

Progress Report

2014 -2017



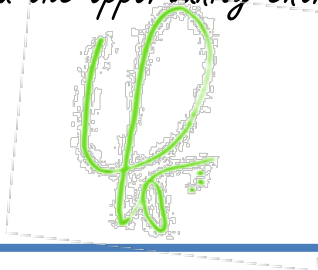
Year

His Excellency appointed me as the Minister of Energy in July 2014. The intervening years have been full of activity at all levels, needed to fulfil the aims of the Agenda for Prosperity and specifically, His Excellency's charge that Sierra Leone produce 1000 watts of power by 2020.

The work and mission are far from complete, but we have made great strides. For this I am indebted to the support and tireless work of members of the Ministry and well as the collaboration from the Boards, Management and Staff of the Energy sector entities: EDSA, EQTC and EWRC.

We have received un-paralled support from our sister MDAs, especially MoFED, SPU, PPP and the Attorney General's office, and though we continue to be challenged, I have unshakable confidence that the hard work and seeds we have planted will provide bountifully for future generations of Sierra Leoneans.

To this end, my sincerest gratitude to His Excellency for his unwavering support to the sector. I thank God for direction, Grace and the opportunity entrusted in me to serve in this capacity at this time.



*Henry O. Macauley
July 21, 2017*



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A. Aims of Ministry of Energy

A.1 MANDATE

- The primary mandate of the Ministry of Energy is to formulate and implement policies, projects and programmes on energy and exercise oversight responsibility for all the energy sectors in the provision of affordable and sustainable energy for the people of Sierra Leone.

A.2 STRATEGIC OBJECTIVES

- Provide reliable and affordable power supplies to stimulate the economic development of Sierra Leone, through the consolidation, improvement and expansion of existing power supply infrastructure.
- Increase access to modern energy supplies for poverty reduction in off grid areas
- Improve the efficiency of energy use
- Increase and diversify sources of energy supply in order to ensure security of supply
- Protect the environment, through the use of low carbon and renewable energy resources and the application of clean technologies.
- Enhance private sector involvement in energy infrastructure development and service delivery

A.3 VISION

- To create an enabling environment for the provision of modern energy services for increased productivity, wealth creation and improved quality of life for all Sierra Leoneans.

A.4 MISSION

- Develop policies and programmes for the provision of energy (electrical and otherwise) on a constant and sustainable basis to the entire population of Sierra Leone.

A.5 FUNCTIONS

- Formulate policies on energy.
- Exercise oversight responsibility over sector agencies such as Electricity Distribution and Supply Authority (EDSA), Electricity Generation and Transmission Company (EGTC), Electricity and water Regulatory Commission (EWRC), Nuclear Safety and Radiation Protection Agency (NSRPA)
- Dealing with all other energy related matters.

B. Summary Activities / Results

The Ministry has made considerable strides in the provision of energy supply in the country as set out in the Agenda for Prosperity. Various initiatives have been undertaken to ensure improvement in the generation and distribution of electricity from thermal and renewable energy sources.

Immediately after the swearing ceremony of the Minister of Energy at State House in July 2014, he established the Energy task force on the same day.

The Energy Task Force developed the National Energy Strategic Plan, (Energy Road Map) 2014 to 2017, which aimed to increase generation capacity from the current 100 MW of installed capacity to 1000 MW by the years 2017/2018.

Achievements:

- In 2014, the sector produced 259 Million Kwh of electricity. This was quite an increase from 47 Million Kwh in 2007. In 2017, we are on track to produce 330 Kwh.
- We took electricity to Kono and Magburaka, both after 30 years of darkness,
- Secured over \$50million to upgrade Bo and Kenema networks and improve electricity,
- Secured \$78million for the construction of a new transmission line
- Added 20MW more power evacuation to the East of Freetown by installing an Earthing Transformer,
- Upgraded the network in Freetown (evidence all over the place, thousands of new Poles, hundreds of new transformers, etc) to improve the quality and quantity of electricity
- Rapidly improved Customer communication and interaction through various media instruments such as the social media, bringing customer concerns and the Electricity sector response to the fore.
- 50 Community Health Centre's to get 24-hour power under MoE solar energy project The initiative supports the President's Recovery Priorities' plan to bring 24-hour light to 50 Community Health Centres (CHCs) by equipping them with solar photovoltaic (sPV) systems in the range of 6kWp per system.

The Ministry in concert with the MCCU are currently developing a 10 year Road map for the electricity sector and continues to pursue programmes to restore electricity to all parts of the country.

In evaluating the progress of the last three years, it is instructive to categorize and review improvements under three main areas:

1. **Generation**
2. **Transmission and Distribution**
3. **Policy and Administration**

Generation

B.1 Generation

In 2014 the total generation capacity was 100 MW and was made up of the following:

Plant	Capacity (MW)	Plant	Capacity (MW)
Bumbuna	50	Makeni DFO	3.3
BKPS	10.8	Lungi	6
Kingtom HFO	10	Kono	2
Blackhall Rd HFO	16.5	Lunsar	1
		Total	100MW

Several projects have supplemented this distribution and we can currently boast of a total of 300 MW of capacity

1.0 District Headquarter Towns

A total of 9 District Headquarter Towns have been provided power through thermal and mini-hydro technologies; 4.8 MW of thermal plant for Bo, and Kenema Cities (Bo and Kenema Power Services –BKPS/EDSA) have been completed; 1 MW thermal plant in Lunsar, 6 MW thermal plant in Lungi, 2.3 MW thermal plant and a shield wire of 2 MW in Makeni and 2 MW in Bumbuna Township. The above are now enjoying considerable electricity supply.



