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Report No: 87159-BF

PROJECT PAPER

ON A

PROPOSED ADDITIONAL GRANT

IN THE AMOUNT OF SDR 17.5 MILLION
(US$27 MILLION EQUIVALENT)

AND A

PROPOSED ADDITIONAL CREDIT

IN THE AMOUNT OF SDR 5.2 MILLION
(US$8 MILLION EQUIVALENT)

TO

BURKINA FASO

FOR AN

ELECTRICITY SECTOR SUPPORT PROJECT

May 15, 2014

Africa – Energy Practice 2 (AFTG2)
Sustainable Development Department (AFTSN)
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2014)

Currency Unit	=	FCFA
FCFA 505	=	US$1
SDR 0.65	=	US$1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AFD	*Agence Française de Développement (*French Development Agency)
CEDP	Competitiveness and Enterprise Development Project
CMS	Customer Management System
COOPELs	Local Cooperatives
CPS	Country Partnership Strategy
DGE	*Direction Générale de l'Energie* (General Directorate of Energy)
DSM	Demand Side Management
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
FDE	*Fonds de Développement de l'Electrification* (Rural Electrification Agency)
FM	Financial Management
GDP	Gross Domestic Product
GoBF	Government of Burkina Faso
GWh	Giga Watt Hours
IFAC	International Development Association
IDA	International Federation of Accountants
KWh	Kilowatt Hours
kV	Kilovolt
LCOE	Levelized Cost of Electricity
MDGs	Millenium Development Goals
MFP	Multifunctional Platforms
M&E	Monitoring and Evaluation
OP	Operational Policy
O&M	Operations and Maintenance
PCU	Project Coordination Unit
PDO	Project Development Objectives

POSEN	*Politique Sectorielle de l'Energie* (Energy Sector Policy)
PSDP	Power Sector Development Project
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SCADD	Strategy for Accelerated Growth and Sustainable Development
SDR	Special Drawing Rights
SHS	Solar Home Systems
SONABEL	*Société Nationale d'Electricité du Burkina* (National Power Utility)
SWER	Single Wire Earth Return
SWS	Shield Wire Schemes
WTP	Willingness to Pay

Vice President:	Makhtar Diop
Country Director:	Ousmane Diagana
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BURKINA FASO

ELECTRICITY SECTOR SUPPORT PROJECT

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BURKINA FASO

ELECTRICITY SECTOR SUPPORT PROJECT

ADDITIONAL FINANCING DATA SHEET

Basic Information - Additional Financing (AF)	
Country Director: Ousmane Diagana Sector Manager/Director: Meike van Ginneken/Jamal Saghir Team Leader: Fatouma Toure Ibrahima Project ID: P149115 Expected Effectiveness Date: Aug 30, 2014 Lending Instrument: Investment Project Financing Additional Financing Type: Scaling up	Sectors: Energy Themes: Transmission and Distribution/General Energy Sector Environmental category: B – partial assessment Expected Closing Date: Sep 30, 2019 Joint IFC: No Joint Level:
Basic Information - Original Project	
Project ID: P128768 Project Name: Electricity Sector Support Project Lending Instrument: Investment Project Financing	Environmental Category: B – partial assessment Expected Closing Date: Sep 30, 2018 Joint IFC: No Joint Level:
AF Project Financing Data	
[ ] Loan [x] Credit [x] Grant [ ] Guarantee [ ] Other: Proposed terms: IDA standard terms	
AF Financing Plan (US$m)	
Source	**Total Amount (US$m)**
Total Project Cost:	**37.00**
Cofinancing:	
Borrower:	**02.00**
Total Bank Financing:	
IBRD	
IDA	**35.00**
Grant	27.00
Credit	08.00
Client Information	
Recipient: Burkina Faso **Responsible Agency: Ministry of Energy** Contact Person: Sawadogo, Rimnogdo Narcisse Telephone No.: 226-50317489 Email: sawadogo_nar@yahoo.fr	

AF Estimated Disbursements (Bank FY/US$million)						
FY	**15**	**16**	**17**	**18**	**19**	
Annual	**00.00**	**05.00**	**10.00**	**10.00**	**10.00**	
Cumulative	**00.00**	**05.00**	**15.00**	**25.00**	**35.00**	

Project Development Objective and Description

Original project development objective: to (i) increase access to electricity, (ii) improve the reliability of electricity supply, and (iii) improve the efficient use of energy in targeted areas.

Revised project development objective: Not Applicable

Project description: The original project has the following components:

Component 1. Improving the reliability of energy supply: Construction of two (2) turnkey diesel power stations of at least 7.5 MW each convertible to heavy fuel oil to reinforce the capacity in two (2) regional growth poles, and the provision of technical advisory services for construction supervision.

Component 2. Increasing electricity access in target areas: Grid expansion and installation of connections in about forty (40) communities through: (a) existing and new 33kV transmission lines, and (b) the existing 34.5 kV Bobo-Dioulasso - Ouagadougou line.

Component 3. Improving efficient use of energy in target areas: (i) Strengthen the institutional, legal and regulatory framework to support demand-side management and energy efficiency initiatives, including public lighting; (ii) Support investment in energy efficient equipment; (iii) Support awareness campaigns; (iv) Implement Lighting Africa activities including, inter alia, provision of capacity building and deployment of around twenty five thousand (25,000) lanterns in public schools focusing on those in off-grid communities.

Component 4. Institutional Strengthening and Capacity Development: (a) Strengthen the institutional capacity of the FDE, SONABEL, and DGE; (b) Strengthen the capacity of energy service providers; (c) Undertake specific studies to improve the energy mix, more particularly in renewable energy in the medium term; (d) Provide institutional support to DGE, SONABEL and FDE; and (e) Provide support to DGE for coordination of the Project.

The additional financing will scale up components 2 and 4 by: (a) expanding electricity access; and (b) providing technical assistance to SONABEL and to DGE to further improve the environment for private participation in the sector.

Safeguard and Exception to Policies	
Safeguard policies triggered: Environmental Assessment (OP/BP 4.01) Natural Habitats (OP/BP 4.04) Forests (OP/BP 4.36) Pest Management (OP 4.09) Physical Cultural Resources (OP/BP 4.11) Indigenous Peoples (OP/BP 4.10) Involuntary Resettlement (OP/BP 4.12) Safety of Dams (OP/BP 4.37) Projects on International Waterways (OP/BP 7.50) Projects in Disputed Areas (OP/BP 7.60)	 [X]Yes [ ] No [ ]Yes [X] No [ ]Yes [X] No [ ]Yes [X] No [X]Yes [ ] No [ ]Yes [X] No [X]Yes [ ] No [ ]Yes [X] No [ ]Yes [X] No [ ]Yes [X] No
Does the project require any waivers of Bank policies? Have these been endorsed or approved by Bank management?	[ ]Yes [X] No [ ]Yes [ ] No

Conditions and Legal Covenants		
Financing Agreement Reference	**Description of Condition/Covenant**	**Date Due**
Service agreements to be amended by FDE	The Service Agreement entered into between the Ministry of Finance of the Recipient and FDE has been amended, in accordance with terms and conditions satisfactory to the Association, to cover the execution of the additional activities to be carried out under the Project.	Before effectiveness

I. Introduction

1. This Project Paper seeks the approval of the Executive Directors to provide a grant in an amount of US$27 million and a credit in an amount of US$8 million as Additional Financing (AF) to the Republic of Burkina Faso Electricity Sector Support Project (IDA Credit 5491 and Grant H966) with an extension of the closing date to September 30, 2019, in accordance with OP/BP 10.00 – Investment Project Financing.

2. The Government of Burkina Faso (GoBF) has requested an AF to expand activities and maximize the development impact of the Electricity Sector Support Project (ESSP - P128768) which was approved by the Board on July 30, 2013, in the amount of US$50 million equivalent. The proposed activities are consistent with the project development objectives of ESSP and are strategically aligned with the World Bank's Country Partnership Strategy (CPS) for Burkina Faso which aims to help improve competitiveness and to support broad-based growth. The scale and scope of these activities can also be fully accommodated by the current project implementation arrangements and the borrower's implementation capacity.

3. The proposed additional financing would enhance the impact of ESSP. More specifically, the additional financing would finance: (a) the scaling up of the access component of the ESSP by expanding electricity access in rural communities through least-cost measures including grid extension, installation of hybrid mini-grid, solar home systems and multifunctional platforms for households, schools, health centers, and other productive activities; (b) technical assistance to the national utility, SONABEL, to update its strategic plan according to the findings of the recently completed sector diagnostics[1], undertake a fuel audit and finance the acquisition and implementation of a customer management system; and (c) technical assistance to the Government to further improve the environment for private participation in the sector.

4. The timing of the Additional Financing is a combination of various factors including the critical need to enhance electricity access, the availability of additional International Development Agency (IDA) resources, the adoption of a new energy policy, and the finalization of major studies. Together with the original project, the additional financing will complement the interventions by other development partners, particularly the French Agency for Development (AFD) and the European Investment Bank (EIB).

5. The proposed additional activities do not change the environmental category of the project nor do they trigger any new safeguard policies. The implementation arrangements remain

[1] Including studies financed under an earlier World Bank project, the Competitiveness and Enterprise Development Project (P071443) on the scope and financing of sector investments, the technical audit on SONABEL's infrastructure and assets, the human resources audit finalized in December 2013, and a newly requested audit on fuel consumption.

unchanged.

