Street Lights Implementation

- 8880 Solar Street Lights have been installed across all 4 Regions (Eastern, Northern, Southern Provinces and Western Area)

- Installations on all Single Carriage ways across all 14 districts

Biomass Energy

- We are also working together with UNDP, ECREEE for the implementation of the “Energy Efficient Production and utilization of Charcoal through Innovative Technologies and Private sector Involvement” Project.

The project aims to:

- Create an enabling environment for the production and use of sustainable, energy efficient kilns and improved cook stoves
- Support a first large scale deployment of these technologies and
- Ensure that the subsequent national transformational and diffusion of these technologies will be ensured by setting up sustainable financial mechanisms and tools for investment

Biomass Energy

- This project will strive to improve energy efficient production and utilization of charcoal

- through

  innovative technologies and private sector involvement

  Institutional strengthening and increased investment with a view to

  ensuring the effective policy and regulatory frameworks on the use of more efficiently produced charcoal and improved cook stoves in

  Sierra Leone.

An inception workshop in order to start the preparatory phases for the endorsement of the project document has already been held.

Reinforcement and Expansion of the MV and LV voltage network in the Western Area

- Reinforcement and Expansion of the Medium and Low voltage network in the Western Area (Peninsular)
- To improve the Management Information System of NPA
- To provide relief against acute shortage of power distribution in Freetown
- Work is progressing on the two customer service centres at Wellington and Goderich.
- 23 Packaged distribution transformers and 48 stand alone transformers are to be installed across Freetown

Focus on the Energy Sector

Focus on the Energy sector includes

- Improves thermal generation
- Exploiting Hydro Potentials
- Exploring other Energy potential
- Upgrading and expanding national transmission and distribution network
- Improving energy sector governance
- Integrated Energy approach

Energy demand-subsector

The Energy demand subsectors are:

- House hold
- Agriculture and fisheries
- Commercial and services
- Industrial
- Mining and Transport

The policies in the demand sub-sectors address the need for

- Increasing access
- Improving efficiency
- Promoting the use of more efficient and cleaner energy sources and equipment
- As well as of widely available renewable energy resources

Energy demand-subsector

- **For the House hold sub-sector** – Emphasis is on the promotion of LPG as a cooking fuel and wider dissemination of fuel-saving stoves
- **For Agriculture and Fisheries** – There is the need to address the provision of energy sources to stimulate mechanization
- **Commercial** - Focus is on more efficient energy devices for communal cooking and heating and for lighting
- **For industrial and mining** – Access to electricity is the major consideration
- **For Transport subsector** – Fuel economy, alternative fuels and environmental concerns are given considerable attention

Challenges and opportunities in the Energy Sector

Challenges include

- Ensuring adequate, reliable, affordable and cost effective power supply within the Country
- Improving energy efficiency and conservation in all sub-sectors
- Improving accessibility to electricity supply, particularly in the rural areas
- Effective institutional frame work to ensure smooth supply of energy including
- Coordination monitoring and evaluation, supervision and control
- Attracting private investors to the energy sector
- Ensuring continuity of supply in case of emergencies
- Selection of appropriate technology options for the energy sector
- Meeting the energy requirements of women

Opportunities

- Political will at the highest level of Government is present
- There has been a great recognition of the international community of the climate change phenomenon
- Greater attention has now been paid to issues relating to cleaner energy development
- Sierra Leone now has the opportunity to benefit from energy resources within the sub-region, such as provided by the WAPP and the WAGP
- This is a CLSG Project (Cote dVoire, Liberia, Sierra Leone and Guinea), in which a 225 KV Transmission line will transverse seven districts within a distance of 525 KM. Five substations are to be installed along this line.

Activities of the Ministry of Energy

Activities of the Ministry includes

- Electricity generation and distribution
- National Power Authority
- Development of Hydroelectric projects
- Development of Dams and other water supply schemes
- Alternative Energy Sources
- Rural Electrification
- Radiation protection

  Storage of petroleum products

Operations of the National Power Authority

- The NPA supplies electricity through thermal generation
- NPA has 2 thermal generation plants – one in Kingtom (Western area of freetown), and the other at Blackhall road (Eastern area of Freetown)
- The Kingtom power plant has an installed capacity of 10 MW and the Blackhall road Power plant has an installed capacity of 16.5 MW.
- The transmission and distribution lines operates at 11,000 Volts medium and 415 volts low voltage in the Western Area.
- Electricity tariff is about US$0.25 per unit. Which is very high considering the West African sub region

Bo - Kenema Power Services (BKPS)

- The BKPS has a mixed hydro – thermal operation
- The thermal power station in Bo has an installed capacity of 5 MW
- The Hydropower station at GOMA (Kenema District) has an installed capacity of 6 MW
- It operates a 33kV sub-transmission line with 11 kV and low voltage local distribution
- Most of the consumers are household consumers

Bunbuna Hydro Electric Project

- The Bunbuna Hydro Power plant has an installed capacity of 50 MW with 161 kv Transmission line (250 km).
- At the moment, one of the Turbines have encountered a mechanical problem
- Bunbuna would be shut down for about 6 months in order to thoroughly carry out maintenance and repairs on the Turbines.
- This project provide the link for priority provincial areas. It has been seen as the backbone of the national grid.

THANKS FOR LISTENING