Safe night study with solar light for school learners at Foredugu, Port Loko District. Photo©: Waheed Awonuga

10,000 people connected through the Rural Renewable Energy Project

AT A GLANCE

CLIENT
Ministry of Energy
Government of Sierra Leone

IMPLEMENTER
United Nations Office for Project Services

DONOR
United Kingdom Foreign, Commonwealth and Development Office (FCDO)

FUNDING
£ 37,739,328

SECTOR
Energy

SCOPE
Project Management and Infrastructure

DURATION
5 years and 7 months (October 2016 – May 2022)

Background

To promote Sierra Leone's long-term inclusive growth, there is a need to tackle the net deficit of power production. With a rapidly increasing demand for electricity, the Government of Sierra Leone has embarked on an ambitious strategic investment plan geared towards establishing reliable and sustainable electric power generation points across the country in all districts. The Rural Renewable Energy Project (RREP) was developed to support the Government of Sierra Leone's goals towards low emissions, climate resilience, gender sensitivity and sustainable growth trajectory. Supported by the UK's Foreign, Commonwealth and Development Office (FCDO), the RREP is implemented by the United Nations Office for Project Services (UNOPS) on behalf of the Ministry of Energy (MoE). The RREP, which spans from October 2016 to May 2022, provides clean energy access which also sustainably grows the country's energy capacity.

Achievements

In June 2021, the project reached the milestone of completing **10,000 connections**. An estimated **9,340 households, 832 businesses, 104 schools, 54 CHCs and 129 other public institutions** are electrified across **67 rural communities** of Sierra Leone. The project doubled the number of connections within the last six months (from around 5,000 connections in December 2020). Currently, **201,437 direct beneficiaries** (around 55% of them are females) are enjoying clean energy.

Since inception, the first phase, which involved the installation of solar power in 54 Community Health Centres (CHCs) and network distribution to one school in Conakry Dee, Port Loko District, was completed in July 2017. Phase two, implemented in 2018, expanded 50 of the previously constructed 54 health centre solar power stations and installed distribution networks throughout each village, creating 50 independent mini-grids. These distribution networks would extend the electricity access to houses, schools and businesses in the various villages.

Partnership and Sustainability

The project will contribute to the Government's goals for sustainable development and adaptation to climate change by utilising multiple sustainability initiatives.

Private sector involvement is key to the sustainable delivery of electricity services. Drawing from experience elsewhere, private sector-driven mini-grids are considered to provide the highest chances for success. RREP 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. To leverage this opportunity, RREP and partners have put in place a rural energy market development strategy. In collaboration with the private sector, this will increase access to and drive uptake of, new and improved rural energy-reliant economic opportunities and productive use equipment.

It also seeks to forge shared-vision partnerships with public, private and social sector stakeholders working to drive developmental outcomes in health, education, gender parity and overall poverty reduction. It seeks to support mini-grid operators toward the provision of commercially viable energy services in rural communities.

Tel: +232 30 914 073
Email: nickg@unops.org
www.unops.org

/unops.org
/company/unops
/unops_official
/unops_sl
/unops

Currently, three private sector companies (Winch Energy, Off Grid Power/PowerGen, and Energicity/Power Leone) are engaged to maintain and operate the 95 mini grid systems. The companies signed a Public-Private Partnership (PPP) agreement with the Government of Sierra Leone in December 2018, leveraging more than GBP 10.8M of financing from private sector investment. Each operator is operating in different areas allocated by Lots. In May 2019, the 54 completed installations were handed over to the operators in lots. I.e. Lot 1 and 2 operated by OGP/PowerGen; Lot 3 operated by Winch energy and Lot 4 operated by Energicity/Power Leone. Regulations were developed for mini-grids in partnership with The Electricity and Water Regulatory Commission (EWRC) and a cost-reflective mini-grid tariff calculation tool developed. Also guidelines were developed in partnership with the Environment Protection Agency (EPA) for renewable and mini grid projects, which were adopted by the EWRC Board, significantly impacting the level of effort and cost associated with obtaining an EIA license. The combination of these achievements has been credited for interest in further investment and mini-grid sector growth.

Strategic approach and outputs

The RREP implementation strategy is developed around various work packages (WP):

- **Work package 1 and 1+** was completed in July 2017 and implemented in 2 phases which targeted 54 CHCs in 12 districts: Bo, Bombali, Bonthe, Kailahun, Kambia, Kenema, Koinadugu, Kono, Moyamba, Port Loko, Pujehun and Tonkolili. **Phase 1:** 6.6kWp solar photovoltaic (sPV) generation facilities installed at CHCs in 54 communities. Electricity supplied to the CHCs are free to support all medical appliances for treatment and health service delivery. **Phase 2:** Transformation of 50 of the 54 phase 1 facilities into **small mini-grids** with a capacity of up to 36kWP to connect some public institutions and households in the villages. The small mini-grids are operated by private operators investing in the project to ensure long term sustainability. Communities are paying for using the electricity through the different operator's agent.
- **Work package 2**: Extension of mini-grid installations in 45 additional communities is ongoing which is expected to be completed by 2021. The WP2 communities are spread across 13 districts. These are bigger communities which will need bigger generation assets (power plants) of equal or more than 36kWP per community. The private sector at the international level is involved to operate and maintain these mini-grids while co-investing with FCDO. So far, cumulative low voltage grid distribution has been handed over to the MoE for **32 sites mainly from Lot 1, 2, & 4**. Around 17 sites are switched on and operational.
- **Work package 3:** Technical assistance and institutional support (capacity building) to the government and the private sector, to facilitate an enabling environment for mini-grid development and long term sustainable operations.
- **Work Package 5:** Monitoring and Evaluation (M&E) and Communications. An M&E plan, which encompasses impact evaluations, value for money, logframe and theory of change ensures that the project meets the expected outcomes and deliverables. Communications emphasises the project as a successful, dynamic and responsive framework, providing and promoting cost-effective, clean and renewable energy to underprivileged communities in rural Sierra Leone.
- **Work Package 6:** Productive use promotes and implements a private sector engagement strategy. This is underpinned by a keen understanding of local market systems, which enhances economic growth in mini-grid catchment areas. Therein promoting local income improvements and local job creation. An estimated **14,612 people** will benefit from the grants programme managed by UNOPS. **10 grantees from 17 locations** are part of initiatives in stimulation of market development through productive use of energy.
- **Work Package 7:**Tariff subsidy for non generation assets and elimination of public reserve account payments. Through this work package, additional funds will be used to procure non-generation assets (electricity meters and indoor connection materials e.g. sockets), and to eliminate public reserve account payments by the operators for the first four years of the project.

Expected outcome and impacts

The RREP's aims to provide up to 4 megawatts of sustainable renewable electricity in rural communities whilst strengthening and supporting productive use of the electricity in the mini-grid catchment areas. This is envisaged to contribute to economic growth through stimulating entrepreneurial activities that can strengthen supply chains e.g. in the fisheries and agriculture sectors and expansion of existing commercial entities, which will, in turn, create jobs and increase incomes. Social benefits will be realised through secondary benefits of the project such as access to improved health care; education and incomes within the communities. There are 98 CHCs and 95 mini-grids established in rural communities across the country. By the end of May 2022, the RREP's will reach **346,000** direct beneficiaries, increase the welfare value for the targeted communities as well as reduce the carbon dioxide emissions.