Figure 1 Lunsar Plant



(BKPS transformers in Kenema- 2015)

His Excellency the President also commissioned 2 @ 0.5MW of thermal power plant for the Magburaka Township and its environs. Construction of 6 MW in Koidu has been completed and a 2 MW thermal plant was installed and commissioned. This was to enable the Koidu community to have electricity while construction of the 6MW was in progress.

1.1 Electrification of the Bumbuna Township

Immediately the Minister took up office, he saw the need to provide electricity to the Town. He commissioned the construction and installation of the T and D network for the provision of electricity. Meters were also provided under this project and the tariff was adjusted in a way such that the people could pay for electricity supply.

In order to stabilize the low and medium voltage distribution network, the Ministry succeeded in constructing and installing a 4 MVA and 8 MVA shield wire arrangement for the Bumbuna Township.

(Bumbuna Electrification)



1.2 Electrification of the Yele Community

In its bid to provide modern energy supplies especially to rural communities, the Ministry constructed a 2*125 Kw of hydro power plant at Yele in the Tonkolili District. Distribution network to evacuate power from the mini hydro dam was also constructed. Power is being evacuated to private households and the health and education facilities within that community. To date the Yele community is having an uninterrupted supply of electricity.



(Yele Hydro)



Yele community)

The Ministry was able to secure funds for the installation of 20 MW of emergency thermal power plants for electricity supply for Freetown. These plants are currently been installed at the Blackhall Road and Wellington Power Stations.

1.3 Mini Hydro Dams

The Ministry in collaboration with the People's Republic of China, embarked on the construction of a 2.2 MW of Hydro Power Plant in Charlotte, 2 MW of Hydro Power Plant in Bankasoka in the Port Loko District and a 3 KW of hydro power plant at Makali in the Tonkolili District. The construction of these mini dams have been completed and handed over to the Ministry of Energy by His Excellency the Ambassador of the Embassy of the People's Republic of China in Sierra Leone.

The Transmission and Distribution Networks of these projects are at advanced stage. We hope to commence evacuation of power and have a holistic commissioning of these projects by His Excellency the President, by end of 2017.



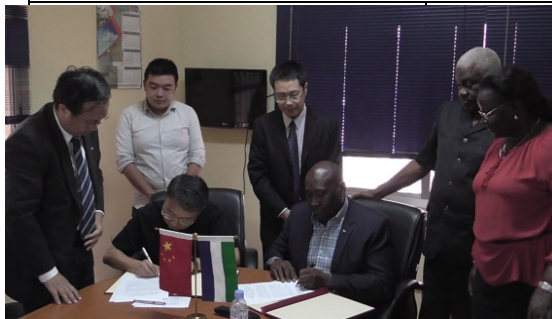
(Makali Mini dam under rehabilitation – 2016)



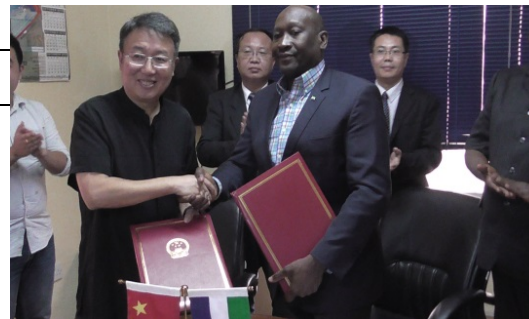
(charlotte dam visit)



(Bankasoka dam in 2014)



(Handing over in Freetown)



(Handing over in Freetown)



(charlotte dam visit)

1.4 No.2 River 6 KW Hybrid Solar System

The Ministry was also able to commission a Hybrid system of 6KW of Solar PV and a 3 * 1.5 KW of Pico hydro power plant to provide electricity to the River No 2 community in the Western Rural Area. Today the River No 2 Community is having uninterrupted supply of electricity.

(No 2 River mini hybrid solar) (
No. 2 River solar – Minister)



1.5 Contribution of the Ministry towards the fight against the Ebola Virus disease



The MoE recognizes that efforts to tackle power poverty are very critical in the fight against the Ebola Virus. Therefore, in its bid to helping the fight against the epidemic, the Ministry significantly contributed towards the fight against the epidemic by the commissioning of a 400 KVA distribution transformer at Lakka Hospital and the installation of solar street lights at various Ebola Centres across the country.



(Lakka Ebola Center – 2015)

1.6 Barefoot Women Solar Initiative

In addition, the Barefoot Solar Engineers Training Centre with support from MoE, has trained



50 solar women technicians in order to improve access to power and energy in rural communities, while 18 Rural Electronics Workshops have been constructed and equipped with solar PV materials across the country.



