



# Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS)

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Concept Stage | Date Prepared/Updated: August 20, 2018 | Report No: 129620



**BASIC INFORMATION**

**A. Basic Project Data**

Country Western Africa	Project ID P160708	Parent Project ID (if any)	Project Name Regional Off Grid Electrification Project (P160708)
Region AFRICA	Estimated Appraisal Date Sep 17, 2018	Estimated Board Date Nov 27, 2018	Practice Area (Lead) Energy & Extractives
Lending Instrument Investment Project Financing	Borrower(s) ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE), West African Development Bank (BOAD), ECOWAS Bank for Investment and Development (EBID),	Implementing Agency ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), West African Development Bank (BOAD), ECOWAS Bank for Investment and Development (EBID),	

**Proposed Development Objective(s)**

Increase electricity access to households and businesses using modern off-grid technology through a harmonized regional approach.

**Financing (in USD Million)**

Financing Source	Amount
<b>Total Project Cost</b>	150.00

Environmental Assessment Category

**FI-2-Financial Intermediary Assessment**

Concept Review Decision

Track II-The review did authorize the preparation to continue

Have the oversight and clearance functions been transferred to the Practice Manager? (Will not be disclosed)

Yes

Other Decision (as needed)

**A. Regional Context**

**Regional cooperation is critical to end extreme poverty and boost shared prosperity in the broader West African region including Sahel.** This region is diverse – economically, culturally, and ecologically; presenting both opportunities and challenges for regional cooperation. Countries in the Sahel and broader West African region, have moved forward politically and economically towards greater cooperation for the prosperity of the region. In this



regard, the first effort at integration dates back to 1945 with the creation of CFA franc that brought the francophone countries of this region into a single currency union. Later, on May 28, 1975, 15 countries - Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo – came together, via the treaty of Lagos, to promote economic integration across the region by forming the Economic Community of West African States (ECOWAS). Forty years later, ECOWAS is still promoting economic cooperation and regional integration as a tool for an accelerated development of the West African economy as per ECOWAS Vision 2020<sup>1</sup>.

**Five Sahel countries came together on December 19, 2014 and formed G5 Sahel** to coordinate policies and strategies for development and security. These five Sahel countries: Burkina Faso, Mali, Mauritania, Niger and Chad are homogeneous in terms of their physical and natural characteristics of socio-economic development, history, geography and culture. One of the guiding principles of G5 is to combine all its actions and to focus on border areas given its landlocked geography, low population density and little state presence characterized by low socioeconomic indicators generally below neighboring countries national averages.

**Forming regional economic communities, in general, has had a positive impact on income convergence in this region<sup>2</sup>.** Regional integration helps income convergence between poor and rich economies through three key factors<sup>2</sup>. First, integration encourages capital and labor mobility, which increases productivity and output. Second, agreements on free trade areas and customs unions, offers potential to increase trade volume among the integrated countries. Finally, regional integration promotes the spread of technology and knowledge through the exchange of goods and ideas. While income convergence depends on several factors and cannot be only attributed to regional integration, the West African Economic and Monetary Union (WAEMU) show that in Africa, eight countries - Benin, Burkina Faso, Guinea-Bissau, Mali, Niger, Senegal, Sierra Leone and Togo, have the highest income convergence rate. Incomes have narrowed at an average rate of 19.6 percent between WAEMU's richest and poorest countries over fifteen (15) years<sup>2</sup>. Incomes in the Economic Community of West African States (ECOWAS), which has 15 members, have also narrowed, though the convergence rate is lower at an estimated 11.4 percent<sup>2</sup>.

**Around 50 percent of population in broader West African region including Sahel still lives on less than US\$2/day<sup>3</sup>.** Although there is some contrast between countries such as Liberia, Guinea-Bissau and Central African Republic where over 65 percent of population lives below US\$1.90/day compared to Mauritania with 11 percent – the general trend is grim with over 70 percent of this region's population living below US\$3.10/day. This region is also home to around 33 percent of the continent's population with around 17 percent of the land area. The region accounted for 28 percent of Africa's GDP in 2015 – at \$1,606 billion based on a Purchase-Power-Parity (PPP) valuation. Details on the macroeconomic situation of the tentative project countries are provided in Annex 1.

## Strategic Context

**Energy is considered a key factor in achieving sustainable development and poverty reduction in the region.** Most client governments, donor governments and international organizations have recognized the importance of integrating energy into development policies to promote sustainable development. Access to affordable, reliable, sustainable and modern energy for all has been adopted as a goal in the new Sustainable Development Goals (SDGs), and extends to

<sup>1</sup> The ECOWAS Vision 2020 is a resolution adopted by ECOWAS in June 2007 to significantly raise the standard of living of the people through conscious and inclusive programs.

<sup>2</sup> African Economic Outlook, 2016. AfDB, OECD, UNDP.

<sup>3</sup> The World Bank defines extreme poverty as living on less than US\$1.25 per day, and moderate poverty as less than \$2 a day



basic human needs at household level (cooking, heating, lighting, and communication), health stations (healthcare), schools (education); and productive uses to improve livelihoods in the poorest countries and to drive local economic development on a sustainable basis.

**The current status of the energy system hampers the social, economic and industrial development of the region.**

Countries in the broader western African region including the Sahel face interrelated challenges of energy access, energy security and climate change mitigation<sup>4</sup> simultaneously. Electricity shortages in urban areas and lack of access to modern, affordable and reliable energy services in rural areas are interrelated with a variety of economic, social, environmental and political problems. The electricity systems in the region face challenges due to the growing gap between predicted demand, existing supply capacities and limited capital to invest. Although this region is only responsible for a fraction of global energy related Green House Gas (GHG) emissions, it will be highly impacted by mitigation and adaptation costs of climate change in the forthcoming decades. Thus, this trio of challenges in turn considerably complicates the implementation of regional strategies aimed at fostering socio-economic development, attracting foreign investment programs, providing basic social services, and achieving the SDGs, specifically the Sustainable Development Goal 7 (SDG 7) to ensure access to affordable, reliable, sustainable and modern energy for all.

**The Sustainable Energy for All (SE4ALL) Action Agenda is supported in the broader western African region including the Sahel through ECOWAS.**

To provide universal access to electricity by 2030, ECOWAS has adopted an ECOWAS Renewable Energy Policy (EREP). The EREP was conceived to respond to the severe energy crisis in the member countries by exploring the vast renewable energy generation potential that exists in the region through the participation of private sector. Furthermore, with the support of the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), some ECOWAS member states had already developed renewable energy policies and strategies, which is the foundation of EREP. This Policy was adopted by the 43<sup>rd</sup> Ordinary Session of the ECOWAS Authority of Heads of State and Government, which was held in Abuja, Nigeria, from 17 to 18 July, 2013. The policy also aims to assist the ECOWAS member states to develop appropriate regulatory frameworks for the promotion of renewable energy technologies and services, thus reinforcing regional integration in the renewable energy sector. ECREEE has also assisted Sahel states such as Mauritania and Chad in activities related to energy access.

