



Upscaling Mini-grids for Least Cost and Timely Access to Electricity Services

Scaling up Renewable Energy Program (SREP) Roundtable

LIBERIA

**Sheraton Hotel
Abuja, Nigeria**

December 4, 2017



Country Background

Population	2008 Census - 3,476,608 2016 Estimate - 4,613,823 ***
Urban Population	49%
Rural Population	51%
% of Population with access to the Electricity Grid	9.14 (2017)***
Current Power Generation by National Grid (Installed Capacity)	38MW (HFO) + 88MW (Hydro) Load size = 19MW Systems are not operated concurrently.
Current Electricity Tariff (National Grid)	US\$0.35/kwh
Current Installed Biomass	< 0.16 MW
Current Installed Solar Power	No available data – Several small Solar Home Systems and Mini-grids installed totaling > 0.25MW
Potential for Solar Power Generation	Solar Radiation: 3.84 – 6.13 kWh/m²/day
Current Installed Hydro power	88.06 MW
Proven Hydro Power Potential	> 2.3GW
Hydro Power Drawback: Low head, which requires huge investment in storage and reservoir to have full capacity during the dry season	

***** Source: Liberia Energy Situation - Energypedia.info**



Liberia's Admission into SREP Program

- In March 2012, the SREP Sub-Committee agreed on an indicative allocation of USD 25-50 million for Liberia;
- On January 31, 2013, the SREP Sub-Committee admitted Liberia as the 8th Pilot Country with a grant allocation of 50 Million USD;
- On October 7, 2013, Liberia submitted its SREP-IP to SREP Sub-Committee for review and consideration;
- ON October 31, 2013, SREP Sub-Committee endorsed Liberia's SREP-IP and granted its request for a grant of 50 Million USD ;
- The 50 Million USD grant was split in equal halves between the World Bank and African Development.



World Bank Implementation of SREP Grant Funding

Project Name	Liberia Renewable Energy Access Project (LIRENAP)
Project Number	P149683
SCF Grant Number	TFA1646
IDA Credit Number	5759-LR
Implementation Period	Five Years
Effectiveness Date	May 19, 2016
Closing Date	June 30, 2021
Total Project Cost	27 Million USD (Include 2 Million IDA Credit)
Initial Targeted Beneficiaries	50,000
Total Capacity	2.5 MW Hydropower and 1.8 MW Diesel Backup



LIRENAP Project Components

1. Component 1: Decentralized electrification in North-West Liberia (Lofa County):
 - ✓ 1A - 2.5 MW Hydropower generation and hybrid mini-grid (US\$18.9 Million)
 - ✓ 1B - Thermal diesel generation (US\$ 2.0 Million – IDA financing)
 - ✓ 1C - Technical Assistance for decentralized electrification (US\$1.1 Million)
2. Component 2: Technical assistance to strengthen rural electrification institutions and regulations (US\$2 million-SREP)
3. Component 3; Market development of stand-alone solar systems:
 - ✓ 3A - Import of stand-alone solar systems (US\$2.3 Million)
 - ✓ 3B - Enabling environment for commercialization of stand-alone solar systems (US\$0.7 Million)



LIRENAP Project Implementation Status

- Detailed Feasibility Study of 2.5 MW Hydropower Site Conducted;
- Environment and Social Impact Assessment for 2.5 MW Hydropower Site Conducted
- Owners Engineer Contracted
- Hydrology and Sedimentation Studies Conducted
- LiDAR Aerial survey on-going
- Preparation of Bid Documents for construction of the Mini Grid Completed
- Preparation of Bid Documents for Construction of 2.5 MW HPP ongoing
- Site for construction of 1.8 MW Diesel Power Plant Acquired
- Environmental and Social Management Framework and Resettlement Policy Framework Developed
- ESIA studies for diesel power plant and transmission lines ongoing
- Business Plan for O&M of Plants and Mini-grid developed
- Project Management Team Hired



Questions/Concerns on moving forward

Questions/Concerns:

- **Feasibility Study** conducted of the Hydropower Site is not detailed; requires further Studies and validation and thus, is posing significant delay;
- **Who will operate and manage the plants and mini-grid?**
 - ✓ *Private Sector is new to this market*
 - ✓ *Limited/No local capacity*
- **Project is being introduced to Private Sector to stimulate appetite; The Energy Market is a new phenomenon;**
- **Investment Forum planned for January 2018 to encourage private Sector participation.**



AfDB Implementation of SREP Grant

- Concluded Detailed Feasibility Studies of 3 Hydropower Sites – Gbedin Fall, Ya Creek and River Gee;
- Conducted Detailed Biomass Studies in 3 Counties;
- Gbedin Fall in Northern Liberia selected for Development;
- SREP Sub-Committee approved proposed project entitled Liberia Renewable Energy Project (LIREP) for development of Gbedin Fall;
- Project Awaiting AfDB Board's Approval for Implementation



Project Characteristics and Status

- Project Title: Liberia Renewable Energy Project (LIREP)
- Project: Mini Hydropower Plant
- Electricity generation: 9.34 MW (56.5 GWh/year)
- Estimated Cost - USD 29.23 million
 - ✓ SREP = US\$23.25 Million
 - ✓ AfDB = US\$4.82 Million
 - ✓ GoL = US\$1.16 Million.

Status: Ongoing Recruitment Process to Conduct ESIA and RAP



APPRECIATION

THANKS FOR YOUR KIND ATTENTION