

Regional Off-Grid Electrification Project (ROGEP)

Component 1 A: Fostering regional collaboration and enabling environment to promote sustainable off-grid industry in the Western African region

Due to the strategic importance of energy in achieving sustainable development, the ECOWAS Center for Renewable Energy and Efficiency (ECREEE), a specialized technical agency under ECOWAS, is implementing the proposed Regional Off-Grid Electrification Project (ROGEP), with support from the World Bank and its Lighting Africa Program. ROGEP aims to enhance electricity access in the West Africa and Sahel region, through standalone solar systems (solar lanterns, solar home systems, solar water pumps, solar mills, solar sewing machines, etc.). The World Bank has provided to ECREEE a Project Preparation Advance to advance the definition of the project. ECREEE has set up a Project Implementation Unit, discussing with stakeholders and identifying the major challenges and mitigation measures towards accelerating the off-grid market in Western Africa.

The project, with an estimated overall budget of USD 200 million covers 19 countries: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Togo, Cameroon, Central African Republic, Chad, and Mauritania.

ROGEP comprises 2 major components, each having sub-components:

Component 1 - Supporting the Acceleration of the Regional Market

Subcomponent 1 A: The Enabling Environment

Subcomponent 1 B: Entrepreneurship Support

Subcomponent 1 C: Risk Mitigation Facility

Component 2 - Access to Finance

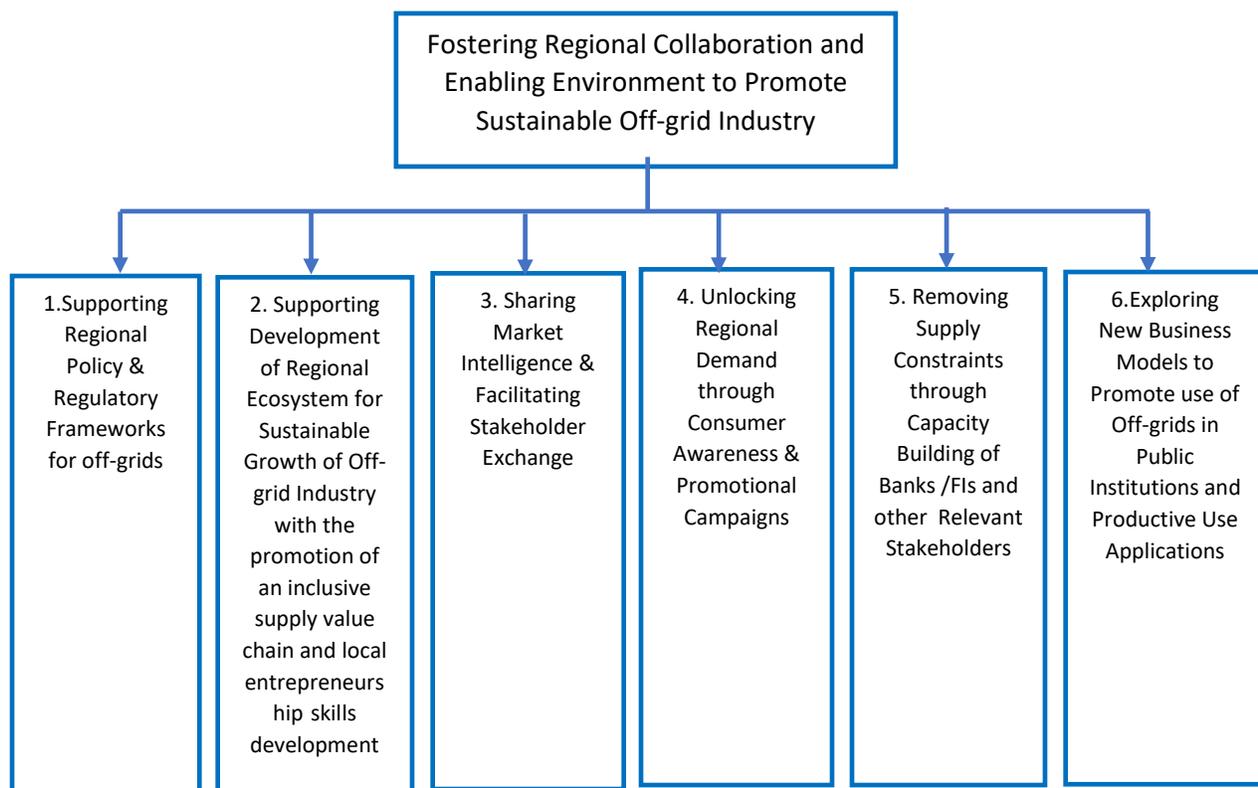
Subcomponent 2 A: Support the supply side of market development.