## B. Sectoral and Institutional Context

### Sector Context

**Less than 40 percent of the population in the Sahel and broader western African region has access to electricity.** Of the 395 million people residing in this region, only about 151 million have access to electricity services today (of which 67 percent live in urban areas). It is estimated that 244 million inhabitants have no access to electricity (and 70 percent of which live in rural areas). In most countries of this region, electricity access is limited and substantially confined to the urban areas. Lack of electricity generation capacity, inadequate electricity transmission and distribution network and unreliable supply are some key reasons for low electricity access in this region. A graphical representation of the electrification status of this region is provided in Annex 1.

**Energy poverty and its consequences for local economies<sup>5</sup> and social development are projected to remain a**

<sup>4</sup> Source: ECOWAS program on access to sustainable electricity services (EPASES) 2015-2020 in rural and peri-urban areas

<sup>5</sup> There are several empirical studies that focus on the question of whether increased electricity access actually benefits the poor. A study by Fan, Jitsuchon and Methakunnavut (2004) on Thailand. Their results show that out of different types of public investments (agricultural R&D, irrigation, rural



**predominant challenge.** Per capita electricity consumption across the broader western African region including the Sahel is estimated around 150 kWh (kilo-watt-hour) per annum in 2012, one of the lowest rates in the world. Nine of the countries in the region covering four (4) Sahelian ones (Burkina Faso, Chad, Mali, Central African Republic) have average consumption of less than 60kWh per annum. The poor in urban and rural areas of the region spend proportionately more of their income<sup>6</sup> for poor quality energy services than the better-off for better quality services.

**Moreover, significant energy access inequalities exist between urban and rural areas.** Whereas urban areas tend to use energy in the form of electricity, charcoal, kerosene and other fuels, rural areas continue to rely on largely traditional biomass for meeting their energy requirements for cooking and lighting. Household access to electricity across the region varies considerably between urban and rural areas. Urban electrification rate in the region averages around 67 percent (with countries like Ghana and Cameroon on the higher end with over 90 percent urban electrification and countries such as Chad and Central African Republic on the lower end with less than 15 percent). Rural electrification rate averages around 33 percent (with six countries – Chad, Central African Republic, Liberia, Mali, Niger and Sierra Leone with less than 5 percent rural population electrified). A complete statistics on the rural/urban population split, electrification rates and absolute populations in the rural and urban areas of the broader western African region including the Sahel, are provided in Table 1 below.

Table 1: Project countries – Rural and Urban population electrification statistics

Rural and Urban population electrification statistics								
Country	Total population ('000s) 2015	Urban population ('000s) 2015	Rural population ('000s) 2015	National electrification rate (% of total population) latest available	Urban electrification rate (% of urban population) latest available	Rural electrification rate (% of rural population) latest available	Urban electrified population (000's) 2015	Rural electrified population (000's) 2015
Benin	10,880	4,782	6,098	29%	56%	6%	2,697	335
Burkina Faso	18,106	5,349	12,757	17%	60%	5%	3,209	638
Cameroon	23 344	12,721	10,623	55%	87.5%	17.0%	11,131	1,806
CAR <sup>7</sup>	4 900	1,923	2,977	3%	4.8%	1.0%	92	30
Chad	14 037	3,057	10,980	4%	13.9%	0.8%	425	88
Cape Verde	521	333	187	26%	98%	44%	326	82
Côte d'Ivoire	22,702	11,538	11,164	36%	77%	18%	8,884	2,009
Gambia	1,991	1,175	816	72%	80%	37%	940	302
Ghana	27,410	14,583	12,827	26%	87%	5%	12,687	641
Guinea	12,609	4,589	8,020	21%	19%	1%	872	80
Guinea-Bissau	1,844	882	962	10%	45%	2%	397	19
Liberia	4,503	2,238	2,265	26%	1%	0%	21	7
Mali	17,600	6,490	11,110	28%	64%	18%	4,160	1,975
Mauritania	4 068	2,442	1,625	15%	28%	47.0%	2.0%	1,155
Niger	19,899	3,609	16,290	45%	47%	0%	1,696	65
Nigeria	182,202	87,681	94,521	55%	80%	28%	70,144	26,466
Senegal	15,129	6,544	8,585	53%	90%	24%	5,890	2,060
Sierra Leone	6,453	2,524	3,929	27%	29%	1%	732	39
Togo	7,305	2,866	4,439	29%	57%	5%	1,633	222
<b>Sources:</b> AfDB Statistics Department; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects, The 2015 Revision, AfDB Statistics Department, various domestic authorities and AfDB estimates.								

**Electrification rate of public institutions like schools and health centers is also very low and efforts made to electrify**

education, road infrastructure and electricity infrastructure), investments in rural electrification have the largest poverty reduction impacts.

<sup>6</sup> Source: ECOWAS Renewable Energy Policy (EREP)

<sup>7</sup> Central African Republic



**them have been insufficient.** In the most recent survey carried out by UNESCO in 2014, data compiled from 46 countries in sub-Saharan Africa showed that “the vast majority of schools report having no electricity in nearly all countries. While data on electricity access in health care facilities is rarely collected and reported in a multi-country initiative limiting the ability to comprehensively report the electrification status of all health facilities in the project countries”. Discussions with internal Bank teams and some clients points to a low electrification status of health facilities – especially for primary care and basic child and maternal care. More information on status of electrification of health and education facilities are provided in Annex 3.

**Gaps between females and males in accessing more and better income-generating opportunities, and in health and education outcomes, narrow with increasing access to electricity.** Women are often responsible for performing household chores, and lack of electricity access increases their manual workload and reduces time that can be spent on income-generating and educational activities. The drudgery of fulfilling household tasks manually also has implications for women’s overall health and well-being. Increased access to electricity can increase productive time for work and study contributing to improved educational outcomes, access to higher-earning jobs and increased entrepreneurial opportunities for women. Lack of access to electricity also increases disparities in health between females and males. Women and children carry significant health risks due to indoor air pollution resulting from use of solid fuels for cooking and heating purposes. Increasing access to electricity can improve women and children’s health through reduced indoor air pollution. Electrification of health centers providing maternal health care can also improve women’s health outcomes. Overall, modern off-grid electrification to poor and underserved areas will contribute to enhancing of gender equality in project countries.

**The Bank is supporting a project to achieve 1 GW of grid-connected and mini-grid solar electricity generation in SSA with priority focus on Sahel countries.** That project aims to assist SSA countries to accelerate investments in solar electricity generation and enabling environments. That project will support complementary technical assistance activities to mobilize IDA in support of IFC advisory services as part of WBG Scaling Solar program (ex.: Senegal) and investment identification in other countries. That project will also provide regional technical assistance to address increased integration of renewables in national grids, improved dispatch capability and improved business climate (standard legal and institutional frameworks and promote a dialogue with regional institutions to identify an IDA operation aiming to improve the capacity of the Sahel countries’ utilities to plan larger integration of solar electricity generation in their power systems. **The proposed regional off-grid electrification project however focusses on providing electrification to consumers and public institutions not currently connected to the grid or mini-grid solutions.**

**With advancement in solar PV technologies, off-grid solar has the potential to significantly transform electricity access in Sub-Saharan Africa<sup>8</sup>, in particular for consumers who are far from the grid network.** A significant portion of the population in the region is dispersed over vast geographical areas with low population density (below 20 people/km<sup>2</sup>), and is unlikely to benefit from grid-connected electricity in the short to medium term that would provide access to affordable and reliable electricity through economies of scale. However, with the dramatic reduction in costs over the past few years, solar PV technology, has become a rational choice to contribute substantially to electricity access in Sub-Saharan Africa<sup>9</sup>. Under the Multi-Tier Framework (MTF)<sup>10</sup> of measuring energy access general solar home