II. Background and Rationale for Additional Financing

A. Country Context

6. Burkina Faso is a low-income landlocked country in a volatile region; as a consequence, it faces significant structural economic vulnerability. Yet, despite these constraints, Burkina Faso has built an impressive record of economic stability, a record which it has maintained in the face of serious and unpredictable shocks ranging from recurrent droughts in its agricultural regions to instability and conflict in neighboring countries. Substantial reserves of gold and a vibrant cotton sector have supported a relatively robust and improving economic growth rate, though the country remains highly sensitive to commodity-price fluctuations. Burkina has also received significant aid flows over the last decade, and has performed well on its Country Poverty and Institutional Assessment (CPIA) scoring 3.8 out of 6.

7. However, despite its general political stability and solid macroeconomic management, Burkina has not experienced broad-based private-sector growth or widespread employment creation. The persistence of high poverty levels raises serious questions regarding the effectiveness of Burkina's growth model in generating inclusive, pro-poor growth and mitigating the threat posed by food insecurity. Notwithstanding recent conflicts in neighboring countries, Burkina's economy is expanding at an increasingly rapid pace with the real Gross Domestic Product (GDP) growth rate rising from 5 percent in 2011 to 9 percent in 2012 on the strength of solid agricultural yields and stronger-than-expected productivity in the gold sector.

8. Overall, Burkina Faso's macroeconomic framework is judged to be appropriate. Burkina is expected to maintain its economic stability through prudent fiscal policies and strong financial assistance from donors. Burkina will, however, continue to face growth and employment challenges stemming from its landlocked geography, its small domestic market, and its reliance on commodity exports. Furthermore, Burkina's limited progress in employment creation and poverty reduction during a period of fairly robust economic growth underscores the need for further reforms to accelerate private-sector-led job creation.

9. Significant challenges in reducing poverty will persist over the medium and long terms. Nationwide poverty incidence has fallen slightly, decreasing by 4.3 percentage points between 2003 and 2009, but overall poverty remains high. At its current pace, the poverty rate of 35 percent in 2015 envisioned in the Millennium Development Goals (MDGs) is unlikely to be achieved. Consequently, the achievement of the extreme poverty goal for 2030 cannot be considered plausible. However, the government and its development partners are making a concerted effort to both accelerate growth rates and strengthen the relationship between growth and poverty reduction. The budget for pro-poor spending increased from 5.3 percent of GDP in

2006 to 7.6 percent in 2011, and is projected to reach 7.8 percent by 2015. The impact of this progressive increase in pro-poor spending would be greatly enhanced through complementary reforms targeting the key areas of agricultural productivity, transportation and trade costs, sustainable mining-sector policies, and access to credit by female entrepreneurs. A more efficient electricity sector should also complement these reforms.

B. Sectoral and Institutional Context

10. Burkina Faso continues to face limited access to modern energy services with only 14 percent of the population having access to electricity. The energy mix is highly dependent on thermal generation with imported fuel. This is partly due to constrained electricity imports because of a power generation deficit in Cote d'Ivoire. The country's electricity sector faces six main challenges: (i) expanding generation capacity to meet a rapidly increasing demand; (ii) providing security of supply in the face of frequent interruptions of imports from neighboring countries; (iii) securing sufficient supply of low cost electricity from neighboring countries; (iv) improving the efficiency and equity in energy services provision by reforming tariff and subsidy policies in a context of high supply costs, and improved demand-side management; (v) expanding access of energy services to rural and peri-urban populations; and (vi) increasing the share of renewables in the electricity generation mix.

11. In October 2013, the Council of Ministers adopted a new energy policy (*Politique Sectorielle de l'Energie* (POSEN) 2013 – 2022) as the sector's follow up to the national accelerated growth and sustainable development strategy (SCADD). The POSEN is based on four strategic pillars: (i) promoting the use of local (renewable) energy resources; (ii) enhancing sub-regional cooperation; (iii) ensuring universal access to quality energy services; and (iv) making energy an engine for sustainable development. The GoBF's goal is to achieve: (i) a 100 percent access rate to electricity services in urban areas and 49 percent in rural communities; (ii) an 80 percent market penetration of improved cook stoves in urban households and 90 percent for rural ones; (iii) a 40 percent penetration rate of cooking gas in urban areas and 10 percent rural, all to be achieved by target year 2022.

12. As described in the project documents of the original project, the 2013-16 CPS is aligned with the government's SCADD and aims to selectively support the achievement of accelerated growth and sustainable development in Burkina Faso. Both the original project and the AF are consistent with the CPS's objective to help improve competitiveness and to support broad-based growth. By scaling up efforts to improve energy supply, expanding energy services access, and improving demand side management, the AF will allow services to reach an increased number of remote and poor populations, thus improving rural productivity and livelihoods.

13. The project documents of the original project describe in detail the respective roles of the rural development agency (*Fonds de Developpement de l'Electrification (FDE*), and the national

utility (*Société National d'Electrification du Burkina (SONABEL*). FDE and SONABEL cooperate closely in the expansion of the national network for the supply of rural areas with FDE mainly being in charge of planning and managing the process of connecting new villages and communities. Once rural communities have been connected to the national grid, the responsibility for management including operations and maintenance is transferred either to SONABEL or to local cooperatives (COOPELs). The FDE also acts as a technical quality regulator in the rural electricity sub-sector. Under the additional financing, the FDE will be responsible for carrying out the electrification of about 86 rural communities identified through the extension of the national network. Since its creation, FDE has electrified 121 rural communities, mainly by extending the existing medium voltage network and to a lesser degree through the installation of an operation by third parties of mini-grids mostly powered by diesel gensets. Electrification projects are also ongoing in approximately 123 localities.

C. Project Performance

14. The Burkina Faso Electricity Sector Support Project was approved by the Bank's Board of Directors on July 30, 2013 and became effective on February 27, 2014. Its objective is to: (i) increase access to electricity, (ii) improve the reliability of electricity supply, and (iii) improve efficient use of energy in target areas, through the following components:

(a) *Improving the reliability of energy supply:* Construction of two turnkey diesel power stations of at least 7.5 MW each convertible to heavy fuel oil to reinforce the capacity in two regional growth poles, and the provision of technical advisory services for construction supervision.

(b) *Increasing electricity access in target areas:* Grid expansion and installation of connections in about forty (40) communities through: (i) existing and new 33kV transmission lines, and (ii) the existing 34.5 kV Bobo-Dioulasso - Ouagadougou line.

(c) *Improving efficient use of energy in target areas:* (i) Strengthen the institutional, legal and regulatory framework to support demand-side management and energy efficiency initiatives, including public lighting; (ii) Support investment in energy efficient equipment; (iii) Support awareness campaigns through the provision of information, education, and communication to promote the rational and efficient use of electricity; (iv) Implement Lighting Africa activities including, inter alia, providing training on off-grid lighting in rural electrification strategies, developing public service announcements and awareness campaigns to inform consumers of the benefits of solar lanterns and other good quality products, and deploying around twenty five thousand (25,000) lanterns in public schools focusing on those in off-grid communities.

(d) *Institutional Strengthening and Capacity Development:* (i) Strengthen the institutional capacity of FDE, SONABEL, and the National Directorate of Energy at the Ministry of Finance (Direction Générale de l'Energie (DGE)) to support scaling up of energy service

expansion; (ii) Strengthen the capacity of energy service providers including, *inter alia,* energy services cooperatives, local communities, non-governmental organizations (NGOs), and private sector small- and medium-size enterprises; (iii) Undertake specific studies to improve the energy mix, more particularly in renewable energy in the medium term; (iv) Provide institutional support to DGE, SONABEL and FDE; and (v) Provide support to DGE for coordination of the Project.

15. As the project became effective on February 27, 2014, the evaluation of its performance covers a short timeframe. However, the client's satisfactory performance in implementing the Power Sector Development Project which closed in 2011 evidences the client's capacity. Moreover, the implementing agencies' effort to improve the performance of the ongoing energy access project reflects the client's commitment to sector development. Finally, the Ministry of Energy's high level of engagement in achieving effectiveness of the original project and the fact that the implementing agencies are well advanced in finalizing the procurement documents of the original project are all good signs of client commitment.

D. Rationale for Additional Financing

16. For Burkina Faso to further reduce poverty there is a need to expand access to modern energy services. The prevailing low level of energy access constitutes a severe handicap for the development of small- and medium-size productive enterprises and limits the impact of social programs.

17. The four strategic pillars of the POSEN cannot be achieved without a more aggressive effort in expanding access to modern energy services particularly in rural areas. This will require a better performing utility and clearer vision for private sector participation. Within this context, the proposed additional financing will: (i) scale up energy access expansion in rural communities, (ii) provide technical assistance to SONABEL to improve its performance, and (iii) support the Government in the promotion of increased private sector participation.

18. Energy access needs are huge. At current rates of rural electrification, the poorest of the poor will still have to wait for many decades to gain access to electricity services. Progress made by the Government in the last eight years should be sustained and further accelerated by increasing the number of localities to be electrified. While today about 40 percent of urban agglomerations are electrified, electrification remains at only about 5 percent in rural areas. Most rural households meet their limited lighting and energy needs with kerosene, dry cell and car batteries.

