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Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 24-Jan-2019 | Report No: PIDC25822



BASIC INFORMATION

A. Basic Project Data

Country Burkina Faso	Project ID P166785	Parent Project ID (if any)	Project Name BURKINA FASO ELECTRICITY ACCESS PROJECT (P166785)
Region AFRICA	Estimated Appraisal Date May 20, 2019	Estimated Board Date Sep 30, 2019	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) BURKINA FASO	Implementing Agency ABER	

Proposed Development Objective(s)

The objective of the proposed project is to expand access to electricity services in rural areas.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	75.00
Total Financing	50.00
of which IBRD/IDA	50.00
Financing Gap	25.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	50.00
IDA Credit	50.00

Environmental and Social Risk Classification
Moderate

Concept Review Decision
Track I-The review did authorize the preparation to continue



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Other Decision (as needed)

B. Introduction and Context

Country Context

- Burkina Faso is a landlocked, low-income country in sub-Saharan Africa with high demographic growth and high levels of poverty.** With a Gross National Income (GNI) per capita of US\$610 in 2017, Burkina Faso is among the 20 poorest countries in the world. Poverty continues to be overwhelmingly concentrated in rural areas, which are home to 90 percent of poor households, due to underemployment, limited social inclusion, low agricultural productivity and poor access to electricity. The country was ranked 183 out of 189 countries on the 2018 Human Development Index. The female HDI value for Burkina Faso is 0.393, which contrasts with an HDI of 0.452 for males, resulting in a Gender Development Index (GDI) value of 0.870 in 2017. These results place the country in the last fifth group of the ranking, below the GDI value for Sub-Saharan Africa at 0.893.
- Despite the challenging national context, growth has been solid in 2017 and 2018, and prospects remain positive for 2019.** Following the slowdown during the 2014-15 political transition, the economy has recovered. In 2017, a 6.3 percent growth rate was achieved, driven by expansive fiscal policy and buoyant gold mining activity. In 2018, growth was estimated at 6 percent, driven by the gold mining sector and a rebound of the agricultural sector. Burkina Faso's recent growth performance has reflected considerable resilience in the face of shocks including terrorist attacks in the capital, deteriorating security in the border regions, a food security crisis following poor rainfall in 2017, and high international oil prices. GDP growth is projected to remain around 6 percent in 2019-22, supported by the agriculture, services and mining sectors. On the demand side, private consumption and private investment (notably in the mining sector) will become the main drivers of growth. Reflecting fiscal adjustments, the growth contribution of government consumption will decline over time, and the contraction of public investment will weigh on growth. Projected increases in gold exports will reduce the negative contribution of net trade to GDP growth.
- The Government is taking steps to restore fiscal sustainability, after a sharp deterioration in fiscal performance in 2017.** The fiscal deficit soared from 3.4 percent of GDP in 2016 to 7.78 percent in 2017. Most of the fiscal expansion was due to increased public investment. Deteriorating security has called for increases in security-related expenditure. In addition, with recurrent and prolonged strikes in the civil service, social unrest put upward pressure on wages and recurrent transfers to the energy sector, thereby reducing the quality of public spending. In this context, fiscal space for the Government's ambitions to address large deficits in infrastructure and social services has narrowed. As part of a new program with the International Monetary Fund (IMF), the Government has committed to converging to the WAEMU criterion of an overall deficit not exceeding 3 percent of GDP by 2019. To achieve this substantial fiscal adjustment, the authorities have reduced domestically-funded public investment. According to preliminary estimates, the fiscal deficit was reduced to an estimated 4.7 percent of GDP in 2018. In 2019, the 3 percent deficit target is projected to be reached thanks to a recovery in tax collection (after the disruptions of 2018) and a further decline in capital expenditures (to 7 percent of GDP). Over 2020-2022, it is expected that current expenditure will be reduced through the implementation of a reform package to control wage bill growth, as well as the implementation of the fuel price adjustment mechanism adopted in November 2018. This should make way for public investment while maintaining the fiscal deficit around 3 percent of GDP.



4. **That said, transfers to the energy sector continue to significantly weigh on the country's tight fiscal space.** Electricity tariffs are very high relative to ability to pay, yet do not cover the full cost of service. The financing gap is bridged by budget transfers. The resulting quasi-fiscal deficit will represent an estimated 0.4 percent of GDP in 2018. The high dependency on imported hydrocarbons for power generation results in significant exposure to macro shocks, triggered by fluctuating international oil prices and an extensive logistics chain, which is prone to disruptions. Given the very low access to modern electricity services (20 percent nationwide), concentrated in urban areas, these transfers don't benefit poor households, mostly located in rural areas with no access to the grid.