<sup>8</sup> The Climate Is Right: Scaling Off-Grid Solar Solutions in Sub-Saharan Africa - The World Bank’s New Approach for Achieving Access to Modern Energy Services

<sup>9</sup> The Climate Is Right: Scaling Off-Grid Solar Solutions in Sub-Saharan Africa - The World Bank’s New Approach for Achieving Access to Modern Energy Services

<sup>10</sup> Multi-Tier Framework for Measuring Energy Access (MTF) redefines energy access from the traditional binary count to a multi-dimensional definition as “the ability to avail energy that is adequate, available when needed, reliable, of good quality, convenient, affordable, legal, healthy and safe for all



systems can meet the Tier 1 to 3 level of energy access, which is the typical consumption pattern of households in Sub-Saharan Africa. Specially designed PV systems for commercial and institutional use can provide higher level of access. Off-grid solar meets consumer energy needs more readily and represents an important first step on the energy access ladder.

**The costs of off-grid solar home systems declined by more than 60 percent between 2009 and 2014.** This enabled the industry to deliver more than 7.5 million quality-verified off-grid energy products across Sub-Saharan Africa (SSA) by the end of 2014. New developments in technology, business models and financing mechanisms are pushing the off-grid industry forward rapidly<sup>6</sup>. A 40 W solar home system could just power a single incandescent bulb for five hours 10 years ago, and now a 40 W system can support several LED lights and still have left over capacity to operate other devices. The industry is also manufacturing direct current (DC) appliances, i.e. fans, TVs and refrigerators. Market has evolved to new arrangements for purchasing or leasing solar equipment, such as “pay-as-you-go” models, which makes it more affordable to households in SSA.

**Currently, the Off-grid solar sector market in Africa is largely confined to East Africa<sup>11</sup>.** From a near-standing start 10 years ago, more than 100 companies<sup>8</sup> are now focused on stand-alone solar lanterns and solar home system (SHS). In Africa, these products have improved electricity access to about 17.3 million people. However this market development has been asymmetric and faces a number of key barriers, namely, access to finance, poor regulatory framework to ensure the import of quality products, lack of business models that ensures proper financing for operation and maintenance, poor regulatory framework that promote quality products, and a lack of financial intermediaries to scale up. Kenya, Ethiopia and Tanzania are Africa’s leading markets accounting for 66 percent of unit sales in the region.

**The World Bank’s off grid electrification interventions met with successful results in East Africa.** Initially, the Bank tried to implement off grid electrification programs through public sector interventions. These interventions included public procurement and installation of Solar Home Systems at the household level. After the initial 3 to 4 years, the systems were usually not serviced and replaced and usually needed another Bank funded project support to do so. Initiatives that supported mini-grids were also not successful as it required country readiness in terms of appropriate market regulation, licensing/permitting requirements, safety standards, pricing regulation, etc. which were too cumbersome for small mini-grid developers. These are the lessons learned from our early engagement in Ethiopia, Uganda and Zambia. The Bank had better results when interventions addressed the key comparative advantages of the public and private sectors: the private sector enterprises were incentivized to sell solar PV electrification products to households, and governments were focused on providing access to finance to private sector, ensuring quality standards for solar products and reducing market and pricing barriers through waiving taxes, customs duties and VAT from renewable energy products to reduce price of the solar products in country. Examples are Bank supported off grid projects in Ethiopia and Kenya.

**Bank interventions in broader western African region including the Sahel have been smaller and are relatively new, and therefore it is too early to draw lessons learned.** Based on lessons learned from Bank involvement with private sector in Ethiopia and Kenya, the Bank engaged in several countries in the western African region to promote private sector participation in expanding off grid electricity access. Most of the Bank efforts were focused on upstream market

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required energy services”. That is, having an electricity connection does not necessarily mean having access to electricity under the new definition, which also takes into account other aspects, as for example reliability and affordability. Energy access is measured in the tiered-spectrum, from Tier 0 (no access) to Tier 5 (the highest level of access)

<sup>11</sup> Off-Grid Solar Market Trends Report 2016 (Bloomberg, Lighting Global program – WBG), February 2016



development through market assessment studies, consumer awareness activities and solar off-grid product supply chain analysis. These included awareness campaign in public schools of Mali, Senegal, and Burkina Faso. In general, there is strong Government ownership confirmed there is interest to engage in this proposed regional project. However, more comprehensive preparatory work and studies are necessary to attract the private sector to invest in promoting off grid electricity access in broader western African region including the Sahel. Some of the results and lessons from Bank supported projects are provided in the following box.

**Results and Lessons from Bank Supported Off Grid Projects**

**Access to Finance through Line of Credit.** In Ethiopia, a \$20 million Access to Finance facility resulted in 779,514 (quality approved) solar lanterns being imported and distributed by private sector, providing access to about 3.9 million people. Additional financing of US\$ 20 million was provided to meet the growing demand.

**Government ownership in Quality Assurance.** Kenya adopted the quality standards developed under the Lighting Africa program. This provided clarity to the private sector and imports of solar products increased afterwards.

**Empowering the private sector to deliver quality off-grid access.** Projects that allowed private sector to distribute solar PV technologies in a commercially oriented market achieved results faster in a sustainable manner.

**Ability to allow market development.** Until 2013, Lighting Africa Program focused on solar products that had a maximum capacity of less than 5 watts. Most of these products were portable lanterns, some of which allowed mobile-phone charging. Recognizing that technology was moving toward multiple light points, the program has now developed quality standards for solar PV systems ranging from 10 W to 100 W of installed capacity. Now the program is carrying out another study to prepare specification for solar PV institutional systems ranging up to 10 KW, which can electrify schools and health centers.

**Policy and Institutional context**

**The ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE) is the SE4ALL focal point for most of the countries in the broader western African region including the Sahel.** ECREEE is a specialized agency with a public mandate to promote regional renewable energy (RE) and energy efficiency (EE) markets. It acts as an independent body but within the legal, administrative and financial framework of ECOWAS. The SE4All Africa ‘Hub’ was officially launched in June 2013 to facilitate the coordination and implementation of the initiative in Africa, with one of the goals being universal electricity access to the region by 2030. About 85 developing country governments have opted-in to the SE4All initiative, including most of the West African countries and countries of the Sahel region. ECREEE is well placed as a regional partner in the capacity of an implementing agency due to its alignment with SE4ALL objectives of universal access to electricity across the region by 2030.<sup>12</sup> ECREEE will implement EREP following the principle of subsidiarity; ECREEE adds value by bringing the regional perspective while the project countries develop their National Renewable Energy Policy and Action Plan (NREAP) as needed.