19. Earlier IDA financed projects were prepared in an optimistic energy policy context that was meant to encourage sector reforms. The IDA–funded Competitiveness and Enterprise Development Project (CEDP) (approved in March 2003) and Power Sector Development Project

(PSDP) (approved in 2004) were prepared at a time when Burkina Faso had indicated its readiness to create conditions for private sector involvement in the energy sector. The main decisions on the sector structure included opening the national utility to private participation.

20. In 2009, the Government decided to abandon its decision to privatize SONABEL and keep it as a public entity. The decision was based on the assessment of examples of unsuccessful privatization of electricity companies in the sub-region and in the international environment in general, which led to skepticism regarding private investors participating in the bidding process to take over the national utility. In 2010, in the context of the additional financing for the CEDP, the Bank's support to the energy sector was reformulated to reflect these changes in the Government's policy on privatization. The energy component under CEDP which closed in December 2013 included three main studies: (i) an assessment of SONABEL's investment scheme and tariff impact, (ii) a technical audit on SONABEL's infrastructure and assets, and (iii) an audit of SONABEL's human resources. In 2011, in the context of the Bank's policy dialogue with the GoBF, the energy team provided assistance in the review of the sector legislative and institutional framework to ensure consistency with the decision to revert the privatization process. Soon after, the Bank launched a Public Expenditure Review in July 2013 to help the government improve efficiency and effectiveness of public spending in the sector.

21. The abovementioned series of economic and sector work provide the needed analytical support to strengthen the policy dialogue with Government and influence sector reforms. For instance, a retrospective analysis of SONABEL's performance during the 2009-2013 period shows that the company has a deteriorated financial situation, cumbersome technical and financial procedures, and an information system in need of major overhaul. On the basis of the diagnostic and related recommendations, SONABEL is planning to develop a new strategic plan to improve its finances, investment planning, customer service and corporate governance; increase energy imports; and streamline operations and maintenance. These diagnostics should now be translated into a detailed action plan (with binding operational performance indicators) that will help improve SONABEL'S performance. The AF will support priority technical assistance activities to that end. The abovementioned studies and findings did not become available until late 2013; therefore, it was not possible to include the related activities that are being financed through the AF under the original project.

22. The timing of the AF is therefore a combination of various factors including the critical need to enhance electricity access, the availability of additional IDA resources, the adoption of a new energy policy, and the finalization of critical diagnostic sector studies that will inform sector reforms. Together with the original project, the AF will complement the interventions by other development partners, particularly the AFD and the EIB.

III. Proposed Changes

A. Project Development Objectives

23. There are no changes being proposed to the development objective of the original project which is to: (i) increase access to electricity, (ii) improve the reliability of electricity supply, and (iii) improve the efficient use of energy in target areas of the project.

B. Key Results

24. As presented in Annex 1, the additional financing will have a direct impact on the results framework by increasing the PDO level indicator targets related to: (i) the number of direct project beneficiaries; and (ii) the number of people provided with access to electricity under the project by household connection. Additional intermediate indicators have been included in the results framework to capture an improved strategic plan for SONABEL and the support to the government to further improve the environment for private participation in renewable energy.

C. Components

25. The proposed activities under the AF will be linked to components (2 and 4) of the original project. A more detailed description of the activities under the AF integrated with the activities under the original project is presented in Annex 2.

(a) ***Component 2: Increasing electricity access in target areas (original amount US$25.59 million; proposed AF US$25.00 million):***

- *Component 2 - original project:* finances grid expansion and installation of connections in about forty (40) communities through (i) existing and new 33kV transmission lines, and (ii) the existing 34.5 kV Bobo-Dioulasso - Ouagadougou line.

- *Component 2 - additional financing:* will support electrification of about 80 additional communities through (a) grid expansion; but also through (b) hybrid mini grids and solar home systems in remote and poor communities; and (c) multi-functional platforms to foster income generating activities in small localities.

- The objective of the grid expansion subcomponent is to connect households, schools, clinics, local administration facilities, recreational centers and other units in selected localities. The objective of the hybrid mini grids and solar home systems sub-component is to increase the number of rural localities with access to energy service provided though small-scale renewable energy systems and hybridization of existing diesel gensets. It will also finance the installation of SHS for households as well as schools and health facilities

in remote poor localities. Lastly, the Multi-Functional Platforms sub-component will help to foster income generating activities in small localities.

(b) ***Component 4: Institutional Strengthening and Capacity Development (original amount US$5.49 million; proposed AF US$8.3 million[2]):***

- *Component 4 – original project:* supports activities to help: (a) Strengthen the institutional capacity of the FDE, SONABEL, and DGE to support scaling up of energy service expansion; (b) Strengthen the capacity of energy service providers including, *inter alia,* energy services cooperatives, local communities, NGOs, and private sector small- and medium-size enterprises; (c) Undertake specific studies to improve the energy mix, more particularly in renewable energy in the medium term; (d) Provision of institutional support to DGE, SONABEL and FDE; and (e) Provision of support to DGE for coordination of the Project.

- *Component 4 – additional financing*: will support: (a) SONABEL for the development and implementation (within available resources) of a strategic plan including the acquisition and implementation of a state-of-the-art customer management system (CMS)[3] and a fuel consumption audit; and (b) DGE for technical assistance to improve the environment for private participation in the energy sector.

- This component will finance technical assistance to SONABEL for the preparation of an overall strategic development plan based on recent studies. Responding to the rapid expansion and urgent needs of peri-urban populations in Ouagadougou and Bobo Dioulasso, this component will also include a study on electrification options to respond to the needs of this population and look into the regularization and safety improvement of informal connections. Considering that, in the medium term, the country's power supply will largely remain dependent on thermal generation, the realization of an audit of fuel consumption is a crucial precondition for identifying and realizing savings and improving overall sector performance. This should result in the elaboration and implementation of an action plan to realize these savings and improvements. The above activities will be complemented with the acquisition and implementation of customer management software (CMS) necessary for the improvement of billing, collections and cost-effective means for monitoring and reduction of non-technical losses. Comprehensive overhaul, cleaning and updating of the client database will be part of CMS implementation. The component will also finance technical assistance to DGE to support the improvement of the environment for private participation.

[2] The baseline cost is US$33.30 million and the contingencies USS1.70 million.
[3] Comprehensive overhaul, cleaning and updating of the client database will be part of CMS implementation.

Table 1: Revised Project Outcome Indicators

Indicator	**Core**	Original targets	Changes with AF	Comments
Indicator One Original Project: Direct Project Beneficiaries of which, Female project beneficiaries (%)	☒	168 291 51.7%	631 486 51.7%	Under the Original Project, this indicator includes the populations of Fada and Ouahigouya, an estimation of the population in the 40 pre-identified communities, the beneficiaries of solar lamps (three rotations) and DGE, FDE and SONABEL. Under the AF, it includes an estimation of the population under the 80 pre-identified communities and SONABEL's 436 250 Clients. The percentage of females is 51.7% per the 2006 census.
Indicator Two Original Project and Additional Financing: Peak demand met in each city when standing alone (islanding) Fada Ouahigouya		 79.6 77.8	 79.6 77.8	Peak demand for each city when standing alone. Demand will be measured in constant terms
Indicator three Original Project and Additional Financing: People provided with access to electricity under the project by household connection	☒	18,000	66,810	The people provided access are estimated at 6 per household connection
Indicator four Original Project: Total capacity (kW) of installed equipment replaced by more efficient equipment.		2250	2250	This indicator is defined on an estimation of the capacity of lamps installed

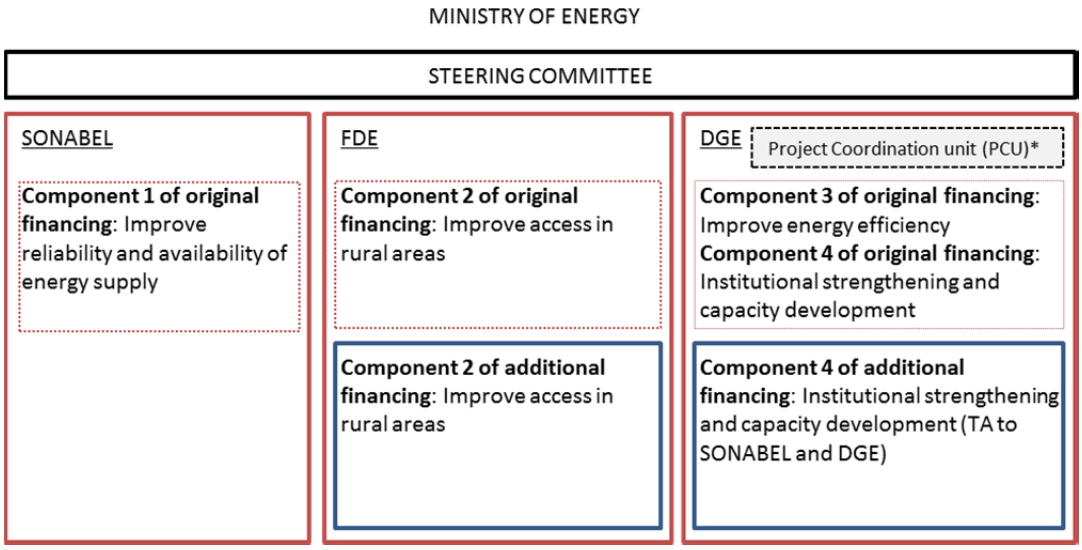
D. Institutional Arrangements

26. The institutional arrangements remain the same. The Ministry in charge of Energy, through a steering committee, will oversee the overall supervision and coordination of the project. The steering committee was set up in March 2014, and is comprised of representatives of the Ministry of Energy, Ministry of Finance, and Ministry of Environment. SONABEL, FDE and DGE as implementing agencies are observers.

