Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 20-May-2021 | Report No: PIDC31957

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Guinea-Bissau	P174576		Guinea-Bissau: Solar Energy Scale-up and Access Project (P174576)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
AFRICA WEST	Jan 26, 2022	May 10, 2022	Energy & Extractives
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance	Ministry of Natural Resources and Energy	

Proposed Development Objective(s)

The project development objective is to increase access to electricity and enhance the availability of solar energy in Guinea-Bissau.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	37.50
Total Financing	37.50
of which IBRD/IDA	25.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	25.00
IDA Grant	25.00

Non-World Bank Group Financing

Trust Funds	12.50
Green Climate Fund	12.50

Environmental and Social Risk Classification	Concept Review Decision
Substantial	Track II-The review did authorize the preparation to continue

B. Introduction and Context

Country Context

1. Guinea-Bissau is a small country in West Africa with a surface area of 36,000 km^2 and a population of about 1.8 million. It is one of the most fragile countries in Sub-Saharan Africa (SSA), plagued by political turmoil and successive *coups d'état* since independence in 1974. Between 2000 and the present, the country has had 16 prime ministers appointed to lead different governments. This internal instability, often associated with problems in the political and military structure of the country, has prevented the formation of stable and accountable institutions and had a crippling effect on the economy.

2. Guinea-Bissau's economy remains predominantly rural, as small-holder traditional agriculture accounts for about 45 percent of gross domestic product and employs about 80 percent of the labor force. The agricultural sector consists mostly of subsistence farming using manual labor. The economy relies almost exclusively on the production of cashew nuts, the main cash income for two-thirds of households and generates 95 percent of the country's foreign exchange.

3. The incidence of poverty is high, with over 67 percent of the population living below the poverty line (2011 purchase power parity at US$1.90 per person per day), making it one of the poorest countries in the world. Poverty is more entrenched in rural areas where it is compounded by poor social services, insufficient investments in human capital, and significant infrastructure gaps. Real GDP growth improved from 3.3 percent in 2013 to 4.7 percent in 2017, mainly driven by increased global demand for cashew nuts. Per capita GDP is now estimated at US$803, although the Gini coefficient is high (sharply increasing from 0.35 in 2002 to 0.5 in 2010). This points to high levels of inequality. The country ranks 178th out of 189 on the 2019 United Nations Development Program (UNDP) Human Development Index.

4. The impact of Coronavirus pandemic (COVID-19) on the overall economy has been severe until now. The first case of COVID-19 was recorded on March 24, 2020. Confirmed cases and deaths have reached about 3,710 and 66, respectively, as of April 16, 2021. However, insufficient testing capacity suggests that these figures most likely understate the true number of infections. The main transmission channels of the impact of the pandemic on the economy include external (falling global cashew demand and price, tighter financial conditions, and low oil prices), and domestic (economic disruptions caused by lockdowns and direct health impact of a wider spread of COVID-19). Health sector capacity is low and readiness to address a pandemic is weak.

5. The Government has taken numerous steps to respond to the impacts of COVID-19. In March 2020, the Government closed air, land, and sea borders, ordered the closure of schools and restaurants, and imposed strict stay-at-

home measures. Most restrictions have now been lifted. A National Contingency Plan estimated to cost around US$13 million (0.9 percent of GDP) was then adopted and the President put in place an Office of the High Commissioner for COVID-19. International partners work with the Commission to support the contingency plan's implementation. Still, Guinea-Bissau remains without fiscal and financial sector buffers to counter an external shock.

6. As a result of the COVID-19 crisis, GDP is estimated to have contracted by 2.4 percent in 2020, from an increase of 4.6 percent in 2019, and the fiscal deficit to have increased from 3.9 percent to 9.0 percent of GDP. On March 30, 2020, a state of emergency was declared that imposes strict stay-at-home restrictions. The fluid political situation that followed the 2019 presidential elections is delaying timely response to COVID-19. The pandemic struck at the onset of the annual cashew marketing season, reducing external demand, and causing farmgate prices to reach their lowest levels in six years. Strick lockdown measures have affected the supply of goods and services and increased unemployment. As a result, the crisis is estimated to have further increased the poverty rate to 66 percent in 2020, reflecting lower farmer income and social vulnerabilities to the spread of the pandemic.

