



**GREEN
CLIMATE
FUND**

Meeting of the Board
17 – 20 October 2018
Manama, Bahrain
Provisional agenda item 17

GCF/B.21/10/Add.12

26 September 2018

Consideration of funding proposals - Addendum XII

Funding proposal package for FP093

Summary

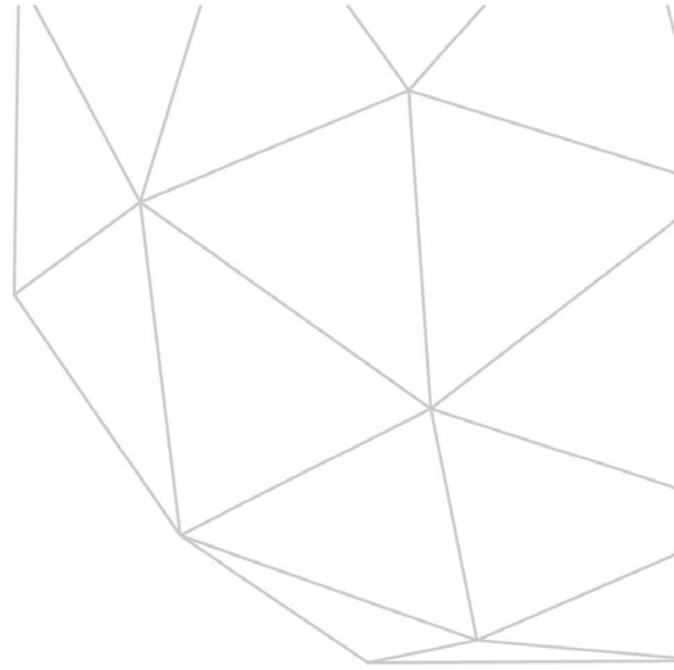
This addendum contains the following three parts:

- a) A funding proposal summary titled “Yeelen Rural Electrification Project in Burkina Faso”;
- b) No-objection letter issued by the national designated authority(ies) or focal point(s); and
- c) Environmental and social report(s) disclosure;

The funding proposal package for FP093 is being submitted for the first time for the Board's consideration at its twenty-first meeting.



GREEN
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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title: **Yeelen Rural Electrification Project in Burkina Faso**

Country/Region: Burkina Faso

Accredited Entity: African Development Bank

Date of Submission: 25 June 2018. Update: 21st September 2018

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Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed **50**.

Please submit the completed form to:
fundingproposal@gcfund.org

Please use the following name convention for the file name:
“[FP]-[Agency Short Name]-[Date]-[Serial Number]”

A.1. Brief Project / Programme Information		
A.1.1. Project / programme title	Yeelen Rural Electrification Project In Burkina Faso through a private sector driven Green Mini Grid model.	
A.1.2. Project or programme	Project	
A.1.3. Country (ies) / region	Burkina Faso	
A.1.4. National designated authority (ies)	Ministry of Environment Green Economy and Climate Change	
A.1.5. Accredited entity	African Development Bank	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entity / beneficiary	Executing Entity: Burkina Rural Electrification Agency (ABER) under the authority of the Ministry of Energy and Mines) for components 1 & 2; African Guarantee Fund (AGF) which is an agency of AfDB for the guarantee mechanism only Beneficiaries: 50 000 households (335 000 people) thanks to the implementation of 100 solar powered mini-grids to be installed by up to 5 mini-grid developers.	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro (≤ 10) <input type="checkbox"/> Small ($10 < x \leq 50$) <input checked="" type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250)	
A.1.8. Mitigation / adaptation focus	<input checked="" type="checkbox"/> Mitigation <input type="checkbox"/> Adaptation <input type="checkbox"/> Cross-cutting	
A.1.9. Date of submission	25 June 2018. 21st September 2018	
A.1.10. Project contact details	Contact person, position	Adiaratou Bah, Principal Investment Officer Krishna Heeramun, Consultant
	Organization	African Development Bank
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	Mailing address	Avenue Joseph Anoma, 01 BP 1387 Abidjan 01, Côte d'Ivoire

A.1.11. Results areas <i>(mark all that apply)</i>	
Reduced emissions from:	
<input checked="" type="checkbox"/>	Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
<input type="checkbox"/>	Low emission transport (E.g. high-speed rail, rapid bus system, etc.)
<input type="checkbox"/>	Buildings, cities and industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
<input type="checkbox"/>	Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
Increased resilience of:	
<input type="checkbox"/>	Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
<input type="checkbox"/>	Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.)
<input type="checkbox"/>	Infrastructure and built environment (E.g. sea walls, resilient road networks, etc.)
<input type="checkbox"/>	Ecosystem and ecosystem services (E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary

Please provide a brief description of the proposed project, including the objectives and primary measurable benefits (see [investment criteria in section E](#)). The detailed description can be elaborated in [section C](#).

Burkina is a Sahelian country hard hit by the effects of climate change, which include a steady decline in the volume of rainfall, rising temperatures, floods and droughts. The GDP per capita in 2014 was USD 624 (c. EUR 534), which represented only 61% of the standard of living of an average inhabitant in Sub-Saharan African developing countries. The rural sector, consisting of the water-agriculture-forest land use subsectors, is the principal engine of the Burkina economy, providing livelihood to more than 80% of the population and at the same time is most vulnerable to the effects of climate change. The above constraints and factors are contributing to a vicious circle leading to nine out of every 10 poor people living in rural areas.

The country has only 3 % access to electricity in rural areas mostly through diesel generators. As the country development strategy relies heavily on universal access to energy, the core objective of this project, in line with the GCF vision, is to induce a paradigm shift toward low emission electricity access through innovative models, essentially green mini-grids which does not require recurrent government subsidies, and which caters for productive use of electricity.

The country has one of the highest electricity tariffs, which range from USD 0.23 to 0.27 / kWh (c. EUR 0.19 to 0.23 /kWh) in urban areas. The industrial tariff for electricity is USD 0.4 / kWh (c. EUR 0.34 /kWh). The government currently supports a policy of uniformity of tariff between urban and rural areas, through subsidies for diesel within rural electrical cooperatives (COOPELs). Such policy has not proved very successful in terms of rural energy access.

The total cost of the project is EUR 50.4 M..

The project includes 3 components:

- 1) A review and restructuring of the legal, regulatory and institutional framework for a rural electrification model which supports a sustainable rural energy access financed by private sector developers. In April 2017, Burkina Faso adopted a new law on the energy sector that is perceived positively by investors and other key partners in the sector (“Loi n°014-2017/AN du 20 avril 2017 portant règlementation générale du secteur de l’énergie”). That law has provisions for public or private entities to produce and distribute electricity in Burkina Faso. This component will materialize through a study financed by SEFA that will review the current legal, regulatory and institutional framework for rural electrification in Burkina, with the outcome being, for instance, template concession contracts and electricity tariff methodology to be applied in the rural electrification sector. As such, the Yeleen rural electrification project will only specify implementing measures for the existing law in rural areas.
- 2) The installation of 100 mini-grids powered by an aggregate solar PV capacity estimated to 11.4 MWp to achieve 50,000 connections in 100 rural localities electrified including 3300 productive use connections. This also includes a supply side support to the solar powered mini-grid developers in the context of a competitive Request for Proposal to select the bidder who offers the best combination of tariff and service levels to household, community and productive users. The support will include a concession agreement which protects the long-term interests of the developer, a grant to carry out detailed surveys and design and an ex-post capital grant per connection successfully commissioned in the form of result based payment (RBP). The AfDB will manage this grant and the RBP will be provided for tier 3 access levels and above. The tariff will be capped for all sectors leaving the flexibility to the mini grid developer to provide flexible tariffs during the day to incentivize productive use during broad daylight. This cap will be reflected in the concession contract and mini-grid developers will be informed before they submit their commercial proposal to the RFP.
- 3) The provision of productive use equipment to support economic activity in the targeted regions. Mini-grid developers will provide the productive use equipment through selected micro-finance institutions that will extend loans for that purpose. The beneficiaries of the productive use loans will repay the loans through their electricity bill. AfDB is requesting a guarantee of the same amount from GCF to secure the extended loans. The productive use component is an essential component to ensure the financial sustainability of the project. It is expected to trigger a virtuous circle of enhanced productivity and value addition in the rural context, which will contribute to enhance the capacity to pay for electricity, while

improving the socio-economic fundamentals of target populations enabling them to rise above the poverty trap. This in turn will ensure the sustainability of the positive impacts of the project on climate change.

The use of solar PV technology and battery storage optimized through smart mini grid functions to match available solar energy to demand and to limit night demand, will enable a 100 % renewable energy access to rural populations leading to a sustainable energy pricing independent of oil prices, and a reduction of CO2 emissions.

The project's outcomes will include:

1. an annual reduction of CO2 emissions estimated at 11,500 tons in year 1 for 50 000 households to 21 800 tons per year for 104 000 households in year 25. Assuming an average population growth rate of 3.1% maintained over 25 years, and that the mini-grid developer extends the network to cater for additional households on a self-financing basis, then the average annual emission reduction over 25 Years is 15 500 tCO2. This leads to a total annual avoided GHG emissions over 25 years estimated at c.390 000 tCO2 (= 15,500 tCO2 x 25).
2. a functional legal and regulatory system and knowledgeable and empowered institutions for scaling up the rural electrification model developed to the other provinces of Burkina.
3. providing electricity access to 335 000 people with an estimated annual consumption of 15 GWh. This corresponds to an annual per capita consumption of 44 KWh that corresponds to 72 % of the national average of 60 KWh for 2015. This is significantly higher than the tier 1 and 2 access through solar home systems, whereby a 30 W system per household provides less than 10 kWh per person per annum. The project's gender action plan includes activities to support women's inclusion in the benefits of the project, women's businesses and training.
4. Creating between 200 and 700 permanent jobs in the mini-grid sector (including jobs created thanks to the economic activity supported by productive use), and additional jobs during the construction period. The GCF funding of EUR 24.3 M is expected to leverage EUR 28.8 M of co-financing from ADF, EU as well as parallel financing in the form of equity and commercial debt. The sustainability of the rural electrification model proposed is based on the demonstration of the capacity of the RBP framework to leverage corporate funding and to effectively lead to more affordable rural access to electricity.
5. Thanks to the productive use of energy and related revenue generation, stimulate a vibrant localized rural economy, which can counter balance the effects of remoteness from global supply chains due to the land locked status of the country.

A.3. Project Milestone

Expected approval from accredited entity's Board (if applicable)	Q4 2018
Expected financial close (if applicable)	Q4 2019
Estimated implementation start and end date	Start: Q1 2019 End: Q3 2025
Project lifespan	__6__ years __9__ months

B.1. Description of Financial Elements of the Project

Provide a breakdown of cost estimates for total project costs and GCF financing by sub-component in local and foreign currency and a currency hedging mechanism:

For example, under the component of drilling activity for a geothermal exploration project, sub-components would include civil engineering works, drilling services, drilling equipment and inspection test.

The table below is a summary of the proposed funding structure for the project.

Component/Output	Indicative cost	GCF financing	Co-financing		Parallel financing	
	(M EUR)	Amount (M EUR)	Amount (M EUR)	Name of Institutions	Amount (M EUR)	Financial Instrument
Component 1 : review and restructuring of the legal, regulatory and institutional framework for a new rural electrification model			SEFA Grant	African Development Bank (AfDB)		
Component 2 :installation of 100 solar powered mini-grids	50,3	21,5	15,0	AfDB, EU	13,9	Equity and loans
Component 3 :provision of productive use equipment	2,8	2,8				
Indicative total cost (EUR)	53,1	24,3	15,0		13,9	

Financing instrument 1: Grants

This is composed of:

- (i) result based payment (RBP or result based capital grant) grant. This financing instrument is required to reach an affordable tariff, which promotes tier 3, 4 and 5 access to electricity as well as productive use to generate income. The RBP financing will apply to a target of 50 000 connections.
- (ii) Technical assistance grant that will be split between the successful bidders to carry out detailed surveys and project costing, the monitoring platform, the rural electrification agency FDE/ABER and the guarantee executing entity (AGF). The support to selected developers and the monitoring platform will lead to a fined tuned business model and a tariff below the tariff cap which enables an acceptable IRR.

Financing instrument 2: Concessionary loan from GCF to Burkina Faso through AfDB Both the concessional loan and the RBP grants will help support an affordable tariff for the mini-grids, and hence will benefit to the end users.

The concessional loan will be disbursed based on the implementation schedule of the mini-grids.

Financing instrument 3: Guarantee issued to cover the loans extended by local commercial banks and/or micro-finance institution for the purchase of productive use equipment by rural entrepreneurs and support for the development of micro businesses. This productive equipment will lead to develop sustainable livelihoods and enhance the capacity of villages to pay. This in turn should ensure the sustainability of the project's positive impact on climate change.

Financing instrument 4: is composed of Equity and Commercial Debt mobilized by the private developer, after the 2-stage selection process involving an EOI and RFP.

Additional information on the disbursement of the RBP Grant

The result based payment is proposed to be structured around a strong control mechanism.

As an example of the type of control that could be implemented, we would like to present one existing platform (“the Platform”) AfDB has been working with in the context of its Africa Green Minigrad Market Development Programme.

It is a web-based platform that is unlocking the energy access market and facilitating rapid deployment of micro-grids and distributed power plants in emerging markets. The Platform cuts result based payment costs by streamlining evaluation and verification while capturing key data in a sophisticated database with robust analytical tools and an intuitive user interface.

Quality assurance processes

The Platform centralizes all mini-grid data in one web-based online site, enabling effective management of all mini-grid activities from end to end – from feasibility analysis through system operations:

- An evaluator updates status when a project is pre-approved; funds are set aside for the project, to be disbursed over a defined period of time
- Once a mini-grid and its associated distribution infrastructure is implemented, the mini-grid operator reports the required commissioning data to validate that the Quality Assurance Framework (QAF) protocol has been followed and customers are ready to be connected
- Then, the mini-grid operator uploads list of connected customers (via Comma Separated Values, (CSV) files or mobile app)
- The Platform reviews submitted data and updates the status if the criteria are met
- The mini-grid operator shares the required performance data with the control platform
- It is also possible to integrate a smart meter that can also verify that the Quality Assurance Framework service levels are being met, including voltage, reliability/uptime.

In the way the project is designed, we would like to use a similar platform selected competitively to monitor the connections.

The platform can also provide a transparent communication tool to share site data to potential bidders and be used for optimal design of GMG's. After the selected bidders are allocated concessions, they will report progress to the platform at different stages of installation and connection.

It is expected that the services of the platform will be mobilised for 6 years during the implementation phase of the project. The data accumulated during this phase will constitute a valuable resource for DFI's and Climate finance Institutions to benchmark GMG implementation processes and will be useful in the scaling up of the GMG concept to other regions and countries.

On the basis of verifications made through the chosen platform, the proposed process for RBP payments would be as follows:

- 50 % of the RBP payment upon the successful completion of the mini grid power generation infrastructure and distribution network by the selected mini-grid operator as reported to the platform and validated by the platform operator
- 50 % of the RBP on a quarterly basis for the number of successful connections (i.e. wiring and user's premise connection) realized during that quarter, and upon validation of the QAF protocol (based on the successful monitoring of the connection parameters for the past 3 months)

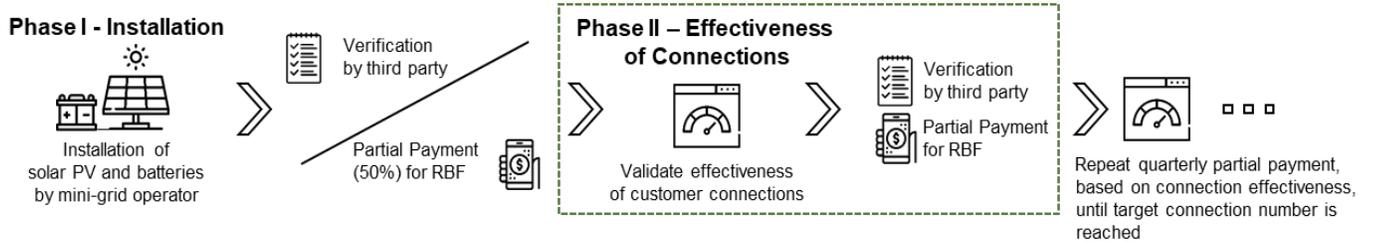
Besides the control platform, there will be a need for an Independent Verifier that could go on the ground and confirm the information provided by both the mini-grid developer and the control platform.

The selection process of the Independent verifier would be as follows:

- (i) Elaboration of the Terms of Reference for the Independent Verifier
- (ii) Selection of the Independent Verifier
- (iii) Elaboration of the Minimum quality Standard and Service Level Tier for Mini-grids
- (iv) Commissioning sheets and verification appraisal

The TOR for the mini-grid operators will include requirements for the mini-grid operators to comply with the selected control platform's data formats and reporting requirements, as well as the Independent Verifier requirements.

All players will submit their reports to the project's executing agency.



Additional information on the selection of the mini-grid developers

The procurement of private developers for the financing, procurement, installation, commissioning and operation of the 100 GMG to be deployed as part of the Yeleen project will be done through a two-stage competitive process. These includes an Expression of Interest (EOI) and (Request for Proposal (RFP) with the objectives of selecting the best-suited bidders that will enter concession agreement for the development and operation of the green mini-grids.

Phase 1: Expression of Interest

The objective of the Expression of Interest (EOI) is to screen all interested bidders in order to pre-qualify them for the next stage based on a set of weighted criteria. These criteria will encompass legal, technical and financial aspect, but may not be limited to:

- the company credentials and legal status,
- the company and its staff experience in green mini-grid development,
- the company financial strength, and
- the company experience in the country/region.

Phase 2: Request for Proposal

The pre-qualified bidder will then be invited to submit a technical and financial proposal based on a detailed Terms of Reference that would include the mini-grid implementation sites selected as well as legal and regulatory specifications. The short-listed bidders will have access to a database of general information (regarding notably the mini-grid implementation sites, the population in said sites, etc) on a web-based collaboration platform.

The bidder(s) will be selected based on a set of weighted criteria that will include the following, but may not be limited to:

- Affordability of the tariff proposed to households
- Tier of access to electricity
- Benefits for the community (tariff structure, hours of operations, incentives provided for productive use etc)
- Technical soundness (technical design of the mini-grids and associated distribution network, robustness of operation, ability to meet load growth over time, etc)
- Financial soundness of the business plan
- Proposed solution for resilience to theft of electricity
- Experience in supporting businesses in rural areas or proposed partnership in order to achieve that

Post RFP development:

After the selection process the successful bidder(s) will be allocated specific mini-grid implementation sites based on their offers for these regions. They will then benefit from a project development grant to carry out further detailed studies on the

sites allocated. The results of the detailed studies will condition the final parameters of service offered. The final tariff applicable will in all cases be capped by the benchmark tariff at the time of selection through the RFP but can be lower if permitted by the project financials.

B.3. Financial Markets Overview (if applicable)

How market price or expected commercial rate return was (non-concessional) determined? Please provide an overview of the size of total banking assets, debt capital markets and equity capital markets which could be tapped to finance the proposed project. Please provide an overview of market rates (i.e. 1-year T-Bill, 5-year government bond, 5-year corporate bond (specify credit rating) and 5-year syndicate loan.

Commercial interest rates in Burkina Faso stand at approximately 10 % for a tenor of maximum 10 years. This high interest rate is one of the hurdles which is preventing private developers from investing in rural electrification projects while providing an affordable tariff that does not require government subsidies.

There has been no purely commercial debt transactions in the Sub-Saharan Africa mini-grids sector. The majority of debt to mini-grid projects has been extended on concessional terms through sector specific innovation grant or extended in the form of convertible notes from early stage investors. These latter notes are typically extended under the expectation that they will convert, rather than the debt being serviced. Blending commercial debt with concessional resources such as the one requested is necessary to open this market to local financial institutions.

Hereafter a few debt-related transactions notes provided as examples:

Region	Projected Investment Required	Capacity planned to be installed	Projected Capital Structure	Investment Terms
Eastern Africa	EUR 15m	2770kW	50% Grant / 10% equity / 40% debt	Projected 7-year debt at 8% (hard currency), which may later be refinanced to 6% with a 10-year tenor.
Southern Africa	USD 15m	1500kW	65% Equity + Grant / 35% debt	Projected debt at 5-years with 1-year grace at 10%

The Microgrid Investment Accelerator (2017) mentions the following: *The majority of ESCOs interviewed reported difficulties in securing capital. They indicated a need for low-cost, long-term project capital, preferably as project equity or debt (while a few sought corporate equity). Patient impact-oriented investments that provide favorable project finance terms in the range of 4-9% interest rate for 7-12 years could help spur the market.*

In the Yeleen off-grid project, it is expected that developers will be provided with both concessional debt (GCF funding on-lent by Government) and commercial debt. Both debt components should be available through DFIs or other specialized facilities, given the early stage of the sector but the project teams will make best effort to attract commercial banks in the transactions.

Ultimately, we expect this project to transform the energy sector in Burkina Faso through:

- (i) allowing households to switch from diesel generated mini-grids and/or kerosene lamps to green mini-grids powered through solar PV,
- (ii) transforming the regulatory framework in order to allow the private sector to operate in rural electrification, and
- (iii) enabling a rural electricity tariff that will ensure the financial viability of the private mini-grid operators, and as such they will be able to maintain and replace the equipment on a self-funded basis.

In that context, the RBP grant is required so the initial investment is possible with low tariffs from the start.

C.1. Strategic Context

Please describe relevant national, sub-national, regional, global, political, and/or economic factors that help to contextualize the proposal, including existing national and sector policies and strategies.

Economic situation:

After a period of sluggishness, Burkina's economic activity has resumed in 2017, following the slowdown of the real GDP growth rate to 4% in 2014 and 2015, mainly due to poor rainfall during the crop year and the socio-political upheaval. This recovery stemmed from the resumption of activities in all sectors of the economy, mainly through solid performances in the agricultural and extractive industries sectors.

Poverty incidence is in net decline but remains high in 2014 at 40.1 % compared to 46.7 % in 2009. Poverty is essentially a rural phenomenon as nine out of every 10 poor people live in rural areas. The decline in poverty incidence was also greater in urban areas (13.6% in 2014, compared to 25.2% in 2009) than in rural areas (47.5%, compared to 52.8% in 2009). This rural predominance of poverty stems from the severe inequalities in rural areas in terms of gender, illiteracy, and lack of social and health infrastructure. These inequalities cause low productivity in rural areas, which, in turn, fuels the vicious circle of poverty, and make rural dwellers particularly vulnerable to the effects of climate change. It also limits rural communities to subsistence agriculture, which does not generate any surpluses that can be processed.

The GDP per capita in 2014 was USD 624 (c. EUR 534), which represented only 61% of the standard of living of an average inhabitant in Sub-Saharan African developing countries (USD 1 028). As per the World Bank Database: household final consumption expenditure (2015), 4.38% of the annual expenditure is assumed to be on energy.

With one of the lowest rate of rural electrification in Sub Saharan Africa standing at 3 %, the challenges of and barriers to rural electrification are linked to the prevailing socio-economic conditions. These include: (i) prevalent rural poverty; (ii) excessive reliance of agriculture on rainfall which is, in turn, affected by climate change; (iii) weak energy sector capacity that discourages industrialization; (iv) social challenges pertaining to demography, health and education; and (v) the landlocked nature of the country that is compounded by weak transport infrastructure.