27. The implementing agencies of the project are SONABEL, FDE and DGE. SONABEL is responsible for the implementation of Component 1 of the original project, FDE for Component 2 of the original project and additional financing, and DGE for Components 3 and 4 of the original project and Component 4 of the additional financing. SONABEL, FDE, and DGE will be responsible for procurement, monitoring and evaluation, and implementation of environmental and social safeguard mitigation measures for their respective components. The Project Coordination Unit (PCU) in DGE will be responsible for the financial management of the original project and the AF will manage the sole designated account through which the resources of both operations will be channeled. The PCU, with support from its procurement specialist,

consolidates procurement related information at the project level (such as procurement plans, procurement related information in project monitoring reports, etc.). The PCU will also consolidate inputs from SONABEL, FDE and DGE to facilitate monitoring and evaluation for all components of the project. Lastly, the PCU will support FDE and SONABEL on the implementation of safeguard measures to ensure that the measures are timely, appropriately considered and implemented throughout the life-cycle of the project.

Figure 1: Proposed Architecture of the Implementation Arrangements



* With financial management, monitoring and evaluation, and safeguard experts

IV. Key Risks and Mitigation Measures

28. The sector is confronted with several overarching risks such as a risk of increased load shedding resulting from capacity shortfalls and interconnection failure (the national interconnected grid experienced about 201 load shedding events with total undistributed energy of about 12 GWh in 2012), the critical further deterioration of the utility's performance, and a disruptive escalation of production costs in a context of high tariffs. This could further elevate the population's expectations in terms of implementation speed and improved quality and reliability of supply.

29. The overall implementation risk is rated as moderate with stakeholder and implementing agency risks rated as substantial. Moreover, the project will be subject to risks related to delays in developing and implementing SONABEL's strategic plan and related reforms.

30. The main risks identified include: (i) risk of delays or insufficient provision of imported electricity to negatively impact the security and quality of supply; (ii) risks related to the possible degradation of SONABEL's operational and financial performance, (iii) risk of insufficient

consumer incentives and/or inadequate GoBF and SONABEL commitment to improving energy sector reform.

V. Project Cost

Table 2: Project Cost

	Original Financing			Additional Financing		
Project Cost by Component and/or Activity	Local US$ million	Foreign US$ million	Total US$ million	Local US$ million	Foreign US$ million	Total US$ million
Component 1 : Improve the reliability of energy supply	**0.00**	**15.39**	**15.39**			**0.00**
Component 2: Improve access to electricity in selected areas	**0.87**	**24.72**	**25.59**	**2.00**	**25.00**	**27.00**
Component 3: Improve efficient use of energy	**0.08**	**4.62**	**4.7**			**0.00**
Component 4: Institutional Strengthening and Capacity Development	**1.92**	**3.57**	**5.49**		**8.30**	**8.30***
Total Baseline cost	2.87	48.3	51.17		33.30	35.30
Physical and price contingencies	0.00	1.70	1.70		1.70	1.70
Total Project Costs	**2.87**	**50.00**	**52.87**	**2.00**	**35.00**	**37.00**

** This amount included US$8 million for SONABEL and US$0.3 million for DGE under the additional financing*

VI. Lessons Learned

31. The lessons learned in the implementation of previous energy sector projects in Burkina Faso including the Power Sector Development Project (closed in 2012), the ongoing Energy Access Project as well as the ESSP have informed the design of the AF. Experience in energy access expansion programs has demonstrated that simplifying design is important to ensure effective and successful implementation. Institutional arrangements should be functional, and delivery models should be easy to implement. The design of the project is based on the Government's commitment to achieve its rural electrification goals not mainly through the public electricity utility, but mostly by the rural electrification agency relying on cooperatives, the private sector and the participation of local communities.

32. Effective donor coordination has been instrumental in supporting Burkina Faso's energy sector reform agenda and investments. Regular meetings and joint missions have been the common platform used by donors to engage the Government on the reform agenda and

investment plans.

VII. Appraisal Summary

A. Economic and Financial Analysis

33. *Project's development impact*: The proposed additional financing would help reduce poverty and boost shared prosperity by improving energy access in rural areas, including through the provision of social services and revenue generating activities. The proposed AF would also support the national utility in the preparation and implementation of a strategic plan to improve its operational and financial performance within the scope of the resources available under the AF.

34. *Rationale for public sector provision/financing*: Private sector funding is difficult to secure as an alternative source of funding for the proposed Additional Financing due to the risk profile of the energy sector, the long payback periods for investments in Burkina Faso's energy sector in general, and particularly with regard to investments in rural areas and in improving the performance of SONABEL. Within this context, the project will contribute to a further improvement of the country's framework for private participation and investment in the energy sector.

35. *Value added of Bank's support:* The AF is the result of both longstanding country dialogue and in-depth technical discussions between the GoBF and the Bank. Within this context, the value added of Bank support goes far beyond the mere provision of financing, and relates to the Bank's knowledge of local circumstances and experience in the proposed interventions and investments.

36. ***Economic analysis of Component 2 – AF (increased electricity access in rural areas).*** The economic analysis of this component compares the total costs (investments and operations) of expanding electricity services to the benefits derived by users (based on their estimated willingness to pay). More specifically, the analysis for each sub-component will entail the following:

37. *Grid expansion in rural and peri-urban areas and connections.* The Bank economic analysis is based on a study on the electrification of about 40 rural centers prepared by FDE and empirical data on levelized cost of electrification and its economic benefits. As mentioned above, the economic benefits for electricity users will be based on the estimated willingness to pay (WTP) of rural electricity users. In the absence of recent country data, the WTP has been derived from a 2008 impact evaluation of the welfare effects of 120 rural electrification projects financed

by the World Bank[4], where for the sake of providing conservative estimates, only the lowest estimates of WTP were used and only benefits resulting from the provision of lighting were taken into consideration. On the cost side, the analysis is based on a recent FDE survey of all relevant investment costs either borne by the rural operators (distribution network, buildings, metering) or by SONABEL (transmission charges and cost to connect new communities and facilities). Operating costs primarily consist of an estimate of personnel, Operation and Maintenance (O&M) and bulk purchase of electricity from SONABEL at currently applied tariffs (20USc/kWh for base case scenario). The resulting estimated levelized cost of electricity (LCOE) was then compared to benchmarks from a comprehensive impact analysis of Norwegian development assistance (NORAD) for different types of rural electrification schemes[5]. The comparison showed that FDE's LCOE estimates were on the lower end of the spectrum which can be explained by the fact that according to FDE, of the 80 communities to be connected, none will be further than 7km away from the national grid. In the base case, the analysis led to an economic rate of return (ERR) of 18 percent and a Net Present Value (NPV) of US$20 million. In the worst case scenario, the grid expansions still generated a 6 percent ERR and an NPV of US$1.8 million.

38. *Hybrid mini grids and solar home systems in remote and poor communities.* For this component, the economic analysis compares the investment and operating cost of upgrading existing diesel gensets with solar panels and limited battery storage and of installing small-scale renewable energy systems in off-grid locations with the fuel savings resulting from the hybridization of the abovementioned gensets and economic benefits of end users. Economic benefits for end-users have been estimated by using WTP data of the abovementioned IEG impact evaluation WTP data and LCOE benchmarks from the NORAD study that helped to corroborate cost data provided by FDE. This time, the comparison showed that the FDE cost estimate was below the most optimistic benchmark for LCOE. In the interest of providing prudent and robust estimates, and considering the fact that performance and setup of hybrid systems will vary significantly from site to site, the highest benchmark of the NORAD study is used when assessing LCOE of this sub-component. The analysis revealed that in the base case the ERR will likely remain far above 20 percent with an NPV of over US$17 million. In the worst case scenario, the ERR for the hybrid mini grid component would amount to 7.4 percent with an NPV of just US$1.4 million. The results of the Lahmeyer[6] study confirmed that hybrid systems in combination with low voltage mini grids consistently offer very favorable cost-benefit ratios at competitive levelized electricity cost, even with the most important non-lighting related benefits (dependable lighting hours, basic TV, better indoor air quality, absence of fire hazards) not monetized and accounted for.

[4] World Bank IEG (2008): "The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits"
[5] Norwegian Agency for Development Cooperation (11/2009): "Norwegian Development Assistance to Rural Electrification - Best Practice Guide for Planning"
[6] Assessment of Scope for Solar Photo-Voltaic Renewable Energy Projects in Burkina Faso, Lahmeyer, 2013

39. *Multifunctional Platforms to foster income generating activities off-grid.* With regard to analyzing the economic viability of Multifunctional Platforms (MFPs), the analysis of investment cost comprises the key components of a basic MFP, including the engine, grinder, de-husker, alternator, battery charger and the shed housing the platform, while operating cost consists of limited personnel cost as well as O&M.