7. Guinea-Bissau is highly vulnerable to the impacts of climate change. Floods are a recurring natural hazard in the country, especially along its coast. Guinea-Bissau has also experienced some devastating droughts in the recent past. Heavier rainfall events in the future along with higher tides from rising sea level will continue to impact coastal areas, posing a serious threat to 70 percent of the population residing along the coast. Climate change effects constitute a source of additional pressure for the need of climate resilient energy infrastructures.

8. Transforming Guinea-Bissau towards an inclusive, sustainable economy requires establishing an enabling environment for private investments and providing essential infrastructure and services, including electricity. Lack of key infrastructure, weak governance and the challenging investment climate are structural issues in Guinea-Bissau. The country ranks in the bottom 10 percent in most of 2019 World Bank's Worldwide Governance Indicators (WGI), including on control of corruption, government effectiveness, rule of law and regulatory quality. These institutional weaknesses translate into a poor execution of government programs and an underdeveloped private sector. Therefore, improving people's standards of living while protecting the environment will require: (**i**) good governance; (**ii**) creating a favorable business environment and boosting the private sector; (**iii**) addressing the lack of infrastructure; and (**iv**) conserving the country's biodiversity and sustainably developing the country's natural capital.

Sectoral and Institutional Context

9. The Ministry of Natural Resources and Energy (MNRE) and the national electricity utility, *Electricidade e Aguas da Guine-Bissau* (EAGB), are the two main actors in the power sector. The MNRE is responsible for government policy, regulation and oversight of the sector. EAGB is a state-owned company responsible for the production, distribution, and commercialization of water and electricity. Its concession area covers the entire territory of Guinea-Bissau but, for lack of financial means, its real activity is very much limited to the capital city of Bissau for now.

10. Only 29 percent of Guinea-Bissau's population has access to electricity, with around 58 percent in the capital city Bissau. Electricity is both scarce and very costly, making it among the most expensive in the African continent at present. Secondary cities such as Bafata, Canchungo and Gabu rely on diesel generators for electricity supply. As a result of recent Government's efforts in reducing the cost of electricity generation and improving EAGB's management and

operational performance, the average cost of electricity service has been reduced from US$0.60 to US$0.42 per kWh. Despite this progress, the average electricity tariff (US$0.38 per kWh) does not recover costs yet. According to the West Africa Power Pool (WAPP) Master Plan of December 2018, Guinea-Bissau has an estimated electricity peak demand of 63 MW countrywide, which is more than double the installed generation capacity (approximately 30 MW). Until recently, the demand-supply gap was even larger since the only generation capacity was 15 MW of rented containerized diesel generators and EAGB's inability to afford costly diesel purchases led to recurrent energy crises and frequent blackouts of four to twelve hours a day in Bissau.

11. The ECOWAS Regional Access project (P164044) approved in December 2018, will help increase electricity access to around 40 percent by connecting an additional 33,000 households to the grid. The project aims to increase grid electricity access in Guinea-Bissau, Mali, and The Gambia. This will be done through design, supply, and installation of electricity distribution infrastructure to maximize new connections. The project also includes the supply and installation of last-mile connection equipment, including service drops, smart meters for large consumers, prepaid meters, ready boards for LV customers, and street lighting.

12. In addition, Guinea-Bissau is eligible for technical assistance and a line of credit to develop its market of off-grid solar home systems pursuant to the Regional Off-Grid Electricity Access Project (ROGEAP, P160708). A restructuring and additional financing for ROGEAP was approved in March 2021 and is supporting the development of a regional market for off-grid products and services to electrify households, business, and public institutions in 19 West African countries. ROGEAP supports access to finance for stand-alone solar system businesses through working capital loans or long-term loans for the eight countries that are members of the West African Development Bank (*Banque Ouest-Africaine de Développement*, BOAD), including Guinea-Bissau. This is done through an initial US$140 million IDA credit, a US$67.2 million grant from the Clean Technology Fund (CTF), and a US$7.5 million IDA grant to support start-up entrepreneurs in the off-grid solar sector.