Subcomponent 2 B: Support the demand side of market development.

In addition to providing a range of financial instruments to address the access to finance barrier, ROGEP envisages providing significant technical assistance to foster collaboration and enabling environment, including creating the necessary ecosystem, at both regional and country levels, which are necessary for the growth of the off-grid industry in the West Africa and Sahel region.

Given the strong focus of the technical assistance in supporting regional collaboration and regional enabling environment, ECREEE is perfectly placed to deliver that kind of service. ECREEE has a harmonized regional approach and mandate to create favorable framework conditions for regional Renewable Energy and Energy Efficiency (RE&EE) markets by supporting activities directed to mitigate existing technology, financial, economic, business, legal, policy, institutional, knowledge and capacity related barriers. Its mandate is to focus on activities at regional level that can assist and add value to member states' initiatives in the areas of renewable energy and energy efficiency.

The various activities that would be supported by ROGEP under this component are organized around the six themes as described below:



1. Supporting Regional Policy and Regulatory Frameworks for Off-grids

Strengthening Regional Energy Access Policy

Industrial growth is usually attributed to clearer policies in any sector. Given the stage of development of the off-grid industry and the relatively small sizes of some countries in the region, the off-grid industry players are clearly looking for an aggregated regional market in the Western African region. Having regional access policy in place therefore assumes significance. The challenges that the region faces in

achieving access is well known. Already in 2006, the ECOWAS countries and regional institutions launched the Regional Energy Access Policy, embodied by the White Paper endorsed by ECOWAS Heads of State and Government.

With the adoption of the ECOWAS Renewable Energy Policy in 2012 by the ECOWAS Heads of State, the region became the second in the world to agree on regional targets for renewable energy, whose achievements would directly contribute to the realization of universal access to energy. These targets include 21.0 and 47.2 million inhabitants to be served by standalone systems by 2020 and 2030 respectively.

In this context, ROGEP will contribute to the regional monitoring and implementation framework by offering technical assistance in the areas of analytical works, regional workshops and exchange programs, where the policy makers and regional leaders could be provided with opportunities to understand and appreciate the advancements in the implementation of off-grid technologies and take adequate decisions and measures to facilitate the achievement of the regional targets.