40. More challenging than the cost side is the evaluation of benefits from revenue generated by typical MFP-powered services such as milling, grinding, battery charging, welding and water pumping, to more indirect but nonetheless important benefits such as time savings, improved school attendance, access to water, lighting and improved gender equity, health and social services. It is generally assumed that saved time can be used for productive purposes, for example income generation, thus reducing poverty, or for allowing girls to go to school and thus improving education. Such claims may be sustained under certain conditions, for example: that milling services did not already exist; that local income-generating activities are possible; that potential income-generating activities can outweigh the cost of the milling service; and that time constraints, not tradition, are effectively limiting school attendance. However, the fact that those conditions are often not fulfilled would further complicate the analysis. Therefore, for the purpose of simplicity and a conservative evaluation approach, the Bank's analysis only considered the direct monetary benefit of fuel savings from the substitution of diesel aggregates by electric motors. In line with FDE's investment plan, the analysis assumed an average MFP of 10kW capacity being replaced by three different types of electric motors (with capacities of 2kW, 3kW and 5kW respectively for different mechanical purposes such as milling, grinding and de-husking) together with solar panels of equivalent peak capacity, controls and power conditioning, and sufficient battery storage to ensure system stability and a power reserve for 2-4 hours of evening or nighttime operations. With moderately rising fuel cost and solar panel prices in line with prices for systems purchased for rural electrification projects in Mali between 2011 and 2013, the base case calculations resulted in an ERR of 14.6 percent, an NPV of US$ 34,000 per every 10kW system and an average break-even period of about 11 years. In the worst case scenario, the ERR was 6 percent, with an NPV of US$2,800 per system and an average break-even period of 14 years.

Table 3: Results of Economic Analysis

Grid connections		
	base case	*worst case*
ERR	18%	6%
NPV (US$)	$20,827,257	$1,864,043
On-grid WTP lighting (USD/kWh)	0.7	0.5
Hybrid systems		
	base case	*worst case*
ERR	30.3%	7.4%
NPV (US$)	$17,681,681	$1,670,845
Off-grid WTP lighting (USD/kWh)	1.9	1.1
PV-powered multifunctional platforms		
	base case	*worst case*
ERR	14.6%	6.0%
NPV hybrid MFP (US$)	$34,250	$2,844
Break even	year 11	year 14
Equipment lifetime (yrs)	25.0	20.0
Annual O&M cost in % of CAPEX	15%	30%
Cost of storage (US$/kWh)	280.0	420.0
Assumed 10yr fuel cost (USD/l)	1.26	1.42

41. ***Economic analysis of Component 4 – additional financing (institutional strengthening and capacity development: technical assistance to SONABEL and DGE):*** While the analysis of Component 2 is mostly based on the consideration of tangible and easily quantifiable benefits, the benefits generated from technical assistance and capacity building activities under Component 4 of the additional financing are much more difficult to quantify. Accordingly, to follow a conservative evaluation approach, the cost of these activities is fully accounted for, whereas their benefits are only included where their quantification can draw on realistic estimates from reliable benchmarks and empirical data as well as a clear-cut results chain.

42. Component 4 provides the basis for measures to be taken to improve revenues and reduce costs through enhanced overall efficiency of SONABEL, better collection and consumer responsiveness as well improved timeliness of information for decision making. In particular through the fuel consumption audit and the implementation of a Customer Management System (CMS), the technical assistance component will provide the basis for a series of measures to enhance the sustainability of investments undertaken by SONABEL and its ability to provide and expand services. Within this context, the team assessed the economic justification of the investment in an integrated CMS by estimating the value of improved collection rates and comparing it to the incremental investment and operating costs related to the investment. Experience with similar investments throughout the region and beyond has shown that a fully operational CMS, if properly used companywide and combined with a cleanup of customer data, could help reduce commercial losses (e.g. by reducing billing delays and unmetered consumption) to a value of about 3-4 percent of amounts of energy sold in 2-3 years. Given the

current performance baseline of SONABELs billing and customer management processes, the investment in Component 4 is expected to equal or exceed this benchmark.

43. ***Financial Analysis – sector and utility level:*** SONABEL's performance with regard to total distribution losses (12.5 percent overall technical and non-technical) compares favorably with the rest of West Africa and with regard to its financial viability, a fuel price subsidy mechanism established in 1994 by the GoBF has shown encouraging results. Contrary to most power utilities in the sub-region, the fuel price subsidy mechanism has allowed SONABEL to improve its financial viability and liquidity, and allowed the management of the company to increase its focus on the core utility business, as opposed to mere crisis management.

44. However, SONABEL's current operations continue to generate insufficient resources to meet its operating expenses. Above all, SONABEL's significant and erratic need for working capital absorbs most of the operating cash flow and thereby continues to erode both its financial performance and its ability to service debt. The main drivers for the continued cash flow deficiency are unsustainably long collection periods of up to 220 days for certain key accounts. Therefore, and in the absence of commensurate tariff adjustments and the shortening of collection periods, an average annual subsidy of 10.7 billion CFA will be required over the period leading up to 2016 to allow SONABEL to meet its financial commitments (see table 2 below).

45. While the currently applied subsidy mechanism provides poor customers with significantly lower electricity tariffs, it is regressive in its redistributive impact and thereby does little to enhance the development prospects of domestic SMEs and larger commercial consumers. Moreover, its total budgetary cost is hard to predict since it results from the volume of fuel used for thermal generation, and the difference between the fuel purchase price applied to SONABEL and volatile market prices. Assuming average subsidies and fuel prices at today's levels, SONABEL's current medium term financial prospects suggest a partial financial recovery by the end of FY 2016 with a 70 percent reduction of losses compared with current levels.

Table 4: SONABEL's Financial Performance and Forecast for the Years 2011-2016

Year		2011	2012	2013	2014	2015	2016
Net income	million CFA	-15,171	-14,608	-11,997	- 9 767	- 10 111	- 2 846
Debt-Service Coverage Ratio (DSCR)	*target*	≥ 1,20	≥ 1,20	≥ 1,20	≥ 1,20	≥ 1,20	≥ 1,40
	actual	1.09	1.0	0.50	0,59	0,93	0,89
Debt-Equity Ratio	*target*	≤ 2,50	≤ 2,50	≤ 2,50	≤ 2,50	≤ 2,50	≤ 2,00
	actual	2.10	2.80	1.93	2,77	3,49	3,46

46. FDE operating and investment funding originates from several sources including: (i) cross subsidies from SONABEL's on-grid customers of US$0.4 per kWh of electricity consumed

through the national grid and amounting to over 70 percent of total revenues; (ii) annual state budget contributions of 17 percent of total revenues to support FDE administration and staff, and (iii) license fees from the granting of rural electrification concessions of less than 10 percent of revenues in FY 2012. With regard to FDE's investment decisions and funding, all off-grid power projects have to be economically and financially viable at current tariffs, concession fees and off-grid subsidy schemes. Therefore, the financial sustainability of FDE, with total assets of less than US$20 million and no debt (apart from a limited amount of current liabilities from supplier and tax payables), depends much more on the continued provision of cross subsidies and government grants than its operations, the quality of its balance sheet or its financial management. Consequently, with current budgetary provisions, and project funds being disbursed in increments according to the agreed procurement plan, the risk of project funds being absorbed by financial losses rather than invested according to agreed project activities can be considered as low.

B. Technical

47. The Project's technical concept is very similar to that of the original project with some added proven technologies such as hybrid system (PV/Diesel), Solar Home System (SHS) and Multi-Functional Platforms (MFP) using renewable energy.

48. The *Grid expansion* sub-component will adopt conventional and standard equipment and technology for rural electrification. Main technologies involved in construction and operation of distribution networks will be conventional three-phase, however, in a small number of incidences, SWER (Single Wire Earth Return) and the SWS (Shield Wire Schemes) technologies might also be considered where suitable. All these technologies are well known and proven. However, given the challenges that can be linked to the SWS, particularly when combined with 34.5 kV as well as sizing condensers, technical assistance will be provided as in the original project. There is, therefore, no major technical issue to be expected. In general, the project plans to promote the use of low cost designs and techniques where appropriate to reduce rural electrification investment and operating costs. In that context, FDE has already successfully implemented the SWER (Single Wire Earth Return) and SWS (Shield Wire Schemes) technologies to electrify numerous communities. Achieving rural electrification by extension of existing medium voltage grid requires suitable equipment such as lines and transformers. To minimize cost, both capacity and type of equipment need to closely aligned with local load level and profiles requirements.

49. The *hybrid mini-grid and SHS* subcomponent will utilize hybrid mini grids systems (Solar PV production with battery storage and thermal engine for back up and mini-grid) and SHS. Both technologies (hybrid PV/diesel and SHS) are well known and are suitable in the context of scattered, low-density population in small localities such as targeted rural villages of Burkina. The backup gen-set associated to PV field does not present a challenge in terms of

technology issues. The mini-grid technology that will be associated with the hybrid sources is a three- phase low voltage technology. SHS are suitable for dispersed remote and poor communities, and represent a good renewable energy solution for these types of communities. This technology is well known and therefore presents no unknown challenges.