13. The performance of the electricity sector has been sub-optimal due to political instability, lack of planning, vested interests, lack of investments, fragmented donor assistance, and poor EAGB management. These factors have undermined EAGB's capacity to supply affordable and quality power to most of the population and has forced a minority of affluent individual or private-sector consumers to rely on expensive back-up generators. However, these dynamics have started to change. The recent Governments took a reformist stance to get the sector out of its permanent crisis. Measures to eliminate vested interests in the diesel supply chain and strengthen EAGB's governance were adopted.

14. A recent positive development is the shift in the energy mix, where Government replaced the 15 MW diesel-based Aggreko generators by a 30 MW heavy fuel oil (HFO) Karpower barge. The project was realized with the support of a transaction advisor financed by the World Bank. This fuel switch eliminated the existing theft of diesel and reduced fuel costs, which were hindering any attempt to improve EAGB's financial and operational recovery. The 5-year Power Purchase Agreement (PPA) signed between Karpower and EAGB was structured in two phases: (**i**) a one-year phase of 17 MW; and (**ii**) a five-year phase of 30 MW. With demand reaching 63 MW as of late, the available supply from Karpower – around 24 MW (with the possibility to go up to 34 MW) – will not be sufficient to bridge the gap. While the transmission infrastructure is under development, the distribution grid concentrated in Bissau is not able to support modern economic activity due to decades of lack of investment The coming on stream of the first phase of the high voltage (HV) interconnector of the *Organisation pour la Mise en Valeur Du Fleuve Gambie* (OMVG), financed under the OMVG regional

interconnection project (P146830), provides an opportunity to further reduce the cost of generation in Guinea-Bissau through affordable imports sufficient to meet all of demand. The interconnector is expected to be commissioned in 2021 in Senegal, in 2022 in The Gambia, and in 2023 in Guinea and Guinea-Bissau, with 200 MW of capacity for each country. The ECOWAS Regional Electricity Access Project (P164044) will enable the electrification of three provinces in Guinea-Bissau (Bafata, Oio, and Tombali) through the densification of the low- and medium-voltage (LV and MV) grids around the substations of Mansoa, Bambadinca, Salthino, and Bissau. In addition, the African Development Bank (AfDB) is currently financing a 30 kV transmission ring around Bissau and three substations.

15. EAGB's performance is significantly below regional standards and would benefit from further institutional and governance reforms. Given the political context, EAGB's has suffered from the absence of a strong and technically qualified board of directors, sector planning and performance-based standards. The shortage of qualified staff in key management positions, the absence of well-defined corporate internal processes, and the lack of adequate information technologies for regular business operations have led to EAGB's weak performance, with 30 percent total network losses and 68 percent bill collection rate. Despite an average tariff of US$0.38 per kWh, which is high compared to regional peers, EAGB has been incurring annual deficits of around US$17 million (CFAF 9.5 billion) covered with loans from local commercial banks, which has saddled EAGB with a US$42 million debt (CFAF 23.5 billion). EAGB's delicate financial position puts additional pressure on the quality of electricity supply due to insufficient investments in assets, equipment, and staff. The World Bank-financed *Projet d'Urgence pour l'Amélioration des Services d'Eau et d'Électricité* (PUASEE, P148797 and P161630) is provided support to EAGB to improve its operational and financial performance. Investments under the project include: (**i**) rehabilitation and extension of the distribution network, which will help reduce transmission and distribution (T&D) losses; (**ii**) capacity building activities coupled with the installation of smart meters, which, among other things, will help increase bill collection rate.

16. The cost and quality of service has not significantly improved in the short term, with significant delays in the implementation of generation. The situation is expected to change, and the cost of service should come down significantly in the medium term with the commissioning of the OMVG interconnector. The Government is developing a 15 MW HFO power plant in the city of Bor financed by the West African Development Bank (BOAD), but its construction has been significantly delayed.