The proposed project is in line with the Country Energy Sector Policy (POSEN 2014-2025). The POSEN articulates that in order for the country to attain universal access on electricity, it should move towards an energy sector that depends on endogenous resources, in particular solar energy. The policy seeks particularly to: (i) build national, institutional and energy management capacity; (ii) liberalize the electricity sub-sector; (iii) control the cost of energy inputs; (iv) ensure better energy coverage of the country; (v) promote other sources of energy (renewable energy); and (vi) sensitize the population to more efficient use of energy.

Energy sector overview:

The electricity sector in Burkina Faso is under the supervision of the Ministry of Energy and Mines. Other key players in the sector are the sector regulator (ARSE), The National Electricity Company (SONABEL) and the Fonds de Development of Electrification (FDE), transformed in 2017 into the Rural Electrification Agency of Burkina Faso (ABER). Burkina Faso is neither an oil producer nor an exporter.

Therefore, the country is heavily dependent on imported hydrocarbons from neighboring countries, particularly Cote d'Ivoire.

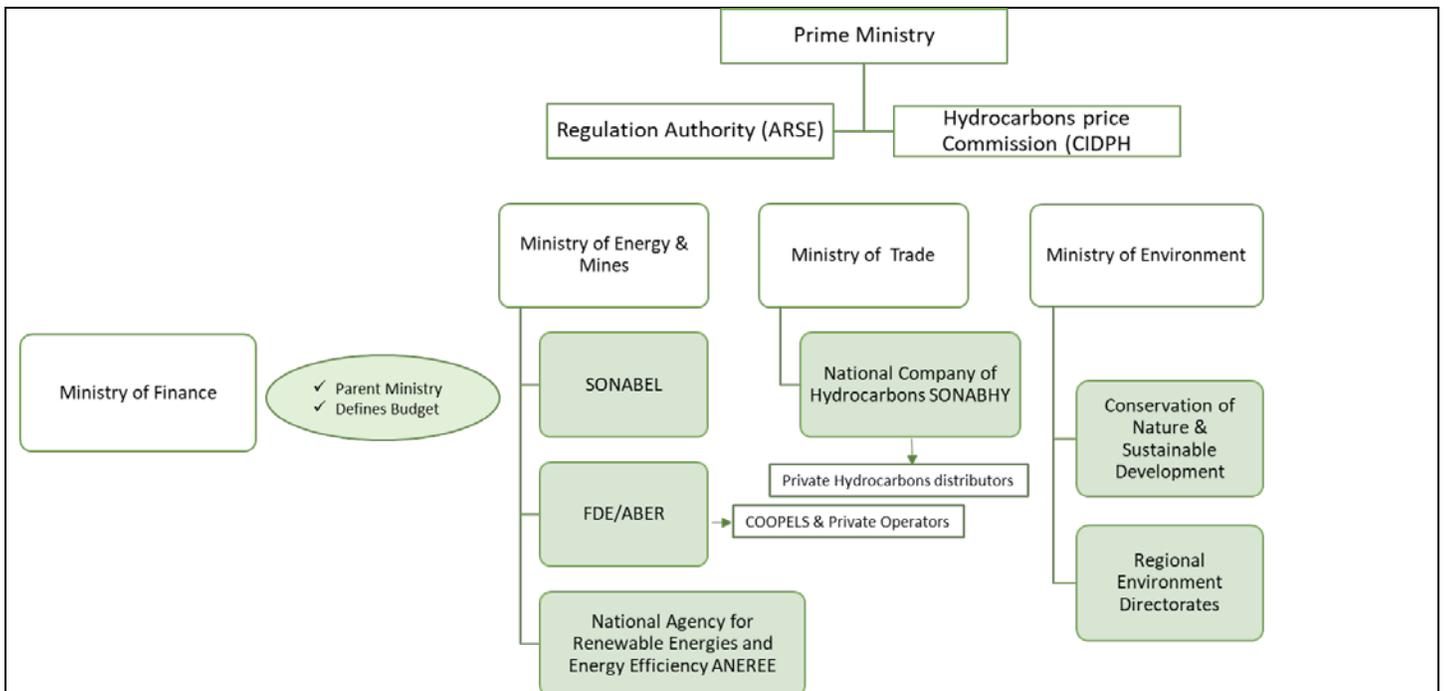


Figure 1: Sector organization

Installed capacity totals 358 MW, including 292 MW of thermal capacity, 32 MW of hydropower capacity and a recently commissioned 33 MW solar plant. Most of the installed capacity is aging and characterized by low availability rates. The energy access rate in Burkina Faso stands at 18% nationally and at 3% in rural areas, while the settlement electricity coverage rate stands at 33%. The country has a high dependence on thermal generation, high power production costs and a loss-making power utility.

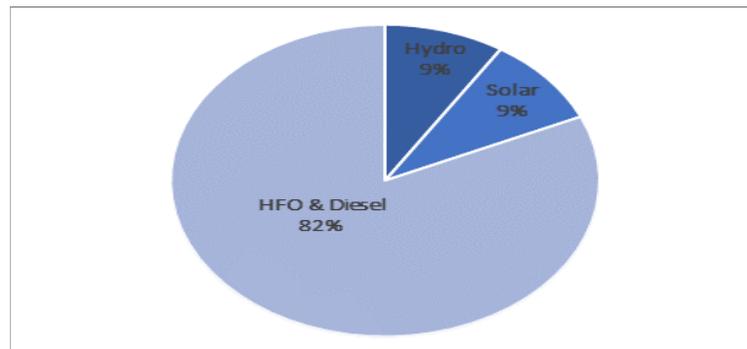


Figure 2: Burkina Faso Installed capacity by resource, 2015^[1]

The last National Electrification Plan, released in 2006, ended in 2015. There has been no third plan due to uncertainty caused by the change in government in 2015. There is therefore a lack of clarity over future grid extension plans and timeframes. This Plan and related electricity sector laws are currently being reviewed with the likely outcome being a policy and regulatory enabling environment favorable to private sector involvement in the mini-grids and off-grid sectors being put into place within the 2018 calendar year (or early 2019).

The Energy Sector Policy of 2014-2025 aims to significantly expand electrification and encourage the utilization of domestic resources. The 2015 national action plan sets ambitious targets for renewable energy and energy access (65% overall and 50% for rural areas by 2030).

[1] SONABEL Rapport Activités 2015

The country is divided into two distribution segments, with distinct regulations and actors. The first segment includes the area served by SONABEL and covers the main population centers. SONABEL has a monopoly over transmission and distribution, but generation is open to other parties and independent power producers (albeit the country has not successfully attracted IPPs because SONABEL is not perceived as a financially sound off-taker).

The second segment includes rural areas, which are the responsibility of FDE/ABER that coordinates electrification programs and provides funding to rural electrification promoters in the form of grants and loans. The electricity generation systems in rural areas are run by local cooperatives called COOPELs generally managed by small volunteers teams, which execute simple tasks such as administration, invoicing and bill collection. There is a national coordinator, the National Union of Electricity Co-operatives in Burkina Faso (UNCOOPEL), which lobbies for financing of the COOPELs and conducts trainings and support visits.

Currently, there are more than 180 local cooperatives with an authorization to manage local distribution networks in the second segment. 77% of them (in 2015) were connected to the grid and purchased power in bulk from SONABEL, but the remaining ones had decentralized generation assets. In 2015, 16% of the COOPEL generation systems were estimated to include a photovoltaic (PV) component.

Hurdles met by COOPELs are: (i) the low bill collection rate, (ii) defrauding and theft of electricity, (iii) unsecured payments, (iv) use of uncertified meters, (v) lack of sound financial management.

In addition to that, the COOPELs have to face the repayment of 40% of the generation system's initial investment cost after the third year of operation, and most of the time, by that deadline, they usually do not reach the number of connections needed to make the investment viable. Finally yet importantly, COOPEL management is supposed to work on a voluntary basis, i.e. they do not have a salary associated with their responsibilities, but they can claim expenses associated with said duties.

Most COOPELs have limited technical capabilities, so they must rely on external technical providers (so called "Fermiers" in french) to manage the distribution network. The tasks assumed by the "fermiers" varies from one COOPEL to another, but may include extending the network, connecting customers, billing, collection, etc.

The relationship between "fermiers" and COOPELs varies drastically from one case to another and may be regulated by contract or not. The financial constraints faced by COOPELs further impact their capacity to pay "fermiers" and reimburse the concessional loans provided by FDE/ABER.

In addition to that, the authorities of Burkina Faso were aiming at a single electricity tariff across the country irrespective of the production source and thus highly subsidized.

Consequently, the cooperatives are not financially sound, and have a limited capacity to connect more households to electricity. Indeed, the ministry communicated that c. EUR 40M have been invested in the rural electrification sector with 229 communities with access to electricity, 32 524 households connected (230 000 individuals), 3 MW capacity installed with fuel, and 405 kWc in solar PV.

Proposed mitigation solutions include: (i) prepayment meters, (ii) using payment systems that will ensure bill collection, and (iii) use remote management services such as online platforms to avoid fraud and electricity theft.

Please see below the distribution of the 229 electricity generation systems in the rural areas (*source: FDE/ABER, 2016*).

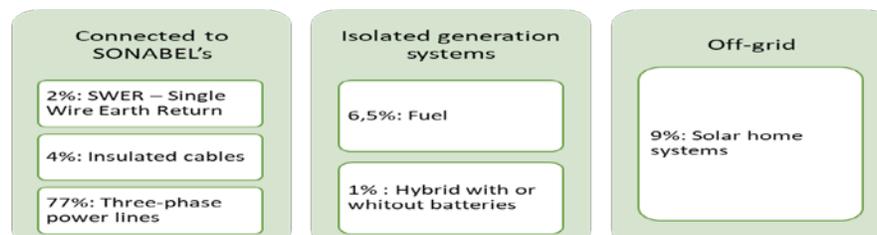


Figure 3: Mini-Grids energy sources 2016 (FDE/ABER)

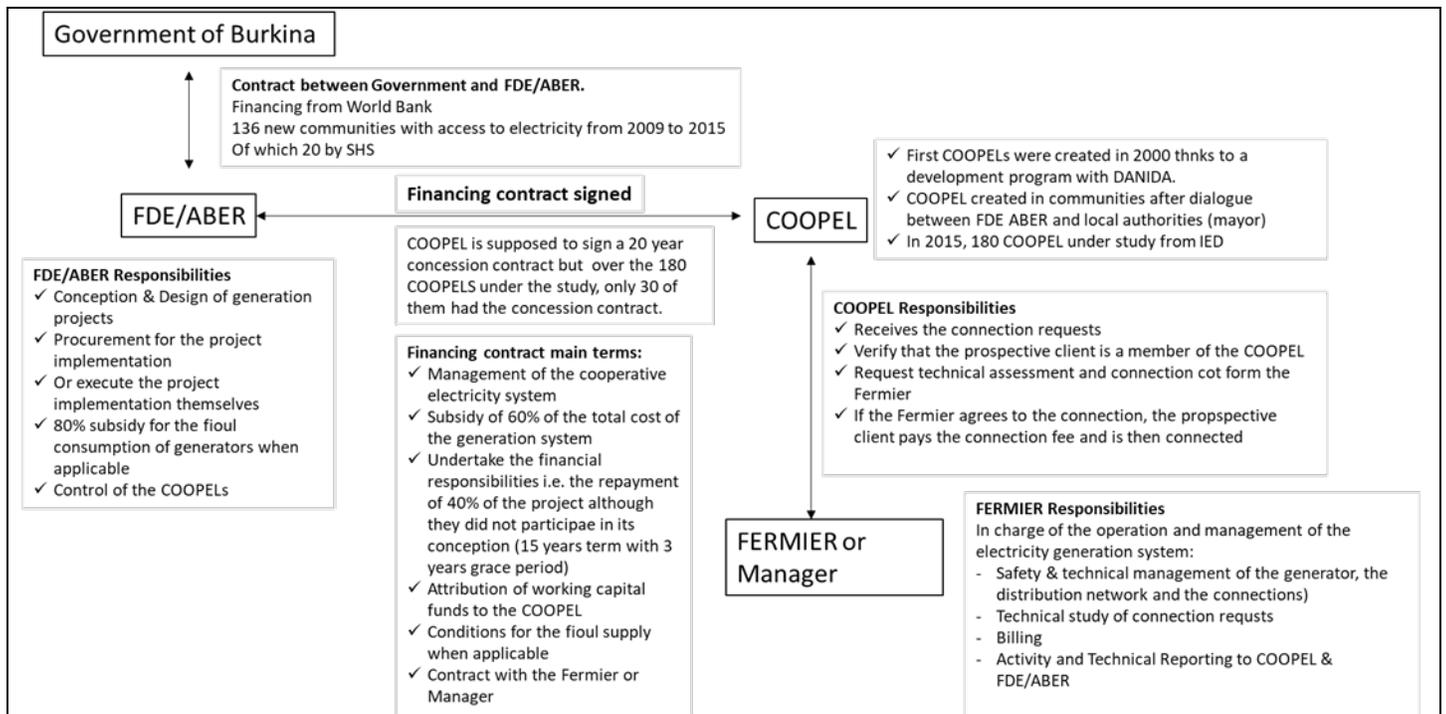


Figure 4: COOPEL Organisation diagram

Source: IED 2015 Study on COOPEL system in Burkina Faso « *Projet ELSA* » Etude sur l'optimisation du « système coopératives d'électricité (COOPEL) » Rapport final 25 Mars 2016

To help improve the rural electrification rate from 3% currently to 19% by 2020, the authorities have now decided the following steps:

- (i) to implement a new regulatory framework in favor of private sector operations, and
- (ii) enable a financially sustainable operating model for electricity production in rural areas in order to ease the pressure on the public financing and allow the sector to develop, and therefore more households to have access to electricity.

Trend in electricity generation:

Power demand has increased drastically over the last decade. SONABEL's customer base increased from 223,312 in 2006 to 544,827 in 2015. Power consumption doubled from 550 GWh to 1,125 GWh over the same period. Nevertheless, there has been modest increase in generation capacity from 253 MW in 2006 to the current 358 MW. As a result, current electricity supply is only enough to serve the non-peak periods. Load shedding has increased significantly reaching a record average of 340 hours in 2015, compared to 180 hours in 2009

Challenges

The country's limited supply of electricity is one of the most striking situations on the continent, with an access rate of 18.8% compared to the African average of 40%. The cost price per kWh of electricity ranges from 0.23 to 0.27 USD / kWh and remains one of the highest in West Africa (0.10 to 0.13 USD / kWh for Côte d'Ivoire). Since over 65% of national electricity is generated from thermal sources using diesel and fuel, oil price fluctuations have a negative impact on energy production. Furthermore, the country imports, on average, more than 30% of its energy consumption from Côte d'Ivoire whose economy is expanding and needs more energy. These adverse conditions and the wide disparity between urban and rural areas (urban and rural electrification rates are respectively 59.9% and 3.1%) are not conducive for a transformation of the agricultural sector and the rural environment where most of the population lives. Hence, the major challenge for Burkina Faso is to diversify its energy production and supply sources in the sub-region and develop access programmes, including off-grid access solutions.

The project is aligned with the AfDB Country Strategy Paper 2017-2021 which focuses on:

- Concentrating on improving access to renewable energy and increasing agricultural productivity as the main drivers for economic transformation.
- Interventions to support energy sector reforms, implementation of regional grid interconnection projects, construction of solar power stations with the private sector and intensification of rural electrification;

Role of rural areas in economic transformation:

Due to its landlocked status and relative isolation from global supply chains, rural areas are called to play a key role in economic transformation of Burkina Faso whose assets lie in the strong potential of arable land estimated at 9 million hectares approximately 46% of which is farmed. The surface area of irrigable land is almost 233 500 ha, only about 12 to 14% of which is currently farmed. Furthermore, the country has 500 000 ha of bottomlands that can be easily developed. Similarly, there is enormous potential for developing irrigation, fishing and aquaculture. With approximately 1200 water bodies (dams, lakes, ponds), the country can harness up to five billion cubic meters of water per year. As for stockbreeding whose development depends on that of agriculture, it has the potential to become one of the vectors of Burkina Faso exports to neighboring countries. In 2014, Burkina Faso had a large and varied livestock population comprising 9 091 000 cattle, 23 200 000 small ruminants, etc. It also has a diverse regulatory framework (framework law on agro-silvo-pastoral, wildlife and fishery activities, law on rural land tenure, etc.) and provides many opportunities for developing agricultural entrepreneurship.

Taking into consideration the current economic situation whereby large sections of rural populations are locked in poverty traps and based on the economic transformation potential of land assets and the country INDC adaptation strategy the validation of a private sector driven model to scale up rural electrification for productive use is a critical milestone in the economic transition of Burkina Faso out of poverty. As such this project is of key strategic importance to the country.

C.2. Project Objective against Baseline

Describe the baseline scenario (i.e. emissions baseline, climate vulnerability baseline, key barriers, challenges and/or policies) and the outcomes and the impact that the project will aim to achieve in improving the baseline scenario.

Climate change context:

Burkina Faso is a Sahelian country hard hit by the effects of climate change. These effects are a steady decline in the volume and quality of rainfall, rising temperatures, floods, droughts and violent winds. The rural sector, consisting of the water-agriculture-forest-land use subsectors, is the principal engine of the Burkina economy providing livelihood to more than 80% of the population and is at the same time is most vulnerable to the effects of climate change.

As per the INDC, Burkina's GHG emissions will grow significantly from its 2014 reference situation of 21 916 GgCO₂ eq (based on the 2007 inventory). At the 2030 horizon, the emissions level will increase by a factor of almost 1.6. The project will contribute to the GHG reduction objectives set in the INDC and help Burkina Faso ratchet up its ambition in terms of GHG emission reduction.

Category	Principal gases emitted	GHG emissions (GgCO ₂ eq.) 2007	As a percentage of total emissions
<i>Agricultural soils</i>	N ₂ O	8,239	37.6%
<i>Enteric fermentation</i>	CH ₄	9,517	43.4%
<i>Agricultural waste burned in the field + controlled burning of savannah</i>	CO ₂ , NO _x , CO	189	0.9%
<i>Manure use</i>	CH ₄	1,196	5.5%
<i>Land use change and forestry</i>	CO ₂ , CH ₄ , N ₂ O, NO _x , CO	250	1.1%
<i>Solid waste management</i>	CH ₄	667	3.0%
<i>Liquid waste management</i>	CH ₄	245	1.1%
<i>Transportation</i>	CO ₂	782	3.6%
<i>Electricity production</i>	CO ₂	350	1.6%
<i>Residential</i>	CO ₂	60	0.3%
<i>Manufacturing industries trend</i>	CO ₂	118	0.5%
<i>Industrial processes</i>	CO ₂	303	1.4%
GHG total for country		21,916	100%

Source: Burkina Faso National Communication, 2014.

Figure 5: Breakdown of GHG emissions

Although the core focus of the INDC is on adaptation, and the fight against desertification, the prospective intervention for a scalable and sustainable energy based rural electrification through a private sector driven model will lead to mitigation results which are far greater than that of conventional mitigation projects taking into consideration the low emissions from residential and industrial sources.

Key Barriers to rural electrification:

Several policy and institutional barriers hamper the development of green mini-grids. The model of local power cooperatives in Burkina relies on continuous funding and subsidies from FDE/ABER, the rural electrification agency. Local cooperatives are not financially sustainable, have limited technical capacity and must rely on technical services provided by engineering companies, often funded by FDE/ABER. Modern private green mini-grid companies are in a position to help Burkina Faso address these challenges, bridge the current electrification gap, and reduce the financial burden of the power sector on the national budget. Nevertheless, their development and growth require addressing existing regulatory constraints and financing barriers. Result based payment (RBP) for green mini-grids (GMGs) proposed in the Yeleen off-grid project will provide ex-post bonuses to GMG developers for each new power connection, which will help these companies to offer reduced tariffs to their rural consumers and better returns to their commercial investors.

To enable the building and operation of GMGs in a profitable manner, the registration and licensing of mini-grids needs a responsive bureaucracy and a minimalist list of registration and licensing requirements (most likely with an exemption from regulation for GMGs under 100kWp). Private GMGs also need to charge their consumers tariffs that fully cover their costs of generation and delivery, unlike their highly subsidized main grid counterparts. Potential financiers into the mini-grid sector demand that their investments not result in becoming stranded assets without prescribed formulas for compensation when the main grid moves into a mini-grid market area. GMG investors also need to know (with some degree of certainty) to where the main grid is likely to extend and where the government is prioritizing GMGs and/or off-grid solutions to rural electrification. Public sector stakeholders in Burkina Faso (in the Ministry, ARSE, SONABEL and FDE/ABER) recognize the need to reform the current policies and regulations.

Electrification rate in rural areas of Burkina Faso has been stifled by dysfunctional electrical cooperative systems and solar home systems for tier 1 access mainly. Household and productive use have been mostly limited to carbon intensive sources which are perpetuating the rural poverty trap

Category of Barrier	Project Description of Barrier (specific to the country and sector/technology, and describing relevance to domestic, private, and international sources of funding)	Barrier directly targeted by the intervention?
Financial: Inability of Government to subsidize rural tariffs,	The cooperative model in place depends on subsidies from government and is not financially sustainable.	The private sector led model does not require recurrent government subsidies
Financial: Capacity of rural populations to pay for rural mini-grid or SHS tariffs	Climate change in a vulnerable agricultural economy and high costs of fossil sources are maintaining rural populations in a poverty trap.	The project includes both boosting the capacity to pay and a mechanism to cap the tariff.
Structural: Policy/regulatory	The legal and regulatory framework for mini-grids is not in place.	Building the enabling environment will be an important component and a prerequisite for implementation which will be front loaded.
Technical/ Capability: Lack of local capacity for productive use	Poor knowledge of use of electrical equipment for productive use and value addition.	The project will include a demand stimulation component to create new demand for productive

Actions proposed:

The planned activities have two work streams: (1) GMG policy and regulatory reform and (2) Green mini grid (GMG) auction. The focus of this request to GCF is on developing a mini- grid model for rural electrification.

Note that AfDB has worked towards building the enabling environment for private sector driven rural electrification model (work stream 1). AfDB through its Sustainable Energy Fund for Africa (SEFA) has signed an agreement with the Ministry of Finance for the rural electrification agency ABER to be provided with a grant to hire consultants to review the legal, regulatory and institutional framework for rural mini-grids. The support will include drafting the documents and technical assistance for selection of consultants. The expected result is FDE/ABER agents to be fully conversant with mini-grid legal, financial and contractual processes and the necessary enabling environment fully enforced. This strategy stems from the inability of the current approach of grid electrification and subsidization of mini-grids to electrify rural areas beyond the current 3 %.

The Program design is largely private sector driven and financed, with selected companies building and operating 100 GMGs (or equivalent of 50 000 households). The AfDB's and GCF's financial involvement is in the form of RBP bonuses and concessionary financing for the mini-grid implementing companies only.

At this stage a coordination and planning committee is monitoring the project (Cellule de Coordination et de Formulation du Project Yeleen). The ultimate responsibility for project monitoring will reside with a public-sector entity appointed by the Ministry of Energy. The project will be monitored using three methods: 1. The private developers will provide quarterly performance reports. In the case of the GMG developer, these reports will be based upon the National Renewable Energy Laboratory Quality Assurance Framework, 2. GMGs will upload performance data through their smart meters to a web-based GMG database and modelling platform, and 3. Monitoring staff will make regular physical M&E visits to the target regions. Monitoring staff will receive training on the use of the Evaluation-As-You-Go M&E system.