The Solar Women Technicians have successfully installed solar PV systems to more than 3,500 households across the country.



In order to have a smooth implementation of the Barefoot activities, a management committee comprising of relevant Ministries was constituted by the Ministry for proper coordination, supervision, planning and monitoring of activities of the Institution. In addition 6,800 solar streets light have been installed in Pujehun, Bo, Kenema, Makeni, Kambia, Bonthe, Kailahun, Koinadugu, Magburaka, Lunsar and Koidu.



1.7 Solar Street light roll-out

Maintenance of the Solar Street Light country-wide, was undertaken by the contractor, Angelique International, followed by training of technicians on the maintenance of these lights at district level. Certificates were issued to the trainees on the above. In 2016, the Minister of Energy devolved the solar street lights to the councils across the country for ownership of the



1.8 Cote d'Ivoire, Liberia, Sierra Leone and Guinea Project (CLSG Project

The Cote d'Ivoire, Liberia Sierra Leone and Guinea (CLSG) electricity networks interconnection project involves the construction of a 1,357-long double high voltage (225kv) line to connect the national networks of the four countries. It will transverse seven districts (Pujehun, Kenema, Kono, Tonkolili, Bombali, Koinadugu and Kambia Districts) These districts are going to benefit from this project. The CLSG project also encompasses rural electrification component from which 28 communities including schools and health centres will be provided with electricity supply. The construction of this line is part of the backbone of the Mano River Union countries and the priority projects of the West African Power Pool (WAPP) master plan.

The Project is funded by the African Development Bank AfDB in which a 225 KV Transmission line, within a distance of 525 KM and 5 substations will be installed along this line.

The project cost is as follows:

FSN Loan-USD 10.0Million

ADF Grants-UA7.12 Million

Procurement of a consultant to carry out detailed engineering design has been completed and works on the detailed engineering design for the electrification of 28 communities within the 225KV Transmission Line has commenced, while inception report on above has been validated and endorsed by stakeholders in July 2017.

The ground breaking ceremony (CLSG Project) for the four countries was done in Liberia in June 2017. Heads of States of the 4 Countries were in attendance

1.9 The Islamic Development Bank Project (IDB Project)

The Islamic Development Bank (IDB)-funded project in the Ministry of Energy aims to strengthen and extend the medium and low voltage distribution networks in the Western Area. This project will provide relief against acute shortage of power distribution in the Western Area.

The Ministry was also able to provide pre-paid meters to the Bo and Kenema Cities. Four vending stations, two vehicles and ICT materials to enhance the management information systems of EDSA were also provided under this project

The T and D network (both underground and overhead) for the above project in the western area has been completed.



1.10 The JICA Project

The JICA (Japan International Cooperation Agency) Project in the Ministry of Energy is a grant-aid from the Government of Japan for the urgent improvement of electricity in the Western Area. Funds have been provided for the construction of 11/33 KV Transmission Net Work from Wilberforce to Sussex through Goderich and the construction of a 15 MVA primary substation at Goderich. Construction work is at advanced stage



The project entails the following:

- Construction of 33kvO/H line of 5.8km from Wilberforce to Goderich
- Construction of 15MVA Primary Substation



- Construction of 11kvO/H line of 18.5km from Goderich to Sussex and installation of 23 distribution transformers

During the launching of this project at the Kingtom Power station in Kingtom, the Minister received on behalf of EDSA, bucket trucks and fault finding equipment both for underground and overhead networks. The second phase of the above project will be from Sussex to Jui.



1.11 The Energy Access Project (DFID / World Bank funded)

2.1 DFID through the World Bank has provided funding support in order to overcome the monumental challenges of improving access and quality of power supply for enhancing economic transformation in the country. The project aims at



- Upgrading the Freetown distribution network (11KV/33KV) covering a distance of 7.6 KM from Blackhall Road to Wellington and the construction and installation of substations at Wilberforce, Kingtom, Roportee and Wellington.
- Reducing losses in electricity supply in Freetown by investments in the rehabilitation of critical components of EDSA's network, which is the most urgent step to enable expanded and more reliable electricity supply



- Improving the commercial performance of the EDSA through the supply and installation of a business information system and metering equipment at EDSA which will help raise collection rates and overall commercial performance of the utility and

Current Status of the Project:

- Installation of 20,000 Prepaid Meters have been completed
- Revenue Management System installed
- Network investment plan completed
- Installation of Statistical Meters completed
- Development of a Business Plan for EDSA completed
- All foundations for 33kv and 161kv support structure are completed, while stringing of the 7.6KM line from Blackhall road to Wellington is making significant progress.

This project will be completed by July 2017.



1.12 Energy Sector Utility Reform Project (ESURP)

The ESURP is a US\$ 40M Loan project funded by the World Bank. The project aims at:

- Improving the accounting/cash collection process and the management information systems of EDSA, and financial viability of the electricity sector, thus laying a solid foundation for expanding electricity services to the people of Sierra Leone.
- Improving the operational performance of EDSA and strengthening of the energy sector planning capacity.