17. Household access to electricity is increasing but conceals substantial disparities by region, wealth level and access to education. Though there is no disagregated data on access to electricity by female-headed household, there is evidence of a wealth gap (with over 80 percent of households in the 5th wealth quintile having access to electricty) and an education gap (with higher access rates among households in which the head of household has at least completed secondary education). Both tend to negatively influence women's access to electricty, which in turn affects women's access to basic services and time-saving activities. In addition, despite the Government's commitment, the sector's institutional framework fails to embrace gender equality. Among the several laws, policies, programs and strategies for the energy sector, most do not integrate gender, or at least not explicitely. Participation of women in public and private energy sector institutions is around 16 percent, concentrated in non-technical functions and without decision-making power.

18. A management contract between EAGB and the consortium *Energias de Portugal-Águas de Portugal-Leadership Business Consulting* (EDP-ADP-LBCS) has been effective for a year and has recently resumed, which should improve the

operational efficiency of the utility. The management contract is financed under the PUASEE project and was effective from August 2019 until June 2020. Due to the COVID-19 pandemic, the management contractor's team left the country in May 2020, the contract was suspended, and an interim local management team was appointed by the Government. The management contract has recently restarted, with the management contractor's team returning to Guinea-Bissau in April 2021.

19. EAGB has improved its institutional and legal framework over the last two years but increased focused is required on recruiting and training a new generation of managers and technicians. The change of EAGB's legal status into a public limited company (*société anonyme*) owned by the State, together with the approval of EAGB's revised statutes by the Council of Ministers, was a key milestone towards improving the institutional and legal framework in line with OHADA laws (*Organisation pour l'Harmonisation en Afrique du Droit des Affaires*). The PUASEE project has so far provided technical assistance support to the reform of EAGB's institutional and legal framework.

20. In February 2021, the Government approved the adoption of the least-cost development plan[1], which eliminates the use of diesel and significantly reduces that of HFO, with a mix of imports and renewable energy. The least-cost development plan (LCDP), prepared under the PUASEE project and recently approved by the Government, recommends moving away from diesel for power generation towards low-cost electricity imports, domestic solar PV with batteries, and imported hydropower. HFO generators would still be needed in the short- to medium-term to improve security of supply and grid stability. Electricity demand is projected to increase between 118 MW and 221 MW by 2030 (low and high increase scenarios, respectively).

21. The transition to more affordable energy sources such as hydro-based electricity imports from Guinea, and domestic solar energy could further decrease the average generation costs by one third to one half. As part of the OMVG interconnection project, Guinea-Bissau will benefit from electricity import options from the West Africa Power Pool. Already, Guinea-Bissau has been allocated a share of hydropower capacity from Guinea – set at 27.5 MW and the share of energy at 167 GWh per year. The PPA signed in December 2019 between both governments established an average purchase price of US$0.11 per kWh for Guinea-Bissau. In addition, the LCDP identified PV solar among the least-cost option for domestic generation, which could help reduce the average cost of electricity in the country and diversify the energy mix, while battery storage will help integrate this variable energy source into the grid. Off-grid solar solutions in provincial cities and the Bijagos islands will provide cheaper and cleaner local power generation than current diesel production, in addition to associated economic growth and unleashing the islands' tourism potential.

Relationship to World Bank's Country Partnership Framework

22. Improving access to reliable and affordable electricity is a key priority of the latest Country Partnership Framework (CPF) for Guinea-Bissau. Both short- and medium-term support are needed to consolidate the democratic transition and restore basic services, while assisting the Government in designing a more sustainable poverty reduction strategy. The CPF focuses on three areas: (**i**) core public sector institution building (public sector management); (**ii**) basic service provision (access to electricity, water, education, and health); and (**iii**) support to productive sectors of the economy (cashew and rice production). A scarce and often expensive access to electricity is a binding constraint for the

[1] Through a ministerial decree dated February 23, 2021 (*Despacho No*. 01/GMRNE/2021).

weak business climate, together with water, transport, and marketing infrastructure. The CPF recognizes that the power sector has experienced years of weak governance and inefficient management. System losses remain among the highest in the region, with T&D losses of over 30 percent.