<sup>12</sup> <http://www.se4all-africa.org/>





**Several broader West African countries including the Sahel countries are tackling the issue of off-grid electrification to some degree in a wide variety of approaches** such as concessions, franchising, Rural Electrification Agencies (REAs), Rural Electrification Funds (REFs), fee for service approaches, leasing, etc. On one hand countries like Senegal and Mali are example countries that have adopted private concessions to scale up mini-grids in rural areas. On the other hand countries such as Nigeria and Ghana have achieved good results for rural electrification based on a government investment approach. There are advantages and disadvantages to each approach, and each may be better suited to one country or another depending on the institutional and legal situation of the country concerned. There are a number of successful rural electrification programs in the region, such as the Ghana Electrification Scheme (2006-2020), or the initiatives of Mali's AMADER and Senegal's ASER. Several donors have also expressed interest in working in the region and are also planning several initiatives. Some are, (i) The Scaling-up Renewable Energy Program (SREP), a multi-donor program within the framework of the Climate Investment Funds (CIF) is considering Benin, Ghana, Liberia and Mali as pilot countries for engagements, (ii) The EU funded Electrification Financing Initiative (ElectriFI) would support rural electrification investments, (iii) The DFID-funded Green Mini-Grids initiative's Africa Regional Facility in co-operation with the African Development Bank and ESMAP might explore funding opportunity for rural electrification in the ECOWAS region, (iv) DFID Energy Africa initiative on off-grid in Ghana, Nigeria, Senegal and Sierra Leone is being considered. One of the major role of the proposed project will be to coordinate between these initiatives to ensure efficient implementation of these programs in project countries and to provide access to finance to the private sector for off grid electrification, which is mostly missing from the current initiatives. Engaging with ECREEE will also serve to develop a platform for sharing approaches and experiences, and to create regional capacity to scale up the penetration of solar technology which is required to meet universal access to energy. These are the key areas where the proposed project is focused.

### **Rationale for a Regional program**

**A Regional program can help create a sustainable market for off grid solar PV electrification products in the broader western African region including the Sahel.** Lessons from off-grid electrification projects suggest that to successfully attract private sector, and to create a sustainable market one needs economies of scale, transparent policies, business procedures, and access to finance. Agreement on quality standards for solar lighting products among the Sahel and West African countries can benefit the private sector solar PV product manufacturers as they get access to a large contiguous market. Only a regional program can ensure that all countries would adopt a similar quality standard and help create a common market. This will increase trade in between the countries in Sahel and in West Africa, creating jobs and incentive structures to support a sustainable market. Providing access to finance to different private companies in different countries is also a challenging task. By forming partnerships with a suitable pan African bank under a regional program, it can perform as a regional financial intermediary and provide line of credits to eligible private enterprises in the project countries.

**ECREEE is a specialized technical agency that supports several West Africa and Sahel countries.** ECREEE has a harmonized regional approach to achieve universal electrification, access to modern cooking solutions, system loss reduction in distribution sector, and to create instruments for financing sustainable energy projects. ECREEE has already demonstrated its ability to facilitate regional learning. It has strong links with regional and international centers of excellence, with international finance and technology partners and with bilateral and multilateral agencies and development banks. Its roles are advisory and supportive, and respect the principles of subsidiarity. Its agreed mandate is to focus on activities at regional level that can assist and add value to member states' activities in the area of renewable-energy and energy efficiency. Given ECREEE's mandate and relationship with most West Africa and Sahel countries, there is considerable advantage in making ECREEE the implementing agency of the proposed Regional Off-



Grid Electrification Project.

**C. Relationship to CPF**

The project is aligned well with both the project country governments’ electricity access objectives as well with the World Bank’s Country Assistance Strategies/Country Partnership framework in the same countries, as depicted below in Table 2:

*Table 2: Project's alignment with World Bank CAS/CPF for project countries*

Country	CAS/CPF period (FY)	Corresponding strategic objective from CAS/CPF
Benin	2013-2017	<b>CPF Pillar 1:</b> Increasing Sustainable Growth, Competitiveness and Employment - Increase access to and quality of infrastructure services (energy).
Burkina Faso	2013-2016	<b>CPS Pillar 1:</b> Accelerate Inclusive and Sustained Economic Growth.
Cameroon	2017-2022	<b>CPF focus area 2:</b> Infrastructure and private sector development – supporting the government’s industrialization strategy towards increased national availability of electricity
CAR	2016-2017	<b>Axis 2:</b> Improved Infrastructure for Regional Economic Integration
Chad	2016-2020	<b>Engagement Theme 3:</b> Building human capital and reducing vulnerability. Clean energy for heating and cooking.
Cote d’Ivoire	2016-2019	<b>CPF Objective 2:</b> Strengthen Economic Infrastructure: Ensuring access to affordable, reliable, and sustainable energy for households and enterprises alike.
Gambia	2013-2016	<b>Joint Partnership Strategy WB-AFDB:</b> critical infrastructure (AfDB on transport and WBG on energy)
Ghana	2013-2016	<b>CPF Pillar 2:</b> Improving Competitiveness and Job Creation.
Guinea	2014-2017	Strengthened efficiency of the energy and agriculture sectors.
Guinea-Bissau	2015-2016	Country Engagement Note. Additional resources to be focused on support to the infrastructure (including energy and port) and productive sectors
Liberia	2013-2017	CPS has strong priority on expanding electricity services and making them more affordable to businesses and households in order to spur economic growth, job creation, and poverty reduction
Mali	2016-2019	<b>CPF Objective 2.3:</b> Improve infrastructure and connectivity for all Malians (2.3.2 Indicator: People provided with access to electricity by hold connections-Other Renewable Energy: Off-grid).
Mauritania	2008-2011	<b>CAS Pillar 2: Use Bank Group synergies to catalyze private sector growth</b>
Niger	2013-2016	<b>CPS Pillar 1:</b> Promote resilient growth – including increased access to energy services
Nigeria	2014-2017	<b>CPS Pillar 1:</b> Growth and Competitiveness’ of the CPS, the Bank aims to support the government in creating a platform for diversified growth and increased productivity (including power sector)
Senegal	2013-2017	<b>CPF Pillar 1:</b> 9A- Improved access to affordable electricity. 9B- Improved rural access to electricity.
Sierra Leone	2010-2013	<b>JAS Objective 2:</b> Promoting Inclusive Growth - Improved access to sustainable electricity infrastructure services (Energy).
Togo	SCD 2016	CAS: Unreliable electricity services mentioned as a specific binding and moderate constraint to eliminate extreme poverty and boost shared prosperity



**The proposed project is aligned with the Africa Climate Business Plan (ACBP), World Bank’s Energy Directions Paper (ESDP), Sustainable Development Goal 7 (SDG 7), and Sustainable Energy for All (SE4ALL).** According to the ACBP and ESDP, World Bank Group engagement in the energy sector is designed to help client countries secure affordable, reliable, and sustainable energy supply needed to end extreme poverty and promote shared prosperity. This project aims to increase access to energy in the un-electrified regions of project countries, and will connect people to electricity services using least-cost technology solutions based on locally abundant solar resources. The overarching principle of this project is the provision of reliable, affordable, and sustainable energy services. As noted above, this is aligned with the different CAS/CPFs of respective countries, but also mirrors the access target of the Sustainable Energy for All Initiative and is fully aligned with SDG7, which both aim to “Ensure access to affordable, reliable, sustainable and modern energy for all”. With a focus on the poor and underserved, utilizing abundant renewable energy resources, and creating an enabling environment for private sector involvement, the project will be designed to minimize the financial and environmental costs of expanding reliable energy supply in these countries, thereby helping each country achieve their respective access targets.