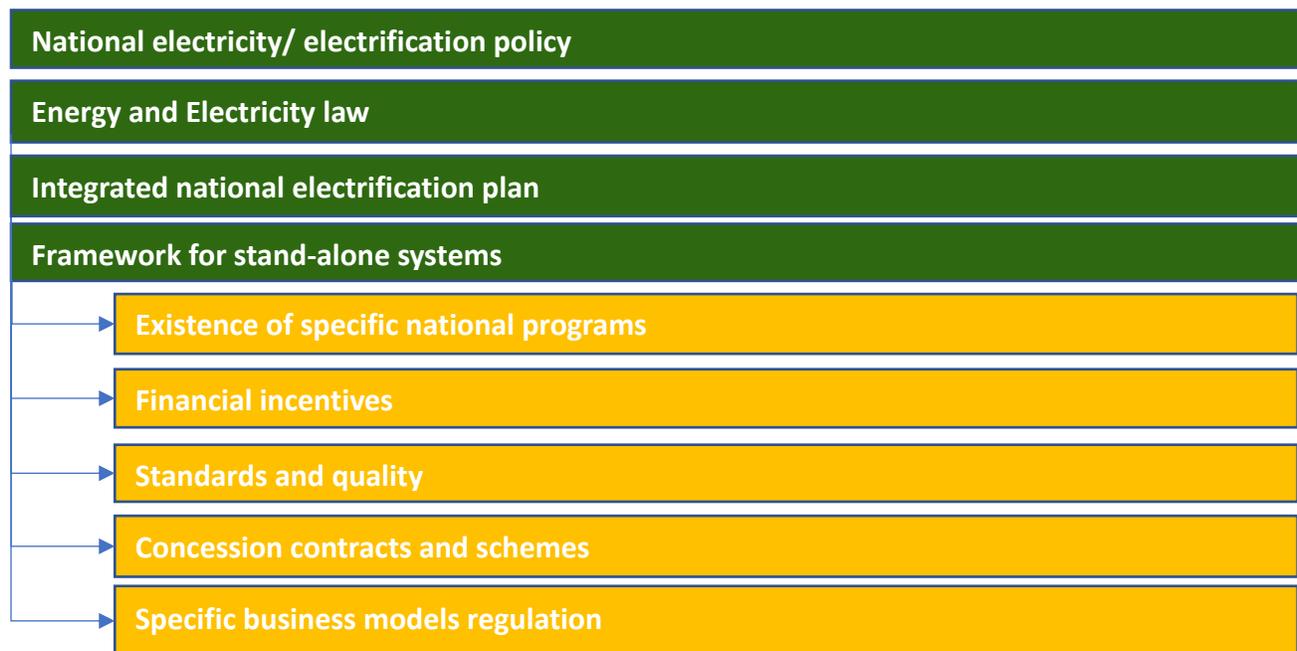
Influencing improvement of the National Electricity Access policy and regulatory framework through Regional Engagement

Governments around the world are developing renewable energy policies to support broader national goals such as increasing off-grid access, rural electrification, diversifying energy supply, enhancing energy security, fostering innovation, and addressing global climate change. While these policies and regulations share key design elements across renewable energy technologies, the good practices and considerations can support policies tailored to expand solar deployment within the context of country specific challenges and opportunities. Through the regional engagement and dialogue, ROGEP will create the necessary awareness and engage policy makers at the regional level in exploring off-grid solar as feasible alternative to achieve their access goals. Individual countries could learn from the regional exchange and put in place in-country policies that are aligned with the regional ones.

ROGEP will fully exploit the added value and efficiency of the regional approach by creating and sharing knowledge, raise awareness and strengthening the capacities of the countries. This will be executed through series of regional events followed by tailored made technical assistance to countries framed in the regional intervention. Particular attention will be given to the promotion of exchange of experiences with other economic communities and regions in the African continent.

Having national policies, regulations, legislations and strategies on electricity access with clear definition of the role of off-grids is considered positive indicators for the private companies to invest in off-grid businesses. Given the importance of off-grids in the broader context of access, and the significance of having clearer policies, ROGEP would provide technical assistance to countries to develop and adopt integrated electrification policies with clear roles for off-grids. This, together with the development of a specific policy and regulatory framework for standalone systems, would send a positive signal to the off-grid players and prepare the ground for off-grid investments.

The specific policy and regulation areas to be considered have been identified as shown in the figure below.



An aspect of particular attention will be, in the area of specific business models regulations, mobile money as it is gaining popularity and has contributed to the growth of the off-grid industry in many countries.

The top-down approach of engaging at the regional level first will create the necessary ground and momentum for country level actions, playing complementary roles in this development space. Given the nature of the solar industry and its early stage of entry into the Western African region, ROGEP will adopt a flexible approach to identify the capacity building needs of the various stakeholders. These include the policy and regulatory bodies, utilities, rural electrification agencies, and other line ministries, who would potentially benefit from the off-grid energy solutions and support them on an ongoing basis.

Developing and Adopting Regional Standards and Quality Assurance Framework for Standalone Solar Systems

Quality assurance is a critical requirement for growth of the off-grid industry. Consumers need to have confidence in the products and should have access to important information based on which they can take a decision to invest in solar products. A broader agreement on quality standards for solar lighting products among the Sahel and West African countries can benefit the private sector solar photovoltaic (PV) product manufacturers as they get access to a large contiguous market. Supported by favorable regional trade policies, this will increase trade between the countries in Sahel and in West Africa, creating jobs and incentive structures to support a sustainable market.