5. **Recent deterioration of the security situation exacerbates the country's fragility risks.** Burkina Faso and the overall Sahel region face serious security and fragility challenges that are mutually reinforcing. The interlinkages between poverty and security issues create a context that is prone to a state of structural fragility and cycle of conflicts. Burkina Faso faces challenges with the multiplicity of violent conflicts, strong imbalances of socioeconomic development and marginalization issues at the subnational level, as well as a low presence of state institutions and access to service-delivery. Lack of access to basic services in most places put nomadic population at risk given the increase of circulation of armed groups and the growing negative impact of climate change on livelihoods. This notably results in increased tensions over the access to diminishing resources, and disputes between farmers and pastors over the access to land and the redefinition of transhumance corridors in border areas –induced by insecurity and climate change impact.

6. **As a response to these security and development challenges, an initiative called "Alliance for the Sahel" was launched by France, Germany and the EU, with the WBG, UNDP and AfDB as founding partners.**¹ The initiative was announced in Paris on June 13, 2017, by France's President Macron, Germany's Chancellor Merkel, and the European Union's High Representative Mogherini. The Alliance has been put together in consultation with the G5 countries (namely Mali, Chad, Niger, Burkina Faso, and Mauritania), which have endorsed the concept, priority areas and flagship projects. The aim of the Alliance is to accelerate results and crowd-in resources to the Sahel to help countries address the multi-faceted challenges and drivers of fragility that affect them and promote increased resilience and economic opportunities, including for the most vulnerable.

7. **The Alliance has recognized that improvements in energy access are expected to play a vital role in stabilizing the Sahel and increasing resilience.** To that end, the Alliance has specifically adopted a target to double access within five years (between 2018 and 2023) in the G5 countries, which is an interim target to achieve universal access to affordable, reliable, sustainable, modern energy by 2030 as outlined in the United Nation's Sustainable Development Goal 7 (SDG 7). The Alliance has committed to the implementation of over 500 (energy and non-energy) projects by 2023, with global funding of 7.5 billion Euros, in hopes of improving the electricity sectors, security situation, and economic development of the region.

Sectoral and Institutional Context

Institutional Context

8. **The new electricity law has initiated sector reform that still needs to be made fully effective through secondary legislations and capacity building.** The new electricity law², promulgated in May 2017, contributes to liberalizing the electricity sector. It promotes competition for electricity supply through the creation of a competitive wholesale electricity market that abrogated SONABEL's single buyer arrangement. It also creates new specialized entities³, and commits

¹ <https://www.alliance-sahel.org/en/>

² Loi N.014-2017/AN du 20 avril 2017 portant réglementation générale du secteur de l'énergie

³ Such as the Renewable Energy and Energy Efficiency Agency (ANEREE)



government to further clarify their mandate through secondary legislation to prevent the risk of overlapping responsibilities that may otherwise undermine the overall sector governance. Capacity of each entity will be reinforced to enable them to efficiently fulfil their renewed mandates.

9. **The Ministry of Energy is responsible for policy formulation, sector planning, control of energy infrastructure and has overall oversight over the electricity sector development.** The sector policy letter⁴, adopted in 2016, articulates the approach of the government to achieving the overall targets of the national strategy in the energy sector⁵. It sets priorities for the period 2016-2020 in terms of investments, energy mix and private sector participation in the energy sector to shift towards more affordable electricity and increased access. It relies on the following pillars: (i) develop electricity supply from renewable sources; (ii) develop firm baseload capacity, required to develop further solar PV plants; (iii) increase access to modern energy services; (iv) promote energy efficiency; (v) develop regional integration; and (vi) ensure availability of petroleum products. Private sector participation is expected to play a major role in increasing electricity supply over the next five years. The Government intends to pursue decentralized generation in renewable energy in rural areas where this technology is least-cost.

10. **SONABEL is the state-owned, vertically integrated utility which has a monopoly on transport but, following recent reforms, not on generation, import/export or distribution.** No IPP is currently operating in the country. SONABEL is a relatively well-performing utility by regional standards on both technical and commercial operations. It serves more than 620,000 clients with 1,800 employees. The utility is characterized by relatively low loss rates (16%) and good performance in collection of billed amounts, ranking among the well performing utilities in Sub-Saharan Africa. The financial situation of SONABEL has significantly improved since 2016 with the clearance of accrued arrears and revised fuel pricing for electricity generation⁶. SONABEL has net profit since 2016⁷ after having accumulated continuous losses between 2011 and 2015. However, this does not include full cost of fuel purchase, as SONABEL still indirectly relies on budget transfers to the sector, through fuel subsidies channeled towards SONABHY⁸ that amount an estimated USD 53 million over 2018⁹. Fuel supply, which weighs more than 40 percent of the actual cost of electricity service, remains a weak link in the sector.