C.3. Project / Programme Description

Describe the main activities and the planned measures of the project according to each of its components. Provide information on how the activities are linked to objectives, outputs and outcomes that the project intends to achieve. The objectives, outputs and outcomes should be consistent with the information reported in the logic framework in section H.

The chain of results is based on 3 activities as listed below:

1. A review and restructuring of the legal, regulatory and institutional framework for a rural electrification model which supports a sustainable rural energy access financed by private sector developers.

In April 2017, Burkina Faso adopted a new law on the energy sector that is perceived positively by investors and other key partners in the sector (“Loi n°014-2017/AN du 20 avril 2017 portant règlementation générale du secteur de l’énergie”). That law has provisions for public or private entities to produce and distribute electricity in Burkina Faso.

This component will materialize through a study financed by SEFA that will review the current legal, regulatory and institutional framework for rural electrification in Burkina, with the outcome being, for instance, template concession contracts and electricity tariff methodology to be applied in the rural electrification sector. As such, the Yeleen rural electrification project will only specify implementing measures for the existing law in rural areas.

2. Supply side intervention to improve the affordability of clean electricity through a one-off capital grant.

The 2nd component of the project is the supply side support to achieve tariff levels leading to wide adoption of mini-grid within the 100 localities targeted. The model is based on a tariff cap across all sectors which leaves the private developer to propose any combination of tariffs for households and productive use which lead to optimized use of solar energy when it is available.

The criteria for selection of the private developer(s) will include an assessment of how they achieved an optimal system and battery storage costs to provide defined levels of service of at least Tier 3 access for households.

An important component of this action is the audit procedures set up to validate effective connections and pay the RBP bonus.

AfDB will manage the RBP grant.

As per the RFP, the mini-grid developer will propose the design of the mini-grids and their distribution network within the selected regions. This design should aim at making the potential connection cost as low as possible or to be included in the initial investment.

The number of target households is defined; however, the design will condition the access of households and MSMEs in each community to the mini-grid network. Solar home systems will be installed for households and MSMEs outside of the mini-grid distribution area (that is not part of the requested financing).

3. Provision of productive use equipment powered by the installed mini-grids to develop sustainable livelihoods, and in turn ensure the sustainability of the positive impact of the project on climate change.

The 3rd component of the project is based on stimulation of demand for productive use which is at the core of the virtuous circle intended for rural populations to escape the poverty trap through promotion of sustainable livelihoods and micro enterprise. This concept of electrified economic zone (Zone d’Activité Electrifiée, ZAE) has been proven in Mali through entrepreneurship development and hand holding along with micro-finance support.

There are 3 requirements to achieve effective productive use:

- a. Knowledge of productive use equipment and training on their use
- b. Facilitation of access to productive use equipment which can also involve shared use of community facilities
- c. An affordable tariff for productive use which will be catered for in the tariff model for optimization of solar energy available. Another linkage between productive use and optimized system design is limitation of peak loads and starting currents of motors through the provision of energy efficient and adapted equipment.

An important linkage between energy efficient equipment and optimized system design is the use of LED lighting by households which can significantly lower the evening peak leading to lower system cost for storage.

Microfinance institutions and local banks have been identified.

The beneficiary projects will be selected in concertation with the financial institution extending the loan and the mini-grid developer. The financial institution will bring in its credit awareness. The micro-grid developer that will be required to play the role of business incubator (by itself or in collaboration with an NGO) will bring in the necessary support for the businesses benefiting from productive equipment loans to develop and be sustainable.

The partnership contracts between mini-grid developers and financial institutions will precise the eligibility conditions. A reporting from both the mini-grid developer and the financial institution will be provided to AfDB and the guarantee executing entity on a regular basis to inform on the level of loans granted and their performance.

The paradigm shifting potential of the project described in Figure 2 lies in the concurrent interventions on the enabling environment and the upgrading of the regulatory framework and policies to create the conditions for private sector operators to invest in long term concessions under a utility model. The 2 elements of innovation are the supply intervention and demand stimulation.

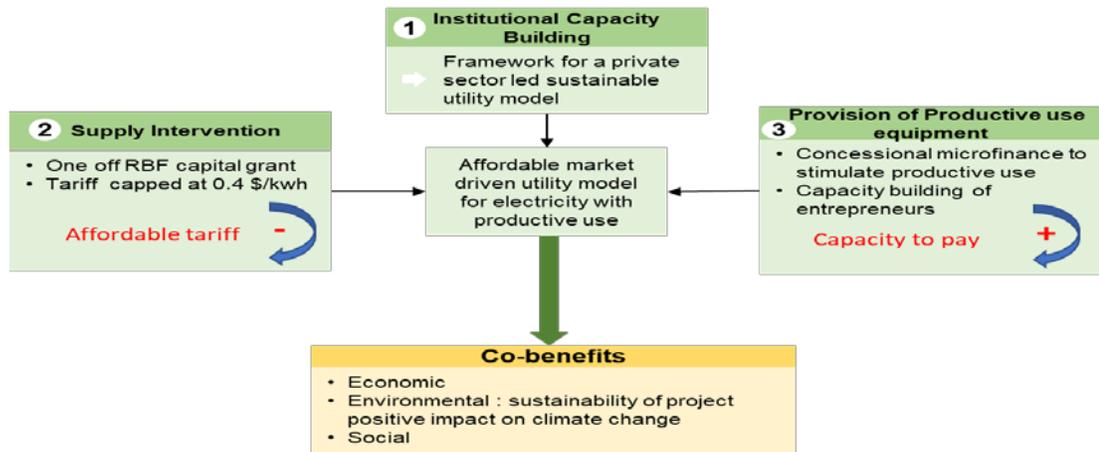


Figure 6: Chain of results diagram

The wide range of co-benefits have been listed qualitatively in section E.3. One important impact of the project, besides the reduction in CO2 emissions in all the locations serviced, will be the community-based use for clinics, schools, and other services.

The outcomes from the project will be twofold:

1. Enhanced Enabling environment:

- A operational rural electrification agency empowered for allocating and monitoring performance of rural concessions.
- A financially viable model for rural electrification through private developers.

2. Clean energy access for productive use and well-being:

Increased number of small, medium and large low-emission power suppliers through:

- Number of households and individuals(male and female) with improved access to low emission electricity sources
- MW of low emission energy capacity installed, generated and/or rehabilitated as a result of GCF's support

The outputs targeted are:

- Strengthened rural electrification agency
- Number of rural localities electrified
- Solar PV capacity installed to power mini-grids
- Effectiveness of 50,000 connections across household, community and productive use categories.

These easily verifiable outputs will form the basis of the project monitoring and evaluation.

The overall impact from the rural electrification model will be through 3 key metrics:

- The direct emissions reductions from phasing out of fossil fuels mainly kerosene and diesel by micro- enterprises.
- The 2nd impact is the leveraging of private sector equity and debt mobilized through the enabling environment. In the scaling up phase, this feedback will be useful to evaluate the level of resources required.

- The 3rd impact is in terms of direct jobs created in the construction and operation phases of the 100 mini-grids as well as the indirect jobs created through support of productive use which have not been quantified at this stage. Burkina Faso is a target country for the PAGE (Partnership for Action on Green Economy) initiative, which promotes creation of green jobs. It is one of the rare countries to have a ministry dedicated to Environment and Green Economy and climate change.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

Describe the quality of the management team, overall strategy and financial profile of the Sponsor (Executing Entity) and how it will support the project in terms of equity investment, management, operations, production and marketing.

Please note that the project necessitates two executing entities:

- A. The executing entity of Components 1 & 2 : FDE/ABER, undertaking all aspects of the project except the guarantee**
- B. The executing entity of the Component 3: AGF, handling only the guarantee mechanism**

The AE has undertaken the necessary capacity assessments of the EE's involved in the project as per requirements of the Accreditation Master Agreement (AMA) in accordance with its own policies and procedures and in this regard, is satisfied with the outcome of the assessment that the Burkina Rural Electrification Agency (ABER) and African Guarantee Fund (AGF) respectively, can undertake the role of executing entity successfully.

Background on the Executing Agency of Components 1&2: FDE/ABER

In December 2000, as part of the reform of the energy sector, the Government of Burkina Faso announced major goals such as:

- promote greater private sector involvement in the management and development of the sector by putting in place an adapted regulatory framework;
- increase access of rural areas to modern energy services;
- improve the management of natural resources.

The implementation of this policy led to the creation of the Electrification Development Fund (FDE) in 2003, which is responsible for rural electrification, i.e. of the global problem of energy in rural areas, including the issue of access to modern energy, the sustainable management of natural resources and the valorization of by-products of agriculture.

FDE's role is listed as follows:

- (i) to promote a fair coverage of the national territory for electricity access by developing rural electrification;
- (ii) to contribute to the implementation of the national electrification plan for rural areas;
- (iii) to facilitate the rural population's access to electricity by playing the role of a guarantee fund and by providing grants towards investment projects or technical studies for the implementation of electricity generation systems in rural areas;
- (iv) ensure the recovery of loans allocated to project developers;
- (v) seek funding from technical partners and financing partners in order to achieve the targets for rural electrification.

FDE/ABER resources stem from the following sources:

- yearly contribution from the Government
- tax for the development of electrification (2 FCFA/kWh collected by SONABEL on each electricity bill)
- donors' funding
- repayment of loans to COPELS

The overall objective of the FDE is to promote a fair coverage of the national territory in terms of energy developing rural electrification in order to improve the conditions and the level of living on the one hand, and increasing their income on the other.

In 2017, the authorities of Burkina Faso adopted a new law on the regulation of the energy sector. One of the decision adopted in the law was the transformation of FDE into the Rural electrification Agency of Burkina Faso (ABER) in order to improve the agency's operational capacity while keeping its current responsibilities.

FDE/ABER operates under the authority of the Ministry of Energy and Mines.

FDE/ABER, as part of the implementation of its activities, has adopted the management system of electricity generators by the COOPEL. These cooperatives play a key role in decentralized rural electrification in Burkina Faso in the sense that they are the actors operating the electricity generation systems in the rural area although FDE is in charge of the conception and design of the generation system, as well as their location. As such, FDE/ABER is the best placed public entity to understand the rural electrification sector as it has been leading the installation of electricity generation systems since its inception 15 years ago.

AfDB has worked consistently with FDE/ABER and the Ministry of Energy to (i) formulate the project and identify the existing barriers to the development of rural electrification, leading to the project's workstream as presented, and (ii) prepare the feasibility study of the project.

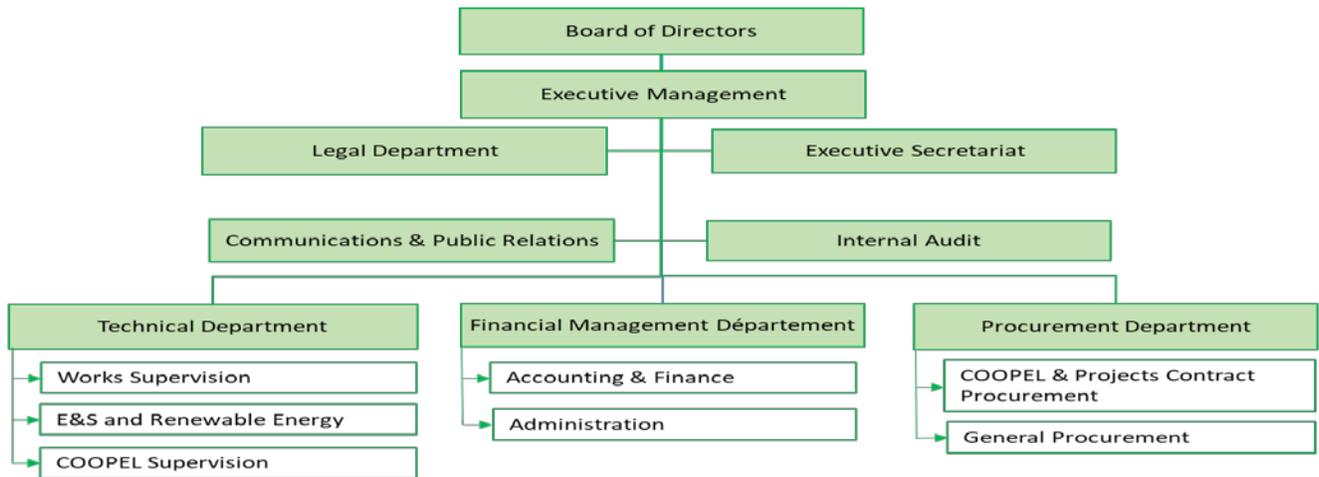


Figure 7: FDE/ABER structure

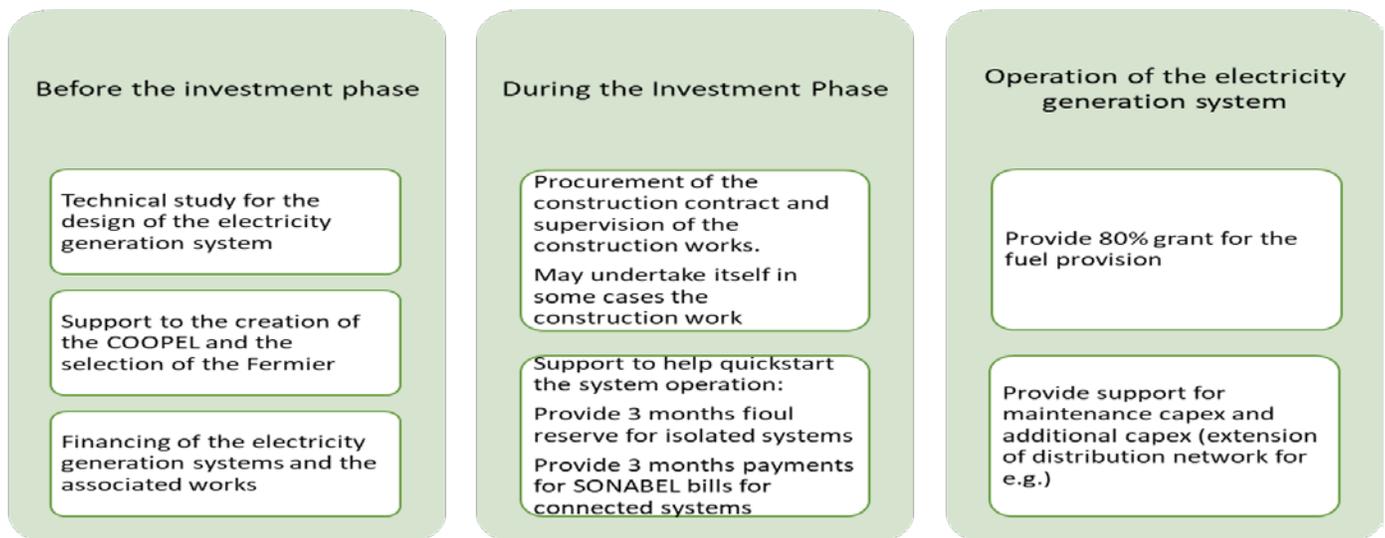


Figure 8: FDE/ABER responsibilities

Execution of the Components 1 & 2 of the project

The project will be executed under the aegis of the Ministry of Energy and Mines, and will be monitored by a coordination and planning committee. FDE/ABER will be the executing agency of the project and as such will be in charge of monitoring the technical execution of the project, and will mainly focus on the Expression Of Interest (EOI) and Request for Proposal

(RFP). This entity will provide the local logistics and staff costs. The bank has been working with FDE/ABER since 2015 under the SEFA grant framework.

AfDB will work closely with the Ministry of Energy & Mines, and FDE/ABER in order to ensure all the required implementation arrangements are in place for this project with regards to the project workstream listed.

This work has already started with the feasibility study for mini-grids implementation, and the planned technical study for the regulatory framework and the effective implementation of the solar PV mini-grids. In addition to that, AfDB will be closely involved in the drafting of the ToR for the private sector developers RFP.

AfDB will also provide funding for technical assistance to help strengthening FDE/ABER and the Ministry & Mines agents' skills for an effective management of this project. The Bank sponsored a visit of the key FDE/ABER executives to IDCOL in Bangladesh in November 2017 to learn from their experience.

AfDB will also work with FDE/ABER for the monitoring of the project during the implementation phase, and during the project lifespan. The involvement of FDE/ABER in the monitoring and evaluation of the project is essential to ensure ownership of the project by the country. And this will not contravene to AfDB's monitoring and evaluations role as AE, on the contrary, it will ensure alignment between AfDB monitoring & evaluation requirements and the EE's reporting and monitoring role within the country.

The GCF funds for the Yeleen rural electrification project will not be disbursed through FDE/ABER, but through AfDB as the AE for the project.

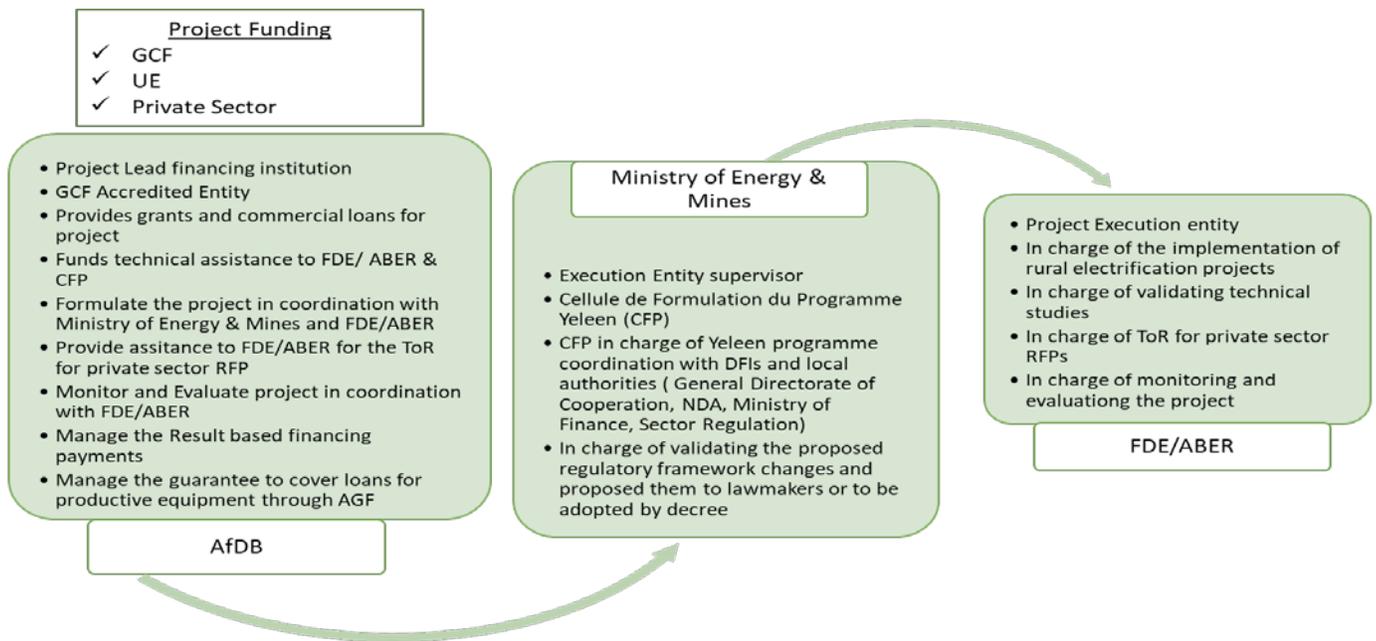


Figure 9: Interaction between AfDB, Ministry of Mines and FDE/ABER

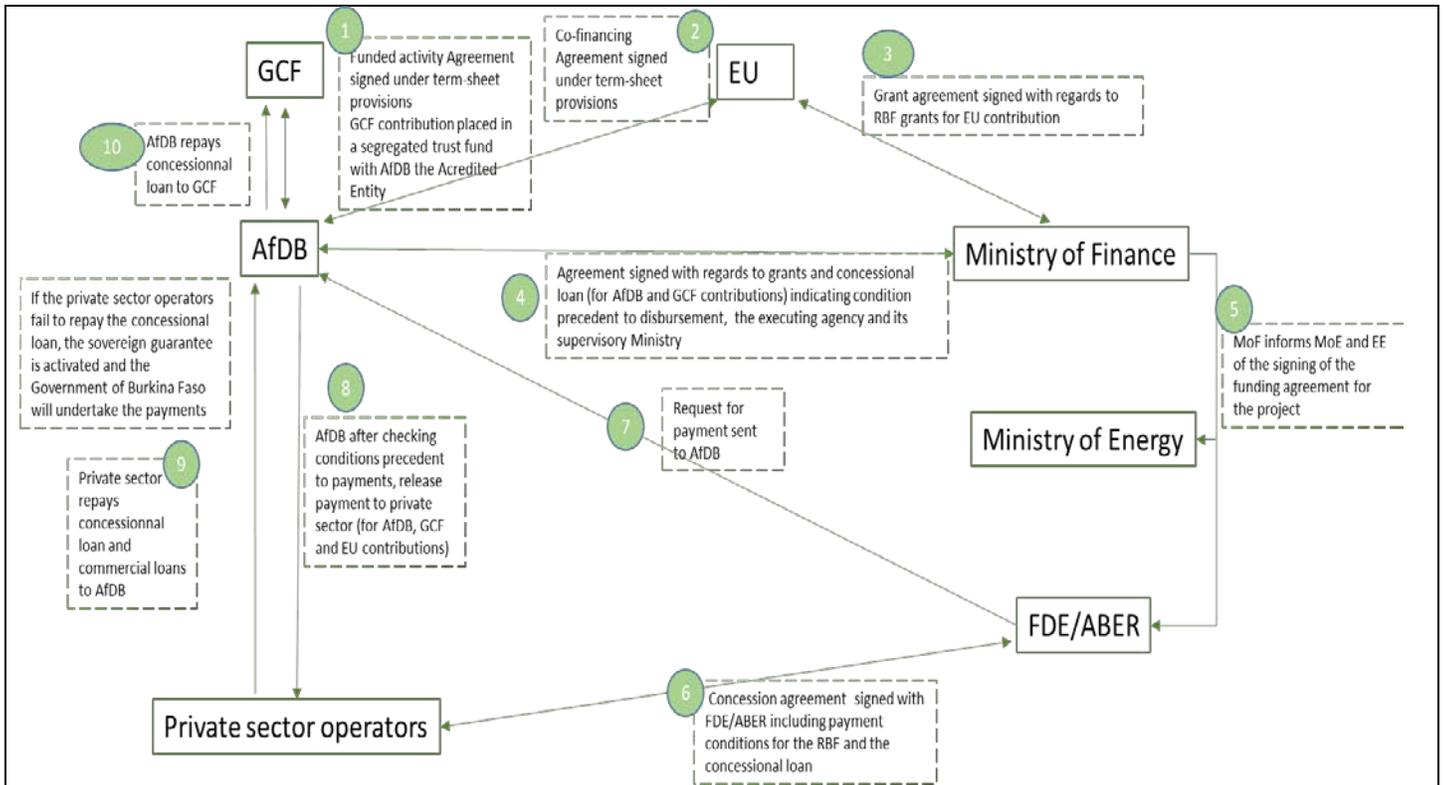


Figure 10: Project funding flowchart

Credit risk wise, the concessional loan of GCF to the government of Burkina Faso will be treated as all the sovereign loans already administered through AfDB.