**The proposed project is aligned with the principles set out in new strategic directions for the World Bank’s Africa Energy Practice in the area of off-grid solar energy.** The new World Bank approach paper to off-grid solar energy presents six ways that the World Bank can catalyze the off-grid solar market in Sub-Saharan Africa: 1) develop the policy and regulatory environment for off-grid solar; 2) support governments to mainstream off-grid PV into sector planning; 3) facilitate access to working capital; 4) issue guarantees to reduce risk for commercial lenders; 5) use performance-based grants to push the market, and 6) support receptive markets through quality assurance and consumer awareness. The proposed project will apply these principles. For example, the use of working capital facility and performance-based grants to incentivize the market will be among those options explored for the electrification of households, and the proposed project will provide support to all receptive markets within the consumer awareness component of the project.

## **PROPOSED PDO/RESULTS**

### **Proposed Development Objective(s)**

To increase electricity access to households and businesses using modern off-grid technology through a harmonized regional approach.

### **B. Key Results**

The project key results indicators may include:

1. Number of off-grid products provided to expand access to electricity (number);
2. Number of community facilities provided with access to electricity by off-grid systems (number)

## **PROJECT CONTEXT**

### **A. Concept**

1. Description



The proposed regional project will address the key barriers to attract private sector participation in promoting off-grid electrification in the project countries. It will support private sector to become distributors and suppliers of standalone quality verified solar PV systems to electrify households and businesses. It will also support private sector service providers to supply electricity from standalone solar PV systems through long term supply contracts, to public institutions i.e schools, health centers, etc.

Access to finance all along the supply chain has been identified as a critical need for the private sector for the functioning and growth of the off-grid market. Distributors need working capital to hold adequate product stocks and service providers need long term debt to finance their capital investment. The proposed project will provide this support to the private sector in forms of working capital loans or longer-term loans through an experienced and responsible financial intermediary that can enable the private sector distributors and service providers to provide electricity access to the un-electrified population.

In conjunction, for electricity service provisioning to public institutions, the project will **reduce the risk of nonpayment by the public sector to the private sector service providers** by designing a payment risk mitigation instrument.

The proposed project will also extend the Quality Assurance standards developed by the Lighting Africa Program (and currently housed as Lighting Global Quality Standards<sup>13</sup>) to the project countries to help them develop quality assurance (QA) framework for off-grid solar electricity systems for institutional applications such as health clinics, schools, and other public administration offices to ensure the long-term performance of these systems.

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.

Specifically, the proposed project will support market intelligence studies demonstrating the opportunities and challenges presented by the off-grid markets in the project countries. These studies will provide critical data to help manufacturers, distributors and retailers to make informed business decisions. An example of a critical area for study in the project countries include import tax, duty and other tax regimes on off-grid lighting products that affect the creation and sustainability of broader off-grid markets.

**Implementing Agency:** ECREEE has been preliminarily identified as the Project Implementing Agency. The proposed project will implement its activities through a Project Implementation Unit (PIU) created and supported by the project and housed within ECREEE. The PIU will be responsible for carrying out Technical Assistance activities (Market Intelligence studies, Quality Assurance, Business Development, Policy and Regulatory support and Consumer Training activities). The PIU will also be responsible for monitoring and evaluating the project implementation activities.

The project will identify suitable financial intermediaries (FI) from the relevant and capable organizations present in the region and against an eligibility criteria. ECREEE will prepare the eligibility criteria in consultation with the project countries during project preparation phase. While the preferred option will be to select one FI that can work in all project countries, if that is not possible then a maximum of three FIs would be selected to keep the project implementation simple.

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<sup>13</sup> <https://www.lightingglobal.org/qa/standards/>



As part of project preparation activities, ECREEE will (i) establish a PIU with appropriate staff, (ii) prepare Operating Guidelines for the FI in consultation with the project countries, (iii) select a Financial Intermediary to establish the line of credit facility, and (iv) design a payment risk mitigation instrument to protect private sector service providers from public institutions nonpayment risk.

**Project Preparation Advance (PPA):** ECREEE will request Project Preparation Advance (PPA) of about US\$ 5 million to prepare this project for implementation. The PPA will enable ECREEE to staff a PIU with qualified staff, appoint consulting firms to start market assessments in all project countries, design and implement awareness campaign of solar off grid technologies in project countries, initiate consultation to standardize quality specifications of the solar products in project countries, select a suitable financial intermediary to implement a line of credit for private sector enterprises, and finalize the operational manual to determine the eligibility criteria of private sector enterprises who could benefit from the project.

The PPA will also support a pilot involving electricity provision (through installing, operating and maintaining off-grid solar equipment) in a selected few health centers and water pumping facilities in Niger (one of the early countries expected to take advantage of this regional project through their under preparation off-grid access project). This will enable the project to develop a more robust quality assurance and service quality framework resulting from the experiences of operating a small scale pilot. This will also inform the broader design of the project during the preparation stage.

As this project preparation will take considerable time, the project would be ready for Board presentation in September 2018. This will further reduce delays in project effectiveness and will reduce risk of slow disbursement.

### Geographic scope

Figure 1: Geographical coverage of project countries



ECREEE has agreed to implement this regional project beyond its mandate to serve the 15 member states of ECOWAS. As many of the ECOWAS members are part of Sahel countries, ECREEE will expand the implementation of this regional project to Cameroon, Central Africa Republic, Chad, and Mauritania. Bank will inform these countries through its ongoing dialogue about this regional project which will be implemented through ECREEE and will seek their agreement to benefit from this proposed project. ECREEE will therefore offer this project to about 18 countries. As of now, 8 countries (Benin, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Senegal, and Sierra Leone) have confirmed their interest to benefit from this regional project. It is expected that Cameroon, Central Africa Republic, Chad, and Mauritania will agree to benefit from this project. ECREEE is currently following up with its member states and expects to receive confirmation from more of its member states to take part in this project.

### Project Components

The project is designed following a Series of Projects (SOP) approach. The program development objective supported by the SOP is to increase electricity access of households, businesses and public institutions using modern off-grid



technology through a harmonized regional approach.

The borrowers of the first project under the ROGEP SOP will be limited only to regional organizations. ECREEE will use Regional IDA Grants to develop a regional market for standalone solar products. ECREEE will undertake regional market assessment of off grid products, develop harmonized quality standards of standalone solar systems, support removal of cross border trade policy barriers, support adoption of the common external tariff, etc. ECREEE will also develop technical capacity and skill of local entrepreneurs and help them in refining their business models to create a pool of successful local solar companies and help them partner with international solar system manufacturers. ECREEE will pilot test electrifying public institutions to identify suitable technology and business model under the first project of the ROGEP SOP.

The project will explore possibilities to providing IDA SUF Credit for Financial Intermediary Financing to regional development banks such as West Africa Development Bank (BOAD) and ECOWAS Bank for Investment and Development (EBID). These regional development banks would establish line of credits for eligible commercial financial institutions (CFI) operating with the ROGEP project countries. The standalone solar companies could then access finance from these CFIs for their working capital needs to import standalone solar systems and for medium term financing needs to offer pay-as-you-go (PAYGO) payment scheme to consumers. The PAYGO schemes could make the solar products affordable to consumers as it would allow paying the cost of the standalone solar system through installment payments over 6 months to several years.