1.14 Rehabilitation and Extension of the B0-Kenema Distribution Network



The rehabilitation and extension of the 33KV Bo-Kenema distribution network, is a US\$ 53, 089,900 M project funded as follows:

- DFID – A grant of US\$ 38,820,000 M
- AfDB – A Loan of US\$ 6,433,245 M
- ADF – A grant of US\$ 6,536,665.92 M and
- GoSL – Counterpart funding of US\$ 1,290,000 M and compensation payment towards project affected persons.

ESIA studies and public disclosure in the cities of Bo and Kenema for this project have been completed

(Minister & AfDB rep signing)

The project has already been ratified by Parliament in March 2017 and launched by the Hon Minister of Energy on July 14, 2017

1.15 Western Area Power Generation Project - Copperbelt Energy Corporation (CEC)



A Power Purchase Agreement (PPA), between the Government of Sierra Leone and Copperbelt Energy Corporation (CEC), which is now Globalec has been signed for the installation of a 128 MW of thermal power plant (HFO). This is expected to be delivered in phases.

1.16 Moyamba/Singimi Hydro Power Dam

The Ministry is also working with UNIDO, for the development of a 12 MW of hydropower plant for Moyamba District and its environs. Environmental and Social Impact Assessment (ESIA) licences for this project has already been approved by the Environment Protection Agency (EPA). Detailed engineering studies have been completed.



(Director of Energy Chairing the Moyamba Hydro)



(Moyamba Small Hydro Meeting – 2015)

1.17 Solar ERA

A Power Purchase Agreement (PPA) has also been signed between the Government of Sierra Leone and Solar Era, for the development of a 5MW of Solar Power plant for Bo (The plant is to be installed at Yamandu – 13 miles from Bo City). Land for this project has been acquired and project was launched by the Chief of Staff at Yamandu Village

1.18 Solar Power Park for Newton

The GoSL has also succeeded in securing funds from the Abudabi Fund for Development (ADFD) for the development of a 6 MW of Solar Power Park to be installed at Newton in the Western Area of Freetown. Land has been acquired and project was launched by the Hon Minister of Energy at the project site at Newton Village.



1.19 Rural Electrification Project

Due to very low rate of electricity access in provincial towns, the need to increase power generation cannot be over emphasis.

The REP entails:

- Design, Supply, Installation and Commissioning of thermal power plants in provincial headquarter towns
- Installation of the first phase of 50,000 solar street lights across the country. Construction and Installation of distribution lines for the Provision of adequate and reliable electricity supply to these major towns.

Provincial towns to be electrified

Kamakwei 1MW,
Kambia 2MW,
Port Loko 2MW,

Kabala 1MW,
Moyamba 1MW,
Kailahun 1MW,

Pujehun 1MW
Bonthe 1MW

Already, Procurement and negotiation processes for award of contracts have been completed, while surveys in areas where this project is to be implemented are ongoing.

1.20 The ECOWAS Emergency Power Supply program for Sierra Leone

This is a US\$ 21.8 M grant funded by ECOWAS. The project is aimed at:

- Carrying out routine maintenance and repairs of thermal generating plants and Procurement of fuel and lubricant
- Capacity building towards project management support and
- The Rehabilitation, expansion and construction of the Transmission and Distribution Network in Freetown.

The project was launched by the Minister of Energy in April 2017 and physical works including the construction and installation of distribution poles, lines and transformers in the Western area of Freetown (Aberdeen-Beach Road) are making progress.

The project interventions will address the low voltage power supply and acute shortage of power distribution and improve the quality of electricity supply in the western and eastern parts of Freetown and will extend access to electricity to un-served areas in Freetown.

Under the ECOWAS Grant for the emergency electricity supply programme 21 unserved/dark-spot communities will be provided with electricity by end of 2017. These communities include:

Waterloo, Deep Eye, Devil Hole, New London Hasting, Peace Camp Hasting, Leicester Road, Upper Allen Town, Bottle Field, Pamuronkoh Calaba Town, Blackhall Road, Joshua Drive, Wellington, Upper Savage Squire, Upper New England Ville, Rokupa Hospital, Riverside Drive, Electricity House, Joaque Bridge, Cockerill, Collegiate, Lumley and Lower Roportee.

In order to promote the revenue collection at EDSA, the Ministry was able to provide pre-paid meters to the Kingtom police barracks and was also able to provide electricity to the Bo Military Barracks. Millions of debts were owed by the police, but now that prepaid meters are installed it is guaranteed that the kingtom police barracks will effect payment to EDSA based on their consumption.