23. Increasing electricity access and reinforcing power-sector fundamentals are pivotal to spur private-led economic growth in the country. The primary sector (predominantly the production of cashew nuts) is expected to drive economic activities. This path assumes a recovery in electricity and water generation, key inputs to economic production, in parallel with a higher influx of private capital investments. Still, the underlying conditions and power sector fundamentals for private-sector participation are still lacking. The latter must increase for the development and operation of generation projects in view of the weak financial standing of EAGB and limited fiscal space in the country.

24. Guaranteeing the sustainability of the energy system remains a priority and in line with the 2020-2023 National Development Plan (NDP). The new Government endorsed the 2015-25 *Terra Ranka* ("fresh start"), which had five strategic priorities of governance, infrastructure, private sector development, natural resource management, and human capital, and adopted a new three-year National Development Plan 2020-2023, which builds upon the former and other country strategic documents such as the last Poverty Reduction Strategy (DENARP) and the 2020-2024 Development, Employment, and Industrial Promotion Strategy (DEIPS). The new NDP has a central objective to fight COVID-19 and its economic impacts while leveraging the (post-)pandemic period as a new start. The production and quality of electric energy is essential, beyond the supply that the entry into operation of the OMVG will ensure, including increasing the use of renewable energies.

25. A recent policy note prepared by the World Bank identifies the most pressing actions and reforms to achieve a sustainable satisfactory performance of the electricity sector in Guinea-Bissau. The policy note was presented to the Government in October 2020, including to the MNRE. It identifies three pillars of priority action for the electricity sector: (**i**) actions related to the systematic optimized least-cost planning and implementation of investments in all segments of the supply chain, including the expansion of electricity access; (**ii**) actions related to the efficient operational performance of EAGB in all business areas; and (**iii**) actions to improve the sector's financial sustainability.

C. Proposed Development Objective(s)

26. The project development objective (PDO) is to increase access to electricity and enhance the availability of solar energy in Guinea-Bissau.

Key Results

27. Progress towards achieving the PDO will be measured by monitoring the following key indicators:

i. **Annual renewable energy generated (solar) [MWh];**
ii. **People provided with new or improved electricity service [number], of which female [number].**

28. Intermediate results indicators for the project will include:

i. **Renewable energy generation capacity constructed under the project (other than hydropower) [MWp];**

ii. **Distribution lines constructed or rehabilitated [km];**

iii. **Upgraded National Dispatch Center (SCADA) operational installed under the project [yes/no];**

iv. **Avoided greenhouse gas emissions [tons of CO_2].**

29. The project end-beneficiaries will be the electricity consumers of Guinea-Bissau. This includes residential, commercial, and industrial consumers – and the government entities that will benefit from an increased availability and reliability of electricity supply. The new solar power plants and distribution infrastructures will contribute to the availability and reliability of electricity services. The project will also support the Government's efforts to create an enabling environment for private sector participation and financing of solar solutions. The MNRE and EAGB will benefit from institutional support aimed at improving sector management and laying a foundation for further sector reform. Under this project, staff, and officials in MNRE and EAGB will receive technical assistance for capacity building, notably to support the promotion and development of solar solutions.

30. The promotion of solar energy solutions could spur economic growth and promote green jobs creation. It is expected that the project will bring direct temporary benefits for skilled and unskilled workers who will be employed for the construction, operation, and maintenance of the various grid-connected and mini grid solar plants. The development of the project and more broadly the renewable energy sector in Guinea-Bissau could also promote the development of a local industry that would support solar development and generate additional indirect employment opportunities for the population. It is also expected that the project will contribute to improving gender equalities within the targeted communities by creating empowerment opportunities for women and supporting the efforts of local institutions to address gender-based violence (GBV).