Executing entity for the Guarantee Component: AGF

The proposed executing entity for the management of the guarantee is the Africa Guarantee Fund (AGF). AGF is the executing entity for the guarantee mechanism only (around 5% of the project's total cost). See Annex1 for a detailed presentation.

AGF is a company owned by the Government of Denmark through the Danish International Development Agency (Danida), the Government of Spain through the Spanish Agency for International Development Co-operation (AECID), the Government of France through the French Development Agency (AFD), the Nordic Development Fund (NDF) and the African Development Bank (AfDB).

AGF's mission is to support financial institutions in increasing lending to Small and Medium Enterprises by providing them with partial guarantees and capacity building. As of December 2016, AGF had a presence in 38 countries in West, East, Central North and Southern Africa and partnered with 73 financial institutions and 117 subsidiaries, issuing over \$450 million in guarantees

For the time being AGF does not provide unconditional and irrevocable guarantees, however they are currently updating their conditions to include these features. This is expected to be done by end of this year. The borrowers will be the entrepreneurs and micro/small enterprises seeking loans for productive use equipment. Mini-grid developers will then collect payments through the electricity bills issued. The GCF guarantee facility will therefore guarantee the borrowers' obligation to repay the loans granted by either micro-finance institutions (likely in rural environment) or local commercial banks.

Projects benefiting from the productive use equipment loans will be selected in concertation with the financial institution extending the loan and the mini-grid developer.

The financial institution will bring in its credit awareness. The micro-grid developer that will be required to play the role of business incubator (by itself or in collaboration with an NGO) will bring in the necessary support for the businesses benefiting from productive equipment loans to develop and be sustainable. The partnership contracts between mini-grid

developers and financial institutions will precise the eligibility conditions. A reporting from both the mini-grid developer and the financial institution will be regularly provided to AfDB and the guarantee executing entity to inform on the level of loans granted and their performance.

AGF can offer both individual loan guarantee and a portfolio guarantee. If the mini grid developers are able to borrow funds to procure energy efficient equipment to be sold to villagers (this is subject to regulation), AGF will be able to provide them a guarantee using our own capital provided that they are SMEs. The repayment obligation of borrowers will be guaranteed from 50% up to 75% depending on the need, which will be assessed on a case-by-case. In case there is more demand for the productive use equipment loans than anticipated, there could be need to increase the guarantee amount. In that case, AGF could step-in using its own capital. At this stage, we are working under the assumption that no additional funding will be required.

Institutional background on AfDB the Accredited Entity:

Established in 1964, the African Development Bank (AfDB) is the premier pan-African development institution, promoting economic growth and social progress across the continent. There are 80 member states, including 54 in Africa (Regional Member Countries). The Bank's development agenda entails delivering the financial and technical support for transformative projects that will significantly reduce poverty through inclusive and sustainable economic growth.

In order to sharply focus the objectives of the Ten Year Strategy (2013 – 2022) and ensure greater developmental impact, five major areas (High 5s) have been identified, namely: energy, agro-business, industrialization, integration and improving the quality of life for the people of Africa.

The Vice Presidency for 'Power, Energy, Climate and Green Growth' (PEVP) is a Sector Complex focusing on the Bank's Ten Years Strategy and one of the High 5s priority of "Light up and Power Africa". In order to translate this strategic goal into concrete actions, the AfDB launched the "New Deal on Energy for Africa" strategy which is built on five inter-related and mutually reinforcing principles: (i) raising aspirations to solve Africa's energy challenges; ii) establishing a transformative partnership on energy for Africa; (iii) mobilizing domestic and international capital for innovative financing in Africa's energy sector; (iv) supporting African governments in strengthening energy policy, regulation and sector governance; and (v) increasing the African Development Bank's investments in energy and climate financing¹.

New Deal on Energy for Africa:

The AfDB's energy strategy, central to implementing the New Deal, focuses on seven areas, which are: (i) setting up an enabling policy environment, (ii) transforming utility companies for success, (iii) dramatically increasing the number of bankable energy projects, (iv) increasing the funding pool to deliver new projects, (v) supporting 'bottom of the pyramid' energy access programs, particularly for women, (vi) accelerating major regional projects to drive integration and (vii) rolling out waves of country-wide energy 'transformations'.

The Bank will implement these priorities through a series of flagship themes such as: IPP procurement, power utility transformation, early stage project support and related catalytic programs, mobile payment initiatives, and a regional project acceleration program. The overall goal is to help the continent achieve universal energy access by 2025 with a strong focus on encouraging clean and renewable energy solutions. This will require providing 160 GW of new capacity, 130 million new on-grid connections, 75 million new off-grid connections and providing 150 million households with access to clean cooking solutions. It is estimated that the investment needed ranges between US \$60 billion and US \$90 billion per year. The Bank intends to invest US \$12 billion of its own resources in the energy sector during 2016 – 2020 (figure 10).

¹ AfDB, New Deal on Energy for Africa strategy, 2016.

	From current energy situation in Africa		To universal access in 2025	
Population, <i>M</i>	1 174	x1.3	1 499	
GDP, \$ <i>bn</i>	2 175	x1.7	3 742	
Electrification rate, %	43%	x2.3	97%	
Households connected, <i>M</i>	87	x3.6	292	+130 M new on-grid connections
Grid	83	x2.6	213	
Off-grid	4	x20	79	+75 M new off-grid connections
Grid capacity, <i>GW</i>	170	x1.9	332	+160 GW of new capacity
Consumption <i>kWh/capita</i>	613	x1.5	941	+150 M with clean cooking solutions
Households using clean cooking, <i>M</i>	70	x3.1	220	

1 Assuming 100% urban electrification and 95% rural electrification 2 Out of 234m households in 2015 and 300m households in 2025

Figure 11. New Deal on Energy for Africa Targets

Under this strategic framework, the PEVP complex's objectives are (i) to develop enabling sector policy and strategy; (ii) to provide deep sector technical expertise to the regions by gathering pool of experienced individuals who can be consulted for their expertise on complicated transactions; (iii) to develop new financing instruments; and (iv) to act as spokesperson to represent the Bank with external stakeholders on all aspects of "Light Up and Power Africa". The AfDB-GCF framework will be executed by the PEVP complex of the AfDB, following the Bank's established rules and procedures for the project and financial management. The Climate Change and Green Growth Department under the PEVP complex is in charge of the Bank's climate change strategy and climate finance programs (figure 22).

An implementation team for this framework will be constituted within the AfDB, and be in charge of the due diligence and execution of individual sub-projects as well as the management of the overall framework.

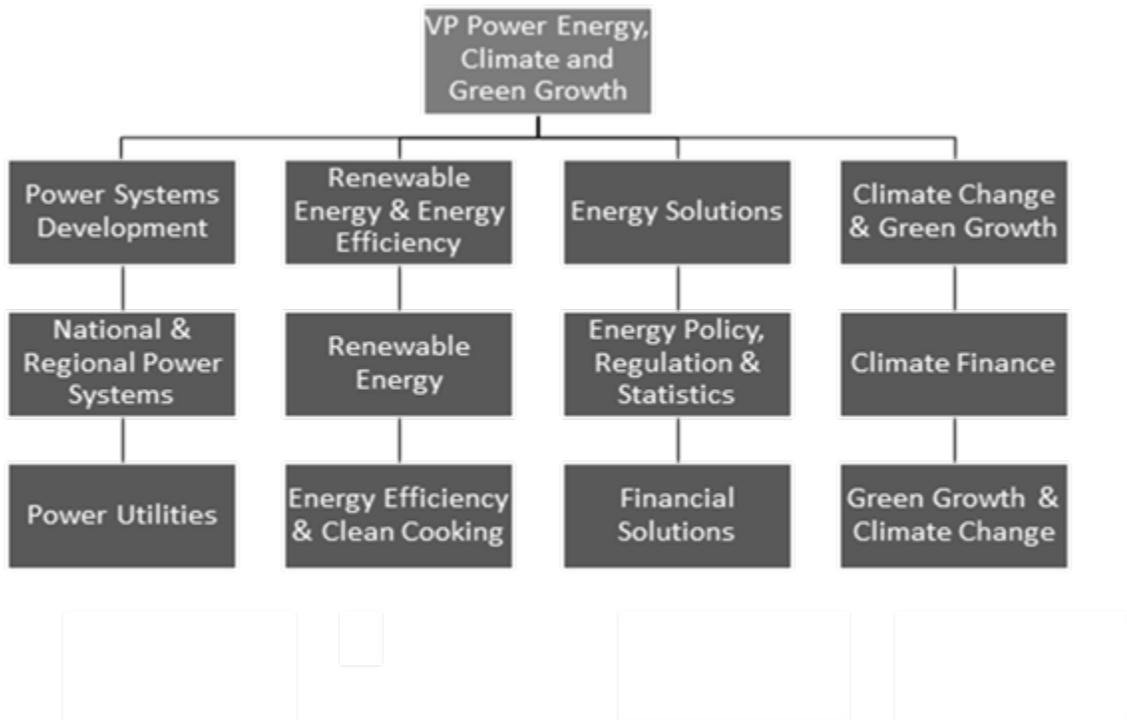


Figure 12. PEVP organizational structure

AfDB RE and climate investments overview and project examples (2011-2017):

Over the last 7 years (2011-2017), the AfDB has invested around UA² 1.25 billion from its own resources in support of renewable energy (in addition to ~UA 390 M in co-financing channeled by the Bank).

Operations range from project preparation to infrastructure investment using various Bank instruments – loan, grant, line of credit, partial risk/credit guarantee and equity.

The Bank's investment during 2011-2017 in RE (excluding early stage project preparation support) will contribute towards ~3GW in additional RE generation capacity (of which ~1GW from hydro, ~900 MW from wind, ~860 MW from solar, ~175 MW from geothermal and ~75 MW from biomass).

Further, under its climate finance mobilization efforts, the AfDB is committed to increasing its annual climate financing to reach \$5 billion a year by 2020 – 40% of its total new investments by 2020.

This will be implemented by the "Africa Thriving and Resilient: The Bank Group's Second Climate Change Action Plan, 2016-2020 (CCAP2)" approved by the Board of Directors in 2017. The strategic vision of CCAP2 is to enable the achievement of 'low-carbon and climate-resilient' development in Africa with four Pillars: Mitigation, Adaptation, Climate Finance and a Cross Cutting Pillar that addresses technology transfer, capacity development, institutional reforms as well as other cross-cutting activities that will create of the enabling environment for its successful implementation.

The AfDB's climate finance portfolio 2011-2017 has well over 300 projects with climate mitigation and/or adaptation benefits based on the joint MDB climate finance tracking methodology. This portfolio is dominated by mitigation projects; the CCAP2 will aim to raise adaptation finance to reach parity with mitigation.

The share of RE in power generation investments increased from 20% to over 65% between 2013-17. The AfDB has been associated with the landmark RE transactions in Morocco, South Africa, Egypt, Kenya, and other countries (details provided in Section E.5.2). Most recently, in 2017, 100% of the UA 465 million invested by the African Development Bank in power generation supported renewable energy projects, which will contribute to 1.4 GW of additional renewable generation capacity (950 MW from solar, 473 MW from hydro) while reducing greenhouse gas (GHG) emissions by over 2.3 million tons annually.

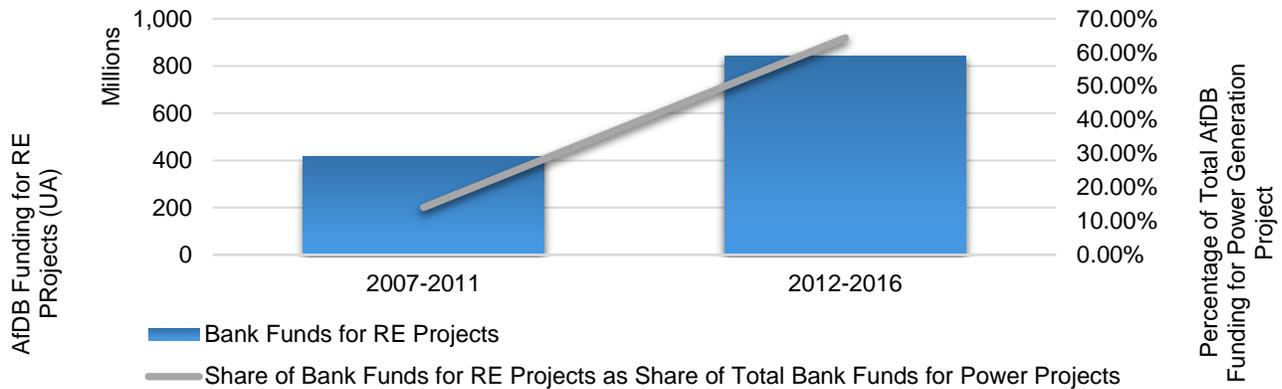


Figure 13. Share of Renewable Energy projects in the AfDB power generation investments

The Bank also uses its various trust funds to support African Governments and private sector developers in scaling-up renewable energy across the continent. For example, the Bank's Sustainable Energy Fund for Africa (SEFA) supports small- and medium-scale renewable energy projects and energy efficiency through project preparation and technical assistance grants. In 2017 alone, SEFA approved 7 project preparation grants (aiming to add an additional 166 MW of renewable energy and leverage USD 340 million) and 5 technical assistance grants to help African countries create a conducive environment for more private sector investments in the off-grid and mini-grid sub-sectors. . Following its fifth year of operations, SEFA has cumulatively committed the vast majority of its USD 95 million capitalization across a portfolio of over 30 projects in approximately 20 countries, including multinational projects.

² Unit of Account, equivalent to the IMF's Special Drawing Right.

AfDB-GCF Zambia Renewable Energy Financing Framework:

Zambia Renewable Energy Financing Framework is the AfDB's first collaboration with the GCF, approved by the GCF's Board at its 19th meeting in February 2018 (USD 50 million concessional loans and USD 2.5 million grant for technical assistance). It is designed to 1) arrange debt financing for 5-6 small-scale (up to 20MW each) renewable energy independent power producer (IPP) projects selected under the "Global Energy Transfer Feed-in Tariffs" (GETFIT) Zambia Program, and 2) provide complementary technical assistance to develop the ecosystem and value chain for renewable energy-based electrification in Zambia. The AfDB-GCF financing envelope aims to provide USD 100 million of senior debt and standby loan facility (as a tenor extension instrument for commercial banks' loans) to the selected GETFIT projects. As a co-financer and an executing agency, the Bank has committed up to USD 50 million of senior loans and USD 1.5 million of grant for technical assistance. Discussions with other potential co-financiers (commercial banks, National Pension Fund of Zambia (NAPSA), etc.) are ongoing.

The Framework is expected to catalyze private investment in the Zambian renewable energy sector, thereby accelerating the achievement of the country's electricity generation targets and diversification of its energy mix. By doing so, it aims to fast-track Zambia's transition toward a low-emission sustainable development pathway. It will be a test bed for a renewable energy financing model that crowds in local commercial banks and institutional investors, further supplemented with the proposed technical assistance grant facility. This is expected to have a strong demonstration effect across Sub-Saharan Africa.

AfDB support to Green Mini-Grids:

The AfDB is currently the focal point for all mini-grid activities on the continent. Through its Green Mini-Grids Market Development Program (GMG MDP), the Bank offers technical assistance to mini-grid developers and mini-grid policy makers through its Green Mini-Grids Help Desk (<http://greenminigrid.se4all-africa.org>). The Bank is currently providing support to more than 60 green mini-grid developers in 30 countries, as well as to several Ministries of Energy.

The Green Mini-Grid Africa Strategy – drafted by the GMG MDP – was endorsed in 2017 by the African Union Commission. The Green Mini-Grid Africa Strategy is a document that prescribes the baseline policy principles required to foster private sector investment into mini-grids development in a particular country. These principles include simplified licensing, the liberty to apply cost-reflective tariffs, predictable outcomes in the case of main-grid arrival into a mini-grid market, integrated energy sector planning (between main grid, mini-grids and off-grid solutions) and capacity building at all levels.

The Market Development Program conducts country specific green mini-grid opportunity assessments, with studies already concluded for Mozambique, Ethiopia, Burkina Faso, Cameroon, the DRC, Nigeria, Uganda, Madagascar and Mali. The Program is introducing the National Renewable Energy Laboratory's Quality Assurance Framework³ for mini-grids to 12 green mini-grid developers in Nigeria.

The AfDB is the current Chair of the Mini-Grids Partnership (MGP), a body of sector stakeholders that coordinates concepts and interventions related to mini-grids development. Other MGP Steering Committee members include DFID, Power Africa, the World Bank, EUEI, GIZ, IRENA, the Rockefeller and UN Foundations, the Alliance for Rural Electrification, the Clean Energy Solutions Center, Club-ER (the association of African rural electrification agencies), SNV, Power for All and African Mini-Grid Developers Association (AMDA).

While the AfDB does not have a record of direct investment to private sector mini-grid projects yet, the AfDB has accumulated a wealth of sector experience and knowledge through the above-mentioned support programs and public sector operations for rural electrification. The proposed Program is built on the collaboration with DFID (Essor A2E) drawing on both organizations' expertise.

AfDB history of interventions in Burkina Faso

AfDB has a long history of interventions in Burkina Faso including in the financing of road infrastructure, forest management and lines of credit to support SMEs. The project will be carried out under the public-sector window of AfDB and will benefit from an Africa Development Fund (ADF) country allocation. As such the project will require clearance from government for allocation of the fund to the project.

The executing agency is FDE/ABER which operates under the aegis of the Ministry of Energy and Mines.

³ The Quality Assurance Framework is a monitoring and reporting framework related to mini-grid performance.

As at end-April 2017, the total Bank portfolio was UA 335.35 million for 16 active projects. The sector distribution of the active portfolio is: transport (46%), agriculture (21%), water and sanitation (10%), private sector (12%), energy (8%), and the multisector (3%). Key projects include:

- Energy: Electrification of the Semi-Urban Areas of Ouagadougou and Bobo-Dioulasso
- Transport: Internal Access Roads Project, Burkina Faso Facilitation Corridor
- Agriculture and Rural Development:
 - Bagré Growth Pole Support Project
 - Participatory forest management project
 - Cashew Development Support Project in the Comoé Basin for REDD-(PADAREDD+)
 - PPG greatest common factor/REDD preparation ++ FIP
 - Multinational Programme to Boost Resilience to Food and Nutritional Insecurity in the Sahel (P2RS)
 - PPFYouth and Women's Integration into the Agro-Silvo-Pastoral sectors
- Water and Sanitation:
 - Drainage of Ouagadougou's Outlying Districts
 - Study on Rehabilitation of the NARE Underground Dam
- Multisector:
 - Private sector - Africa SME Programme – Fidelis
 - Support to the Shea Butter Value Chain
 - Grant of a line of credit to Coris Bank International

C.5. Market Overview (if applicable)

Describe the market for the product(s) or services including the historical data and forecasts.

Mini-grid development:

The concept of mini grid is not new in Burkina Faso. The country established the Fonds d'Electrification Rurale (FDE/ABER) in 2003, which was mandated to undertake the rural electrification activities in the country, under this arrangements FDE managed to promote the community based mini grids in collaboration with the rural cooperatives (COOPEL) and contributed to the implementation of 229 mini grids in the country as of 2016. The mini grids were developed mainly using the grants received by FDE/ABER from various donor communities, mainly from the World Bank.

This arrangement however, faced sustainability challenges largely due to subsidized tariffs, the use of unsustainable fuels to power the mini grids and relatively weak management.

The African Development Bank is currently supporting the government of Burkina Faso through its Sustainable Energy Fund for Africa (SEFA) trust fund to revise the business models of the mini grids in the country, which will include hybridizing the existing diesel based mini grids alongside reviewing the policies and regulations in the mini-grid space. The technical assistance support also includes bringing private sector investments in mini-grids as one of the main reasons for the low rate of rural electrification is the high cost for grid extension infrastructures and insufficient power to be able to serve the entire population.

The country receives abundant solar radiation all year round; the mean annual solar radiation is 19.8 MJ/ m² per day and the direct sunshine is over 3,000 hours per year. Despite the high solar energy potential, solar energy represents only 0.1% of the total national energy consumption.

Burkina Faso has a large number of rural communities whose population density favors mini grids. Based on current grid coverage, it is estimated that 37% of the population (6.6 million people) would be best served by off-grid solutions (mainly solar-based mini-grids).

Among the regions identified for the Yeleen project, the regions of Haut-Bassins and Boucle de Mouhoun were the highest ranking regions based on criteria including distance from existing electricity network, population density, capacity to pay

and security (*Source: Feasibility study on mini-grids for Yeleen rural electrification project*). The regions for the mini-grids implementation will be selected by the Ministry of Energy according to the listed criteria.

Haut-Bassins region has a population of 1 606 529 inhabitants and counts 238 287 households. Most of the region does not have access to the national electric grid. The market size in this region is estimated at 15.4 M USD (13 M EUR). The population of the region best served by off-grid solutions is estimated at 720 202. The market sizes of each group based upon population density are: (i) 49 093 inhabitants are living in an area with a population of less than 1 000 people; (ii) 416 166 inhabitants are living in an area with a population between 1 000 and 5 000 people; (iii) 254 943 inhabitants are living in an area with a population of more than 5 000 people. The average annual per capital expenditure on energy in the Haut-Bassins region is estimated at 11 044 FCFA (~17 EUR). Based upon the current consumptions of other forms of energy, it is estimated that the average ability to pay for electricity is 220 FCFA/kWh (0.33 EUR/kWh). This is 83% higher than the average tariff for grid-based electricity (subsidized), which is 120 FCFA /kWh. (0.18 EUR/ kWh)

Boucle de Mouhoun region has a population of 1 542 923 inhabitants and counts nearly 200,000 households (on average 8 persons per households). The market size in this region is estimated at 16.6 M USD. The average annual per capital expenditure on energy in the Boucle de Mouhoun region is estimated at 8 400 FCFA (~13 EUR). The population of the region best served by off-grid solutions is estimated at 1 012 752. The market sizes of each group based upon population density are: (i) 124 609 inhabitants are living in an area with a population of less than 1 000 people; (ii) 665 224 inhabitants are living in an area with a population between 1 000 and 5 000 people; (iii) 222 919 inhabitants are leaving an area with a population of more than 5 000 people.

Under the proposed intervention, which is estimated to cover 50 000 connections in the two regions, the total cumulative installed capacity of the solar mini grids is estimated to 11.4MWp. The installed capacity will be modularly increased as the market grows.

The table below provides the ranking of regions covered by the study according to the selected criteria (*Source: Feasibility study on mini-grids for Yeleen rural electrification project*).