While globally acceptable quality assurance standards are available for smaller size systems (e.g. plug and play kits), no such standards exist for larger systems. Quality Assurance standards developed by the Lighting Africa Program (and currently housed as Lighting Global Quality Standards¹) for the smaller

¹ <https://www.lightingglobal.org/qa/standards/>

systems are now widely adopted by companies. As a first step, ROGEP would provide necessary technical assistance to support adoption of the existing standards and quality assurance framework for the smaller size systems (up to 350 Watts) at the regional level. Subsequently individual countries will be supported to adopt and enforce these standards. This would involve significant engagement with the technical and political establishments at both regional (e.g. ECOWAS) and national levels. Particular attention will be given to the promotion of exchange of experiences with other economic communities and regions in the African continent.

For the larger systems (institutional and productive use applications), including components based systems, ROGEP will support the development of technical standards through implementation of pilots. Country based pilots will contribute to the development of standards and quality assurance framework, which could be agreed upon at the regional level, and then adopted at each country level. For the larger institutional systems, meant for use in schools, health clinics, public administration buildings etc., ROGEP will support the development of service oriented quality assurance framework instead of product quality to move the industry in the direction of providing long-term performance and service contracts than product sales only.

ROGEP will engage with the relevant regional and national stakeholders related with standards and energy, including ECOWAS Standards Harmonization Model (ECOSHAM) Regional Standards and Labelling Technical Committee, ECOSHAM Technical Harmonization Committee (THC) on Electro-technical (THC 5), ECOSHAM technical management committee, ECOWAS Ministers responsible for quality management and/or energy, and ECOWAS Council of Ministers, to facilitate informed decision making on technical standards for solar standalone systems and equipment.

Removing trade barriers and moving towards simplified tax regime to enhance product affordability

Evolution of new business models such as PAYGO have made it easier for households to pay for solar systems. However, the feasibility of such models depends upon several external factors and country conditions, and hence the PAYGO options are not available or offered everywhere. Again many countries have adopted simpler tax regime, for instance, duty waiver on solar import etc., for the benefits of their larger population. ROGEP will provide necessary technical support to study and promote an informed decision making on such measures to enhance the commercial attractiveness of standalone solar systems to the households. Moreover, taxing products at multiple entry points often make the product too expensive for people living in landlocked countries, such as those in the Western African region included in the ROGEP project. Eliminating multiple taxation will facilitate easy movement of products across countries and enhance product affordability.

ROGEP will promote informed decision making on import duties in the framework of the Common External Tariff (CET) at the regional level. In collaboration with the ECOWAS Directorate of Customs and with the participation of the relevant national and regional stakeholders related with customs/ economy, industry and energy, ECREEE will facilitate the informed decision making process on import duties to be applied to solar standalone systems and equipment. This will be done by the tariff management regional committee, commerce and customs regional technical committee, and the ECOWAS Council of Ministers. Subsequently, individual countries will be supported to adopt and enforce these decisions. This would involve significant engagement with the technical and political establishments at both regional (e.g. ECOWAS) and national levels. Particular attention will be paid to the promotion of exchange of

experiences with other economic communities and regions in the African continent as well as to the exploitation of synergies with other ongoing initiatives such as those promoted by Global Off-Grid Lighting Association (GOGLA) and International Renewable Energy Agency (IRENA).

There is a need to develop/improve harmonized description codes for solar standalone systems and equipment in the context of CET, and ROGEP plans to support this development across the region. Combined with adoption of regional standards and quality assurance framework described earlier, this would contribute to regional harmonization and enable the off-grid players to make long term investment plans considering the Western African region as a single regional market.

ROGEP will support countries to undertake necessary analytics to move towards rationalized energy sector subsidy policies to ensure level-playing field for on-grid and off-grid investments. This can open up the sector for private investments and encourage development of new delivery models.