11. **ABER is the newly established fully fledged Rural Electrification Agency aimed to promote rural electrification in the country.** ABER has been established by new electricity law dated 2017. Secondary legislation on status, organization and operation is currently being prepared¹⁰. It succeeds to the Rural Electrification Fund (FDE) created in 2003 to contribute to the implementation of the National Electrification Plan in rural areas. ABER develops and tender rural electrification projects identified by central and local governments, as well as by private investors or operators, with both on-grid and off-grid technologies. FDE/ABER acts as a de facto technical quality regulator in the rural electricity subsector particularly with the Cooperative Associations (COOPEL), which are cooperative associations, formed under Burkina laws by future electricity clients, either at village or municipal levels. COOPELs play a significant role in rural electrification, as owner of rural electrification assets, whose operations is bid out to competitively selected private operators. However, some COOPEL face financial challenges due to their very small size and lack of capacities.

⁴ *Lettre de Politique Sectorielle de l'Énergie*, adopted by the Council of Ministers in September 2016

⁵ *Politique Sectorielle de l'Énergie - POSEN 2014-2025*, adopted by the Council of Ministers in October 2013

⁶ *Protocole d'Accord portant relations financières et fixation des prix de cession des hydrocarbures à la SONABEL*, October 13, 2016

⁷ of CFA 5.147 and 6.916 billion FCFA for the years 2016 and 2017 respectively (est. US\$11 and 12 million respectively). SONABEL's financial statements for 2018 will be available in June 2019.

⁸ *Société Nationale Burkinabè d'Hydrocarbures*, the state-owned public company with monopoly over all imports and storage of petroleum products.

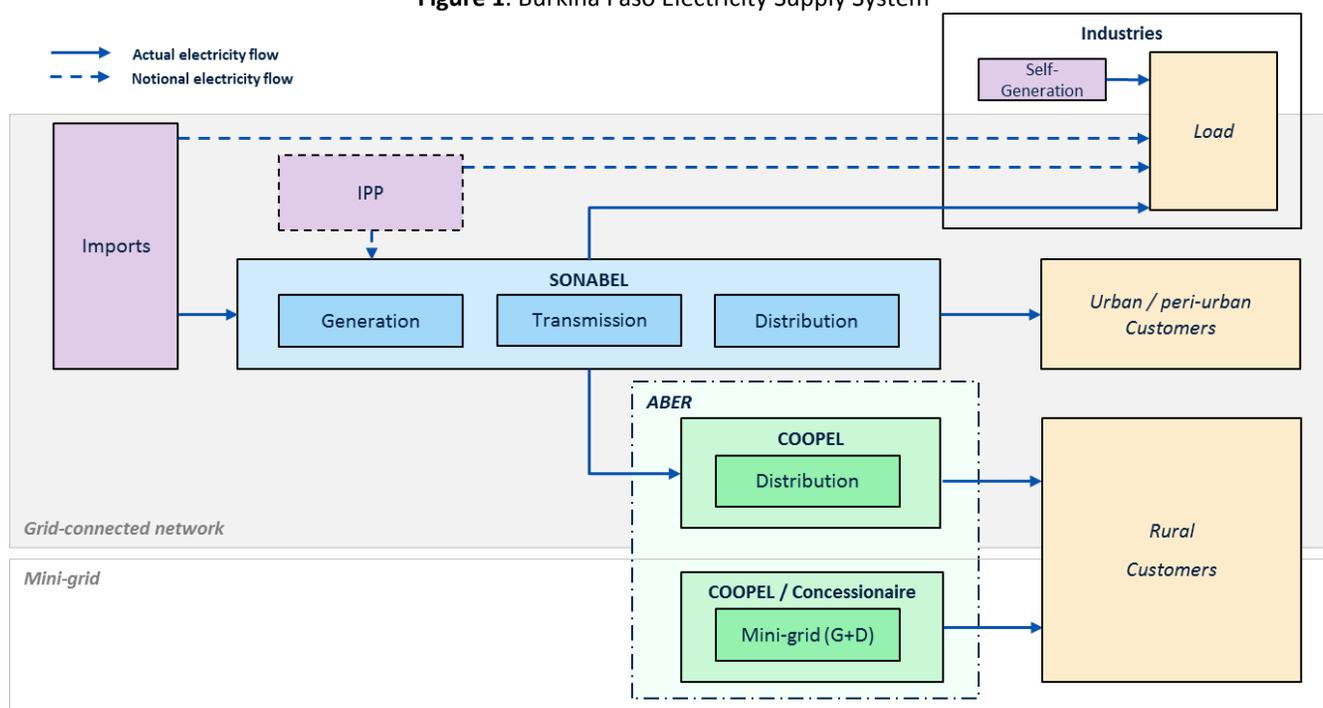
⁹ from USD28m in 2017 due to the increase in the price of oil, which was not pass through fuel price paid by SONABEL.