	Lack of grid coverage	Market size	Security	Purchasing power	Total
Boucle du Mouhoun	7	8	8	6	29
Cascades	8	2	8	8	26
Centre	2	10	5	9	26
Centre-Est	5	5	5	5	20
Centre-Nord	6	5	5	7	23
Centre-Ouest	7	5	5	6	23
Centre-Sud	5	2	5	6	18
Est	10	5	0	3	18
Haut-Bassins	8	8	8	8	32
Nord	5	5	0	3	13
Plateau Central	3	3	5	5	16
Sahel	8	4	0	7	19
Sud-Ouest	7	2	8	5	22

The table below provides the Energy market size by region (*Source: INSD Annuaire statistique 2015*)

	2009					2015		
	Total exp. (billion CFA)	No. of people	No. of households	Yearly HH exp. (CFA)	Yearly per capita exp. (CFA)	Extrapolated yearly per capita exp. (CFA)	Extrapolated yearly per capita exp. (\$)	Extrapolated annual per capita exp. on energy (US\$)
B. du Mouhoun	257	1 542 923	200 228	1 283 536	166 567	233 194	373	16
Cascades	126	591 794	87 956	1 432 538	212 912	298 077	477	21
Centre	547	1 952 846	386 063	1 416 867	280 104	392 146	627	27
Centre East	191	1 224 131	169 136	1 129 271	156 029	218 441	350	15
Centre Nord	266	1 295 583	164 212	1 619 853	205 313	287 438	460	20
Centre Ouest	215	1 271 257	193 830	1 109 218	169 124	236 774	379	17
Centre Sud	118	683 511	110 681	1 066 129	172 638	241 693	387	17
East	189	1 326 753	193 249	978 013	142 453	199 434	319	14
Hauts Bassins	350	1 606 529	238 287	1 468 817	217 861	305 005	488	21
Nord	180	1 267 204	142 702	1 261 372	142 045	198 863	318	14
Plateau Central	116	745 640	104 611	1 108 867	155 571	217 799	348	15
Sahel	226	1 051 877	171 015	1 321 522	214 854	300 796	481	21
Sud Ouest	103	666 399	99 446	1 035 740	154 562	216 387	346	15
BURKINA FASO	2 884	15 226 448	2 261 416	1 275 307	189 407	265 170	424	19

Note: GDP growth is used to extrapolate total expenditure from 2009 to 2015, giving a scaling factor of 140% (World Bank). A currency conversion of 0.0016 US\$/CFA is used. 4.38% of the annual expenditure is assumed to be on energy (World Bank Database: Household final consumption expenditure, 2015).

Provide pricing structures, price controls, subsidies available and government involvement (if any).

In 2015, its cost of electricity service was around FCFA 142 per kWh (approximately EUR 0.22 per kWh at the time of writing). Tariffs are non-cost reflective, averaging approximately 120 CFA per kWh (approximately EUR 0.18 per kWh). SONABEL therefore depends on continuous government subsidies to sustain its operations.⁴ SONABEL's negative financial results are also a significant obstacle to IPPs and investors interested in projects that aim to sell power to the national utility.

In Burkina Faso, several factors are favorable to investments by modern decentralized energy companies. It favors small distribution networks⁵ through long-term concessions and has significant renewable energy potential. The country has a solar irradiation of 5.5 kWh/m²/ day. In addition, Burkina Faso has a stable currency - the CFA franc - pegged to the EUR, which is the common currency of the West African Economic and Monetary Union (UEMOA), of which Burkina Faso is a founding member.

Nevertheless, several policy and institutional barriers hamper the development of green mini-grids.

The model of local power cooperatives (COOPELs) is quite rigid and relies on continuous funding and subsidies from FDE/ABER. The cooperatives get up to 80% financial contribution for operating the diesel-powered mini-grids. Local cooperatives are not financially sustainable, have limited technical capacity and must rely on technical services provided by engineering companies, often funded by FDE/ABER.

Modern private green mini-grid companies are in a position to help Burkina Faso address these challenges, bridge the current electrification gap, and reduce the financial burden of the power sector on the national budget.

Nevertheless, their development and growth require addressing existing regulatory constraints, such as the current mandatory nationwide low national tariff, in addition to the requirement that PV power providers with ten or more customers or any project with a generation capacity above 10kW to be subject to Ministry of Energy authorization.

Current licensing requirements are also overly demanding.

The new regulatory framework to implement prior to the introduction of private sector mini-grid developer will address these tariff and licensing issues.

The government has started the process of revising the energy sector policies and regulations. These reforms are expected to result in a rural electrification sub-sector favorable to private sector investment. Though government

⁴ SONABEL losses amounted to approximately US\$ 30 million in 2015.

⁵ Mini-grids have been promoted since 2005.

authorities are sensitive to the modest purchasing power of the country's rural population, interaction with the regulator has confirmed the recognition that the current national tariffs are too low to enable viable private sector mini-grids. A general agreement has been reached to allow for cost-reflective tariffs.

C.6. Regulation, Taxation and Insurance (if applicable)

Provide details of government licenses or permits required for implementing and operating the project, the issuing authority, and the date of issue or expected date of issue. Describe applicable taxes and foreign exchange regulations.

Regulatory regime:

The country has been divided in two distribution segments, with distinct regulations and actors. The first segment includes the area served by SONABEL, the national utility, which covers the main population centers. SONABEL has a monopoly over transmission and distribution, but generation is open to other parties and independent power producers.

A regulatory agency (ARSE) was created in 2007. Operating under the authority of the prime minister, it has the mandate to regulate operators, arbitrate disputes and protect consumer rights. The government is currently aiming to strengthen ARSE's powers under a new energy law, which includes increasing its power over issuance of sector acts, pricing, control and arbitration.

Power distribution is the responsibility of local cooperatives (COOPELs) in the country's second distribution segment.

An EU funded study⁶ documented the problems associated with the COOPELs which led to the conclusion that the COOPEL model in its current state is not appropriate for rural Burkina.

Promoting of electrification through green mini-grids is a priority in the government agenda. In 2015, national action plans were drafted to support renewable energies (PANER) and drive implementation of the Sustainable Energy for All initiative (SEforALL). These action plans define targets in terms of energy access and renewable energies. The target is for the national electrification rate to reach 36% in 2020 and 65% in 2030. The authorities have also recognized the importance of energy efficiency leading to the creation of a new agency (ANEREEE) created to promote renewable energies and energy efficiency.

Permits, licenses and land: As the government authority mandated for rural electrification, the Ministry of Energy and mines of Burkina will provide the necessary permits and clearances. The Environmental and social categorization of the project is under way and is Category 2 for AfDB (equivalent to Category B for GCF). The local authorities in the rural locations will provide land for the solar PV fields and wayleave for the mini grid infrastructure.

Currency regime: The currency regime is the CFA, which is locked against the EUR. The project funds will be provided in EUR.

Privileges and Immunities: Chapter VII of the Agreement Establishing the African Development Bank describes the agreements among the AfDB's member countries about the status, immunities, exemptions and privileges. This includes immunity of the Bank's assets and archives, freedom of assets from restriction, privilege for communications, and exemption from taxation. The GCF resources will enjoy an equal treatment with the AfDB resources in terms of privileges and immunities.

Insurance requirements:

The insurance requirements will be included in the RFP for the selection of mini-grids developers. The usual insurance will be in relation to the transportation of the equipment, to the construction of the mini-grids and associated distribution network.

As part of its due diligence process, the AfDB will ensure that the mini-grid assets are adequately insured as per standard industry practices.

Import requirements:

⁶ Etude sur l'optimisation du « système coopératives d'électricité (COOPEL) March 2016

GCF concessional loan extended to the Government of Burkina Faso, to be on-lent to private mini-grid developers, will contribute to the financing of equipment to be imported.

As the GCF concessional loan will be denominated in EUR, and imports are likely to be denominated in hard currency as well, we do not expect any costs related to foreign exchange, only transaction costs associated to transfers and international payments. The GCF concessional loan is not expected to be swapped.

Tax regime: In order to promote rural electrification through solar PV, Burkina Faso has waived duty on solar PV equipment which is exemplary in the region. The corporate tax regime of 30 % will be applicable to the mini grid operators. However, the projected IRR of about 9 % which will be imposed by the tariff cap will lead to reasonable earnings and tax payments. The tax exemption accorded to solar PV equipment implies that GCF proceeds will not be used to pay any form of taxes for the project. The flow of proceeds will not be affected by taxes and will reflow back to the GCF without any tax impacts.

Tariffs: The tariff cap is planned to be set in the concession contracts. However, competition among bidders for a first entrant position in this new model may lead to lower tariffs. The actual project cost will be known from the response to the bidding exercise.

C.7. Institutional / Implementation Arrangements

Please describe in detail the governance structure of the project, including but not limited to the organization structure, roles and responsibilities of the project management unit, steering committee, executing entities and so on, as well as the flow of funds structure. Also describe which of these structures are already in place and which are still pending. For the pending ones, please specify the requirements to establish them. Describe construction and supervision methodology with key contractual agreements. Describe operational arrangements with key contractual agreements following the completion of construction. If applicable, provide the credit analysis of key counterparties of key contractual agreements and/or structural mitigants to cover the counterparty risks.

The AfDB will be responsible for the overall oversight of the framework implementation and will report to GCF per the terms to be agreed under the Accreditation Master Agreement (AMA) and the Funded Activity Agreement (FAA). For managing the GCF resources, a special Trust Fund will be set-up within the AfDB as a stand-alone facility and the Bank's role will be to administer the funds. Under this scheme, the AfDB will be a direct lender to the projects in its capacity as an Accredited Entity (**please refer to Section C4. figures 9 & 10 above for details on execution of the project and funds flow chart**).

The project falls under the responsibility of the Ministry of Energy and Mines which controls and regulates all the entities responsible for Energy. A steering committee in the form of a coordination and planning committee has been set up to provide the high level overall coordination and monitoring of the project. A public sector entity will be designated by the Ministry of Energy and mines to be the executing agency for the project (in this case FDE/ABER).

The private sector developers will be selected through an RFP process for which the terms of references will be prepared in coordination between AfDB, the Ministry of energy & Mines, and FDE/ABER.

The same coordination will apply for the selection of all key contractors such as the independent verifier for the connections to the mini-grids.

D.1. Value Added for GCF Involvement

Please specify why the GCF involvement is critical for the project, in consideration of other alternatives.

Barriers to Clean Energy development for Rural electrification in Burkina Faso:

Several barriers have contributed to the low electrification rate of 3 % in Burkina Faso:

- The policy of uniformity of tariff between urban and rural areas has been the most important hurdle because of the lack of financial capacity of government to invest in the infrastructure for grid extension to rural areas and to the inability to provide the recurrent tariff subsidies for the rural subscribers.
- The practice of subsidizing the diesel cost for rural micro grids operating under the electrical cooperatives (COOPEL).
- The recourse to solar home systems of poor quality has limited access mostly to tier 1 at relatively high costs to users which has limited productive use and perpetuated a vicious poverty cycle.

The Green mini-grid project aims at demonstrating an innovative approach that is scalable across sub Saharan Africa. The core principle of the new approach is based on the recognition that uniformity of tariff will lock the rural populations in a poverty trap for decades to come. The additional threat of climate change, which in Burkina Faso is real with a history of crop failures and famine, is a strong motive for rural populations to build climate and economic resilience through sustainable rural livelihoods.

The projects aims at demonstrating that solar based rural electrification can be more attractive with:

- (i) a strong legal and regulatory environment for allocating long term rural mini grid concessions,
- (ii) combined with a result based capital grant leading to an affordable capped tariff
- (iii) a component to support productive use of electricity, will create a higher value addition to local resources and higher capacity to pay, leading to sustainable rural livelihoods and emergence from the poverty trap, triggering a virtuous circle of sustainable climate resilient agriculture and livestock.

Value added for GCF involvement

The grant and the concessional loan from GCF will enable a low tariff critical for the success of the proposed project. The GCF guarantee to support productive use from is also a critical success factors for the new rural electrification model favoring renewable energies as it will support economic activity in the mini-grids implementation areas, which in turn will improve the population's payment capacity for electricity services, and consequently support the sustainability of the project's positive impact on climate change.

If the project were to be financed on commercial terms only, the resulting electricity tariff applicable to make the business financially viable would not be affordable for the rural population.

Indeed, GCF contribution can make the difference for the project in terms of amounts made available.

D.2. Exit Strategy

Please explain how the project sustainability will be ensured in the long run, after the project is implemented with support from the GCF and other sources, taking into consideration the long-term financial viability demonstrated in [E.6.3](#). This should include a description of strategies for longer term maintenance of physical assets (if applicable).

Thanks to the financial structure of the project (grants, loans and equity), and the tenor of the concession contracts, the mini-grid developers should be able:

- to face the operation and maintenance costs of the mini-grids during the concession tenor
- to generate enough cash-flow after the first five years of operation in order to be able to face replace the equipment once it's amortized

Moreover, it is expected that the productive use of energy will create employment and revenues, which will lead to additional revenue, then increase the electricity payment ability of households in the concerned areas.

Therefore, if this new model for rural electrification is proven successful, it could be replicated.

The project is a pilot in the AfDB Desert to Power (DtP) initiative targeting 11 countries in the Sahel belt with a total population of 422 M, including 6 land-locked and 7 vulnerable countries, with a population without access to electricity estimated at 226 M. DtP aims to transform the Sahel region by developing and implementing 10 GW of solar PV by 2025 through a combination of public, private, on grid and off grid projects. The African Development Bank is collaborating with Africa 50, AFD and other partners to reach this objective through innovative schemes. DtP will contribute to the concrete implementation of several existing initiatives in the region, including the Alliance pour le Sahel, the Great Green Wall, the International Solar Alliance and the West Africa Clean Energy Corridor.

We expect that the legal, regulatory and institutional framework developed for Burkina Faso under the off-grid component of the Yeleen project is replicable to most of the DtP countries. The baseline recurrent spending for tier 0 access for lighting and power and the socio-economic conditions are comparable across DtP countries.

This Yeleen rural electrification project in Burkina Faso will lead to an aggregate capacity of 11.4 MW of Solar PV. Under the larger Yeleen programme, there is an on-grid component of 50 MW for Burkina Faso developed in collaboration with AFD as lead partner, which will be implanted in 2019.

As DtP has set a target of 10 GW of solar PV to be deployed by 2025, this will require a significant scaling up within Burkina Faso and the other target countries. The experience and learning from the Yeleen rural electrification project in Burkina Faso will provide the validation for this scaling up.

Based on this project, AfDB is willing to develop a Results Based Financing fund to channel corporate and crowd funding towards rural electrification. This fund will potentially transform the dynamics of aid from a recurrent grant model to a one-off result based capital grant model to ensure long-term sustainability and large-scale replicability.

In this section, the accredited entity is expected to provide a brief description of the expected performance of the proposed project against each of the Fund's six investment criteria. Activity-specific sub-criteria and indicative assessment factors, which can be found in the Fund's [Investment Framework](#), should be addressed where relevant and applicable. This section should tie into any request for concessionality made in [section B.2](#).

E.1. Impact Potential

Potential of the project to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

Specify the mitigation and/or adaptation impact, taking into account the relevant and applicable sub-criteria and assessment factors in the Fund's [investment framework](#). When applicable, specify the degree to which the project avoids lock-in of long-lived, high emission or climate-vulnerable infrastructure.

By providing access to electricity through Solar PV mini-grids, the Yeelen rural electrification project will provide access to sustainable and affordable energy to rural population in Burkina Faso whilst reducing CO₂ emissions from the reduced usage of kerosene, diesel and batteries to meet rural energy needs. The project will therefore enable the introduction of low carbon technologies for power generation in rural Burkina Faso.

In order to determine adequately the mitigation impact of the project, a model has been developed to estimate the baseline emissions and costs from the use of Kerosene and candles for lighting and batteries and mobile charging stations for power generation. The model is also used to calculate the capital and O&M costs of the baseline with an element of suppressed demand and the project scenario of 50 000 households serviced with mini-grid electricity.

The model assumes that as population grows at a rate of 3.1 %⁸, The number of households within a concession will increase through a densification of the network leading to more customers which can be connected by the mini grid operator on an organic growth basis. Based on this model, the annual emissions reduction from servicing 50 000 households is 11 500 tCO₂ in year 1 to 21 800 tCO₂ from 104,000 households in year 25. Assuming an average number of 76 000 households over the project life cycle of 25 years, the total lifetime emissions avoided is estimated at of 390 000 tCO₂.

The total emissions reduction over a 25-year period assumes an expanding of the mini grid self-financed after the start-up phase to cater for the densification of households. The total emissions of 390 000 tCO₂ corresponds to an average annual reduction of 15 500 tons which represents only 0.2 % of the target of 7 808 Gg CO₂ per year target in 2030.

The 50 000 households targeted in 2019 represent 1.66 % of total households in Burkina Faso. If the enabling environment created through the project is used to scale up 30 times, the private sector driven Green Mini-grid model would lead to annual CO₂ emissions reduction of 468 000 ton or 468 Gg CO₂eq which is slightly around 2 % of 2007 baseline emissions.

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	Expected tonnes of carbon dioxide equivalent (t CO ₂ eq) to be reduced or avoided	Annual	11 500 tCO ₂ eq
		Lifetime	390 000 tCO ₂ eq
	Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);	Total	At least 335 000 people directly benefited from low-emission electricity
		Percentage (%)	1.9 % (out of 18.1 million)

⁸ A scenario was done with a growth rate of 2.9% and the results are within the same range

Other relevant indicators	<ul style="list-style-type: none"> • Supply electricity to about 50,000 households based on the average monthly electricity consumption of 30-50 kWh • Increase in generated renewable energy from 9% to 12% once commissioning is complete • Solar capacity increase: ~11 MW in solar PV mini grids: 10-5 mini grids • Institutional and regulatory Technical Assistance that promotes green mini-grid development • Create employment of ~200 people during the construction period • Local financial institutions involved in the RE financing • Number of capacity building events: 3 workshops for ABER, SONABEL, MoE, ARSE; 3 workshops for renewable energy associations, co-operatives managing the mini-grids • Sustainable business model for mini-grid developers
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Describe the detailed methodology used for calculating the indicators above.

GHG accounting assumptions and calculation:

Key Indicators

- Population in 2018 : 19.6 Million
- Population growth rate: 3.1%
- Average number of persons per household: 6.7
- Number of households targeted: 50 000
- Number of micro enterprises: 3 300

GHG Emission Factors⁹

Use	Units	Value
Kerosene	kg CO2 per litre	2.576
Mobile charging	kg CO2 per charge	0.0034
Candles	kg CO2 per candle	0.156
Batteries	kg CO2 per AA battery	0.207
Diesel	kg CO2 per litre	2.6

Energy use assumptions¹⁰:

Use		Unit	Current energy consumption
Kerosene for lighting ¹¹	Annual litres per HH	litres	73
Mobile charging	Annual charges per HH	charges	208
Candles	Annual per HH	candles	104
Batteries for lighting / Appliances	Annual per HH	AA Batteries	26
Diesel for micro enterprises	Annual	Litres	730

Baseline consumption for target areas:

⁹ Emissions Factors are derived from the following sources:

https://www.eia.gov/environment/emissions/co2_vol_mass.php and
<http://www.calrecycle.ca.gov/publications/Documents/1433/20121433.pdf>

¹⁰ Data derived from the "Annuaire Statistique 2015 (2015 National Statistic Survey)" that includes household energy spending per regions

¹¹ The value of kerosene and diesel usage have been aligned with the figures in GCF proposal FP 027 Universal Green Energy Access process.

Use		Unit	Total Energy consumption
Kerosene for lighting	Annual litres per HH	litres	1 550 000
Mobile charging	Annual charges per HH	charges	15 400 000
Candles	Annual per HH	candles	6 450 000
Batteries for lighting / Appliances	Annual per HH	AA Batteries	2 050 000
Diesel for micro enterprise	Annual	litre	365 000

Calculations:

Base consumption_{kerosene for lighting} = (Current consumption x number of households)
= (73 x 50 000)
= 3 650 000 litres

Base consumption_{mobile charging} = (28 x 50 000)
= 10 400 000 charges

Base consumption_{candles} = (104 x 50 000)
= 5 200 000 candles

Base consumption_{batteries/appliances} = (26 x 50 000)
= 1 300 000 AA batteries

Base consumption_{Diesel} = (730x 500)
= 365 000 Litres

Total GHG Emissions

Use	Units	Value
Kerosene for lighting	Tons CO ₂	9 403
Mobile charging	Tons CO ₂	35
Candles	Tons CO ₂	811
Batteries for lighting / Appliances	Tons CO ₂	269
Diesel	Tons CO ₂	975
Total	Tons CO₂	11 493

Calculations for GHG emissions:

GHG emissions_{kerosene for lighting} = (Base consumption_{kerosene for lighting} x GHG emission factor_{kerosene for lighting})/1000
= 3 650 000 x 2.576
= 9 403 tons CO₂

GHG emissions_{mobile charging} = (Base consumption_{mobile charging} x GHG emission factor_{mobile charging})/1000
= 10 400 000 x 0.0034
= 35 tons CO₂

GHG emissions_{candles} = (Base consumption_{candles} x GHG emission factor_{candles})/1000
= 5 200 000 x 0.156
= 811 tons CO₂

GHG emissions_{batteries/appliances} = (Base consumption_{batteries/appliances} x GHG emission factor_{batteries/appliances})/1000
= 1 300 000 x 0.207
= 269 tons CO₂

GHG emissions_{diesel} = (Base consumption_{diesel} x GHG emission factor_{diesel})/1000
= 365 000 x 2.6/1000
= 975 tons CO₂

Total Annual GHG Emissions = 9403 + 35 + 811 + 269 + 975

= 11 493

Assuming the population growth if 3.1 % is maintained over 25 years, and that the mini-grid developer extends the network to cater for additional households on a self-financing basis, then the average annual emission reduction over 25 Years is 15 500 tCO₂.

Total Annual avoided GHG Emissions over 25 years = 390 000 tCO₂

Assumes an average population growth rate of 3.1% over 25 years.

Expected total number of initial beneficiaries:

Total Annual beneficiaries: 50 000 X 6.7 = 335 000 people

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

Describe how the proposed project's expected contributions to global low-carbon and/or climate-resilient development pathways could be scaled-up and replicated including a description of the steps necessary to accomplish it.

The Yeleen project is the first project of the AfDB led Desert to Power Programme that aims at deploying 10GW of solar power through on-grid and off-grid solutions in the Sahel-Saharan region of the African continent. The development of the projects will take a combination of public and private sector investment. Burkina Faso has shown leadership in developing a Solar Plan for the massive deployment of Solar PV to support increased energy access in the country by 2025 through both grid-connected and off-grid projects.

In recent years Senegal, Mali, Mauritania and Ethiopia have been some of the few countries in the Sahel that have been showing tangible results in Solar PV deployment (both on-grid and off-grid). The Yeleen project was designed by analyzing the various approaches and success factors of these frontrunners countries and will offer a model that can be replicated in the remaining Sahelian countries that are lagging behind such as Chad, Djibouti, Eritrea, Niger and Sudan.

As per section C.2, the main barriers that the project is addressing are related to institutional, financial and technical barriers. Several policy and institutional barriers hamper the development of green mini-grids. The model of local power cooperatives in Burkina relies on continuous funding and subsidies from FDE/ABER.

Local cooperatives are not financially sustainable, have limited technical capacity and must rely on technical services provided by engineering companies, often funded by FDE/ABER. The latter capacities needs to be enhanced to build the enabling framework and design successful tenders to attract private sector, enhance their monitoring and evaluating capacities as well as communication campaign to adequately sensitize the targeted communities.

Through the alleviation of these identified barriers, modern private green mini-grid companies will be in a position to help Burkina Faso address these challenges and promote low emission solutions to bridge the current electrification gap.

The theory of change described in figure 15 is based on a triple intervention at the enabling environment level, support of supply for affordable tariffs and stimulation of demand for productive use. The private sector will deliver the outcomes under the oversight of the government acting as a facilitator and enabler. The structure of the project will induce a paradigm shift in terms of sustainability of the positive impacts on climate change.