1.21 The UNOPS Rural Renewable Energy Project (RREP)

Since the electrification rate of households in the rural areas is at very low rate, the project has targeted to increase the electrification rate in order to boost the growth of businesses, health, schools and agricultural activities

Project objectives

The project is divided into **Short-term, mid-term and long-term objectives** as follows:



Short-term objective:

To meeting the targets of the President's delivery plan by setting up solar PV systems for 54 Chiefdom Health Centres CHCs by end of June/July 2017

Mid-term objective:

To extend the solar PV systems to 50 (small) mini-grids and connecting the villages close to the CHCs by December 2017, and implementing another 40 (large) mini-grids by 2019/2020

Long-term objective:

Creating an enabling environment for a large-scale roll-out of mini-grids based on public-private partnerships and to capacitate the MoE, EWRC and the PPP Unit

Current Status of the project

- **Demand assessment** survey had started on the targeted 40 communities earmarked for private sector engagement.
- **Transportation** of solar equipment for installation purposes delivered at 31 community health centres across the country (incl. 9 with full equipment for eventual mini-grid)
- Already 45 CHC sites have been tested and technically commissioned
- 1 CHC site is ready for testing and commissioning
- 3 installation works in progress and 3 sites are ready for installation

Discussions to sign an MOU on the sustainability of the above project (CHCs) among the Ministries of Energy, Local Government and Rural development and Health are at advanced stage.



(VP & British High Commissioner)



(Kukuna panels)



(Dep Hassan in Koinadugu 11)



*Director of Energy Commissions
at Kukuna)*



(Kukuna CHC)



(Mambolo CHC)

The Hon. Vice President took the lead in the commissioning of the electrification of 4 Chiefdom Health Centres of 6kW each at Mambolo, Kukuna, Koinadugu2 and Levuma. Most of the areas that have been considered in this project are underdeveloped areas in the country



(Kenema- VP)

1.22 Promoting renewable energy for Sustainable Development project in sierra Leone – PRESSD-SL



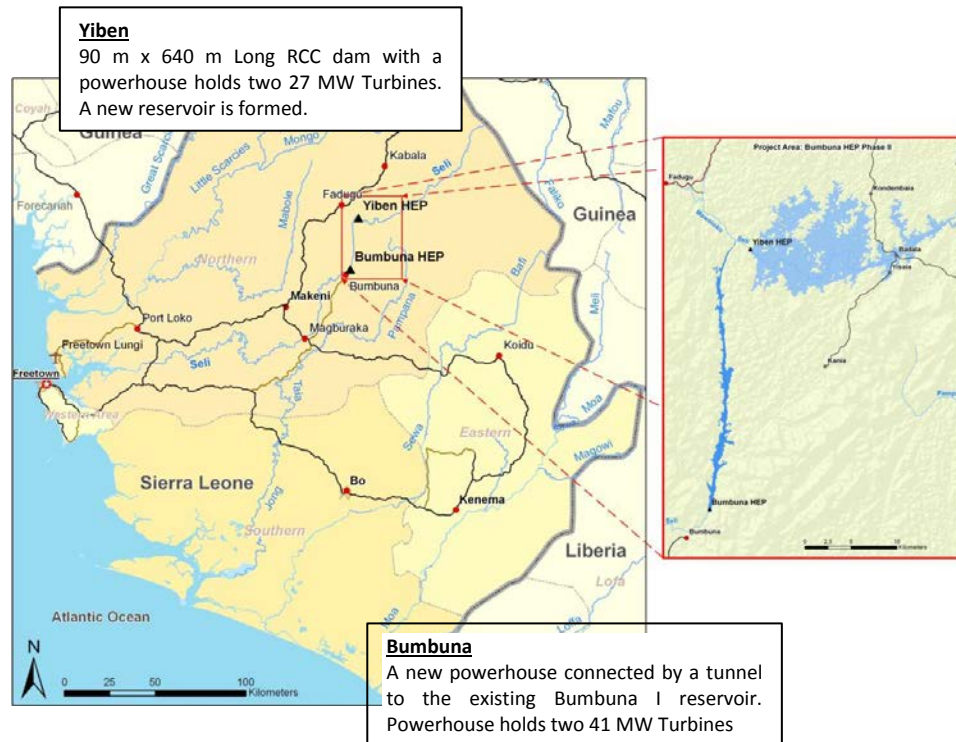
PRESSD –SL (an EU funded project) is working in collaboration with the Ministry of Energy and WHH to install Solar Power Plants and Solar Home Systems in six (6) districts. They are Kono, Kenema, Kailahun, Bombali, Portloko and Kambia Districts. A minimum of 16,000 households would either be directly connected to renewable energy grid or possess solar home systems.

Project Status



- 128 KW of solar power plant for the Segbwema community and another 20 KW for the Segbema Nixon Hospital has been commissioned by the Hon. Vice President and
- 86kw of Solar Power Plants in Panguma in the Kenema District have been completed and commissioned by the Deputy Minister of Energy2
- A number of Energy Hubs have been created for charging of Mobile Phones.
- Installation of Solar Home Systems and Solar Power Plants in schools and hospitals in the other districts are on-going

1.23 Bumbuna II Hydroelectric Project



The Bumbuna Expansion Project i.e. Bumbuna II consists of the construction and operation of approx. 250 MW hydropower scheme on the Seli/Yiben Rivers in Sierra Leone (“SL”). This scheme will be comprised of:

- (i) Bumbuna Extension HEP: the expansion of the Existing Bumbuna HEP plant, through the construction of a new power intake, headrace tunnel and powerhouse, with the installation of 82 MW of generating capacity.
- (ii) Yiben Dam: the construction of a new dam 30 Km upstream of Bumbuna, at Yiben, to regulate inflow into the Bumbuna reservoir in order to increase the power output from the Existing Bumbuna HEP. It includes a new powerhouse with 54 MW capacity. (
- (iii) Existing 50MW plant owned by GoSL referred to as Bumbuna I; this existing plant will be integrated to the project special purpose vehicle, i.e. a dedicated company established for the Project, through an O&M contractual arrangement;

Transmission and Distribution

B.2 Transmission and Distribution

Government of Sierra Leone (GoSL) and a number of other partners are currently engaged in Transmission & Distribution (T&D) intervention nationwide:

- Emergency Grid Works for 128 MW Generation Project of \$10M in the Western Area.
- Rehabilitation of T&D Network \$3.8M (JICA) Western Area through the Government of Japan.
- Rehabilitation of T&D \$5M (DFID) Black Hall Road – Wellington under the World Bank Energy Access Project.
- WAPP 525 KM Energy Network Interconnecting Cote D’Ivoire, Liberia, Sierra Leone and Guinea – 7 Districts across SE to North of Sierra Leone (Pujehun, Kenema, Kono, Tonkolili, Bombali, Koinadugu & Kambia).
- The electrification of Bumbuna Township.
- Reinforcement and expansion of the Medium and low voltage network in the Western Area under the Islamic Development Bank (IDB).

2.0 West African Power Pool

WAPP 525 KM Energy Network Interconnecting Cote D'Ivoire, Liberia, Sierra Leone and Guinea – 7 Districts across SE to North of Sierra Leone (Pujehun, Kenema, Kono, Tonkolili, Bombali, Koinadugu & Kambia).



- ESIA lease expired and to be renewed by EPA
- Draft PPA under review
- Recruitment of Service Engineer completed. Work Plan submitted for review
- Ground Breaking Ceremony of the CLSG project was held in Liberia on 4th June
- Construction commences Q3, 2017

2.1 Development of Transmission and Distribution of W. Area

Contractor: JICA

- Consignment of materials (16 containers) delivered and in storage at Kingtom
- Construction work at Goderich primary substation is 89.4% completed
- Installation and construction work for equipment 78.4% completed
- Construction work for 11/33kV distribution line 88.6% completed
- Erection of poles for 11kV distribution lines 100% completed
- Erection of poles for 33kV distribution lines 100% completed
- Erection for pole fitting for 11kV distribution lines 98% completed
- Erection for pole fitting for 33kV distribution lines 97% completed
- Installation for conductor stringing for 11kV distribution lines 92% completed
- Erection for conductor stringing for 33kV distribution lines 90% complete

2.2 IDB - Reinforcement and Expansion of the Medium and Low voltage network in the Western Area.

- Procurement delivery of T&D materials completed
- Ten thousand (10,000) pre-paid meters procured and delivered to EDSA. Installation completed
- IDB PIU established
- Project 100% Completed
- Project Handover report completed and submitted for review

2.3 Supply, Installation and, Commissioning of T&D Materials for the Provincial Towns in Sierra Leone

- CEMMAT'S review and upgrade of technical specification completed and report submitted for Bo, Makeni, Kabala, Pujehun, Bonthe, Kambia, Pepel, Port Loko, Lunsar, Lungi, Freetown
- Procurement process completed and contract signed
- Site Surveys completed. Work to commence in 3 Weeks in Kono.
- First tranche payment approved by MoFED but not yet disbursed

2.4 India Exim Bank Funded 225KV Line

The Ministry was able to unlock finance under the Indian Exim Bank, thus the GoSL has succeeded in soliciting funds from the Indian Exim Bank for the construction of 240Km – 225 KV Transmission Line (Bumbuna to Freetown) and related substation components.

Procurement of a consultancy firm for the preparation of a detailed project/feasibility report for this project is at advanced stage

Initiatives

B.3 Initiatives

3.0 Renewable Energy Association of Sierra Leone

The Ministry has also succeeded in establishing the Renewable Energy Association of Sierra Leone. To date a total of 28 companies in the business of solar energy have registered with the association. These companies are taking solar PV materials across the country, hence increasing access to energy supplies using solar energy especially for our rural communities

3.1 ATAYA Base off-grid revolution

Under the Energy revolution, the Ministry was able to provide training to members of the ATAYA BASE stations across the country. It is the desire of the Ministry to provide solar energy to the rest of the Ataya Base stations (more than 600,000 stations and members) nation wide



3.2 Energy Data Base/Website

The Ministry has also developed the energy data base which will be updated on a daily basis to understand the energy requirements/status of the country. The energy website, to access information about the Ministry and the energy sector as a whole was also launched by the Minister of Energy

3.3 Energy efficient production and utilization of charcoal through innovative technologies and private sector involvement – UNDP project

The Ministry is also working together with UNDP 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

3.4 Establishment of Energy Donors Partners Round Table

For effective coordination and monitoring of activities, programmes and projects of non-Governmental Organizations (NGOs) and stakeholders of the energy sector with the objective of creating synergy and avoiding duplication of efforts, the energy stakeholders forum was established which meets on a monthly basis. Also a report template status of activities, programmes and projects of energy stakeholders was developed



3.5 Energy Conservation

In order to efficiently and effectively utilise electricity the Minister of Energy launched a nation-wide campaign on the efficient and effective utilization of energy. Brochures and stickers on the above were reproduced in large numbers and distributed to the entire public. Radio and Television discussions creating awareness on the above were done. This created awareness on the wise use of appliances and lights as and when needed.