¹⁰ Draft decree (portant missions, attributions, organisation et fonctionnement de l'Agence Burkinabè de l'Électrification Rurale (ABER)) has been prepared and is pending adoption by the council of Ministers.



12. **The Regulatory Authority for the Electricity Sector (ARSE) has been strengthened but is still nascent and lacks basics tools to fulfil its mandate.** ARSE operates under the authority of the Prime Minister’s Office with a mandate to regulate the operators of the sector, protect electricity users’ interest, arbitrate disputes between operators, and to ensure the preservation of economic conditions necessary for the sustainability of the sector while ensuring fair competition. While the new electricity law has strengthened ARSE mandate that encompasses both grid-connected and mini-grid segments¹¹, the regulator remains de facto marginalized in terms of influence over major sector regulatory aspects such as tariff reviews that are dealt with directly between Ministry of Energy and SONABEL and IPP selection process.

Figure 1. Burkina Faso Electricity Supply System



The National Strategy to Increase Access to Modern Electricity Services

13. **The electrification rate in Burkina Faso has barely kept pace with population growth over the past five years.** It remains low by regional standards at 20 percent, i.e., about 66 percent in urban areas and 3 percent in rural areas. Grid-connected electricity users suffer through load shedding and poor quality of service. Total installed generation capacity is 355 Megawatt (MW), mostly thermal (287 MW) characterized by low availability (at about 75 percent), with 32 MW of aging hydropower plants and a 33MWp solar PV plant commissioned mid-2017. The network is interconnected with Côte d’Ivoire through a 225 kilovolt (kV) transmission line supplying 70 MW and Ghana through a 330kV transmission line commissioned mid-2018, that currently supplies an additional 40 MW¹². Imports represented 37 percent of electricity supply in 2017, a share expected to grow significantly with imports from Ghana. Electricity supply is just enough to precariously meet the demand which increases by 10 percent per year. The capacity deficit to meet peak load in 2019 is estimated 40MW.

¹¹ Generation and distribution licenses are granted by the ministry in charge of energy, based on ARSE’s prior assent (“Avis conforme”).

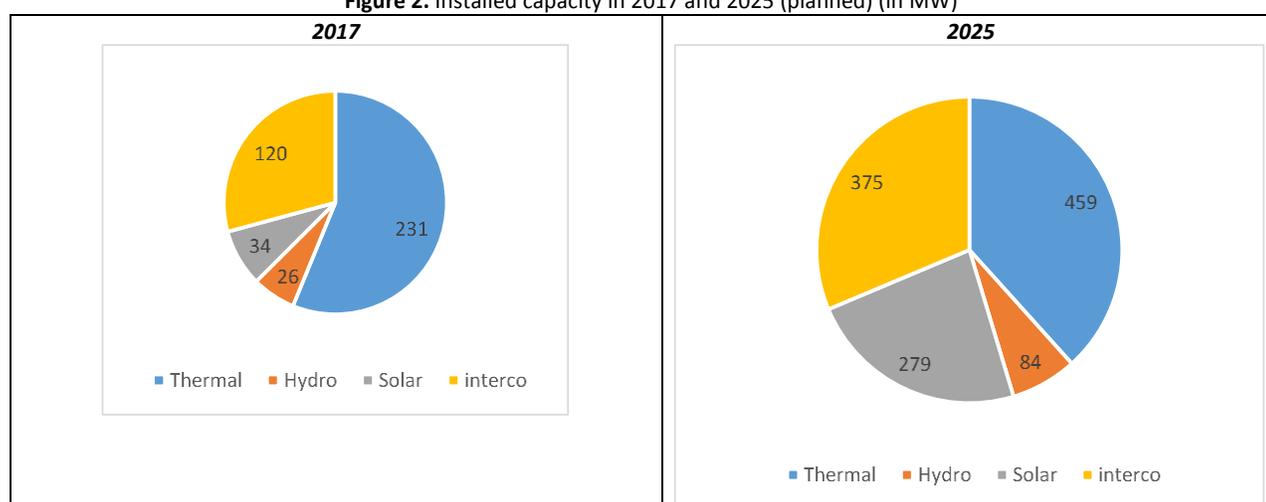
¹² Contractual capacity is expected to increase in the short term to 100MW