D. Concept Description

31. The Solar Energy Scale-up and Access Project (*Projet d'Accès et de Déploiement de l'Énergie Solaire* – PADES) will support Guinea-Bissau's energy policy objectives to increase electricity access and tap into the country's large solar resources. The project will include concessional financing from the International Development Association (IDA) and the Green Climate Fund (GCF) and will have three main components as well as a Contingency Emergency Response Component (CERC): (**i**) competitively procured solar energy development, including utility-scale solar power plants with associated battery storage in Bissau and interior cities and solar mini grids for rural economic development in the Bijagos islands; (**ii**) investments in the T&D infrastructure to allow for variable renewable energy (VRE) integration as well as the increase in affordable and reliable electricity access through LV and MV infrastructure; (**iii**) institutional support, capacity building, technical assistance, and project implementation support for sector institutions; and (**iv**) a CERC to provide the needed space for quick responses to natural disasters or health crisis. The proposed project follows the strategy laid out in the LCDP approved recently and is based on the ESMAP-financed prefeasibility study for scaling-up solar PV in the country (April 2020). Note that the allocation of funds shown below is indicative and subject to change pending a more detailed assessment of costs for solar plants, mini grids, and the required T&D infrastructure.

32. Component 1: solar energy development (total of US$15 million indicative: US$8 million from IDA and US$7 million from the GCF, of which US$2 million as guarantee). This component will include the following subcomponents:

i. **Component 1.1: competitively procured utility-scale solar power IPPs or PPPs with associated BESS (total of US$7 million from GCF indicative, of which US$2 million as guarantee).** This subcomponent will aim to leverage public and private financing from other development partners and the private sector for the design, supply, and installation contract for competitively procured solar PV IPPs or PPPs with BESS. This subcomponent aims to leverage enough funds to install solar generation capacity in **Bissau** (objective is 30 MW solar energy and up to 72 MWh BESS), **Bafata** (15 MW solar and up to 54 MWh BESS), **Gabu** (15 MW solar and up to 56 MWh BESS), and **Cacheu** (6 MW solar and up to 43 MWh BESS), as identified in the ESMAP-funded pre-feasibility analysis. The objective is for concessional IDA and GCF financing to support each of the four subprojects. Importantly, this subcomponent will also finance the recruitment of a transaction advisor through a US$4 million project preparation advance. The transaction advisor and market sounding will help EAGB and the Government structure the four proposed solar projects and determine the optimal ratios of the public to private financing and assist with project structuring and risk allocation, power purchase agreements (PPA), bidding documents, and contract negotiations. The transaction advisor will help structure the ratio of private and public financing for the plants to be developed to explore private sector participation through PPPs or IPPs. Guarantee instruments will be explored to be supported by other development partners or alternative funding sources – such as the GCF – to cover PPA obligations for the various solar plants. The capital and O&M costs of the solar PV plants in Bissau (30 MW), Bafata (15 MW), Gabu (15 MW), and Cacheu (6 MW) are estimated at around US$120 million, but they will be assessed in more details through feasibility and grid integration studies to be financed under the project preparation advance. The full scope of this subcomponent (i.e., the number and size of solar PV plants to be included) will, in turn, depend on the availability of public and private funds from development partners and the private sector. This will be determined during project preparation. US$2 million from the GCF are already earmarked as guarantee for a solar plant (approximately covering a 15 MW-PPA for up to two years).

ii. **Component 1.2: solar mini grids for rural economic development (US$4.5 million from IDA indicative).** In the **Bijagos islands**, solar mini grids will increase access to electricity among the local population. Mini grids will also improve the quality and cost of electricity supply, which will contribute to scale up the vast, untapped potential for tourism of the islands. The component will finance a pilot mini grids with local LV networks powered by renewable energy resources (500 kW of solar PV in combination with battery storage and/or diesel generators). The full cost to install mini grids in Bubaque (364 kWp), Rubane (364 kWp) and Bolama (260 kWp) is around US$10 million. In this perspective, the subcomponent will explore the potential to roll-out mini grids solar solutions in the Bijagos islands with private sector participation. As part of project preparation, a detailed analysis will be carried out to determine the best business models for this rollout of portfolios of mini grids, including the extent and form of the Government contributions and private sector participation. This subcomponent will also finance: (**i**) support for the preparation of bidding documents for the supply, construction, and operation of the mini grids; (**ii**) upgrade and development of distribution networks, including equipment, procurement, and construction works; and (**iii**) supply and installation of grid connection equipment, including conductor cables, meters, and other accessories.

iii. **Component 1.3: solar PV solutions for health facilities (US$3.5 million from IDA indicative).** Under this subcomponent, it is proposed to improve reliability of electricity supply to health facilities in urban centers and support electrification of health facilities in rural areas not identified for electrification through mini grids or the main grid. As part of project preparation, a detailed analysis will be carried out to identify and prioritize targeted health facilities and best model for the sustainable operation and maintenance of these facilities in urban and rural areas.