3.6 Training program – Bumbuna Hydro



The Ministry was able to provide technical training on the operations of hydro's and other related aspects to 10 local engineers from the Bumbuna hydro dam in Ethiopia. In a similar vein 30 personnel including engineers from EGTC, EDSA and staff from the MoE participated in a training on the development and operations of hydro power plants in China. This was to enhance the capacity of the said institutions more especially as the Ministry is currently focusing on the development of RETs.

3.7 Development of the Renewable Energy and Energy Efficiency Policies

The Ministry has completed the process of formulating both renewable energy and energy efficiency policies. The formulation of these policies will provide a platform to create awareness on the country's vast renewable energy potentials. The Ministry is currently in the process of popularizing these policies nation-wide.



(PS & Director on Policies Documents - 2015)



(Evaluation of policies)

Plans are under way to carry out feasibility studies in various renewable energy potential investment locations across the country.

3.8 Energy Revolution



In an effort to increase access to energy in our rural communities, His Excellency the President launched the Energy Revolution which ended up with the signing of the compact agreement between the Government of the Republic of Sierra Leone and the Government of UK on May 10, 2016. Sierra Leone can be proud that it was the first country in Africa to sign an Energy Africa Compact with the Government of UK in establishing their common goals: to provide not less than 250,000 units of solar systems by end of 2017



(Renewable Energy revolution – Compact)



(President inspecting solar equipment at Bintumani)

The energy revolution/energy compact seeks to support the GoSL's efforts to improve energy access for rural communities and to accelerate the country's house hold solar market by granting duty waiver to all importers of solar products thereby making it affordable to the people living the rural communities.

His Excellency, the President has succeeded in securing funds from the Department for International Department (DFID) for the provision of electricity using solar thermal energy for 50 selected Chiefdom Health Centres and to also extend mini-grids closer to these centres in 12 districts excluding Freetown Urban and Freetown Rural Districts. The implementing/executing agency is UNOPS, while the Ministry of Energy (MoE) provides oversight/supervisory role for the effective implementation of this project.

3.9 Electricity Crimes

The Minister of Energy also launched the electricity crime initiative. A task-force including the Minister of Energy, Minister of Internal Affairs, Attorney General and Minister of Justice and the Commission general of the Anti-Corruption Commission was also constituted. The said committee was charged with the responsibility of addressing and fast-tracking issues related to electricity crimes and to pursue electricity criminals.

3.10 The NRECA Report



In order to develop a country-wide indicative grid design for future transmission system in the country for 2015 to 2029, the Ministry requested the services of an international consultant that carried out an exercise that includes the proposed high voltage transmission and distribution network to serve the anticipated electricity demand, including quantities and associated transmission level investment requirements.

The study/report also includes estimates for the distribution network by geographical areas of interest.

The study was also able to come up with a country-wide demand forecast.

(WAPP delegates at MoE – 2014)

3.11 Energy Flash



The Minister launched the Energy Flash Initiative in June 2017 as a continuous series of short video clips for the electronic and social media to constantly keep telling Public informed of activities within the Energy Sector.

3.12 Unbundling of National Power Authority (NPA)



We now have in place the energy policy and Public Utility Regulation Commission and National Electricity Act, 2011. The National Electricity Act 2011 called for the unbundling of the National Power Authority into the Electricity, Distribution and Supply Authority (EDSA), and Electricity, Generation and Transmission Company (EGTC). EDSA is now responsible for the distribution and supply of electricity, while EGTC is responsible for the generation and transmission of electricity. These two companies are in full operation as separate entities since 1st January, 2015, with the view to improving efficiency in the provision of electricity supply in the country.



3.13 International Conferences

As a result of his participation and active involvement in the energy sector, several international energy agencies invited the Minister of Energy to deliver key note addresses in high level world energy for among which includes:

- **Second Annual United Nations Sustainable Energy for All Forum.**

The theme for the above was “The Global Energy Ministerial Dialogue on Financing Sustainable for All”.

The Minister delivered the key note address on the above at the UN General Assembly Hall in New York on 17th May 2015. He signed the Joint Declaration with the European Union during this event.

- **The 18th Africa Energy Forum (AEF) and growing Economies Energy Forum**

The key note address was delivered by the Minister of Energy at the International O2 Conference hall in London on 22nd June 2016.