50. The *Multi-Functional Platforms* subcomponent will rely on technology using renewable energy to foster income generating activities in small localities. An MFP is equipment powered by a diesel engine of ten to twelve kW, capable of driving various tools such as mills, huskers, alternators, battery chargers, pumps, welders, woodworking machinery, etc. It also allows the distribution of drinking water and initial electrification. MFPs can stimulate the creation, development and / or modernization of crafts in a community. They also add value to agricultural production (hulling mill, pressing Shea and jatropha). Contrary to most of the MFPs already operating in Burkina Faso and throughout the sub-region, the AF will not finance machinery powered by stand-alone diesel motors. In the specific context of Burkina Faso and according to FDE's experience, the majority of stand-alone diesel powered MFPs have been subject to significantly shorter average life spans, much higher O&M cost and high implicit cost of a chronically erratic diesel supply chain. Therefore, the main objective of the MFP component will be piloting a new, more economically sustainable technological setup based on efficient electric motors connected to the abovementioned hybrid mini-grids. Hence, in remote areas, renewable energy generators will replace small diesel generators and will be used to power the MFPs. This technology is already in utilization in Senegal and does not present an operational challenge.

C. Financial Management

51. The Project Coordination Unit (PCU) in DGE will have the financial management (FM) responsibility of the overall project implementation. The ongoing project is in early stages and the financial management arrangements are being set up. The recruitment of the FM officer and the accountant is being completed. The FM team in place will speed up the implementation of the other mitigation measures such as the purchase of accounting software and the training of the project staff and the update of the manual as needed. In order to maintain the security and reliability of information and the safeguard of the assets and funds, the PCU will make appropriate arrangements with the Financial Control Directorate to carry out quarterly internal control reviews and the FM Officer will follow up the implementation of the key recommendations to strengthen the control environment.

52. The overall residual risk for the project is rated Substantial. It is therefore considered that the financial management will satisfy the Bank's minimum requirements under OP/BP 10.00 once the mitigation measures have been implemented.

53. A Designated Account (DA) will be opened at the Central Bank in Ouagadougou and will receive project proceeds on the basis of the project cash needs. The DA will be used as a transit

account and as such, funds will be transferred from the DA to the transactions account. This account will be opened at a commercial bank acceptable to the Bank. The Project Coordinator and the FM Officer will be joint signatories of these accounts. Direct payments and special commitments, will be made to service providers if need be. Withdrawal applications shall be submitted to the Bank on a monthly basis. Additional details will be contained in a Disbursement Letter. The following table specifies the categories of Eligible Expenditures that may be financed out of the proceeds of the Financing ("Category"), the allocations of the amounts of the Financing to each Category, and the percentage of expenditures to be financed for Eligible Expenditures in each Category.

Table 4: Categories of Eligible Expenditures

Category	Amount of the Grant Allocated (expressed in USD)	Percentage of Expenditures to be Financed Under the Grant (inclusive of Taxes)	Amount of the Credit Allocated (expressed in USD)	Percentage of Expenditures to be Financed Under the Credit (inclusive of Taxes)
(1) Goods, works, non-consulting services and consultants' services for Parts 2.2 and 4.2 of the Project	27,000,000	77%	8,000,000	23%
TOTAL AMOUNT	27,000,000		27,000,000	

54. *In-year Reporting and Monitoring:* The un-audited Interim Financial Report (IFR) format of the original project will be updated to include the new elements introduced under additional financing. It will comprise sources and uses of funds by project expenditure classifications, a comparison of budgeted and actual project expenditures (commitments and disbursements) to date, and for the quarter. The PCU will submit the financial reports to the Bank within 45 days following the end of each calendar quarter.

55. *Annual Financial Statements:* As required under the original project, the PCU will prepare the project's annual financial statements, including the activities related to additional financing in compliance with the International Federation of Accountants (IFAC)'s Standards and World Bank requirements. These financial statements[7] will include: (a) a statement of sources and uses of funds; (b) a statement of commitments; (c) accounting policies adopted and explanatory Notes; and (d) a Management Assertion that project funds have been expended for the intended purposes as specified in the relevant financing agreements.

[7] The project financial statements should be all inclusive and cover all sources and uses of funds and not only those provided through IDA funding. It thus reflects all project activities, financing, and expenditures, including funds from other development partners.

56. *External Audit:* The scope of the work of the external auditor of the project will be extended to cover the additional activities under the additional financing. The Financial Agreement will require the submission of Audited Financial Statements for the Project, by SONABEL and FDE to the Bank within six months after year-end. A single opinion on the Audited Project Financial Statements in compliance with International Standards on Auditing (ISA) will be required.

57. The external auditor will prepare a Management Letter giving observations and comments, and providing recommendations for improvements in accounting records, systems, controls and compliance with financial covenants in the Financial Agreement. The table below summarizes the auditing requirements:

Audit reports including SONABEL and the FDE	***Due Date***
– Financial Statements – Management letter	End of June

58. Financial Covenants: The Borrower shall establish and maintain, at all times, a financial management system including records and accounts, and shall prepare related financial statements in accordance with accounting standards acceptable to the Bank.

D. Procurement

59. Procurement procedures for the proposed additional financing will be the same as for the original project. Procurement will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers" dated January 2011; the "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers" dated January 2011; and the provisions stipulated in the Financing Agreement. "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006, and revised in January 2011, shall also apply to the AF.

60. Technical aspects of implementation (including the preparation of bidding) will be handled by SONABEL for Component 1 of the original project and Component 4 (a) of the additional financing, FDE for Components 2 of the original project and additional financing, and DGE for Components 3 and 4 of the original project and Component 4 (b) of the additional financing. Both FDE and SONABEL have been involved in implementing IDA financed projects, and therefore are familiar with the Bank procurement procedures. The PCU established in DGE will be responsible for procurement related information at project level such as project procurement plan, procurement related information in project monitoring reports.

E. Environment and Social (including Safeguards)

61. The project remains classified as category B (partial assessment), as its environmental and social impacts are moderate and site-specific. Three Bank safeguard policies are triggered: OP 4.01 on Environmental Assessment; OP 4.11 on Physical Cultural Resources; and OP 4.12 on Involuntary Resettlement. Given the type of activities the Additional Financing is supporting the existing Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) have been updated and disclosed in country on April 9, 2014, and at Infoshop on April 11, 2014.

62. Given the small volume of diesel-based power generation under Component 2, and with the majority of renewable energy-based power generation capacity likely to result in a reduction of fuel consumption for power generation purposes, net greenhouse gas (GHG) emissions from the additional financing are expected to remain at insignificant levels over the lifetime of the project[8]. While the main sources of GHG emissions will be (i) land clearings for the construction of approximately 200 km of transmission and distribution lines (resulting in 20,600 tons of CO2 equivalent over the lifetime of the project in the worst case scenario) and (ii) backup electricity generation (amounting to a maximum of 270 tons of CO2 equivalent per year), these will likely be almost completely cancelled out by the emission reductions resulting from the substitution of diesel generators by solar PV installations (minimum GHG emission reduction of 1,000 tons of CO2 equivalent per year). Consequently, total net GHG emissions are not expected to exceed 300 tons of CO2 equivalent per year.

[8] Established methodologies of the Clean Development Mechanism (CDM) for small scale projects were used to estimate total Greenhouse Gas (GHG) emissions resulting from project activities.

Annex 1: Results Framework and Monitoring

BURKINA FASO: Additional Financing to the Electricity Sector Support Project

Revisions to the Results Framework		Comments/ Rationale for Change
PDO		
Current (PAD)	*Proposed*	*Comments*
The project development objective is to (i) increase access to electricity, (ii) improve the reliability of electricity supply, and (iii) improve the efficient use of energy in target areas.	Continued	NA
PDO indicators		
Current (PAD)	*Proposed change*	*Comments*
Indicator One: Direct Project beneficiaries of which, female project beneficiaries (%)	Increase in target values	To be adjusted to include additional beneficiaries
Indicator Two: Peak demand met in each city when standing alone (islanding) (Fada and Ouahigouya)	Continued	The activities under the proposed additional financing do not affect this indicator
Indicator three: People provided with access to electricity under the project by household connection	Increase in target values	Component 2 of the AF will help increase the number of people provided with access to electricity under the project.
Indicator four : Total capacity (kW) of installed equipment replaced by more efficient equipment.	Continued	The activities under the proposed additional financing do not affect this indicator
Intermediate Results indicators		
Component One		
Current (PAD)	*Proposed change*	*Comments*
Intermediate Result indicator One: Generation Capacity of Conventional Generation constructed under the project (Fada, Ouahigouya)	Continued	The activities under the proposed additional financing do not affect this indicator
Component Two		
Intermediate Result indicator two: Number of communities connected to electricity	Increase in target values	The results framework will take into account the additional communities to be electrified.
Intermediate Result indicator Three: Number of households connected to electricity under the project	Increase in target values	The results framework will take into account the additional households to be connected.
Intermediate Result indicator Four: Community electricity connections	Increase in target values	The results framework will take into account the additional

Revisions to the Results Framework		Comments/ Rationale for Change
under the project (conventional grid)		community electricity connections.
Component three		
Intermediate Result indicator One: Number of households retrofitted with energy efficient equipment	Continued	The activities under the proposed additional financing do not affect this indicator
Intermediate Result indicator Two: Solar lanterns deployed in public schools (off-grid)	Continued	The activities under the proposed additional financing do not affect this indicator
Component four		
Intermediate Result indicator One: Number of public sector energy staff (including DGE, FDE and SONABEL's) and energy service providers trained on key thematic areas.	Increase in target values	The results framework will take into account the additional community electricity connections.
Intermediate Result indicator Two: Feasibility studies for Bon, Bontioli, and Folonzon, Gongourou dams are available	Continued	The activities under the proposed additional financing do not affect this indicator
	Intermediate Result indicator one AF: Elaboration of SONABEL's strategic action plan	The results framework will take into account the elaboration of the strategic plan
	Intermediate Result indicator two AF: Elaboration of fuel audit and action plan	The results framework will take into account the fuel audit
	Intermediate Result indicator three AF: Implementation of the customer management software	The results framework will take into account the implementation of the software
	Indicator three AF: Agreement between the Government and SONABEL on selected binding operation performance indicators	The results framework will take into account the agreement between the Government and SONABEL on the operation performance indicator.