14. **The Government has the ambitious objective to increase access to reliable and affordable electricity services from 20 to 45 percent by 2020.** This would require increasing access rates from 66 to 75 percent in urban areas and from 3 to 19 percent in rural areas. In addition to existing and planned projects concurring to this objective (see table 2 below), achieving this target would require another estimated 1,000,000 additional customers¹³, of which 350,000 in urban / peri-urban areas through network densification by SONABEL, as well as 650,000 in rural areas, through network densification, network extension and off-grid solutions implemented with ABER¹⁴. Broader sector challenges currently hamper efforts to extend access to electricity services in a sustainable manner and would need to be addressed simultaneously: (i) the current supply deficit to meet increasing electricity demand; (ii) the high cost of service, largely driven by fuel costs especially expensive in landlocked Burkina; (iii) a tariff below cost recovery, yet above customer’s capacity to pay especially in rural areas¹⁵; (iv) the resulting reliance of the sector on budget transfer that limits investments in extension of electricity services ; (v) the lack of sector planning capacity to identify least cost investments and ensure timely and cost-effective implementation; (vi) limited productive uses in rural areas that affects the creditworthiness of new customers ; (vii) COOPELs operating and financial challenges (see para. 19); and (viii) the lack of enabling framework to attract private capital into rural electrification (see para. 20).

15. **The Government’s strategy to increase supply while reducing cost of service is to gradually shift the generation mix towards renewable energy and affordable electricity imports.** Average electricity tariff of US\$24. per kWh, one of the highest in in the sub-region, is below the overall cost of electricity service estimated at US\$26. per kWh, in which fuel costs account for more than 40 percent. The sector investment plan aims at reducing dependency on imported fuels and ramping up renewable energy sources, notably solar, to reach 25 percent of installed capacity by 2025 (including 170 Mega Watt Peak (MWp) of solar photovoltaic (PV) plants). The country’s strategy aims to structurally reduce the cost of electricity service, by (i) shifting the thermal-intensive energy mix towards cheaper sources, namely renewables and imports; (ii) increasing affordable imports through regional integration; and (iii) developing firm baseload capacity to meet peak demand and invest in the national grid to enable it to absorb intermittent solar power. In rural areas, the strategy is to pursue decentralized generation in renewable energy in areas where this technology is least cost.

Figure 2. Installed capacity in 2017 and 2025 (planned) (in MW)



¹³ Current customer base totalizes an estimated 670,000 clients, made of 630,000 clients served SONABEL (2017) and 40,000 by COOPELs supervised by FDE.

¹⁴ Ministry of Energy, *Schéma Directeur Production Transport Distribution et d’Electrification Rurale 2017-25*, sept. 2017.

¹⁵ Especially for the cost of connection that averages US\$350 (ie. FCFA 200,000) with no instalment option for repayment.



16. **The WBG actively supports the government strategy along the entire sector value chain.** IDA is strongly engaged in the sector in close coordination with active development partners¹⁶. WBG projects portfolio supports: (i) sector reforms, through a DPO series (which was recently completed) with a focus on the energy sector (new electricity law, clearance of arrears, etc.); (ii) the increase of electricity supply and the valorization of the solar potential, through financing for the thermal power plant in Fada and two solar PV plants in Koudougou and Kaya, as well as the preparation of a regional solar park to be developed through an IPP ; (iii) regional integration, through the interconnector with Ghana and with Nigeria; (iv) rural electrification, through the connection of 220 localities to the network; (v) sector planning, through capacity reinforcement and critical studies for the sector, including the new sector master plan, the grid stability study for integration of variable renewable energy (VRE) and the audit of the fuel supply chain. WBG portfolio is presented in the table below.

Table 1. WBG portfolio in support to the energy sector in Burkina Faso

Source	Project	Amount	Key Activities	Approval date [Planned]
IDA	PASEL (P128768)	\$165m	<ul style="list-style-type: none"> - 7.5MW thermal plant in Fada - 30MWp solar PV plants in Koudougou and Kaya - 222 km of 90 and 225 kV T-lines to strengthen the network - Electrification of 220 localities in rural areas - 400 primary school equipped with LG certified solar lanterns banks - Sector critical studies: master plan, grid stability study, etc. 	Initial fin. (50m): July 13 AF1 (35m): June 14 AF2 (80m): June 17
IDA	DPO series (P157060) (P163283)	\$175m	<ul style="list-style-type: none"> - Improving the financial sustainability of the energy sector - Enabling PSP in generation to diversify the energy mix 	100m: Dec. 2016 75m: Dec. 2017
IDA [Reg]	Interco. Ghana (P094919)	\$16m [\$42m]	- Bolgatanga-Ouagadougou interconnector	June 2011
IDA [Reg]	TA WAPP (SOP1) (P162580)	[\$21m]	- TA to promote the deployment of regional solar parks in West Africa and enable the dispatch of VRE (incl FS of 150MWp with storage in BF)	July 2018
IDA [Reg]	Northcore interco. (P162933)	\$90m [430m]	<ul style="list-style-type: none"> - Interconnector Nigeria, Niger, Burkina Faso (North-core) - Electrification of 169 localities 	Oct. 2018
PPIAF	Banfora power to mine (ASA) (P165245)	\$352,000	- TA to plan and structure new generation and transmission capacity associated with mining projects as anchor power consumers in Banfora region.	August 2017
IFC	Zina		- Zina 28MWp solar PV plant (IPP)	
IDA [Reg]	ROGEP (P160708)	[200m]	- Increase electricity access of households and businesses using modern stand-alone solar systems through a harmonized regional approach.	[March 2019]