The first project of the ROGEP SOP would develop a framework/platform on which the regional standalone solar market would be established. The respective countries should consider this first project as an opportunity to develop their internal capacity – required to implement subsequent projects where the countries would borrow specific resources to support off grid electrification in the country. At the first Project of ROGEP SOP the countries should focus on (a) internalizing the key policies of ROGEP, (b) strengthen its national electrification plan and identify specific areas to be supported under ROGEP, (c) develop adequate implementation capacity and leadership in the country for moving forward the specific measures/actions relevant to ROGEP, and (d) develop satisfactory M&E arrangements that will aid in providing feedback on ROGEP performance.

In subsequent projects under the ROGEP SOP, in addition to the regional implementing agencies, project countries would also become borrowers. The countries could allocate their national and regional IDA resources to this project. The specific interventions of the ROGEP program that would be supported in subsequent Projects under the ROGEP SOP are, (i) electrification of public institutions, (ii) financial intervention to entrepreneurs; and (iii) risk mitigation facility.

The proposed project components are: (i) Developing a regional off-grid market; and (ii) Providing access to finance for standalone solar system businesses.

### **Component 1: Developing a Regional Market (IDA Regional Grant US\$10 million)**

#### **Subcomponent 1A: Enabling Environment (IDA Regional Grant US\$7 million)**

To allow the region benefit from the technological innovations and new business models, the countries need to adopt new policies and regulatory frameworks. Support to all project countries would be provided through strengthening a regional energy access policy. As this regional policy would be prepared through a consultative process with the project country counterparts; including, private sector players, financial institutions, etc., it would have a higher probability of



influencing national energy access policies, that would be developed by each country at a later stage in the ROGEP SOP. Following are some of the key areas, but not limited to, that would be supported by this subcomponent under the first project of the ROGEP SOP:

- a. Supporting regional policy and regulatory frameworks for the off-grid sector;
  - i. Developing and adopting regional standards and a quality assurance framework for standalone solar systems;
  - ii. Removing trade barriers and moving towards simplified tax regime to enhance product affordability;
  - iii. Enabling Mobile Money to support PAYGO schemes;
- b. Supporting development of a regional entrepreneurship ecosystem to support sustainable growth of the off-grid Industry;
- c. Sharing market intelligence & facilitating stakeholder exchange;
- d. Unlocking regional demand through consumer awareness & promotional campaigns;
- e. Removing supply constraints through capacity building of banks/CFIs and other relevant stakeholders; and
- f. Exploring new business models to promote the use of off-grid technology to Electrify public institutions and productive use applications.

#### **Subcomponent 1B: Entrepreneurship Support (IDA Regional Grant US\$3 million)**

This subcomponent will provide differentiated support to entrepreneurial businesses across the enterprise development lifecycle (startup, early stage, growth, and maturity). At the ROGEP SOP level the Entrepreneurship Support subcomponent would be implemented through (i) technical assistance interventions and (ii) financing interventions. The technical assistance interventions will aim at enhancing the capacity, skills and expertise of the businesses while the financing interventions will have the objective of contributing to the businesses' growth and the creation of a track record to facilitate access to financing services, thus increasing their bankability and eventually sustainability. This subcomponent would remove market barriers and attract new players to the standalone solar system market. The project design will avoid subsidization of what large businesses can do on their own. The entrepreneurship support facility will be coordinated with the ECOWAS certification scheme for PV installers/technicians and will be framed within the ECOWAS Renewable Energy and Energy Efficiency private sector support facility that ECREEE has successfully operated since 2015. The scope of this subcomponent under the first project of ROGEP SOP would be limited only to the technical assistance intervention. The financial intervention would be supported in subsequent projects under the ROGEP SOP.

#### **Technical Assistance Intervention**

Entrepreneurship and business training will be offered to startup and early stage ("Tier 1" and "Tier 2") standalone solar businesses across the ROGEP countries. This will build upon the existing training programs that have been provided by ECREEE to over 100 such businesses across the region from 2015-2018. The training program under ROGEP is expected to support already operational national service providers to enhance their portfolio by including the delivery of training programs on standalone solar businesses. Additionally, an annual regional business plan competition and workshop will be carried out.

Customized Business Acceleration Support. Early stage ("Tier 2") businesses – those that have advanced beyond startup stage but are still developing and iterating their business model, adapting technology, and finalizing product marketing strategies – will be offered customized business acceleration support under ROGEP. This highly specialized and customized support would be provided through a network of business incubators and accelerators in the ROGEP



countries. Support will include, assistance to refine business strategies and business models, mentoring from seasoned entrepreneurs and investors, transaction advice and investment facilitation, and technology and product development support. Support is envisioned to last about 9-12 months for each participating business. Businesses will apply for this support on a rolling basis through an online application managed by ECREEE, which will then identify the partner organization capable of delivering the appropriate support.

Facilitation of Entry to the Solar Industry. Successful local businesses that are operating in non-solar industries represent important potential new entrants into the standalone solar industry. These businesses might be operating in industries such as agricultural supply, agribusiness, retailing, or other areas that require strong, local distribution chains and similar operational capabilities that might be transferred to the solar industry. In most cases, these will be larger existing businesses (“Tier 2” or “Tier 3”) that can access financing but may not have the know-how or awareness of the opportunity to expand into standalone solar products. Targeted awareness campaign will be carried out to inform these companies about this new opportunity, for which training and capacity building support will be provided by ROGEP.

ECREEE will establish the Entrepreneurship Support facility at the initial stage with support from Bank funding. Key technical interventions of this component will also be supported through Bank financing. ECREEE is discussing with several development partners to secure additional financing to support the Financing Interventions under this component.

### **Component 2: Providing access to finance for standalone solar system businesses (IDA SUF US\$140 million)**

This component will facilitate access to debt financing in support of the off-grid solar equipment market. Through a combination of credit lines and risk sharing instruments, it will channel short to medium term loans to the following three main categories of borrowers: (i) solar equipment distributors supplying products to households and productive end-users of solar equipment; (ii) households and productive end users of solar equipment; and (iii) energy service companies electrifying public institutions, such as schools and health centers. This component will be implemented through the following three subcomponents.

#### **Sub-component 2 A – Credit line through BOAD**

The project will explore lending IDA SUF funds to BOAD. This sub component will serve the 8 countries in the WAEMU/UEMOA region. BOAD would on-lend the funds on terms at or near market terms, that cover the cost of funds, operating costs, hedging costs if any, and a profit element to be determined by BOAD in line with its other lending operations to similar commercial FIs. BOAD at its discretion may utilize the following four financing channels: (i) commercial banks; (ii) leasing companies; (iii) MFIs; and (iv) debt funds. BOAD will identify its partner financial institutions based on eligibility criteria set in its ROGEP Operation Manual. The financial institutions would indicate the number, size and type of deals they expect to support using the line of credit from BOAD.

BOAD will explore the possibility of establishing a specialized debt fund to be set up and managed by BOAD Titrisation with the objective of tapping the UEMOA capital market to finance solar equipment receivables. Under the first project of ROGEP SOP, a feasibility study of such specialized debt fund would be conducted to determine whether it would be included in the project.