2. Supporting Development of Regional Ecosystem for Sustainable Growth of Off-grid Industry with the promotion of an inclusive supply value chain and local entrepreneurship skills development

The off-grid solar industry, like any other industry, requires the supporting ecosystem for its survival and growth. The ecosystem includes manufacturing, assembling, distribution, repair and maintenance, other after sales services, as well as lending and micro credit businesses. In addition to supporting the industry, the ecosystem would result in creation of business and employment opportunities, and contribute to the overall socio-economic development of the region. In order to fully exploit the potential, ROGEP through ECREEE will support establishing of a regional network of entrepreneurship development facilities targeting the entire value chain of the off-grid solar industry. These facilities would develop standard materials and modules and provide technical assistance and capacity building for Entrepreneurship and Business Training, for the benefit of the entrepreneurs in the region. Entrepreneurs would benefit in several areas including understanding of the technology and its risks, initial business support, permits and licenses, taxes, small business administration, product logistics and inventory management, product quality and standards, financing, environmental requirements etc.

Going beyond entrepreneurship development, ROGEP will also look into the needs of the companies that are already in the growth stage and support them with Customized Business Acceleration Support as well as facilitating the entry into solar business for companies not yet involved in it. It will do that by using approaches similar to the regional entrepreneurship development facilities in order to be efficient.

ROGEP will also support technical assistance and tailor-made interventions to enable the less privileged categories of stakeholders, e.g. women entrepreneurs to participate and take advantage of the opportunities offered through the off-grids value chain. The overarching theme here is two-fold, (a) to improve the supply side of the value chain through entrepreneurship support and development and (b) to improve the livelihoods of the poor and marginalized communities through private-sector initiatives. This is done by offering disadvantaged groups equal opportunities such as access to markets and finance, by building capacity and improving public policy.

ROGEP will support the ongoing efforts to establish and implement the regional certification scheme for PV installers at the regional level. Such scheme would produce the much needed skills and workforce to support the growth of the industry.

3. Sharing Market Intelligence & Facilitating Stakeholder Exchange

Off-grid solar industry is rapidly evolving both in terms of technology and business models. It is therefore important to have continuous stakeholder exchange to stay relevant and take maximum advantage of the innovations that the industry offers and be aware of the new challenges that the industry might face. ROGEP will support initiatives and activities that would foster industry collaboration with key stakeholders and promote meaningful dialogue for scaling up electrification through off-grid solutions.

As mentioned earlier, the off-grid solar industry largely remains a supply driven industry and the private solar companies are engaged in promoting their products in specific customer segments. All the heavy lifting and market entry costs are borne by the companies themselves resulting in increased cost of doing business. This is largely because of lack of data and intelligence on the market, especially on the demand in different customer segments. Availability of such intelligence and data on the demand side, as well as availability of information on the supporting ecosystem including policy and regulatory provisions would go a long way in bringing scale and predictability in the off-grid space. ROGEP will offer technical assistance to gather relevant data and market intelligence and disseminate the same regionally and nationally for the benefit of all companies. These studies will provide critical data to help manufacturers, distributors and retailers to make informed business decisions. ROGEP is already supporting a series of off-grid market intelligence/assessment studies in the ROGEP countries as part of the project preparation. These studies will assemble a wealth of data and information for the sector stakeholders, especially the private companies who have acknowledged the profound contribution made by these studies. ROGEP recognizes that gathering such market intelligence is not a one-time activity and would need to be carried out on an ongoing basis with targeted coverage to further guide investments in the sector and contribute to the overall development of the off-grid industry.

In addition to supporting regional and national multi-stakeholder exchanges, ROGEP will promote business to business events to facilitate contact between local and international stakeholders and collaborate with industry coalitions and other platforms to engage the stakeholders in meaningful dialogue to promote the off-grid industry.

4. Unlocking Regional Demand through Consumer Awareness & Promotional Campaigns

Although the off-grid solar industry has seen significant transformation globally in the last few years, the potential it offers in terms of addressing the energy access needs of households, businesses and public institutions/facilities, remains underexploited. This is largely due to lack of awareness among the key stakeholders, especially the potential beneficiaries, the policy makers and the funding agencies, on the innovations made around technology and business model fronts. So far, the solar businesses are largely supply driven. Creating demand through awareness and promotional campaigns, as well as policy actions such as linkage to national energy access strategies can bridge the gap and complement the ongoing efforts of the players in the off-grid industry.