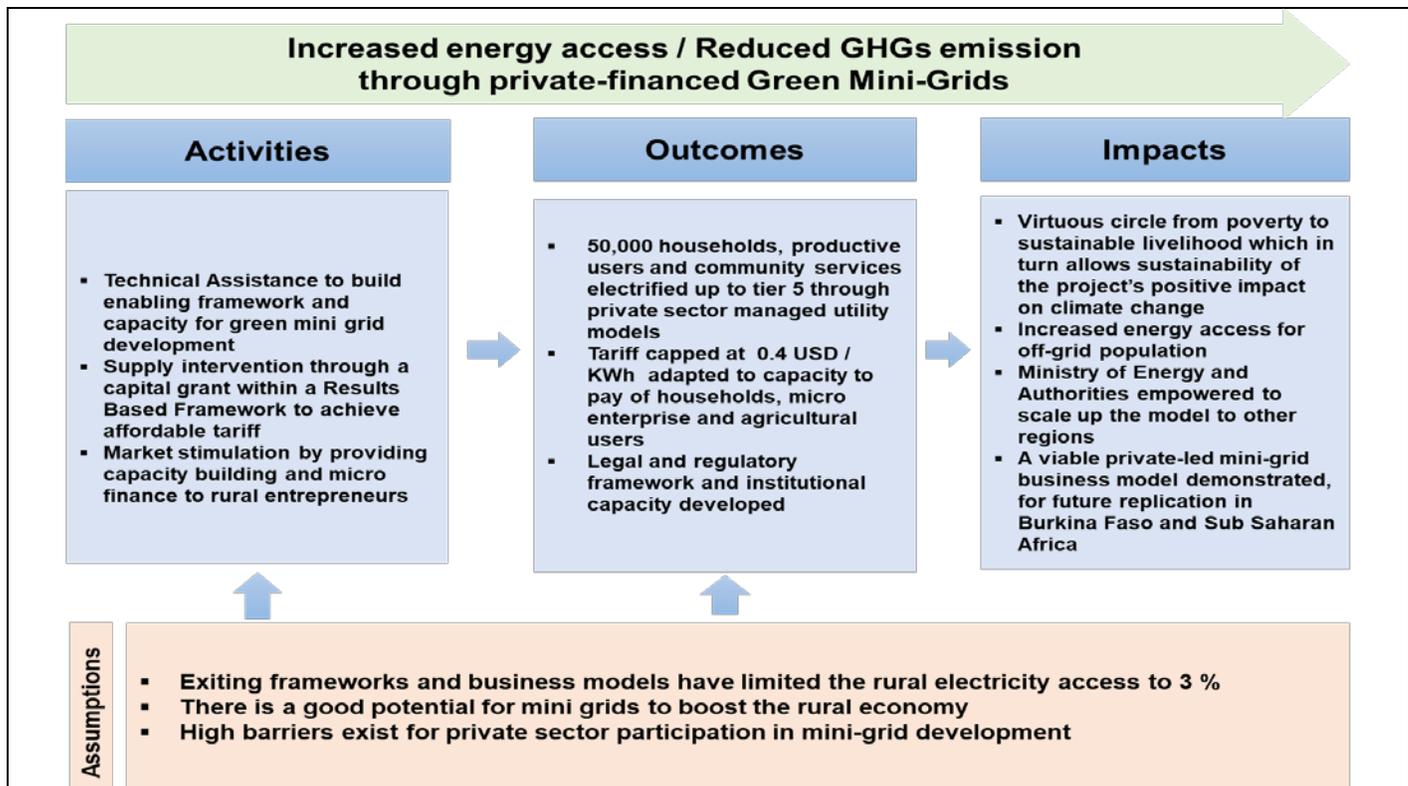


Figure 15. Theory of Change

E.2.2. Potential for knowledge and learning

Describe how the project contributes to the creation or strengthening of knowledge, collective learning processes, or institutions.

Mini-grids in sub Saharan Africa have mostly been limited to concessions to private developers provided with government subsidies such as the concessions in Senegal. Co-operative models in Burkina are not functioning due to lack of local capacity to maintain systems and lack of government funds to provide subsidies. Moreover, they often do not operate on clean energy.

Little data is available in mini-grid models as compared to solar home systems. All the stakeholders involved (DFIs, Climate finance, Authorities and Private sector developers) are interested with the learning opportunity from the pioneering of result based bonuses and stimulation of productive use in an integrated framework.

This Burkina Faso mini-grid project for rural electrification has great potential for scalability and replicability within Burkina and the broader Desert to Power countries. It is also based on a 100% renewable energy source for the mini-grids. The project will form the foundation for a framework for a private sector investment led projects to accelerate renewable energy electrification.

The TA components will also prepare stakeholders for transparent and competitive selection of investors, commercial terms, negotiations, financial structuring, environmental and social safeguards, benefit-sharing mechanism and gender action plan.

E.2.3. Contribution to the creation of an enabling environment

Describe how proposed measures will create conditions that are conducive to effective and sustained participation of private and public-sector actors in low-carbon and/or resilient development that go beyond the program. Describe how the proposal contributes to innovation, market development and transformation. Examples include:

- Introducing and demonstrating a new market or a new technology in a country or a region
- Using innovative funding scheme such as initial public offerings and/or bond markets for projects/programme

Innovativeness:

The rural electrification model is innovative in terms of its holistic approach addressing on the one hand the legal and regulatory framework barriers preventing mobilization of private sector resources to address very low access rates and on the other hand the ground realities of poverty traps and climate change impacts in the target areas as described in figure 7.

The central question, which the project addresses, is to identify and validate the package of measures, which can lead to a self-sustaining rural electrification model, which is scalable without being a financial burden on government. The other element of innovation in the model is how the private sector developers can be mobilized within a utility model and a long-term concession to contribute towards developing productive and community use thus shifting from a purely commercial role of sales of equipment for a developmental role of provision of affordable energy services.

For instance, in Burkina Faso, the concept of "bocage Sahelien" is a proven model of agro forestry for sustainable livelihood which can be scaled up as basic unit of rural agricultural households if supported by a rural electrification model.

Sustainability of outcomes and results beyond completion of the intervention:

The macroeconomic effects generated from productive use and the dividends from better community services contribute to the virtuous circle of poverty alleviation, which leads to a stable pattern of sustainable livelihoods.

The availability of natural resources in terms of arable, irrigable and bottomland, the pastoral tradition as well as the country INDC focus on adaptation strategy and green economy are factors, which can lead to a sustainable rural economic model as a response to rural exodus and emigration.

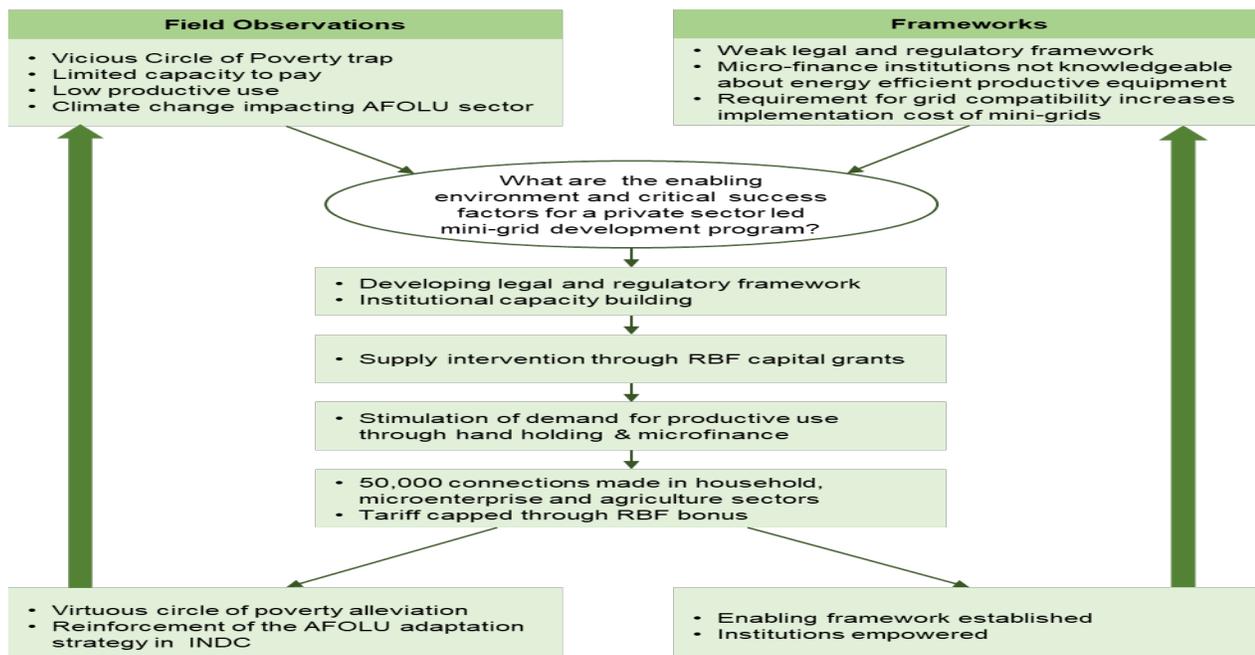


Figure 16: Paradigm Shift potential

Why RBP for GMGs - Mini-grid tariffs are invariably compared to the highly subsidized and unsustainable tariffs applied by national utilities, in spite of the fact that it is more difficult and expensive to deliver power in rural areas. Additionally, mini-grids face a viability gap, between what they need to generate in revenue to be sustainable and what their rural consumers are able to pay. Result based payment (RBP) for green mini-grids (GMGs) will provide ex-post bonuses to GMG developers for each new power connection, which will help these companies to offer reduced tariffs to their rural consumers and improve their returns for investors.

Leverage - The deployment of RBP is expected to increase the frequency of projects being implemented.

Verification – Developers desirous of benefiting for the RBP will be required to apply the National Renewable Energy Laboratory's (NREL) Quality Assurance Framework (QAF) for mini-grids. The QAF is a monitoring and evaluation model whereby developers report on their mini-grid's performance to the community, the regulator and investors. The developer recipient will also be required to upload quantitative performance data through their consumers' smart meters to a web-based platform. It is via this platform that the number of new connections will be verified.

Bonuses – The subsidy would be a flat rate (in EUR) per verified connection. The size of the RBP payouts will be comparable to the main grid subsidies applied by the national utility in the target country. Payments of bonuses will be disbursed quarterly.

E.2.4. Contribution to regulatory framework and policies

Describe how the project strengthens the national / local regulatory or legal frameworks to systematically drive investment in low-emission technologies or activities, promote development of additional low-emission policies, and/or improve climate-responsive planning and development.

The project will help address key issues in the regulatory framework:

- The policy of uniformity of tariff between urban and rural areas although being very laudable in terms of social equity has been counterproductive and has stifled the rural electrification initiatives in Burkina.
- The requirement of rural mini grids to be compatible with urban grids is an additional hurdle to mini grid implementation that effectively creates the conditions for solar home systems to thrive and hence does not enable productive use of the energy provided

By decoupling rural electrification from recurrent government subsidies, this project will provide a breakthrough which will address the above current issues:

- Government will have an effective tool for rural electrification that is perfectly scalable even without government subsidies.
- The rural model proposed, financed through private sector funds and RBP will provide a model to decouple the urban tariff to rural tariff and provide an immediate and affordable solution to rural development.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

Economic co-benefits:

- Entrepreneurial job creation resulting from productive use of electricity in agriculture, agro processing and light manufacturing
- Long term Green job creation in the green economy sectors linked to sustainable energy and Burkina climate adaptation action.
- Poverty alleviation through virtuous circle of more efficient value creation and about 40 % lower expenses devoted to energy for lighting and mobile charging for average residential households.
- Food security through climate resilient agriculture less dependent on rains through irrigated crops and refrigeration for better preservation of perishables

Social co-benefits:

- Focus on women entrepreneurs in the productive use component leading to reinforcement of the matriarchal society foundations
- Improvements in health and safety from elimination of smoke and soot from kerosene lamps and candles for lighting and fire hazard from naked flames
- Better access to education through lighting for homework and better access to web-based materials at school
- Water pumps for accessing underground water leading to higher education rate for girls
- Reinforced diaspora ties from gifts of electrical appliances and remittance used to procure electrical equipment for productive use and entertainment

Environmental co-benefits

- Increased indoor air quality from use of LED lighting
- Reduction of soil and water pollution from unsafe disposal or elimination of batteries disposed
- Reduction in the use of traditional biomass (including wood), which accounts for 84% of all primary energy consumed in Burkina Faso
- Sustainability of the project's positive impact on climate change

Gender-sensitive development impact:

The project improves living conditions, particularly for women and girls, who are primary household caretakers and responsible for the availability energy sources for lighting and cooking. This mini-grid project strives to provide women and girls with equal opportunities of access to energy, education, health care, decent work, and representation in decision-making processes. The proposed measures are to provide equal training and employment opportunities for women when technical assistance is provided to FDE/ABER.

Activities targeting women's participation and training as part of the TA will make sure that the program is gender-sensitive and the benefits are shared among men and women.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

As highlighted in section C.2, Burkina Faso is already facing the impacts of climate change that has exacerbated the vulnerability of a landlocked country, which is trying to recover from a period of social and political instability.

The project will have impacts at 4 levels:

- At the national level, the project will support the Burkina INDC strategy focused on adaptation in the Agriculture, Forestry and Land Use sectors (AFOLU) by creating a sustainable model of rural electrification that is critical for rural populations to remain in the rural areas affected and fight back to adapt to climate change and desertification.
- At level of the Sahel region and within the G5 Sahel commission on climate, which includes Mauritania, Mali, Niger, and Chad ,the rural electrification model supporting rural livelihoods, in the context of the "Bocage Sahelien", can become the basic building block for the Great Green wall project to combat desertification.
- The project will support the national economy by validating a model to give a boost to rural economy that employs 86% of the labor force and contributes 35% to GDP. In so doing the model will demonstrate a means to address the problem of rural poverty.

- Finally at the rural household level, where the current annual cost of energy is 127 USD (109 EUR) on average (for tier 0 access for kerosene and candles), the project will enable tier 2 to 3 access at an annual cost of 30 to 90 USD per household which represents a direct monetary savings along with the significant health and other co-benefits.

E.4.2. Financial, economic, social and institutional needs

Describe how the project addresses the following needs:

- **Economic and social development level of the country and the affected population**
The socio-economic situation of the target populations in the context of climate change, security risks and with the dearth of economic opportunities due to remoteness from main markets and sources of inputs is not likely to improve in the short and medium term. The Yeleen rural electrification project has the potential to support an alternative economic development model for rural areas that can lead to climate resilience through access to irrigation and provide a means to escape the poverty trap through the productive use component.
The proposed rural electrification program is financially sustainable, as it does not require financial resources from government either in the capital budget or for recurrent expenditures. As such, the program addresses the needs of government to address the issues of rural poverty and to develop sustainable livelihoods outcomes that constitute a barrier against marginalization of rural populations.
The international community will benefit by the fact that sustainable livelihood alternatives in rural areas are the best safeguard against the temptation for emigration across the Sahel and Sahara to Europe.
- **Absence of alternative sources of financing (e.g. fiscal or balance of payment gap that prevents from addressing the needs of the country; and lack of depth and history in the local capital market)**
The current institutional set up in the Energy sector is heavily dependent on aid and development finance to cater for the upgrading of the sector. The program, through a complete upgrading of the enabling environment and the institutional framework for rural electrification will pave the way for government to leverage private capital and debt to finance rural electrification. The predictability and visibility introduced by the new model will create the conditions to attract foreign operators to compensate for the absence of local operators and the weakness of local capital and debt markets.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

Please describe how the project contributes to country's identified priorities for low-emission and climate-resilient development, and the degree to which the activity is supported by a country's enabling policy and institutional framework, or includes policy or institutional changes.

This project which aims at addressing energy access in rural areas is aligned to the priorities identified in the climate strategies and plans developed: The National Action Program for Adaptation to climate change and variability (NAPA) was adopted in 2007 whereby 3 adaptation projects were principally directed to those who are most vulnerable, particularly rural populations. Burkina embarked on the process to develop a National Adaptation Plan (NAP) focusing on sectors vulnerable to climate change mostly linked to the rural economy in order to initiate a comprehensive medium- and long-term approach (2025 to 2050) to adaptation to climate change. The NAMA developed in 2008, focused on the National Rural Sector Program (NRSP), which consists of sectoral programs of the departments of agriculture, livestock raising, water, the environment and quality of life.

One of the critical success factors for climate adaptation strategy of the INDC is the upgrading of the condition of rural populations from their status of poverty, food insecurity, low levels of education and poor access to health services. This project aims at addressing these conditions by scaling up the rural electrification in a financially and environmentally sustainable way. Consequently, the project will contribute to meet the triple objectives set under the

SE4ALL initiative by 2030 namely: (1) assure universal access to modern energy services, (2) double the rate of improvement of energy efficiency, (3) double the share of renewable energy in the world energy mix. Moreover, by promoting the upgrading of the living conditions of rural populations, the project ensures the sustainability of the project's positive impact on climate change.

AfDB has worked closely with the Prime Minister Office, the Ministry of Energy and FDE/ABER for 18 months to prepare the project. The structure is building on a technical assistance programme earlier adopted to ensure an enabling environment and readiness in terms of regulatory framework.

There is strong ownership by all levels of authority. The President of Burkina Faso officially announced the launch of the Yeleen programme in November 2017. The Ministry of Energy also articulated clearly the vision for the programme in a letter to AfDB following various rounds of consultation. Finally, a coordination unit within the Ministry has been set up by law for the programme. The process was guided and coordinated by the NDA throughout. The non-objection letter from the NDA has been obtained.

Furthermore, the project is in line with the top 2 priorities in the country strategy document adopted by the country and the Bank through an inclusive stakeholder consultation process. The strategy focuses on 2 pillars: (i) promotion of access to electricity, in particular renewable energy; and (ii) agricultural development to ensure inclusive growth. The approach of the project is perfectly in line with these orientations.

E.5.2. Capacity of accredited entities and executing entities to deliver

Please describe experience and track record of the accredited entity and executing entities with respect to the activities that they are expected to undertake in the proposed project.

The African Development Bank (AfDB) has an extensive experience in financing RE projects in Sub-Saharan Africa. While the summary of the AfDB's energy sector involvement both in the continent and in Zambia is provided in Section C.4, below are some of the key highlights of recent RE financing led by the AfDB:

- The 500 MW Ouarzazate Concentrated Solar Power (CSP) Complex in Morocco for which the AfDB has committed EUR 134 million as well as USD 219 million from the Clean Investment Funds (CIF).
- Three Solar PV IPPs in Egypt with a total installed capacity of 50 MW each for which the Bank has approved UA 34 million from its own resources and UA 5 million mobilized from the Global Environment Facility (GEF) in 2017
- The 120 MW Itezhi-Tezhi Hydro Power, where the Bank has provided a mix of financing: the public sector funds (around USD 50 million) contributed to financing half of ZESCO's equity participation in the SPV, technical assistance to ZESCO, as well as co-financing of the 276 km transmission line.
- The 33 MW Segou Solar IPP is Mali's first utility-scale solar project. The plant will generate 52.7 GWh annually (~10% of the country's current generation) which will be bought by Mali's national utility under the aegis of a 25-year PPA. In 2016, the AfDB has approved a senior loan of USD 8.5 million along with a senior loan of USD 25 million from the Climate Investment Funds (CIF) towards the investment of USD 52 million.
- The AfDB has approved the financing package of USD 100 million, comprising USD 50 million equity and USD 50 million convertible senior loan, to the Facility for Energy Inclusion (FEI) in late 2016. FEI is positioned as a global facility with two distinctive windows managed by two separate fund managers: (i) the On-Grid window (USD 400 million), and (ii) the Off-Grid Window (USD 100 million).

The AfDB's power sector support to its regional member countries is far-reaching, with a concrete track-record of sovereign projects for improved energy access, transmission and distribution infrastructure, power sector reform and capacity building. Some of the examples that can be highlighted include:

- Kenya Last Mile Connectivity Program: The project aims at extension of the low voltage network to reach around 1.2 million people. The total project cost is estimated at UA 108.6 million, out of which the Bank is contributing UA 95 million (~USD 130 million).
- Burkina Faso - The Electrification Project for Semi-Urban Areas of Ouagadougou and Bobo-Dioulasso: The project aims to restructure and expand the medium and low-voltage distribution networks in the country's two largest towns and establish 17,500 connections to households. The project also comprises several activities intended to strengthen SONABEL's operational capacity. The total project cost is UA 37.76 million. The project will be co-financed by the Bank (72%), SONABEL (15%) and the GoBF (13%).

The AfDB mini-grid sector support:

The AfDB is currently the focal point for all mini-grid activities on the continent. Through its Green Mini-Grids Market Development Programme (GMG MDP), the Bank offers technical assistance to mini-grid developers and mini-grid policy makers through its GMG Help Desk (<http://greenminigrad.se4all-africa.org>). We are currently providing support to more than 60 GMG developers in 30 countries, as well as to several Ministries of Energy.

The GMG MDP drafted the GMG Africa Strategy, which was endorsed in 2017 by the African Union Commission. The GMG Africa Strategy is a document that prescribes the baseline policy principles required to foster private sector investment into mini-grids development in a particular country. These principles include simplified licensing, the liberty to apply cost-reflective tariffs, predictable outcomes in the case of main-grid arrival into a mini-grid market, integrated energy sector planning (between main grid, mini-grids and off-grid solutions) and capacity building at all levels.

The Market Development Program conducts country specific GMG opportunity assessments, with studies already concluded for Mozambique, Ethiopia, Burkina Faso, Cameroun, the DRC, Nigeria, Uganda, Madagascar and Mali. The Program is introducing the National Renewable Energy Laboratory's Quality Assurance Framework for mini-grids to 12 GMG developers in Nigeria. The QAF is a monitoring and reporting framework related to mini-grid performance. The AfDB has established the Facility for Energy Inclusion (FEI), a debt fund for mini-grids, small renewable IPPs and off-grid solar projects.

The AfDB is the current Chair of the Mini-Grids Partnership (MGP), a body of sector stakeholders that coordinates concepts and interventions related to mini-grids development. Other MGP Steering Committee members include DFID, Power Africa, the World Bank, EUEI, GIZ, IRENA, the Rockefeller and UN Foundations, the Alliance for Rural Electrification, the Clean Energy Solutions Center, Club-ER (the association of African rural electrification agencies), SNV, Power for All and AMDA.

Experience of FDE/ABER in terms of project management & execution

Since 2003, FDE/ABER has been the executing agency for all rural electrification projects with the installation of electricity generation systems across Burkina. As such, FDE/ABER has technical, financial and reporting responsibilities.

On the 222 communities electrified from 2003 until 2016, 134 were financed by donors such as World Bank, Danida, European Union, Agence Française de Développement, and 95 were financed through public funds.

FDE/ABER processed the funding and procurement related to these projects, so they have experience with development financial institutions project management requirements.

Some significant projects for which FDE/ABER is the executing agency include:

PASEL (1 & 2) ("Projet d'accès aux Services Electriques" – Project for Access to Electricity Services)

The financing agreement for both projects were signed respectively on February 27 and October 9, 2014. PASEL has several components. The FDE/ABER component receives initial funding and additional cumulative amount of approximately US \$ 50 million. The project consists of the electrification of 127 localities spread across the country's 13 regions thanks to : (i) mini-grids connected to national grid (Three-phase, SWER, Isolated Cable System), (ii) hybrid mini-grids (fuel / PV), (iii) solar home systems (collective and semi-collective).