#### **Sub-component 2 B - Credit Line through EBID**





61. The project will explore lending IDA SUF funds to EBID. This will cover all the 15 ECOWAS countries and will therefore complement Sub-Component 2 A. Subject to shareholder and management approval, EBID may be able to extend its cover to the 4 ROGEP countries that are not currently in ECOWAS, thus reaching all 19 ROGEP countries. Similar to Sub-Component 2 A above, EBID will on-lend the funds on terms at or near market terms, that cover the cost of funds, operating costs, hedging costs if any, and a profit element to be determined by EBID in line with its other lending operations to similar commercial FIs. EBID at its discretion may utilize the following four financing channels: (i) commercial banks; (ii) leasing companies; (iii) MFIs; and (iv) debt funds. EBID will identify its partner financial institutions based on eligibility criteria set in its ROGEP Operation Manual. The financial institutions would indicate the number, size and type of deals they expect to support using the line of credit from EBID.

### **Sub-Component 2 C – Risk Mitigation Facilities**

62. The solar off-grid markets in West Africa are at nascent stage. There is less information about market demand, customer credit history, and solar companies have limited track record than in other regions. Commercial banks, and other prospective lenders, are often reluctant to lend to SMEs in general, and even more so for SMEs in the off-grid solar market. Public sector customers comprising schools and health clinics have additional commercial risks as they may be subject to delays or cuts in government funding, and there is a higher potential political risk of enforcing commercial payment disciplines, such as disconnecting electricity services in case of non-payment. For these reasons, solar companies serving public institutions, could need a higher level of risk mitigation.

ECREEE has identified several Risk Mitigation Facilities supported by different development partners. While these Risk Mitigation Facilities come with their own structure and criteria, there are synergies based on which ECREEE could adopt a framework approach to coordinate the ROGEP access to finance component with existing risk mitigation facilities. This approach could better align the interests of the donors and commercial banks and result in a more effective partnership.

Some development partners with existing risk mitigation facilities are: (i) AfDB supported USD 500 million off-grid solar fund, managed by Lions Head; (ii) Africa Guarantee Fund (AGF) provides first loss or partial guarantees; (iii) USAID through its Development Credit Agreement (DCA) provide first loss or partial guarantees; (iv) IFC can share 50 percent of the risk exposure of selected commercial banks in most of the ROGEP countries through its Small Loan Guarantee program (SLGP); (v) MIGA may provide breach of contract cover to energy service companies that have entered into a concession agreement with government to electrify a group of public institutions.

The first project of ROGEP SOP will partner with IFC's Small Loan Guarantee Program (SLGP), a new programmatic approach to risk sharing with CFIs. Under SLGP, IFC will share 50 percent of standalone solar companies' portfolio risk with local CFIs and provide comprehensive advisory services to enhance and strengthen the CFIs' capacity for risk taking and financing for standalone solar companies. The SLGP will use a pooled first loss structure provided by IDA18 IFC-MIGA Private Sector Window (IDA-PSW) Blended Finance Facility (BFF).

ECREEE would use Bank funding to build capacity to coordinate and adopt a framework approach with existing risk mitigation facilities to attract financial institutions enter in the standalone solar space and to provide access to finance to solar companies to electrify project beneficiaries.

An FI will be selected for this component of the project. Using the FI selected to electrify households and commercial enterprises for this component would be the preferred option. However, if that FI is not eligible or interested, the project will select a different FI to extend longer term loans to private sector service providers to electrify public



institutions (schools, health centers, water pumping and other public facilities).

The private sector service providers will receive long term financing from this FI to enable them to provide electricity services to the public institutions (including life cycle costs of procuring, installing, operating and maintenance and replacement). The service provider will enter into a long-term service agreement with a designated public agency (for example, the Ministry of Energy) responsible for periodic payment to the service provider against quality verified and timely electricity service delivery. The public institutions will be responsible for indicating to the designated public agency of the service delivery for the release of funds. The verification of quality and timely service would be done by an independent third party monitored by the PIU. The World Bank will provide payment risk-mitigation support to the private sector service provider to mitigate their risk of non-payment from the designated public agency. This will ensure that the service provider gets paid on time against quality and timely delivery of service. The PIU will monitor the fiduciary and reporting activities of the FI.

The design above could accommodate a range of implementation approaches, to be finalized during the preparation of the project. However, the following principles will be upheld while designing the component:

## **ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT**

### **A. Project location and salient physical characteristics relevant to the E&S risk management analysis (if known)**

1. This is a regional project and it will be implemented across 15 ECOWAS member countries (Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, and Togo) and 4 other countries (Cameroon, Central Africa Republic, Chad, and Mauritania). In each country, the locations of solar systems will be nation-wide. The project has two main components: (1) Developing a regional off-grid market; and (2) Providing access to finance for standalone solar system businesses.

2. The first component aims at fostering regional collaboration and enabling environment to develop a regional market (1a), and include TA and a grant funding facility (1b) for private sector businesses. The second component foresees two credit lines (2a) for two regional development banks and the creation of Risk Mitigation Facilities (2b). Beneficiaries will be solar companies engaged in importing, sales, and installation of standalone solar equipment for households, small businesses and public buildings. The project implementing agency is the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), and the credit recipients are: West African Development Bank (BOAD) and the ECOWAS Bank for Investment and Development (EBID). BOAD and EBID will on-lend to partner financing institutions ("retail FIs") during project implementation to on-lend to solar businesses. In addition, ECREEE will also act as an FI under component 1(b) as it will extend grant funding to solar companies that are just entering the market or are in the initial growth phase.

3. The project will provide solar PV based standalone electrification equipment to households and commercial enterprises. Private sector service providers will also enter in concession agreement with government to electrify a group of public institutions. In most cases, the solar panels will be installed on the beneficiaries' rooftop. Solar panels could also be installed on the ground of commercial enterprises and public



institutions. This type of solar projects involves minimal civil works and comprise mainly solar generation equipment installation and electro mechanical works. Specific locations of such equipment installations are not known. Manufacturing of solar equipment will not be financed under this phase of the project.

4. While specific impacts of solar equipment installation projects is not known at this time, based on the nature of business activities in this sector that will be supported by the project, key environment and social risks are expected to include waste management (disposal and recycling of solar panels, used SHS units, and especially lead acid and lithium ion batteries, which are considered hazardous waste), water quantity and quality for panel washing, safety of OHS practices for solar companies' workers, and labor issues (no child or forced labor, proper grievance redress, fair terms of employment).

5. Land-related issues are not expected to be significant, apart from potential voluntary land donation that will require a proper protocol, as well as small-scale land management and use for installation of panels (if installed on the ground). As the PV systems will be installed mostly on public and private sector buildings, written consent from the building users/owners will be taken and documented. Similar procedures would be adopted for ground mounted systems.

6. Additionally, some gender-related risks might involve gender-based violence, risk of underserving/ excluding female-headed households, and the need to close gender gaps in income generating opportunities, access to credit, and in health services and outcomes in project countries.

7. The project also plans to address potential impacts on other vulnerable groups in terms of an inclusive approach to providing access to electricity to undeserved rural areas, the poorest parts of the population within communities, marginalized groups such as refugees and people with disabilities etc. The project looks at this aspect as an opportunity for more socially sustainable outcomes.

