Photo: Solar Power house at Conakry Dee, Port Loko District, Sierra Leone.

Enhancing Sierra Leone Energy Access Project (ESLEAP)

AT A GLANCE

CLIENT
Ministry of Energy
Government of Sierra Leone

IMPLEMENTER
United Nations Office for Project Services

SERVICES
Project Management and Infrastructure

DONOR
The World Bank

CONTRIBUTION
USD 12,700,000

SECTOR
Energy

DURATION
Dec 2021 - Dec 2024

Background

Sierra Leone has one of the lowest rates of electricity access in the world; the country has a national electrification rate of 26 percent, although this figure declines to 6 percent in rural areas where the majority of the population lives. There are a number of barriers to expanding grid-based electricity access and improving service quality, including a weak and limited transmission and distribution system; non-technical deficiencies with the utility, which result in high technical and commercial losses; insufficient generation capacity; seasonal variability in hydropower production; and institutional and regulatory constraints.

Furthermore, a large portion of small towns and rural communities of the country are not likely to be connected to the main grid for at least ten years. Hence, the Government of Sierra Leone is increasing its effort on access to electricity . UNOPS through the Ministry of Energy (MoE) signed an agreement with the World Bank to implement a $12.7m project with the aim to increase rural electricity access through mini-grids and standalone home systems in Sierra Leone. The mini-grid option provides a cost-effective solution for small towns, large communities and settlements.

Objectives

The objective of this project is to increase energy access in Sierra Leone by electrification through mini-grids targeting communities with productive use potential, and stand alone solar systems aimed at electrifying schools and hospitals across the country.

Expected Benefits

A total of **2.8 MW** of solar power system capacity (Moyamba: 0.85 Mw; other 9 mini-grids: 0.5 Mw; 500 schools: 1Mw; 200 health facilities: 0.4 Mw) is expected to be installed and it is expected to benefit about 3,000 households and 350 industrial and commercial businesses, 200 health facilities and 500 schools which are not going to be electrified through grid

Partnerships and Sustainability

The project will contribute to the Government's goals for sustainable development and adaptation to climate change by utilising multiple sustainability initiatives. Drawing from experience elsewhere, private sector-driven mini-grids are considered to provide the highest chances for success. The mini-grid sites are poised to be hubs of new and improved economic activities generating better employment opportunities and incomes, fostering greater social and economic welfare for communities, leading to developmental outcomes in health, education, women's empowerment, and overall poverty reduction.

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extension in the next five years. Libraries of about 50 selected schools will be provided with solar lanterns.

Project Outputs and Activities

The project will facilitate the implementation of renewable energy through power generation and distribution. Key objectives with activities of the project will include:

Objective 1 (Component 2a): installation of mini grids with storage capacity

- Activity 1.1 **Moyamba Power Generation Assets** - A detailed technical and financial analysis has been carried out to determine the sizes of the solar PV (Photovoltaic) capacity and battery storage capacity needed. The proposed size for the Moyamba power generation assets is 0.85Mw solar Mini-grid with 1,800 kwh battery backup.
- Activity 1.2 **Other Community Mini-grids** -This subcomponent will include the installation of generation capacity and distribution networks of 0.5Mw in 9 communities (Dodo Kortuma, Baiwalla in Kailahun District, Mandu, Gbaima Songa in Bo District, Kukuna in Kambia District, Manjoroh, Karina Town in Bombali District, Gbentu in Falaba District, Fogbo in Western Area Rural). **Selection Criteria:** Sites were chosen on the bases of the population size and interest of the future investors to invest in those sites. One of the initial criteria for the villages was to identify sites that were not part of any known electrification plan (e.g. CLSG, ECOWAS funding etc.). Other criteria sets include maintaining a fair distance from the existing and planned grids, availability of the required number of structures for electrification, retaining a reasonable distance from the environmentally protected areas etc.

Objective 2 (Component 2b): Installation of solar PV systems for the health facilities and schools

- Activity 2.1 **Health Facilities** - The aim is to install solar PV systems for approximately 200 health facilities with a capacity of 0.4Mw each. These are health facilities which are not going to be electrified through grid extension in the next five years.
- Activity 2.2 **Schools** - Activities under the sub-component will aim to install solar PV systems for about 500 schools each with a capacity of 1Mw. These schools are schools which are not going to be electrified through grid extension in the next five years. **Selection criteria:** Schools selected for electrification are link to the Giga project being implemented by the Ministry of Basic and Senior Secondary School Education which focuses on connecting schools with internet services. Schools to be electrified are primary, Junior and senior secondary schools.

Objective 3 (Component 2c) Provision of TA for market assessment, capacity building, result monitoring and evaluation (M&E)

- Activity 3.1 **Market Assessment** - The project will conduct a market assessment and affordability analyses of productive uses in rural Sierra Leone
- Activity 3.2 **Results Monitoring** - A market assessment and affordability analyses of productive uses in rural Sierra Leone will be conducted. Lessons learned will be documented and shared with key stakeholders. MoE's existing M&E system will be further strengthened, to track and monitor progress against the targets
- Activity 3.3 **Awareness Raising** - Communities will be engaged to sensitize them on upcoming projects, the need to pay for electricity supplies, tariff structures, complaint mechanisms, safeguarding issues; and raise their awareness and understanding of energy access
- Activity 3.4 **Capacity Building** - Capacity building activities will be implemented to strengthen business management skills among rural and urban business communities, including women-led businesses; and the private sector.