17. **While grid densification in main urban centers has secured significant financing to achieve national objective, rural electrification would require additional financing to achieve the national target of 19 percent.** Government's electrification effort is driven by intended contribution to sustained national economic growth. As such, electrification plans should justify its viability technically, economically and financially and be prioritized accordingly¹⁷. However, the national electrification master plan is outdated¹⁸ and a new masterplan is currently being bid out¹⁹. Network densification in main urban centers, notably Ouagadougou, Biobo-Dioulasso and Koudougou is the most cost-effective way to increase access rate in the country, for which significant resources are available (see table below). Main county towns²⁰ and localities with more than 10,000 inhabitants have already been electrified or will be by 2020 (with financing already secured). Criteria to select localities to be electrified²¹ are: (i) population, (ii) distance to the network, (iii) accessibility, (iv)

¹⁶ IDA currently led the energy sector donors group with the following active members: AFD, AfDB, EU and MCC.

¹⁷ See footnote #11 op. cit. Chapter V, *Plan Directeur Distribution / Electrification Rurale*

¹⁸ EDF, *Schéma Directeur d'Électrification du Burkina Faso à l'horizon 2030, Rapport Distribution Rurale*, Mars 2012

¹⁹ Under PASEL project. REOI was launched on Dec. 11, 2018

²⁰ *Chef-lieux de communes*

²¹ *Arrêté conjoint N. 2007/07-008/MCE/MFB portant définition des critères de sélection et d'éligibilité des projets d'électrification rurale décentralisée au financement du Fonds de Développement de l'Électrification*, April 13, 2007.



creditworthiness of the electricity demand, and (v) economic viability of the project based on an internal rate of return resulting from prefeasibility study. Given the large resources needed to achieve the national target, the authorities intend to mobilize private sector participation alongside with public and concessional resources, notably for the deployment of off-grid and mini-grid solutions.

18. **Technology solution for rural electrification is guided by least-cost principle.** Distance to existing network is the key driver for technology choice. Shield Wire Schemes (SWS) technologies are used along high voltage lines (such as electrification along the North-core interconnector). Conventional three-phase distribution system²² are usually used for localities within 15km from existing network (with priority given to localities within 5 km from existing network), and single-phase distribution system²³ for localities further away from existing network (between 15 and 30 km), the latest being used on exceptional cases given the limited acceptability by users, based on FDE track record. With regards to mini-grid, chosen when network extension does not make economic sense, the authorities have abandoned costly thermal generation with mini-grid and are now contemplating solar with storage solutions deployed by private sector. The innovation in solar PV technologies and mobile money and new business models such as PAYGO are disrupting the conventional approach to electrification. Facilitating favorable ecosystems and developing regional markets with adequate economies of scale can attract private investment to sustainably meet electricity demands of the off-grid economies. The deployment of cost-efficient stand-alone system for households and businesses will be supported through an enabling framework conducive to private-led solutions²⁴.

Table 2. Development partners’ support to energy access segment

Activities	Development partners	Amount	Implementing entity	Status
Electrification of 220 rural localities (Component 2, under PASEL project)	IDA	\$50m	FDE	Ongoing (2014-21)
Peri-urban electrification in Ouagadougou and Bobo Dioulasso (PEPU)	AfDB	\$50m	SONABEL	Ongoing (2016-21)
Electrification in Ouaga., Bobo Dioulasso and Koudougou	IsDB	\$34m	SONABEL	Ongoing
Decentralized rural electrification of Ziro and Gourma regions (ERD ZIGO)	UE	EUR12m	FDE	Ongoing (2014-19)
Subsidized connections in border areas (North and Sahel regions)	AFD	EUR3m	SONABEL	Ongoing (2018-19)
Electrification of 179 localities along North-core interconnector	IDA, UE	\$69.5m	SONABEL	Ongoing (2018-2021)
Connections in border areas and Peri-urban electrification in Ouagadougou and Bobo Dioulasso (Yeelen project, Comp. 2)	AFD, AfDB, UE	EUR30m	SONABEL	Planned (2019-2025)
Green mini-grid and SHS (Yeelen project, Comp. 3)	AfDB and green fund	\$30m	FDE/ABER	
Network strengthening and densification in Ouaga. (MCC compact)	MCC	TBD	TBD	Planned (2021-2025)