**Rationale for classification as Category FI-1, FI-2, or FI-3:**

8. The World Bank environment and social technical standards and management system requirements applied to this project will be governed by the provisions of OP/BP 4.03 (Performance Standards for Private Sector Activities, or World Bank PS). The approach will be consistent with the policy provisions for projects involving financial intermediaries (FIs). OP/BP 4.03 (*"Performance Standards for Private Sector Activities"*) will be applicable to the project in lieu of the World Bank's safeguard policies. OP/BP4.03 is better suited for this project given that it will constitute private sector activities and is executed through participating financial institutions (PFIs), which are commercial private sector financial institutions.

9. The project is a Financial Intermediary (FI) project and is categorized as **FI-2** in accordance with OP/BP4.03. This categorization is based on the review of the prospective project activities and an expectation that, in accordance with BP4.03 paragraph 21, potential adverse environmental and social risks or impacts will be few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.

**B. Borrower's Institutional Capacity for effective ESMS**

10. ECREEE, EBID, BOAD, PFIs, private sector solar companies, specialized environment and social consulting firms, and experts are expected to play important roles in implementation of the ESMS. There expected to be two core elements of the ESMS design for the project as follows:



- a. *Operational E&S procedures for the lending components implemented through BOAD and EBID as wholesale FIs under the project.* BOAD and EBID have existing institutional systems for managing E&S risks in their operations. Both institutions have E&S units with dedicated personnel, however these units are small and staff capacity to cover all operations is still insufficient. Institutional ESRM systems of BOAD and EBID (policies and internal procedures) cover both direct project finance investments by BOAD and EBID and their operations conducted through the commercial financial sector. The latter part of the institutional E&S systems is of specific relevance to ROGEP as this project will be implemented through extending credit lines to commercial FIs for on-lending to solar businesses.

To date, both BOAD and EBID have had experience with lending through commercial FIs for general MSME, leasing, microfinance across sectors, as well as housing. However, neither institution has had experience with financial sector-specific credit lines. Since E&S risks with regard to lending to a particular sector require specific and targeted mitigation commensurate with the nature and magnitude of such risks and impacts, BOAD and EBID will strengthen their institutional ESMS with a sectoral solution in the form of an ESRM Sector Guide for Off-grid Solar that will be mandated for use by participating FIs. This approach aligns with good international practice by development banks of putting in place sector guidance for their priority lending sectors (energy, agriculture etc.). This is expected to address the specifics of E&S risks of lending in the off-grid solar sector and provide requirements and tools for PFIs and the borrowing solar companies. The Sector Guide will also be applied by ECREEE in its capacity as an FI for components 1 (b) and 1(c) of the project.

Moreover, during project preparation, a baseline study of E&S capacity of potential participating FIs and solar companies will be carried out based on a standardized questionnaire. A sampling approach will be used to provide an indication of current level of awareness among these two key groups of stakeholders and tailor E&S technical assistance – as described below - to their needs.

- b. *Strategic/ technical assistance E&S component implemented by ECREEE.* Some of the key E&S risks associated with the project are systemic and cannot be addressed at the operational level alone. Examples include waste management/ used battery recycling solutions at the level of countries and the region, gender issues, overall E&S capacity building for commercial FIs and solar companies, and knowledge exchange for key stakeholders. For instance, participating FIs and solar companies would be trained in application of the requirements of the ESRM Sector Guide and embedding E&S considerations into their business. These will be addressed through strategic solutions that will be part of the technical assistance component implemented by ECREEE, with a dedicated budget allocated to it. Specific areas of strategic intervention will be identified as part of project preparation.

ROGEP would be the first World Bank project ECREEE is involved in and the project PIU will need accelerated capacity building on the E&S aspects. Currently, ECREEE has limited capacity for ESRM, with one part-time staff supporting project preparation. ECREEE will be expected to hire a full-time E&S expert to assist with project implementation. The PIU, however, already has a full-time gender expert and a GIS expert who have relevant experience. Additionally, ECREEE appointed a part-time E&S coordinator within the PIU who has prior experience with ESRM in the financial sector to support project preparation.

## **C. Environmental and Social Safeguards Specialists on the Team**



1. Alexandra C. Bezeredi, Lead Social Development Specialist, GSU01
2. Ekaterina Grigoryeva, Environmental Specialist, GEN03

**D. Performance Standards that might apply**

Performance Standards	Applicable?	Explanation (Optional)
PS1 (Assessment and Management of Environmental and Social Risks and Impacts)	YES	<p>Provisions of Performance Standard 1 (PS1) with regard to developing and implementing Environmental and Social Systems (ESMS) by Financial Intermediaries, both wholesale (EBID and BOAD) and retail (commercial FIs borrowing from BOAD and EBID as well as ECRREE in its capacity as an FI for components 1(b) and 1(c)). PS1 ESMS provisions will also apply to the solar companies to ensure they have adequate systems – policies, procedures, guidance, capacity - in place to mitigate identified core E&amp;S risks at their level.</p> <p>ESMS will incorporate, as appropriate for the project circumstances, relevant principles and elements of an ESMS described in PS1 as relevant to each key stakeholder group that needs to meet this requirement. Such a system will include processes and implementation capacity within the multilevel project structure to manage key identified E&amp;S risks and impacts. As the project funds will be provided to support specific activities and end use of funds will be clearly specified (funding of solar companies engaged in installation of equipment), the ESMS requirement will apply to this specified end use only.</p> <p>The ESMS will also incorporate a grievance mechanism at PMRC level that will accept and address complaints and concerns regarding PMRC’s lending operations in a manner accessible and understandable for affected parties.</p>
PS2 (Labor and Working Conditions)	YES	Private sector Financial Institutions will manage the working conditions of their own workforce in accordance with relevant aspects of Performance Standard 2 on Labor and Working Conditions, as required by para. 17(b) of BP 4.03.
PS3 (Resource Efficiency and Pollution Prevention)	NO	N/A
PS4 (Community Health, Safety, and Security)	NO	N/A
PS5 (Land Acquisition and Involuntary Resettlement)	NO	N/A
PS6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources)	NO	N/A



PS7 (Indigenous Peoples)	NO	N/A
PS8 (Cultural Heritage)	NO	N/A
Projects on International Waterways OP/BP 7.50	NO	This policy will not apply as no project activities involving international waterways are expected.
Projects in Disputed Areas OP/BP 7.60	NO	This policy will not apply as no project activities involving disputed territories are expected.

**E. Preparation Plan**

Target date for the Quality Enhancement Review (QER), at which time the ESRS would be disclosed and the PAD-stage PID/ISDS would be prepared

July 20, 2018

For Category C or Category FI projects that do not require an ESRS, the target date for preparing the PAD-stage PID/ISDS

July 20, 2018

Time frame for launching and completing the studies that may be needed. The specific studies and their timing should be specified in the Appraisal Stage PID/ISDS

July 30, 2018

In line with BP 4.03 para. 23, the World Bank will assess the ESMS of the financial institutions involved and prepare a written memorandum that will include (a) a brief summary of the findings regarding the risk profile of the FIs’ portfolio; (b) a description of the ESMS and its appropriateness; (c) a brief summary of the FIs’ capacity to implement the ESMS; (d) recommended specific requirements to be included in the legal agreements for the Private Sector Activity regarding the periodic reporting to the Bank by the FIs on the implementation of the ESMS; and (e) recommended language for the environmental and social impacts sections of the project documents.

**CONTACT POINT**

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Country Director:	Rachid Benmessaoud	August 20, 2018