Annex 1: Revised Framework and Monitoring

Burkina Faso: Electricity Sector Support Project

Project Development Objective (PDO) is to: (i) increase access to electricity, (ii) improve the reliability of electricity supply, and (iii) improve the efficient use of energy in target areas.

PDO Level Results Indicators	Core	Unit of Measure	Baseline 2012	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				2015	2016	2017	2018	2019				
Indicator One Original Project: Direct Project Beneficiaries of which, Female project beneficiaries (%)	☒	Number Percentage	0 0%	5 000 51.7%	127 804 51.7%	152 829 51.7%	195 709 51.7%	631 486 51.7%	Annual	Agencies involved in project implementation	DGE-PCU in close coordination with implementation agencies	Includes the populations of Fada and Ouahigouya, an estimation of the population in the 120 pre-identified communities, the beneficiaries of solar lamps (three rotations) and DGE, FDE and SONABEL and SONABEL's 436 250 clients. The percentage of female is 51.7% per the 2008 census.
Indicator Two Original Project: Peak demand met in each city when standing alone (islanding) Fada Ouahigouya		%	 15.4 33.5	 14.4 31.3	 95.5 30	 91.1 85.6	 85.2 83.2	 79.6 77.8	Annual	SONABEL	DGE-PCU in close coordination with SONABEL	Peak demand for each city when standing alone. Demand will be measured in constant terms
Indicator three Original Project and AF: People provided with access to electricity under the project by household connection	☒	Number	0	0	11,610	33,156	58,278	66,810	Annual	FDE	DGE-PCU in close coordination with FDE	The people provided access are estimated at 6 per household connection
Indicator four Original Project: Total capacity (kW) of installed equipment replaced by more efficient equipment.		kW	0	0	700	1825	2250	2250	Annual	DGE	DGE-PCU in close coordination with FDE	This indicator is defined on an estimation of the capacity of lamps installed

INTERMEDIATE RESULTS												
Intermediate Result (Component One)*: Improve generation capacity in two selected cities*												
Intermediate Result indicator One Original Project: Generation Capacity of Conventional Generation constructed under the project - Fada - Ouahigouya		MW	0.0 0.0	0.0 0.0	7.5 0.0	7.5 7.5	7.5 7.5	7.5 7.5	Annual	SONABEL	DGE-PCU in close coordination with SONABEL	This indicator measures the capacity of conventional power generation facilities constructed under the project.
Intermediate Result (Component Two): *Increase electricity access in selected areas*												
Intermediate Result indicator One Original Project and AF: Distribution line constructed under the project (km)	☒	Km	0	0	143	346	661	870	Annual	FDE	DGE-PCU in close coordination with SONABEL FDE	This indicator captures efforts made by FDE to construct distribution lines to provide electricity to selected cities
Intermediate Result indicator two Original Project and AF: Number of communities connected to electricity	☐	Number	0	28	28	70	116	120	Annual	FDE	DGE-PCU in close collaboration with FDE	The indicator captures data relating to the annual number of localities connected to electricity regardless of the source.
Intermediate Result indicator Three Original Project and AF: Number of households connected to electricity under the project	☒	Number	0	0	2,410	6,601	10,463	11,135	Annual	FDE	DGE-PCU in close coordination with SONABEL	The indicator captures data to show annual progress in terms of number of households connected to electricity generated by thermic source
Intermediate Result indicator Four Original Project and AF: Community electricity connections under the project (conventional grid)	☒	Number	0	0	17	63	136	146	Annual	FDE	DGE-PCU in close collaboration with FDE	The indicator captures data to show annual progress in terms of number of community bodies/centers connected to electricity generated by renewable source.

Intermediate Result (Component Three): ***Improve energy efficiency in target areas***												
Intermediate Result indicator One OF: Number of households retrofitted with energy efficient equipment	☐	Number	0	0	1,000	2,500	3,000	3,000	Annual	DGE	DGE-PCU in close collaboration with DGE	The indicator helps to assess the impact of energy efficiency measures set up and implemented in terms of economizing and reducing electricity bills
Intermediate Result indicator Two OF: Solar lanterns deployed in public schools (off-grid)		Number	0	5,000	10,000	15,000	20,000	25,000	Annual	DGE	DGE	The indicator is the number of lanterns to be deployed.
Intermediate Result (Component Four): ***Develop institutional capacity of key stakeholders of the project***												
Intermediate Result indicator One OF: Number of public sector energy staff (including DGE, FDE and SONABEL's) and energy service providers trained on key thematic areas.	☐	Number	0	0	30	155	167	167	Annual	PCU	DGE	This indicator captures data related to the overall capacity building activities in terms of training on various thematic including 100 service providers from 2015.
Intermediate Result indicator Two OF: Feasibility studies for Bon, Bontioli, and Folonzon, Gongourou dams are available		Number	0	0	2	4	4	4	Annual	DGE	DGE	This indicator will help monitor progress made in terms of availability of feasible studies prior to organizing a donors roundtable to seek funds for dams construction
Intermediate Result indicator one AF: Elaboration of SONABEL's strategic action plan		Yes/No				Yes						
Intermediate Result indicator two AF: Elaboration of fuel audit and action plan		Yes/No				Yes						
Intermediate Result indicator three AF: Implementation of the customer management software		Yes/No				Yes						

Indicator three AF: Agreement between the Government and SONABEL on selected binding operation performance indicators (1)		Yes/No				Yes						The selected indicators should be based on the conclusions and recommendations of the action plan, the fuel audit and acquisition of the CSM.

(1) The agree d indicators should allow tracking improvements in receivable collection periods and the accuracy of billing processes resulting from the successful implementation of SONABEL's customer management system (CMS)

Annex 2: Detailed Project Description

Burkina Faso: Electricity Sector Support Project – Additional Financing

The proposed activities under the AF will be linked to two components (2 and 4) of the original project i.e., increasing electricity access in target areas and strengthening institutions and develop capacity. When combined the activities of the original project and the AF are presented as follows:

(a) ***Component 1: Improving the reliability of energy supply (original amount USS15.39 million; proposed AF no allocation):***

- *Component 1 - original project:* supports the construction of two (2) turnkey diesel power stations of at least 7.5 MW each convertible to heavy fuel oil to reinforce the capacity in two (2) regional growth poles, and provision of technical advisory services for construction supervision.

- The additional financing does not propose any activities under this component.

(b) ***Component 2: Increasing electricity access in target areas (original amount US$25.59 million; proposed AF US$25.00 million):***

- *Component 2 - original project:* finances grid expansion and installation of connections in about forty (40) communities through (a) existing and new 33kV transmission lines, and (b) the existing 34.5 kV Bobo-Dioulasso - Ouagadougou line.

- *Component 2 - additional financing:* will support electrification of about 80 additional communities through (a) grid expansion; but also through (b) hybrid mini grids and solar home systems in remote and poor communities; and (c) multi-functional platforms to foster income generating activities in small localities.

- *Grid expansion in rural and peri-urban areas and connections.* The objective of this sub-component is to connect households, schools, clinics, local administration facilities, recreational centers and other units in selected localities. In line with FDE's current practice, this sub-component could also finance connection charge subsidies as a way to improve access in poor rural areas.

- *Hybrid mini grids and solar home systems in remote and poor communities.* The objective of this sub-component is to increase the number of rural localities with access to energy service provided though small-scale renewable energy systems and

hybridization of existing diesel gensets. It will also finance the installation of SHS for households as well as schools and health facilities in remote poor localities.

- *Multi-Functional Platforms to foster income generating activities in small localities.* The AF will finance investment in MFP in remote communities to help these communities develop productive uses of energy and promote gender equality in rural areas. They replace the human energy expended in food processing after harvest, mainly crushing, oil extraction, shelling and water pumping; hence particularly effective for work undertake on a daily basis by women in rural areas. Moreover, multifunctional platforms support the development of productive activities undertaken by women (including the processing of agricultural products, drainage, irrigation).

(c) Component 3: Improving efficient use of energy in target areas (original amount US$4.70 million; proposed AF no allocation):

- *Component 3 - original project*: supports activities that will help: (a) Strengthen the institutional, legal and regulatory framework to support demand-side management and energy efficiency initiatives, including public lighting; (b) Support investment in energy efficient equipment; (c) Support awareness campaigns through the provision of information, education, and communication to promote the rational and efficient use of electricity; (d) Implement Lighting Africa activities including, inter alia providing training on off-grid lighting in rural electrification strategies, developing public service announcements and awareness campaigns to inform consumers of the benefits of solar lanterns and other good quality products, and (iii) deploying around twenty five thousand (25,000) lanterns in public schools focusing on those in off-grid communities.

- The additional financing does not propose any activities under this component.