- **The African Development Bank Stakeholders Consultation meeting “The new Deal on Energy For Africa”:** delivering the key note address on off-grid revolution to connect 75 million households by 2025, in Abidjan, Cote d’Ivoire on the 28th March 2017



- **The Zayed Future Energy Price Award Ceremony and the World Future Energy Summit Opening Ceremony that took place in Dubai on the 16th of January 2016.**
- **The African Energy Forum in Copenhagen, Denmark on 7th June 2017**

In the opening ceremonies of each of the above, the Minister was able to deliver key note address to combined forums that brought together Energy Ministers from growing economies around the world, world energy speakers, public sector stakeholders, technology providers, developers, Civil Society Organizations, delegates from all over the world etc to discuss new opportunities for investment into the energy sectors of emerging markets like Sierra Leone.

As a result, the Minister was able to attract prospective investors that have expressed interest to invest in the energy sector of Sierra Leone, one of which is the **Solectra that is currently engaged in the development of a 30kw of solar power plant for the Binkoloh community** in the Bombali district as a pilot phase.

C. CRITICAL CHALLENGES

While the country had suffered from inadequate power generation capacity for many years, the transmission and distribution of the power generated had also been a major challenge. Hence, improvements to the transmission and distribution systems remain a critical component of efforts to increase the supply of electricity.

Policy & Legislation

- The need for a realistic re-evaluation of both policy and strategic targets, updating existing policies (Energy Policy 2009), and assigning responsibilities to the correct entity where necessary, with an emphasis on implementation.
- The need to develop further policy where gaps exist, particularly rural electrification and private sector investment and where clarity or enhancement are required, such as independent regulation, cost-reflectivity within tariffs and completion of sector structural reforms.
- A requirement for enhancing primary legislation (Electricity Act and EWRC Act) to capture the policy reforms above.
- A requirement to develop secondary legislation (both economic and technical) and industry agreements, particularly those which are essential to encourage and facilitate private investment, drive performance improvements in distribution, facilitate off-grid solutions, and strengthen sector structure reforms.

Regulation

- A lack of capacity and inadequate staffing in the regulator, meaning EWRC is not yet in position to fully exercise all its functions and powers.
- EWRC is not, therefore, presently in position to be fully independent, and will not be until it has built sufficient capacity (and the electricity market has developed).

- An absence of performance based regulation in place, specifically tariff regulations, which are still to be established by EWRC

Planning

- Insufficient staffing, data and processes or work methodology within the Ministry of Energy to undertake integrated resource planning.
- Absence of a supporting framework which offers direction for sector-wide roles and responsibilities in the sector planning process.
- No planning or incentive scheme in place for alternatives (off-grid / mini-grid / solar home system) particularly in rural areas.

Generation

- Insufficient funding, as a result of arrears from EDSA, impacts on operational performance due to an ability to procure fuel supply.

Generation Procurement

- The sector presents certain dis-incentives to investment because of (amongst other reasons) a dependency on government subsidies and external financial support, low wholesale tariffs and regulatory uncertainty.
- An unstructured and complex procurement process which unnecessarily increases procurement timelines and investor costs.
- A least cost extension plan is required to ensure demand can be met over medium term.

Transmission & System Operation

- Lack of a grid code, which is essential for ensuring a level playing field for IPPs in terms of compliance with technical connection requirements, access to the grid, order of dispatch, and clarity in terms of the costs of wheeling power.
- Transmission still bundled with generation presenting poor incentives for performance improvement in terms of improving technical and commercial efficiency.

Distribution & Retail

- High losses in the distribution system, due to metering and billing problems, inefficient system of chasing thefts, illegal connections, meter tampering and malpractice.
- Lack of reliable data within EDSA hampering attempts at improved commercial management.
- Inefficient connection process which acts as a barrier to new customers.

Sector Structure and Finances

- Lack of complete accounting asset unbundling and inability to produce audited financial statements, preventing access to finance for utility investment.
- The absence of a formalized PPA between EGTC & EDSA is damaging to the sector, as it causes deep uncertainties through the entire value chain and impacts directly on electricity supply.
- The outstanding implementation of the collections account is impacting financial sustainability across the value chain.

Off-Grid

- The absence of a clear institutional framework for the organised development of off-grid solutions in the distribution sector in Sierra Leone.
- Current business models and underlying technologies are not optimal to support the universal access objective of the government,
- Planning to date has not been informed by a willingness-to-pay study,

Communications

- Lack of a pre-defined communications strategy which can disseminate the sector's vision and/or objectives.
- Insufficient investment in communications function which extends to human capacity and institutions' abilities to execute this activity.

To date, only about 13 percent of the population is estimated to have access to electricity from the national power grid. Moreover, there is high seasonal variability in hydroelectric power production.

With extended functions, activities and programmes of the Ministry, inadequate allocation of resources to the Ministry is also a critical challenge.

Human resource is also another critical challenge faced by the Ministry. The activities of the Ministry extend everyday with limited manpower and incentives for staff especially that of a technical Ministry serving as the back bone for development.

Abstraction of Electricity is another serious challenge that has created inefficiencies in delivery and service.

D. NEXT STEP /FUTURE DIRECTION

The Ministry will continue to collaborate with development partners, NGOs, investors and Independent Power Producers to increase reliable, affordable, adequate and cost-effective electricity supply country-wide. This can only be achieved with adequate investment in energy. To this end, the Ministry continues to encourage stakeholders,, Independent Power Producers and investors in the energy sector.