33. Component 2: reinforcement and expansion of the transmission and distribution (T&D) network (total of US$15 million indicative: US$12 million from IDA and US$3 million from GCF). Investments under this component will help improve the reliability of electricity service in Bissau, Bafata, Gabu, and Cacheu. The component will fund some of the necessary distribution infrastructures in response to the projected expansion of domestic generation capacity (Component 1.1) and improvements in transmission infrastructure to ensure VRE integration. Investment in T&D networks will be determined following a needs' assessment and VRE integration study during project preparation. This component will support the design, procurement, and implementation of a supervisory control and data acquisition (SCADA) system for an efficient integrated utility and grid management system. The SCADA system will be linked with the new national control system. The component will also include setting-up of a national control center (NCC) to efficiently manage operation, control, and dispatching from the entire national grid through transmission connections with neighboring countries once interconnected through the West African Power Pool (WAPP). Finally, this component will also include activities to target, support, and enable productive uses of energy (such as solar water pumps), including a specific focus on female-headed households or businesses.

34. Component 3: institutional support, capacity building, technical assistance, and project implementation support (total of US$7.5 million indicative: US$5 million from IDA and US$2.5 million from GCF). This component will finance various technical assistance, capacity building, and implementation support activities to ensure the Government, EAGB, the local private sector, and other sector stakeholders have adequate technical, planning, and operational capacity to implement the activities detailed in the other project components and more broadly improve power sector viability. This component will also finance owner's engineers to supervise the design and installation of solar power plants and mini grids. A project preparation advance of US$4 million will be secured to initiate some of the key preparatory studies for the other components, including but not limited to: (**i**) feasibility, site assessments, and grid integration studies for solar power plants in Bissau, Bafata, Gabu, and Cacheu, and for mini grid in the Bijagos islands; (**ii**) national electrification analysis; (**iii**) cost-of-service study; and (**iv**) a transaction advisor. In addition, the project will explore interventions on how electricity access can lead to productive uses and job creation. As this has synergies with the ROGEAP project (P160708), the team will consider how best to combine the efforts. This would require providing grants to support household's equipment with electric appliances and equipment for productive uses (for instance for refrigeration to connect products to market) focused on the agricultural sector and small and medium enterprises, with a special focus on female beneficiaries and women-led businesses.

35. Component 4: Contingency Emergency Response Component (US$0 million from IDA allocated). This component could help provide the needed space for quick responses to natural disasters or health crisis, should they occur during project preparation or implementation, to protect people livelihoods in the country. Should this component be activated, the PADES project will be restructured to allocate financing, revise the PDO and intermediate indicators, and detail any required changes in implementation arrangements.

36. Given the high climate impacts and vulnerability in the region of the project, climate risks will be fully integrated in both project preparation and implementation including in bidding documents of electrification works. Examples of such resilience measures include: (**i**) provision of appropriate anchorage support; (**ii**) deep foundation and size of footings to adapt against extreme wind and flooding; (**iii**) elevating control room and critical equipment to reduce flood hazard potential; (**iv**) use of steel, concrete, or composite towers; (**v**) creation of vegetation buffers; etc.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

The project will prepare, consult upon, and publish in the Country and on the Bank external website, prior to appraisal:

- The Stakeholder Engagement Plan (SEP) and Grievance Mechanism (GM).
- The Environment and Social Management Framework (ESMF) with SEA/SH Mitigation and Response Action Plan as an annex to the ESMF.
- The Resettlement Policy Framework (RF).
- The Environmental and Social Commitment Plan (ESCP).
- Labor Management Procedure (LMP).

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