ROGEP will support country level initiatives to address the awareness barrier with the objective of enhancing demand and creating vibrant market for standalone solar systems. Based on experience from East-African engagements through Lighting Africa, and based on stakeholder consultations carried out in the Western Africa region as part of ROGEP preparation, the following elements are determined to be needed for a successful campaign - (i) experiential events such as Forums, Training of Trainers sessions (TOTs), (ii) Roadshows and (iii) mass distribution activities such as local vernacular radio broadcasts, and

distribution of educational material/posters. Actions to be undertaken could include: market research on awareness levels in the underserved countries to determine appropriated messaging to be developed, determine specific channels (e.g. which radio stations, which county officials are best placed to carry the messaging etc.) to utilize, develop a preliminary plan (including timing and human and financial resource allocation), identify TOT beneficiaries, pilot campaign and identify improvements, develop full scale roll out plan. Consumer awareness activities will extend to education, health and water sectors both for the benefit of government agencies and beneficiaries to facilitate electrification of public facilities.

The proposed project will inform the potential end users on the many benefits of high quality off-grid solar products through producing consumer awareness materials and conducting consumer awareness campaigns in project countries aimed at behavioral change towards off-grid product familiarity and adoption.

5. Removing Supply Constraints through Capacity Building of Banks /Finance Institutions and Other Relevant Stakeholders

The 19 countries covered by ROGEP vary widely in terms of country risk, and level of financial sector development. Commercial banks, and other prospective lenders, are often reluctant to lend to Small and Medium Scale Enterprises (SMEs) in the off-grid solar market due to several factors including perceived borrower credit risk, insufficient track record, insufficient collateral to secure loans, and smaller ticket sizes for transactions. At the same time, banks also lack capacity in terms of understanding of the solar industry, its supply chain and its evolving nature and accompanying innovations. ROGEP through its technical assistance component would offer capacity building support to banks and other Financial Institutions (FIs) to enable them to understand the nuances of the solar industry, its structure. More targeted capacity building programs focusing on different tiers of solar companies, their capital structure, funding needs and risk profiles would be offered with the objective of crowding in commercial financing to the sector. Based on the regional and national workshops and initial rounds of consultations carried out with the banks and FIs as part of the market assessments, the following capacity building needs have identified to be supported by ROGEP : (i) off-grid solar energy project due diligence; (ii) meeting the environmental requirements, (iii) portfolio supervision, and (iv) hedging. ROGEP will fund activities that will enable the banks and FIs to take advantage of the ROGEP funded line of credits from the regional banks. ROGEP will also fund initiatives and activities that would mobilize the potential investors into the off-grid sector in the region.

6. Exploring New Business Models to Promote use of Off-grids in Public Institutions and Productive Use Applications

The solar industry has evolved significantly over the last decade. Larger standalone systems are now available that can fulfill the electricity needs of public institutions and facilities, as well as other productive applications. Unlike households and SMEs, public institutions and facilities, however, pose higher payment risks to the private companies, given their public nature. Commercial financing to solar companies engaged in providing electricity to Public sector customers comprising schools and hospitals, is non-existent today, as is the underlying business itself. This is an emerging field. Consultations with the solar companies indicate that if adequate payment risk mitigation arrangements are put in place, they would be interested in making investments to electrify public institutions and facilities. Moreover, given sometimes the limited capacity of the public institutions to maintain the systems, it could be desirable under those circumstances that private companies are engaged in long term service contracts rather than

just installation of systems. As there is huge potential in this space, ROGEP will support development of service oriented standards and quality assurance framework as well as new delivery models supported through appropriate payment risk mitigation arrangements to attract private investments.

Under the technical assistance component, ROGEP will support implementation of few pilots to understand the technical scope as well as potential business models, and based on the pilot experience develop standard models that would benefit all countries in the Western African region. Based on the outcomes of the pilots, more targeted capacity building programs will be designed and supported to support the key stakeholders including public institutions, solar companies, banks and FIs.