European Union Energy Facility II: Electricity Project for Sahel (ELSA)

With an estimated cost of 2.4 Billion FCFA (c. 3.6 M EUR), this project was implemented in partnership with Innovation Energie Development (IED) and connected 36 localities in the Sahel region. The expected results of this project include:

- connect over 4000 households to electricity;
- Connect more than 500 income generating activities, infrastructure educational or socio-cultural, administrative and health.

European Union Energy Facility II: Rural Electrification Project for Decentralized Provinces of Ziro and Gourma (ERD ZIGO), Eastern Region and South Central

The decentralized rural electrification project in 45 localities of the Provinces of Ziro and Gourma (ERDZIGO) was implemented in 2014. The choice of the two (2) areas of intervention is justified by the importance of biomass and opportunities for developing technologies based on renewable energies.

The project cost of 7.8 M EUR was funded by the European Union (71.64%), the State of Burkina Faso through the FDE (27.57%), and local authorities concerned (0.79%).

IDB (Islamic Development Banks : Rural electrification project with solar PV systems

IDB provided the State of Burkina Faso with a concessional loan of 12 M USD (10 MEUR) in 2014 to fund the project implementation. The project aimed at providing electricity access to 4,500 households in Year 1, and the electrification of forty-one (41) localities in six (06) regions of Burkina Faso with a preponderance for solar photovoltaic energy through:

- isolated hybrid mini-grids(fuel/ PV) ;
- Individual, semi-collective and collective solar home systems;
- Solar street lighting.

In the long term, the following results are expected:

- 770 kWp in PV solar power station with storage;
- 1500 kVA in Diesel;
- 146 km of 33 kV HTA line, 104 km of 400 V / 230 V BTA network and 35 H61 substations;
- 750 individual kits, 89 community system PV kits and 89 street lamps solar.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

Please provide a full description of the steps taken to ensure country ownership, including the engagement with NDAs on the funding proposal and the no-objection letter. Please also specify the multi-stakeholder engagement plan and the consultations that were conducted when this proposal was developed.

Genesis of the Yeleen project:

The Yeleen programme, which includes an On Grid and Off grid component has been developed through multiple consultations and workshops with a strong sponsorship by the President of Burkina Faso. It was initiated in May 2017 and officially launched by the President in November 2017. AfDB and Agence Francaise de Developpement are co-financing the programme. The On Grid component is led by AFD. The studies for this component will be completed end of 2018 and implementation will start in 2019.

The off-grid component is being led by AfDB and scheduled to be initiated in 2018. This request to GCF concerns the off-grid component in which AFD is not involved.

The Yeleen rural electrification project has been elaborated through multiple consultations involving:

- FDE/ABER
- The Ministry of Energy through a coordination and planning committee that is monitoring the project (Cellule de Coordination et de Formulation du Project Yeleen). This committee includes representatives of the Renewable Energies National Directorate (DGEC), the Conventional Energies National Directorate (DGER), the Statistical and Sectorial Studies National Directorate (DGESS), the Rural Electrification agency (FDE/ABER), the National Burkina Electricity Company (SONABEL), the National Agency of Renewable Energies & Energy Efficiency (ANEREE),
- SNV
- EU delegation in Burkina Faso
- Federation of electricity cooperatives of Burkina Faso
- Association Impulsion – owner and operator of a mini-grid in Barsalagho
- Representatives of the communities of Haut-Bassins & Boucles de Mouhoun
- GGGI

The NDA for Burkina Faso is Mr Mamadou HONADIA, (Inspecteur des Eaux et Forêts, Ministry of Environment and Green Economy). He has participated in the meetings held in Ouagadougou in 2017 and provided guidance and feedback throughout the evolution of the project.

The project has been developed in a way to be hosted by FDE/ABER with a significant component dedicated to GMG policy and regulatory reform and institutional capacity building.

GGGI has been contacted as a potential partner to assist with the stimulation of demand for productive equipment in the rural areas.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project

E.6.1. Cost-effectiveness and efficiency

Describe how the financial structure is adequate and reasonable in order to achieve the proposal's objectives, including addressing existing bottlenecks and/or barriers; providing the least concessionality; and without crowding out private and other public investment.

Please describe the efficiency and effectiveness, taking into account the total project financing and the mitigation/adaptation impact that the project aims to achieve, and explain how this compares to an appropriate benchmark. For mitigation, please make a reference to [E.6.5 \(core indicator for the cost per tCO₂eq\)](#).

The proposed financial structure is considered cost effective to meet the program's objective of making mini-grid developments in Burkina Faso climate friendly and more sustainable for private sector developers and promote tier 3, 4 and 5 access to electricity. This financial structure is also critical to the participation of other local bank and international finance institutions.

The adaptation and mitigation benefits are summarized in the previous section E1. The benefits per EUR invested by GCF compare favorably with other projects in this region. The expected anticipated GCF cost per tCO₂eq removed is EUR 62/tCO₂eq (refer Section E.6.5).

Productive use:

To be most profitable, solar mini-grids need to sell the maximum amount of electricity during the day – when the sun is shining. In the evenings, the network relies on batteries, which are the most expensive parts of the system. Therefore efficiently managing power consumption in the evenings help reduce the CAPEX requirements of the mini-grid.

Unfortunately, this ideal consumption pattern is the exact opposite of the current situation as what appears in most cases is low consumption during the day and peaks in the evening. To address this inconsistency and maximize sales, mini-grid developers promote productive uses of electricity during the day, essentially small and medium enterprises, like grain mills, workshops, cold storage, even irrigation.

Best practice relative to promoting productive use involves community capacity building and micro-finance. Rural communities need support to identify business opportunities. Technical assistance is then required to help them structure their activities, assess the feasibility and manage their businesses. Such services are best provided by organizations with close ties to the target communities. At this stage, the idea is to request in the RFP that mini-grid developers should form partnerships with such community based organizations or NGOs to help them support the local economic activity in order to assume the business incubator role that will be required to support local economic activity.

In parallel, there is additionally a need for financing of the small business ideas developed. A local micro-finance institution can provide credit to the fledging entrepreneurs. Additional options would be credit provided by a local commercial bank, or directly by the mini-grids developer (this is subject to regulation),. Under this third alternative which is proposed the developer could be extended a line of credit from a local bank or a local micro-finance institution that he or she uses to finance the necessary CAPEX for the new micro enterprises, while recuperating progressively the debt from the entrepreneur though the electricity bill.

There could also be a partnership between the mini-grid developer and a local bank or a local micro-finance institution so the mini-grid developer will direct the entrepreneurs to the financial institution when they require productive equipment so they can apply for a loan. This is the preferred solution at this stage.

The requested GCF guarantee will cover the amount of loans required to stimulate productive use by providing the equipment to users identified by the developer thanks to its business incubator role where it will need to develop, nurture business, and provide business management advisory.

The entrepreneurs requiring the productive equipment will communicate their equipment request to the developer who in turn will provide the equipment thanks to the loan extended.

The entrepreneur will then repay the equipment through the electricity bills.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

Please provide the co-financing ratio (total amount of co-financing divided by the Fund's investment in the project) and/or the potential to catalyze indirect/long-term low emission investment.

Please make a reference to [E.6.5 \(core indicator for the expected volume of finance to be leveraged\)](#).

The co-financing represents 54.2% of the project cost. The requested GCF grant and loan is EUR 24.3 M, or 45,7% of the overall investment.

Total leveraged co-financing for the project is EUR 28.8 M. The grant component is required to reach an affordable tariff, which promotes tier 3, 4 and 5 access to electricity as well as productive use to generate income.

E.6.3. Financial viability

Please specify the expected economic and financial rate of return with and without the Fund's support, based on the analysis conducted in E.1.

Please describe financial viability in the long run beyond the Fund intervention. Please describe the GCF's financial exit strategy in case of private sector operations (e.g. IPOs, trade sales, etc.).

A preliminary financial model was produced to analyze the impact of the GCF's grant and loan on the project's DSCR and IRR. The terms presently reflected in the model are based on a specific yield of 1650 KWh/ KWp for the target region derated with a factor of 0.8 to account for mini grid operation and round-trip efficiency of battery storage.

With the projected tariff cap and capital cost per KWp installed, the project IRR represents an acceptable return in the context of a long-term concession. With the GCF funding included, the financial model presents a convincing business case for the project.

Without GCF, the tariff required to make the business bankable would be too high and the population would not be able to afford it.

Given that the current capacity to pay in Burkina Faso is limited and that commercial banks are risk adverse, the GCF's participation will be critical to validate the innovative rural electrification model.

As the viability of the model is demonstrated and the RBP framework is established for attracting grant funding from corporates and individuals, the model will be replicated in other rural provinces in Burkina and across the Sahel belt countries which share the same levels of solar irradiation and costs incurred by households for an electrified energy access.

E.6.4. Application of best practices

Please explain how best available technologies and practices are considered and applied. If applicable, specify the innovations/modifications/adjustments that are made based on industry best practices.

The terms of reference for the RFP will be based on the latest available concepts and technologies such as smart control systems to optimize an intermittent solar supply to match household and productive use loads by mobilizing the smallest capacity of battery storage. This matching of demand with supply will include differential tariff pricing structures to introduce a component of dispatchable productive loads such as water pumping and grain milling which can be activated during peak sunshine hours to optimize on solar energy availability.

The productive use and household use will include requirements for Minimum Energy efficiency requirements including use of LED lighting to limit the battery sizing and minimize cycling.

These best practices include the assessments of financially and technically feasible technologies as well as the high-standard procurement principles which will also bring desirable environmental and social benefits. A thorough assessment process will enable a comparison between the proposed projects and good international practices.

E.6.5. Key efficiency and effectiveness indicators

<i>GCF core indicators</i>	Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)	
	<p>(a) Total project financing 53.1 MEUR</p> <p>(b) Requested GCF amount (Grant + Loan + Guarantee) 24.3 M EUR</p> <p>(c) Expected lifetime emission reductions overtime 390 000 tCO₂eq</p> <p>(d) Estimated cost per tCO₂eq (d = a / c) 136 EUR / tCO₂eq</p> <p>(e) Estimated GCF cost per tCO₂eq removed (e = b / c) 62 EUR / tCO₂eq</p> <p><i>Describe the detailed methodology used for calculating the indicators (d) and (e) above.</i></p> <p>Assumptions:</p> <ul style="list-style-type: none"> - 50000 households - Mini-grid characteristics: <ul style="list-style-type: none"> • 11 MW Solar PV mini-grid • 332 558 MWh delivered over 25 year life-time <p>Detailed calculation can be found under Section E.1.2</p>	
Expected co-financing % of the project cost		54.2%
Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project)		N/A

The information can be drawn from the project appraisal document.

F.1. Economic and Financial Analysis

Please provide the narrative and rationale for the detailed economic and financial analysis (including the financial model, taking into consideration the information provided in). Based on the above analysis, please provide economic and financial justification (both qualitative and quantitative) for the concessionality that GCF provides, with a reference to the financial structure proposed in section B.2.

The proposed financing structure will help reach two major goals for this program, which are to boost private sector investments and to strengthen capabilities for public sectors agents such as FDE/ABER's capabilities through various TA components. This financing structure with GCF concessional loans and grants will reduce the risk premium that the local banks would have potentially charged to the RE projects and assist the projects in achieving a lower weighted average electricity tariff to make the program more sustainable.

The GCF's concessional loan and grant resources will ensure improved debt sustainability and the affordability of essential investment in revenue generating components.

Energy Profile for Target Areas

The targeted regions are Haut-Basins (total 1.6 million people) and Boucle de Mouhoun (total 1.5 million people). The access rate in these regions is 3%. The energy demands of two regions have been categorized residential low (35%), medium (54%), high (10%), based on the demographics. Currently, households depend on kerosene lamps and battery torches and candles for lighting, with a few households owning diesel generators. The energy profile for each residential group is modelled monthly and yearly, with the residential low at an average of 6kWh/month; residential medium at ~19 kWh/month and residential high at 103 kWh/month. The total annual demand of the 50 000 households is estimated at 15 000 MWh/year.

Technical

Based on the demand described above totaling 15 000 MWh/year, the minimum capacity for the mini-grids is ~11 415 kWp and is calculated by assuming a 15% load factor due to technical and operation losses, with limited daytime productive use at this stage. The system is expected to have a 25-year lifespan and produce an average of 13 300 MWh/year. There is no provision for diesel back-up. Battery backup will be sized optimally to meet the night loads when productive use will not be enabled.

F.2. Technical Evaluation

Please provide an assessment from the technical perspective. If a particular technological solution has been chosen, describe why it is the most appropriate for this project.

There is a design compromise in mini-grids between the sizing of batteries for storage and the provision of a diesel backup that tends to reduce the battery capacity needed but introduces a fossil fuel component. To avoid the issues of reliance on fossil fuels that have a volatile price, the diesel back up option has not been retained.

The solution proposed to achieve acceptable battery capacity while providing adequate night service is to opt for a smart grid solution that can monitor power usage of users and limit the supply in case of consumption beyond the subscribed capacity during night time.

Dedicated connections for productive use will enable differential pricing and limiting of night time uses so that in an average mini grid capacity of 110 KWp serving 500 users, the available solar energy during the day is fully used for serving the household, productive and community services uses. The night load will be mostly limited to lighting in Households which will mandatorily be LED and controlled through the allowed power rating for each household. Due to the very low number of fridges restricted to the small number of high-end households, the use of battery backup only is feasible.

This rural model through its energy autonomy is well suited to the remoteness of the target rural regions. The smart controllers to be deployed for such an optimized control strategy can be accessed remotely from a central location based in Bobo Dioulasso with a team of local technicians trained for technical support. This addresses the issue of lack of technical expertise in rural areas that has been one the main concerns of the COOPEL model.

The smart mini grid concept proposed is compatible for a grid interconnection in the future. However, this will be through the original 'last mile' connections, metering and billing systems. There will be a bulk import from grid in the night and there can be a bulk export to the grid during peak daylight.

F.3. Environmental, Social Assessment, including Gender Considerations

Describe the main outcome of the environment and social impact assessment. Specify the Environmental and Social Management Plan, and how the project will avoid or mitigate negative impacts at each stage (e.g. preparation, implementation and operation), in accordance with the Fund's Environmental and Social Safeguard (ESS) standard. Also describe how the gender aspect is considered in accordance with the Fund's Gender Policy and Action Plan.

Due to the potential cumulative environmental and social impacts/risks the project is classified as "Category 2" according to the AfDB's Integrated Safeguards System (ISS) and Environmental and Social Assessment Procedures (ESAP). Sub-projects have been considered as category 2 projects on the AfDB E & S categorization based guidance

stipulated in the AfDB Environmental and Social Assessment Procedures (ESAPs) document. i.e. projects that are likely to have detrimental site-specific environmental and/or social impacts that are less adverse than those of Category 1 projects. Likely impacts are few in number, site-specific, largely reversible, and readily minimized by applying appropriate management and mitigation measures or incorporating internationally recognized design criteria and standards. Thus, the assigned category 2 is equivalent to the GCF category B.

Based on the IFC definition, the sub-projects anticipated environmental and social impacts are mostly not cumulative impacts, there are site specific and reversible, and owing to the nature of the sub-projects components/ infrastructure, most of these impacts are short-term ones with exception of the impacts from un-regulated disposal of batteries.

The main potential E&S impacts/risks identified cumulatively include: (i) health and safety for workers and users; (ii) risks of pollution during works of the mini-grid system and during operation (mainly from unregulated disposal of batteries).

Most of these impacts/risks are few in number, site-specific, largely reversible, and readily minimized by applying appropriate management measures. In this regard, FDE/ABER has used an Environmental and Social Framework (ESMF) that was developed in March 2017 as part of the rural electrification project (PASEL) to guide preparation and implementation of the rural electrification and off-grid component of the project.

The Yeleen rural electrification project will draw lessons and build on the existing ESMF which will be updated and upgraded to the AfDB's requirements. The methodology of updating the ESMF will follow a participative approach and consultation of the key stakeholders. The updated ESMF including its summary will be disclosed on AfDB's website in line with the ISS and the Disclosure and Access to Information policy.

The preliminary assessment indicates that FDE/ABER possesses the appropriate E&S capacity to support the implementation of the project. A dedicated E&S officer with adequate experience is already assigned to the project.

The management, recycling and disposal of batteries remains a challenge at all levels in the country. In the mini grid component supported by this project, batteries will be limited to the central solar PV plant. In the absence of existing recycling facilities (to be confirmed by the Ministry of Environment and the National Bureau for Environmental Assessment (BUNEC)), the only option is to store them according to International best practice guidance while devising relevant disposal mechanism. In that case, the ESMF shall document an appropriate mechanism to ensure impact from the used batteries are mitigated.

While it is unrealistic to set up a viable recycling system as part of a single project with very limited resources, it is important to contribute to the mitigation of the long-term effects of improper management and disposal of batteries and solar panels.

In this regards, the project will build in a component for setting up an enabling environment for sustainable recycling of batteries. This component will focus inter alia on :

- (i) Support in developing a monitoring and reporting system on waste stream of PV panels and batteries in the rural electrification context;
- (ii) (ii) assess the role and needs of the informal collection and dismantling/disposal of batteries and solar panels in rural areas;
- (iii) (iii) build capacity of the key stakeholders for sustainable management and disposal of waste in the context of rural electrification.

The "environmental and social management framework" (ESMF) will be finalized prior to B21 publication deadline.

The ESMF defines the environmental and social (E&S) assessment, approval and management processes in compliance with national and AfDB safeguard guidelines. The ESMF will ensure that Yeleen rural electrification project is implemented in an environmentally sound manner; and provide a corporate environmental and social safeguard policy framework, institutional arrangements and capacity available to identify and mitigate potential safeguard issues and impacts of RE projects.

The ESMF will specify the following procedures:

- (i) Environmental and Social Impact Assessment (ESIA) to identify key environmental and social impacts and lay out mechanism to institute corrective measures for each sub-project once exact intervention locations are known.
- (ii) Environmental and Social Management Plan (ESMP) to translate the ESIA into coordinated activities at local level, with detailed checklists and mitigation measures in order to address expected environmental and social impacts.

(iii) Resettlement Policy Framework (RPF), if relevant, to guide preparation of Resettlement Action Plans (RAP), to present legal and institutional framework, eligibility criteria, methodology for asset valuations and mechanisms for stakeholder consultations and grievance redress.

(iv) Stakeholders' engagement.

The ESMF contains detailed checklists and generic mitigation measures to ensure that potential impacts are addressed in the E&S assessments and sub-project management plans. In preparing the required detailed E&S studies (e.g., ESIA, ESMP, and RAP), the sub-project operators must ensure that participatory stakeholder consultations take place as required by the E&S policies, guidelines, and standards of the AfDB.

Participatory consultations will be held with all stakeholders (including ministerial officials, representatives of local governments, the private sector and associations of civil society, including women associations) in order to:

- provide adequate information about the nature, timing, and scope of the relevant project impacts and mitigation measures;
- highlight gender and vulnerability issues (in order to improve women's access to lower-cost and cleaner energy); and

(v) Responsibilities

Projects operators will be responsible, in compliance with national law and regulations and the AfDB safeguard policies, guidelines and standards, for conducting the required detailed E&S studies (e.g., ESIA, ESMP, and RAP), obtaining clearances and licenses from relevant authorities, organizing stakeholder consultations, implementing all required mitigation measures, and conducting monitoring activities.

The detailed E&S studies must be submitted to both the National Authority in charge and the AfDB for review and approval. The authority's approval is based on the Burkina Faso laws and regulations, while that of the AfDB is based on the AfDB's E&S policies, guidelines, and standards. The authority in charge of environment will be responsible for the review and clearance of ESIA's and ESMP's for sub-projects. It provides a one-stop clearance process by involving all other key governmental agencies in the approval process.

The Gender assessment and action plan has been provided as a separate annex.

F.4. Financial Management and Procurement

Describe the project's financial management and procurement, including financial accounting, disbursement methods and auditing.

Due Diligence

The Bank has an Integrity Due Diligence (IDD) policy. The IDD policy and the implementation guidelines reinforce the principle of enhancing transparency and openness in Bank operations to ensure the full disclosure of information on counterparties thereby limiting the misuse of Bank funds for criminal and illicit activities such as fraud, corruption, money laundering, terrorist financing and other illicit activities.

To facilitate due diligence process a database of Political Exposed Persons [PEPS] has been developed to assist Bank staff especially the operational staff to identify PEPs for the conduct of enhanced due diligence to ascertain any risks and necessary mitigating measures that are required for continuous monitoring. In addition, the Bank assesses beneficial ownership, civil/criminal and regulatory backgrounds and sanctions lists. There is also a database on debarred individuals and entities which is used by staff when conducting due diligence on counter parties to ensure that the Bank does not do business with debarred or sanctioned individuals and entities.

The Bank conducts administrative investigations into staff misconduct, corruption, fraud, coercion, collision and obstructive practices and refers to national competent authorities for criminal investigations in instances that requires so.

The Bank mainstreams counter Illicit Financial Flows, Anti-Money Laundering and Combating Terrorist Financing measures in internal operations of the Bank Group.

Some of the mitigating factors for due diligence are biannual/ annual monitoring reports on Bank financed projects which helps the Bank to respond to integrity issues that may arise. Further, the Bank can put clauses in place in covenants and agreements to protect itself against any loss.

Burkina Faso as a country is not under US sanctions. However, US has imposed sanctions on Burkina Faso-based Ansarul Islam due to being characterized as a militant group and a terrorism threat after a string of attacks near the northern border with Mali.

Burkina Faso is not under UN, AUC or EU sanctions. Even in the case of sanctions, this project will not be affected. This is because sanctions are normally related to the sale, supply, transfer or export of arms and related material of all types, including weapons and ammunition, military vehicles and equipment, paramilitary equipment and spare parts for the aforementioned, as well as equipment which might be used for internal repression.

These sanctions don't specifically apply to an investment and infrastructure assets of the Yeleen rural electrification project.

Audit

Audits will be undertaken in line with the African Development Bank Guidelines for Financial Reporting and Auditing of Projects. The Financial Agreement with the Executing Entity ABER will require the submission of Audited Financial Statements to the African Development Bank within six months after each year-end. An independent external auditor will be recruited based on Terms of Reference acceptable to the Bank (not later than four months after effectiveness) for the entire duration of the project. The Financial Statements will be audited in accordance with international auditing standards. The external auditor will prepare a Management Letter to provide observations, comments, and recommendations for improvements in accounting records, systems, controls and compliance with financial covenants in the Financial Agreements. The cost of the audit will be met from project resources. The AfDB will lead standard KYC due diligence process including anti-money laundering and other evaluations of sponsors.

Financial Management

For the senior loans, financial management will follow the AfDB's "Guidelines for Financial Management and Financial Analysis of Projects", which describes and explains the Bank's policies, procedures and approaches to the financial management and analysis of projects and programs that the Bank finances.

Disbursement

Loans: The borrower is entitled to request disbursements of funds from the AfDB, for amounts spent or planned to be spent for the purposes set out in the financing agreement between the two parties, subject to fulfilment of conditions outlined in the financing agreement. Except with the AfDB's consent, no disbursements shall be made (a) on account of expenditures procured in violation of the Bank's Procurement Rules; or (b) to finance expenditures incurred prior the date of the financing agreement other than those that are expressly permitted. Requests for disbursement shall be made promptly and in conformity with the Bank's disbursement rules and procedures.