The Rural Electrification Model and Challenges

19. **The operating and financial performance of COPELs should improve to scale up the rural electrification model a sustainable manner.** COPELs, which represents electricity users and owns electrification assets, play a critical role in the rural electrification model (see para. 9). COPELs have been formed and are currently active in both mini-grid and grid-connected settings. In the latest, COPELs act as rural distribution companies (discos) which buy bulk electricity from SONABEL²⁵ and subcontract operations to private operators, called “*Fermier*”. FDE/ABER is in charge of electrification project design, the financing and supervise the construction until commissioning. COPELs sign a financing agreement

²² with four-wires comprising 3 wires carrying currents (differentiated by vector angle 120°-phases) and a neutral wire.

²³ with two-wires comprising a wire carrying current (one phase) and a neutral wire.

²⁴ Supported by the regional ROGEP project (P160708).

²⁵ at a subsidized tariff to ensure alignment of retailed electricity tariff in urban and rural areas. In the case of mini-grid, the subsidies are channeled through the price of fuel used for electricity generation.



with FDE/ABER, which defines the technical and financial duties²⁶. COOPELs operating performance is limited which affects their ability to extend electricity services to break even²⁷. In practice, COOPELs are not able to reimburse their due share of CAPEX to FDE/ABER, nor, in some cases, to pay their electricity purchases from SONABEL²⁸, which deteriorates the overarching financial situation of the sector and ultimately weights on needed fiscal transfers. The authorities are currently exploring ways to improve the performance of the COOPELs model by: (1) scaling up the model to attract more qualified private operators and reach a critical mass of electricity clients; (2) revising COOPEL-ABER financing agreement and wholesale electricity tariffs for COOPEL; (3) strengthening COOPEL to improve their performance; and (4) defining upfront the conditions to transfer assets to SONABEL²⁹.

20. The enabling framework to mobilize private financing into rural green mini-grid solution needs to be developed.

Given the financing gap to reach access target in rural areas, the incapacity of the COOPEL-operated thermal-based mini-grid model to cover for operating costs (nor for capital costs – see above), and the decrease of the costs of solar PV and storage technologies, ABER has decided to develop an enabling framework to mobilize private financing for the development, the financing, the construction and the operation of green mini-grids in rural areas. The contemplated approach is a concession model with a special purpose vehicle (SPV) company controlled by the private sector with minority shares owned by the COOPEL. The awarding authority would be the Ministry of energy and/or local authorities. In an environment characterized by regulated retailed tariffs aligned among rural and urban areas, subsidies, whose amount and modalities still need to be defined, would be required to ensure an internal rate of return attractive for qualified private investors. To operationalize this initial concept, FDE/ABER has engaged studies to define (1) the scope of the proposed concessions (sizes, number of localities, connections, etc.); (2) the business plan and the need for subsidies (CAPEX subsidies and/or results-based, etc.) and (3) functional specifications and relevant regulatory framework (technical requirements, performance criteria, tariffs, condition to transfer assets in case of network extension, etc.).

21. The responsibilities of national entities in implementing the national strategy should be clarified to prevent overlaps.

The responsibilities of SONABEL and ABER in the implementation of the national strategy to meet objectives on rural electrification should be precised, notably with regards to the scope of SONABEL mandate to electrify rural localities and the condition of transfers of assets to SONABEL. In practice, some overlaps have affect the performance of the overall sector³⁰. In the same vain, the articulation of central administration, with the primary responsibility of sector planning and monitoring and the various sector entities (including ANEREE and ARSE) should be clarified. Planning instruments of SONABEL and ABER would also be updated based on the outcome of the revised master plan currently being bid out.

Relationship to CPF

22. The proposed project directly contributes to Focus Area 1 “Accelerate sustainable private sector led growth for job creation” of the new CPF (FY18–FY23) and is directly supporting the achievement of the objective 1.2 “Improve energy access”.

