Rural Renewable Energy Project (Light for Development)

**AT A GLANCE**

**CLIENT**
Ministry of Energy
Government of Sierra Leone

**IMPLEMENTER**
United Nations Office for Project Services
Services – Project Management and Infrastructure

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

**FUNDING**
£ 37,739,328

**SECTOR**
Energy

**SCOPE**
Construction of 97 Mini-grids

**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 MoE. The RREP, which spans from October 2016 to May 2022, provides clean energy access which also sustainably grows the country’s energy capacity.

**Objectives and Outcomes**

The project is being completed in several phases. 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 2, 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. A further 44 mini-grid installation works is ongoing and will be completed before the end of 2021 through private sector investment. Through this project, the private sector at the international level is involved to operate and maintain these mini-grids while co-investing with FCDO.

Currently, three private sector companies (Winch, OGP/PowerGen, and Energicity/Power Leone) are engaged to maintain and operate the 97 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 10M in private sector investment. Through a competitive process, the private sector companies were selected to connect individual households and to operate the power supply network in each village. Each operator is operating in different areas
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.

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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/Powere 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.

EXPECTED OUTPUTS, OUTCOMES AND IMPACT

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. RREP will construct 94 solar-powered mini-grids and 3 stand-alone systems, in rural communities across the country.

STRAJECTORY 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. **As of the end of December 2020, 6,134 households have been electrified with light** which is in line with the target of 7,000 households expected to benefit from the work package 1+ sites.

- **Work package 2**: Extension of mini-grid installations in 44 additional communities is ongoing which is expected to be completed by 2021. The WP2 communities are spread across 13 districts (Bo, Bombali, Bonthe, Kailahun, Kambia, Kenema, Koinadugu, Moyamba, Port Loko, Karene, Falaba, Pujehun and Tonkolili) within Sierra Leone. These are bigger communities which will need bigger generation assets (power plants) of equal or more than 36kWp per community. So far, cumulative low voltage grid distribution installation of 31 sites completed to date mainly from Lot 1, 2, 3 & 4. The Ministry of Energy through UNOPS have handed over 5 of the completed sites in Lot 1 & 2 sites to the private operators.

- **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 will emphasise 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 8**: Productive Use. Strenthen and promote productive use in mini-grid areas to fully capitalise on the benefits of the expanded energy services. The WP8 seeks to implement a private sector engagement and strengthening strategy, underpinned by a keen understanding of local market systems, which promote productive use economies in mini-grid catchment areas in Sierra Leone. Therein promoting local income improvements and local job creation.

- **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.

The RREP’s aim is to reach 346,000 direct beneficiaries, increase the welfare value for the targeted communities as well as reduce the carbon dioxide emissions by end of May 2022.