(d) Component 4: Institutional Strengthening and Capacity Development (original amount US$5.49 million; proposed AF US$8.5 million):

- *Component 4 – original project:* supports activities to help: (a) Strengthen the institutional capacity of the FDE, SONABEL, and DGE to support scaling up of energy service expansion; (b) Strengthen the capacity of energy service providers including, *inter alia,* energy services cooperatives, local communities, NGOs, and private sector small- and medium-size enterprises; (c) Undertake specific studies to improve the energy mix, more particularly in renewable energy in the medium term; (d) Provision of institutional support to DGE, SONABEL and FDE; and (e) Provision of support to DGE for coordination of the Project.

- *Component 4 – additional financing*: will support (a) SONABEL for : (i) the

development and implementation of a strategic plan; (ii) a fuel consumption audit ; and (iii) the acquisition and implementation of customer management software; and (b) DGE for technical assistance to improve the environment for private participation in the energy sector.

(a) The technical assistance to SONABEL includes:

- *SONABEL's strategic development plan*. Under the Competitiveness and Enterprise Development Project (P071443), an IDA-funded project closed in December 2013, three studies were completed: (i) Scope and financing of sector investments, and tariff implications; (ii) Technical audit and inventory of SONABEL's assets; and (iii) Audit of SONABEL's human resources. This component will finance technical assistance for the preparation of an overall strategic development plan based on the above mentioned studies. Finally, to respond to the rapid expansion and urgent needs of peri-urban populations in Ouagadougou and Bobo Dioulasso, this component will also include a study on electrification options to respond to the needs of this population and look into the regularization and safety improvement of informal connections.
- *Fuel consumption audit*. Considering that, in the medium term, the country's power supply will largely remain dependent on thermal generation, the realization of an audit of fuel consumption is a crucial precondition for identifying and realizing savings and improving overall sector performance. This should result in the elaboration and implementation of an action plan to realize these savings and improvements.
- *Acquisition and implementation of customer management software*. The above activities will be complemented with the acquisition and implementation of customer management software (CMS) necessary for the improvement of billing, collections and cost-effective means for monitoring and reduction of non-technical losses. Comprehensive overhaul, cleaning and updating of the client database will be part of CMS implementation.

(b) The technical assistance to DGE supports the improvement of the environment for private participation.

Table 1: Project Cost

Project Cost by Component and/or Activity	Original Financing			Additional Financing		
	Local US$ million	Foreign US$ million	Total US$ million	Local US$ million	Foreign US$ million	Total US$ million
Component 1 : Improve the reliability of energy supply	**0**	**15.39**	**15.39**			
Construction of turnkey power station		14.65	14.65			
Services for construction supervision		0.74	0.74			
Component 2: Improve access to electricity in selected areas	**0.87**	**24.72**	**25.59**	**2.00**	**25.00**	**27.00**
Electrification work in rural areas		24	24		23.45	23.45
Services for supervision		0.72	0.72		0.70	0.70
Environmental and social studies	0.20		0.20	0.46		
Compensation	0.60		0.60	1.38		
Awareness campaigns before and during works	0.07		0.07	0.16		
Component 3: Improve efficient use of energy	**0.08**	**4.62**	**4.7**			
Component 3.1: Institutional and capacity Strengthening		*0.24*	*0.24*			
Component 3.2: Installation of energy efficient equipment	*0.08*	*2.8*	*2.88*			
Component 3.3: Information, education and communication		*0.48*	*0.48*			
Component 3.4: Lighting Africa Activities		*1.10*	*1.10*			
Component 4: Institutional Strengthening and Capacity Development	**1.92**	**3.57**	**5.49**		**8.30**	**8.30**
Component 4.1: Capacity building in the public sector		*1.75*	*1.75*		8.30	8.30
Component 4.2: Capacity building of energy service providers		*0.08*	*0.08*			
Component 4.3: Studies		*1.75*	*1.75*			
Component 4.4 : Institutional support	*0.95*		*0.95*			
Construction for FDE offices	0.60		0.60			
Administrative expenses	0.35		0.35			
Component 4.5 : Project coordination	*0.97*		*0.97*			
Total Baseline cost	2.87	48.3	51.17		33.30	33.30
Physical and price contingencies	0.00	1.70	1.70		1.70	1.70
Total Project Costs	**2.87**	**50**	**52.87**	**2.00**	**35.00**	**37.00**

** This amount included 8 million for SONABEL and 0.3 million for DGE under the additional financing*

Annex 3: Operational Risk Assessment Framework (ORAF)

BURKINA FASO: Additional Financing to the Electricity Sector Support Project

Project Stakeholder Risks	**Rating**	**SUBSTANTIAL**		
Description: Delayed implementation of project components could affect populations' expectations.	**Risk Management:** The procurement plan and bidding documents will be prepared upstream for an early start to procurement activities; and a communication strategy will be developed and implemented.			
	Responsible: Implementing agencies	**Stage: Implementation**	**Due Date : Ongoing**	**Status: Ongoing**
Implementing Agency Risks (including fiduciary)				
Capacity	**Rating:**	**SUBSTANTIAL**		
Description: Lack of institutional capacity of the Project Coordination Unit (PCU) located in DGE to carry out Project management, monitoring and evaluation, including procurement, disbursement, financial management and safeguards could slow project implementation.	**Risk Management:** The small fiduciary unit established in the context of the original project should help improve capacity. Building on the experience of previous projects, the existing PIU's involvement in project preparation has been instrumental in advancing preparation. Similarly, the PIU will play a role in coaching the newly recruited staff during early implementation. Regarding the mitigation of procurement delay risk, the identification of a focal point at the DGMP will help accelerate the process.			
	Responsible: Implementing agencies	**Stage: Implementation**	**Due Date : Ongoing**	**Status: Ongoing**
Governance	**Rating:**	**MODERATE**		
Description : Risk of conflicts between SONABEL and DGE in the implementation of the technical assistance component which is split between SONABEL and the Ministry (DGE)	**Risk Management:** A clear delimitation of responsibilities will be defined during project preparation and clearly delineated in the project implementation manual.			
	Responsible: Implementing agencies /Bank	**Stage: Implementation**	**Due Date : Effectiveness**	**Status: Ongoing**
	Resp: Bank	**Stage: Implementation**	**Due Date :**	**Status:**
Project Risks				
Design	**Rating:**	**LOW**		
Description: The design of the ESSP is a simple investment project following up on previous similar projects. The additional financing scales up activities but does not change the project design.	Although the design is simple and the risk low, impact of design aspects will be verified during supervision missions.			
	Responsible: FDE/Bank	**Stage: Implementation**	**Due Date : Preparation**	**Status: Ongoing**

<table>
<tr><td>Social & Environmental</td><td colspan="2">Rating:</td><td colspan="3">MODERATE</td></tr>
<tr><td rowspan="2">Description: The project is a Category B project with potential small scale adverse impacts. Nevertheless, failing to comply with the policy requirements may delay implementation; the key stakeholders' capacity needs to be strengthened.</td><td colspan="5">Risk Management: The Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) has been updated to accommodate the increase in scope of the project. The project includes capacity building activities.</td></tr>
<tr><td colspan="2">Responsible: Government/ Implementing Agencies</td><td>Stage: Implementation</td><td>Due Date : Ongoing</td><td>Status: Ongoing</td></tr>
<tr><td>Program & Donor</td><td colspan="2">Rating:</td><td colspan="3">MODERATE</td></tr>
<tr><td rowspan="2">Description: The participation of multiple donors in the sector could lead to inefficient utilization of resources. The project is financed by IDA. Other donors such as the African Development Bank, the West Africa Development Bank, the Indian Government through EXIM Bank and the French Development Agency (AFD) are also assisting the GoBF in achieving a better electrification rate through separate projects.</td><td colspan="5">Risk Management: Regular meetings and joint missions with other donors will be held during implementation to avoid duplication of efforts.</td></tr>
<tr><td colspan="2">Responsible: Government/ Bank</td><td>Stage: Implementation.</td><td>Due Date : Ongoing</td><td>Status: Ongoing</td></tr>
<tr><td>Delivery Monitoring & Sustainability</td><td colspan="2">Rating:</td><td colspan="3">MODERATE</td></tr>
<tr><td rowspan="2">Description: Failure by the Government to commit to sector rationalization and least-cost regional integration represent a risk to project sustainability.</td><td colspan="5">Risk Management: A proper M&E structure is put it place to monitor the implementation of each of the components. Moreover, the implementation of the overall project will be monitored through the established steering committee, which will report important issues to the Ministry and the GoBF which, historically, has demonstrated a consistent commitment to preserving the financial viability of its power utility.</td></tr>
<tr><td colspan="2">Responsible: Government, implementing agencies/Bank</td><td>Stage: Implementation</td><td>Due Date : Ongoing</td><td>Status: Ongoing</td></tr>
<tr><td colspan="6">Overall Risk</td></tr>
<tr><td colspan="6">Implementation Risk Rating: Moderate</td></tr>
<tr><td colspan="6">Risk Description: The overall implementation risk for this project is rated as moderate principally due to the stakeholder and implementing agency risks which are rated as substantial. The expectations of the population of Burkina Faso to get improved electricity are high given the relatively high tariffs. The risks related to delays in developing and implementing SONABEL's strategic plan and related measures represent a risk to project sustainability. A monitoring and evaluation system is put in place to monitor the implementation of each of the components. Moreover, the implementation of the overall project will be examined by the established steering committee, which will report important issues to the Government which, historically, has demonstrated a consistent commitment to preserving the viability of its power utility.</td></tr>
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