Supervision and Portfolio Management

The AfDB is responsible for fulfilling the reporting obligations to the donors. Reporting is based on the progress of indicators included in the Results Measurement Framework. The AfDB management will ensure that the project portfolio are diligently managed, through close dialogue with clients and periodic monitoring and evaluation. The objective is to enhance the prospects of: (a) delivering expected development outcomes; (b) minimizing harmful environmental and social impacts over the course of projects' economic life; and (c) meeting debt repayment obligations for the loans. At least, bi-annual supervision missions will be organized to review implementation progress and performance of the activities under the framework.

Procurement

To ensure that financing is applied in ways that adequately secure the AfDB's mandate while maximizing development effectiveness, the Bank encourages and promotes sound, fair, transparent and well performing procurement systems. The Bank Group's "**Procurement Policy for Bank Group Funded Operations**" (dated August 2015) applies to the framework. This Policy sets out the principles that apply to Borrowers' procurement of goods, works and acquisition of

consulting services financed in whole or in part by the Bank. It is supplemented by three additional documents: (i) Methodology for Implementation of the Procurement Policy of the African Development Bank (Methodology); (ii) Operations Procurement Manual for the African Development Bank (OPM); and (iii) Procurement Toolkit for the African Development Bank (Toolkit). Collectively, the Policy, the Methodology, the OPM and the Toolkit are referred to as the "Procurement Framework". The Policy is the overarching document and in the event of a conflict between it and any other documents of the Procurement Framework, this Policy will prevail. In the event of any inconsistency between the remaining documents comprising the Procurement Framework, the following hierarchy shall be followed: the Methodology, the OPM, and the Toolkit.

G.1. Risk Assessment Summary

Please provide a summary of main risk factors. Detailed description of risk factors and mitigation measures can be elaborated in G.2.

There are 7 key risks which could delay implementation:

1. Political risk

This is mitigated by a high degree of political willingness and a sense of urgency to implement the rural electrification program.

2. Security risks

This is mitigated by the fact that proposed region for the implementation are in low security risk areas.

3. Lack of financing risk

This is mitigated by the fact that AfDB and EU have already reserved funding for this project. GCF funding will be critical to reach project completion. Selected private sector bidders need to achieve financial closure after being selected. The risk is that the innovative nature of the project and country risk does not attract players with sufficient equity and access to commercial debt to achieve financial close. The funding brought in the project by GCF, AfDB and EU is likely to attract commercial lenders.

4. Regulatory framework risk

The building of the enabling environment includes changes in regulatory framework. The risk here is that delay in setting up this environment will delay the launching of the final selection process for mini grid developers as the legal and regulatory framework. The SEFA grant of 1 M USD already under implementation aims at funding this process. The level of capacity at FDE/ABER is also a constraint, which is being addressed through the SEFA grant.

5. Delays in implementation risk

There may be delays in implementation of the mini-grids once the regulatory and technical aspects are out of the way. The RBP should give enough incentive to the private developers to move on at the best pace possible with the implementation of the mini-grids and the connection of the households.

6. Willingness of private sector operators to participate

The change in regulatory framework and the adoption of a financially sound tariff should mitigate that risk.

7. Effectiveness of technology used for mini-grids

This is mitigated by the fact that solar powered mini-grids have been implemented in other African countries.

G.2. Risk Factors and Mitigation Measures

Please describe financial, technical and operational, social and environmental and other risks that might prevent the project objectives from being achieved. Also describe the proposed risk mitigation measures.

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Governments are dynamic. A shift in Government policy linked to changes in the economic, political and social environment could result in lower priority for the project.	OtherOther	High (>20% of project value)High (>20% of project value)	LowLow

Mitigation Measure(s)

The risk of a change in political will is very small as the project will transform the legal and regulatory framework and responds to deep aspirations of rural populations. The programs is also strongly aligned to the adaptation strategy of the INDC that is at the core the Burkina response the climate change.

Description	Risk category	Level of impact	Probability of risk occurring
Burkina Faso lies in the Sahel belt, which is prone to Islamic extremist attacks that destabilize the country's security. This might have an adverse effect in earning the interest of some foreign investors.	OtherOther	High (>20% of project value)High (>20% of project value)	MediumMedium

Mitigation Measure(s)

This risk is being appreciated and it is taken into consideration within the design and planning for the first phase of the rural electrification project under Yeleen. The sites chosen are relatively located in areas that are less prone to insecurity.

Selected Risk Factor 3

Description	Risk category	Level of impact	Probability of risk occurring
Successful implementation of the fast track phase (2018-2020) will require funds for project development and investments. Lack of financing might be a stumbling block to achieve the intended goals.	FinancialFinancial	Medium (5.1-20% of project value)Medium (5.1-20% of project value)	LowLow

Mitigation Measure(s)

The African Development Bank (AfDB) is leading the rural electrification component of the Yeleen project. AfDB through SEFA has already allocated financing for the technical assistance to improve the enabling environment to support investments in off-grid electrification solutions. Provision of US \$25 million for the GMG RBP bonuses will cater for 43 % of the project cost and provision of US \$ 10 M of concessionary loan will cater for another 17 % of the project value. Because the Equity and commercial loan requirement is only for 38 % and taking into consideration the upgraded legal and regulatory framework and long-term concession, the probability of not reaching financial close is low.

Selected Risk Factor 4

Description	Risk category	Level of impact	Probability of risk occurring
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<p>The country is lacking a solid regulatory framework to attract private sector investments. The current regulation is very cumbersome and is not structured to consider issues related to project scale (for instance, projects under 100kW are also required to secure licenses). The framework may hamper private sector involvement in the off-grid electrification sector.</p>	<p>OtherOther</p>	<p>Low (<5% of project value) Low (<5% of project value)</p>	<p>LowLow</p>
<p>Mitigation Measure(s)</p>			
<p>AfDB/SEFA has approved US\$ 1 million to provide technical assistance toward improving the enabling environment for the mini-grid sector. This will create the conditions for smooth implementation of the rural electrification component.</p>			
<p>Selected Risk Factor 5</p>			
<p>Description</p>	<p>Risk category</p>	<p>Level of impact</p>	<p>Probability of risk occurring</p>
<p>There is a risk that implementation of the project might face delays due to procurement issues, non-timely response among parties, slow policy reform, etc.</p>	<p>Technical and operational Technical and operational</p>	<p>Medium (5.1-20% of project value) Medium (5.1-20% of project value)</p>	<p>LowLow</p>
<p>Mitigation Measure(s)</p>			
<p>The project planning has considered such elements (procurement, etc.) in a way to remove unnecessary delays in implementation. The partners have already begun moving with the project activities (i.e. procurement for the SEFA grant component).</p>			
<p>Selected Risk Factor 6</p>			
<p>Description</p>	<p>Risk category</p>	<p>Level of impact</p>	<p>Probability of risk occurring</p>
<p>Successful implementation of the project is dependent on the response of the private sector to participate, invest and develop the projects. Perceived risks in energy investments may be high, bringing challenges in mobilizing private sector interest and involvement.</p>	<p>Technical and operational Technical and operational</p>	<p>Medium (5.1-20% of project value) Medium (5.1-20% of project value)</p>	<p>LowLow</p>
<p>Mitigation Measure(s)</p>			
<p>Innovative approaches are being planned in the project, in addition to developing a clear GMG regulatory framework that stimulates investments. The program also involves other financial incentives to leverage private sector investments.</p>			
<p>Selected Risk Factor 7</p>			
<p>Description</p>	<p>Risk category</p>	<p>Level of impact</p>	<p>Probability of risk occurring</p>
<p>Technology to be employed for the off-grid solutions need to be proven to ensure energy availability and systems sustainability. It will be paramount for the first phase of the rural electrification project to provide proof of concept that includes proof of technology robustness and usability.</p>	<p>Technical and operational Technical and operational</p>	<p>Low (<5% of project value) Low (<5% of project value)</p>	<p>LowLow</p>
<p>Mitigation Measure(s)</p>			

Implementation of the rural electrification component will use competitive approaches to solicit the best technology providers available in the market. The Terms of reference will be detailed enough to specify the level of service and evaluability factors for the mini-grid supply.

Other Potential Risks in the Horizon

Please describe other potential issues which will be monitored as “emerging risks” during the life of the projects (i.e., issues that have not yet raised to the level of “risk factor” but which will need monitoring). This could include issues related to external stakeholders such as project beneficiaries or the pool of potential contractors.

Final approval of financing for individual sub-projects is subject to the AfDB’s project-specific risk screening. The AfDB will put in place an implementation team for the framework, to be in charge of due diligence and execution of the project.

** Please expand this sub-section when needed to address all potential material and relevant risks.*

H.1. Logic Framework.

Please specify the logic framework in accordance with the GCF's [Performance Measurement Framework](#) under the [Results Management Framework](#).

H.1.1. Paradigm Shift Objectives and Impacts at the rural electrification model level¹²

Paradigm shift objectives

Shift to low-emission sustainable development pathways
Shift to low-emission sustainable development pathways

The project involves a private sector-led, solar power development, which will result a long term, readily quantifiable, significant and cost-effective CO2 emission savings. The project has the potential to leverage private sector equity and debt through the enabling environment

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable) ¹³	Final	
Fund Level Impacts						
M1.0 Reduced emissions through increased low-emission energy access and power generation	1.1 *Tonnes of carbon dioxide equivalent (t CO2eq) reduced or avoided as a result of Fund funded projects/programme (Core Indicator)	Annual CO2 performance monitoring reporting and validation	0	10000 tCO2eq	22000 tCO2eq	CO2 emission reduction was based on the most conservative calculations and data using international default values. CO2 emission reduction can be increased if local data will be available.
	Cost per tCO2 eq decreased	Annual CO2 performance monitoring reporting and validation	0	N/A	136 EUR / tCO2eq	
	Volume of finance leveraged by Fund funding (Core Indicators)	Project management Reports	0		EUR 28.8 M	Private sector equity and commercial debt financing leveraged through the facilities]

¹² Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

¹³ While it is expected that 80% of the financing will be committed to the Round One, a possible implementation delay has been taken into account and the achievement of 50% of the final targets at the mid-point is assumed.

H.1.2. Outcomes, Outputs, Activities and Inputs at Project level						
Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project outcomes	Outcomes that contribute to Fund Level impacts					
M6.0 Increased number of small, medium and large low-emission power suppliers	6.1 Number of Households and individuals (males and females) with improved access to low-emission energy sources	Project Reports		At least 167 000 people directly benefit [of which 50% are women]	At least 335 000 people directly benefit [of which 50% are female]	Based on estimate of low-emission MW divided by effective capacity of the power system, multiplied by total number of households / household composition
	6.2 MWs of low-emission energy capacity installed, generated and/or rehabilitated as a result of GCF support	Commissioned and project Completion certificates	0	5.5 MWp	11 MWp	
M5.0 Strengthened institutional and regulatory systems	5.1 Institutional and regulatory systems that improve incentives for low emission planning and development and their effective implementation.	Legal text Contract templates Rural electricity tariff methodology Reports of government agencies	Energy Sector Policy (2014-2025), 2013	Additional Legislation for rural mini-grids. enacted	Operational rural electrification agency empowered for allocating and monitoring performance of rural concessions	Barriers of policy, for mainstreaming solar PV projects are overcome and the capacity of the stakeholders developed
Project outputs	Outputs that contribute to outcomes					
Strengthened Energy Regulatory Agency	Functional rural electrification Agency with trained agents in legal matters (concession contracts), technical aspects (tariff methodology), supervision of the sector (monitoring and evaluating the project)	Project Reports Availability of standard concession contracts Availability of rural electricity tariff methodology	Energy Sector Policy (2014-2025), 2013	Supplementary legislation – regulations and standard documents drafted	Fully functional rural electrification agency in place	
Rural localities electrified	Number of green mini grids implemented	Tender documentation and installation project reports	0	50	100	
Solar PV capacity installed to power Green mini grids	Capacity of PV systems installed	Tender documentation and installation	0	5.7 MWp	11.4 MWp	Relevant private sector bodies (e.g.,

		Project Reports				developers, suppliers, and financiers) participate
Effective electrification of households and productive use	Number of connections made to Green mini grid	Audit process to validate effective connection leading to RBP grant	0	25000 Connections	50000 Connections	There are no sharing of connections among households
Co-benefits						
Economic co-benefits:	Entrepreneurial job creation resulting from productive use of electricity in agriculture, agro processing and light manufacturing	FDE/ABER Activity Report	0	N/A	3 300	There will be at least one job per productive use connection
	Long-term job creation in the green economy sectors linked to sustainable energy and Burkina climate adaptation action.	FDE/ABER Activity Report	0	N/A	50	These would be specialized jobs
	Poverty alleviation through virtuous circle of more efficient value creation and about 40 % lower expenses devoted to energy for lighting and mobile charging for average residential households.	Independent study on household revenues and spending in the mini-grids installation regions	Baseline to be defined according to the implementation sites of the mini-grids	N/A	Households' 40 % lower expenses devoted to energy compared to baseline	
Social co-benefits:	Improvements in health and safety from elimination of smoke and soot from kerosene lamps and candles for lighting and fire hazard from naked flames	Government or independent Public Health reports	Baseline to be defined according to the implementation sites of the mini-grids	N/A	% Decrease in health and safety issues resulting from the use of kerosene and biomass	
	Better access to education through lighting for homework and better access to web-based materials at school	Government or independent Education reports	Baseline to be defined according to the implementation sites of the mini-grids	N/A	% Increase in school attendance	
	Water pumps for accessing underground water leading to higher education rate for girls	Government or independent report on water access	Baseline to be defined according to the implementation sites of the mini-grids	N/A	% increase in number of water pumps in the mini-grids implementation regions	
	Reinforced diaspora ties from gifts of electrical appliances and remittance used to procure electrical equipment for productive use and entertainment	Government or independent reports on diaspora remittance	Baseline to be defined according to the implementation sites	N/A	% increase in remittances compared to baseline	

			of the mini-grids			
Environmental co-benefits	Reduction in the use of traditional biomass (including wood), which accounts for 84% of all primary energy consumed in Burkina Faso	FDE/ABER activity report Independent Environmental study	84%	N/A	20% decrease in use of traditional biomass in the mini-grid installation regions	
	Improvement of living conditions, particularly for women and girls, by providing them with equal opportunities of access to energy, education, health care, decent work, and representation in decision-making processes.	FDE/ABER activity report Gender Assessment Action plan independent study	0	N/A	Number of women entrepreneurs thanks to the project Increase in number of girls attending school for women thanks to the project when technical assistance is provided to FDE/ABER.	
Activities						
Preparation of legislation for private sector driven rural electrification model.	Technical and management expertise Strengthening of sector institutions and key actors Training programme		Technical assistance		Definition of the training requirements and deployment of the training programme, ensuring at least 30% female participation	
Capacity development	Setting up a framework for managing a result based bonus following successful connection Preparing implementation of mini-grids		Technical assistance		Improve the implementation process	
Grant to Mini grid Operator	Setting up a guarantee mechanism to support the procurement of productive use equipment by entrepreneurs		Guarantee		Enable the development of economic activity zones	
Stimulate productive use of energy to develop sustainable livelihoods.	Provision of result based capital grant to selected private developers		Grant		Improve the affordability of electricity through a one-off capital grant	
RBP Grant payment verification process	Implementation of a robust verification process conditioning the payment of RBP Grant		Technical assistance		Selecting a platform to control the mini-grids and associated distribution network implementation Selecting a platform to control the effectiveness of connections to the mini-grids Selection of an Independent Verifier	

H.2. Arrangements for Monitoring, Reporting and Evaluation

Besides the arrangements (e.g. semi-annual performance reports) laid out in AMA, please provide project specific institutional setting and implementation arrangements for monitoring and reporting and evaluation. Please indicate how the interim/mid-term and final evaluations will be organized, including the timing.

Please provide methodologies for monitoring and reporting of the key outcomes of the project.

Monitoring of the project

All projects financed under the proposed framework will be monitored by the AfDB's Portfolio Management team as per the relevant internal policies and procedures. The AfDB – as the accredited executing agency – will be responsible for direct monitoring of implementation conditions and reporting periodically to the GCF under the terms to be agreed between the AfDB and GCF. All IPP projects financed under the proposed framework will comply with the AfDB appraisal, approval, monitoring and supervision standards and procedures involving representatives or all relevant teams (engineers, lawyers, project finance specialists, procurement experts, E&S specialists, climate finance officers, financial management officers, supervision and monitoring specialists). The implementation and monitoring of each stage of the project will be guided and managed by the AfDB project lifecycle management framework¹⁴. The key task managers, who will perform due diligence, implementation monitoring, risk monitoring and mitigation, will be located in the relevant teams in the headquarters, Western Africa regional hub and the country office in Ouagadougou.

Reporting

- 1) Reporting of project companies to AfDB will be in line with the standard loan agreement, and the AfDB will conduct a bi-annual supervision.
- 2) Reporting of AfDB to GCF: The AfDB will comply with the relevant GCF policies (as specified under the AMA) in reporting and evaluation arrangements for this framework. The AfDB will provide the annual performance report (APR) to the GCF during the five-year implementation period. In addition, during the sub-loan lifetime, semi-annual activity report on the status of the GCF-financed individual sub-projects will be provided. For the TA component, reports from the beneficiaries will be consolidated by the AfDB for reporting to the GCF. In addition, following the arrangement under the AMA and the FAA, inception report, mid-term and final evaluation reports, and financial information reports (semi-annually throughout the life of the loan) will be submitted.

Evaluation

The evaluation arrangements for this framework will comply with the related AfDB and GCF policies. Both the independent mid-term and final evaluation will be carried out by the AfDB's independent evaluation unit (IDEV). The work of the AfDB's independent evaluation work is guided by internationally accepted principles for the evaluation of development assistance, in particular, the Organization for Economic Co-operation, and Development Assistance Committee (OECD DAC) evaluation guiding principles, and the good-practice standards issued by the Multilateral Development Banks' Evaluation Cooperation Group (ECG).

¹⁴ <https://www.afdb.org/en/projects-and-operations/project-cycle/>

Annexes	Is it provided
NDA no-objection letter	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Feasibility study report including the productive use equipment	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Integrated financial model with sensitivity analysis (if applicable)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Letter of confirmation for co-financing commitment (if applicable)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Project/programme confirmation (term sheet)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Environmental and social impact assessment or environmental management plan, including gender considerations (if applicable) and gender action plan. Please be aware publication should be both in English and French.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Appraisal report or due diligence report (if applicable)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Evaluation report of the baseline project/programme (if applicable)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
Map indicating the location of the project/programme	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Timetable of implementation	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
AE fee information	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
CO2 calculations Excel Sheet	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Detailed budget	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Proposed payment process for result based payment	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Guarantee management manual	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

PREMIER MINISTERE

SECRETARIAT GENERAL

SECRETARIAT EXECUTIF DU FONDS VERT
POUR LE CLIMAT AU BURKINA FASO

BURKINA FASO
Unité-Progrès-Justice

Ouagadougou, 13 AUG 2018

The Focal Point

To

The Green Climate Funds
G-Tower, 175 Art Center-daero,
Yeonsu-gu, Incheon 406-840,
Republic of Korea

Subject : Funding proposal for the GCF
by the African Development Bank
regarding the Yeleen Rural electrification
Project in Burkina Faso.

Dear Executive Director,

We refer to the **Yeleen Rural Electrification Project in Burkina Faso** in Republic of Burkina Faso as included in the funding proposal submitted by the African Development Bank to us on 31 st july 2018.

The undersigned is the duly authorized representative of the Cabinet of the Prime Minister, the National Designated Authority/focal point of the Republic of Burkina Faso.

Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the **Yeleen Rural Electrification Project in Burkina Faso** as included in the funding proposal.

By communicating our no-objection, it is implied that :

- (a) The government of the Republic of Burkina Faso has no-objection to the **Yeleen Rural Electrification Project in Burkina Faso** as included in the funding proposal ;

- (b) The **Yeelen Rural Electrification Project in Burkina Faso** as included in the funding proposal is in conformity with the Republic of Burkina Faso's national priorities, strategies and plans ;
- (c) In accordance with the GCF's environmental and social safeguards, the **Yeelen Rural Electrification Project in Burkina Faso** as included in the funding proposal is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no-objection to the **Yeelen Rural Electrification Project in Burkina Faso** as included in the funding proposal has been duly followed.

We also confirm that our no-objection applies to all projects or activities to be implemented within the scope of the programme.

We acknowledge that this letter will be made publicly available on the GCF website.

Kind regards.



Mamadou Honadia



Environmental and social report(s) disclosure

Basic project/programme information	
Project/programme title	Burkina Faso Yeleen Rural Electrification Programme
Accredited entity	African Development Bank (AfDB)
Environmental and social safeguards (ESS) category	Category B
Specific project location or target country/ies of the programme, as the case may be	Burkina Faso
Environmental and Social Impact Assessment (ESIA) (if applicable)	
Date of disclosure on accredited entity's website	2018-09-06
Language(s) of disclosure	English and French
Link to disclosure	<p>English https://www.afdb.org/en/documents/document/burkina-faso-yeleen-rural-electrification-programme-esmf-103677/</p> <p>French https://www.afdb.org/fr/documents/document/burkina-faso-yeleen-rural-electrification-programme-esmf-103677/</p> <p>The Environmental and Social Management Framework (ESMF) contains a preliminary characterization of environmental and social risks and impacts which is consistent with the requirements of Category B projects.</p>
Other link(s)	
Environmental and Social Management Plan (ESMP) (if applicable)	
Date of disclosure on accredited entity's website	2018-09-06
Language(s) of disclosure	English and French
Link to disclosure	<p>English https://www.afdb.org/en/documents/document/burkina-faso-yeleen-rural-electrification-programme-esmf-103677/</p> <p>French https://www.afdb.org/fr/documents/document/burkina-faso-yeleen-rural-electrification-programme-esmf-103677/</p> <p>The ESMF contains a preliminary ESMP which is consistent with the requirements of Category B projects.</p>
Other link(s)	
Resettlement Action Plan (RAP) (if applicable)	
Date of disclosure on accredited entity's website	2018-09-14
Languages	English and French
Links to disclosure	English



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	<p>https://www.afdb.org/en/documents/document/burkina-faso-yeleen-rural-electrification-programme-rpf-103816/</p> <p><u>French</u> https://www.afdb.org/fr/documents/document/burkina-faso-yeleen-rural-electrification-programme-rpf-103816/</p> <p>The Resettlement Policy Framework (RPF) contains an preliminary Abbreviated Resettlement Action Plan (ARAP) which is consistent with the requirements of Category B projects.</p>
Any other relevant ESS reports and/or disclosures (if applicable)	
Description of report/disclosure	<input type="checkbox"/>
Language of disclosure	<input type="checkbox"/>
Date of disclosure	<input type="checkbox"/>
Link to disclosure	<input type="checkbox"/>
Other link(s)	<input type="checkbox"/>
Disclosure in locations convenient to affected people	
Date	2018-09-15
Link	<p>The ESMF and RPF have been disclosed in-country in French on both the Ministry of Energy and ABER Websites.</p> <p>[French] https://energie.bf/wp-content/uploads/2018/09/PROGRAMME-D%E2%80%99ELECTRIFICATION-RURAL-YELEN-CADRE-DE-GESTION-ENVIRONNEMENTALE-ET-SOCIAL.pdf</p> <p>[French] https://energie.bf/wp-content/uploads/2018/09/Burkina-Faso-Projet-electirification-rurale-Yeelen-Cadre-de-reinstallation.pdf</p>

Note: This form was prepared by the accredited entity stated above.