The CPF for Burkina Faso highlights that access to reliable and affordable electricity is one of the most binding constraints to economic growth and of welfare gains. Electrification efforts is thereby recognized as a critical success factor for the country’s overall poverty reduction and growth strategy. Accordingly, the CPF puts energy access, through both conventional grid extension and decentralized approach with renewable systems among its key priorities to accelerate growth and job creation. The proposed project contributes to the GoBF’s target of increasing electricity access

²⁶Under this agreement, COOPEL should reimburse 40 percent of the CAPEX over 15 years with 3 years grace period and no interest. However, this is not done in practice due to the poor financial situation of the COOPELs.

²⁷COOPELs average number of clients is 200, whereas break-even is estimated at about 300 clients.

²⁸SONABEL due receivables from COOPEL totalize around US\$2.4 million (CFA 1.4 billion)

²⁹Currently done on ad hoc basis.

³⁰For example, rural localities initially planned to be electrified through FDE program (under IDA financing) have ultimately been electrified by SONABEL, generating delays and loss of resources.



in rural areas from 3 to 19 percent by 2020 through efficient investments in both grid and off-grid solutions and scaling up private sector investments in electricity access. It will contribute to alleviate the unequal provision of basic electricity services between rural areas and urban centers.

23. **The proposed project is consistent with the World Bank Group's policy for Maximizing Finance for Development (MFD).** The project will support the development of an enabling framework to leverage private financing for the development, the construction and the operation of green mini-grids in rural areas. Increasing private financing for electrification will free up government resources for grid-based electrification and other public priorities, including spending on human development. Most importantly, private financing will be mobilized by creating and scaling up market opportunities that will be commercially self-sustaining, thereby contributing to the MFD agenda beyond the lifetime of the project.

24. **The proposed project contributes to achieve the commitment of the Sahel Alliance that aims at fostering regional cooperation and set the target of doubling electricity access in the G5 countries over the 2018-2023 period,** as an intermediary objective before reaching the SDG 7 of universal access by 2030. In this context, increased access to electricity services in rural areas, by increasing productivity and making livelihoods more sustainable, would contribute to reduce poverty and tensions and thus strengthen the country's overall resilience.

C. Proposed Development Objective(s)

25. **The objective of the proposed project is to expand access to electricity services in rural areas.**

Key Results (From PCN)

26. **The PDO level results indicators are as follows:**

- (a) People provided with new or improved electricity service (Number), of which women (percent);
- (b) Micro-small enterprises in rural areas provided with new electricity services (number);
- (c) Community infrastructures provided with new or improved electricity services (Number).

D. Concept Description

1. Description

27. **The proposed project will support GoBF's key energy policy objective to increase electricity access in rural areas.** The proposed project will support the electrification of around 300 new localities in selected rural areas and the connection of 115,000 households, micro, small and medium-sized enterprises (MSMEs) and community infrastructures (school, health centers, etc.) to modern and reliable electricity services. Consistent with the government strategy to prioritize socially equitable energy solutions at least cost, the project aims to maximize the number of households provided with electricity services while fostering local economic industrial development as well as attracting private investment. Identified investments to achieve these targets are as summarized below:



- **Component 1.** This component will support the reinforcement and the expansion of the existing power system and connection of households in selected rural localities based on the technical and commercial performance of the owner of the electricity assets (COOPEL) and the operators (“*fermier*”), as well as its economic and financial sustainability (US\$10 million).
- **Component 2:** This component will support the electrification of selected localities within a maximum range of 30 km from the nearest substation or along route of interconnected national grid, and the connection of 50,000 households, MSMEs and community infrastructures (US\$40 million of which IDA for US\$25 million).
- **Component 3:** This component will support the development, installation and operation of PV-based mini-grids with storage and connection of 25,000 households and MSMEs by competitively selected private concessionaires to provide reliable, sustainable and affordable electricity (US\$35 million of which IDA for US\$10 million).
- **Component 4:** This component will strengthen ABER’s capacity and support operations during the 48 months project execution period (US\$5.0 million of which IDA for US\$5 million).

Table 3. Cost estimates and expected results per component

Components		Expected results		Financing (\$m)			
		Localities	Connections	IDA	Gap	Private	Total
1	Grid densification and network strengthening		25,000	10			10
2	Grid extension	170	50,000	25	15		40
3	Development of green mini-grid	130	25,000	10	10	15 ³¹	35
4	Capacity building			5			5
	Total	300	100,000	50	25	15	90

28. **The proposed project has currently a US\$ 25 million financing gap that the team will seek to bridge during preparation.** Project current sizing would more than triples the number of electricity customers served through COOPELs and would directly contribute to double the access rate in rural areas from a current 3 to an estimated 6 percent. As per preliminary estimates, this would require US\$75 million and leverage US\$15 million of private financing. If the financing gap cannot be bridged, the project will be downsized to fit the US\$50 million envelop.

Component 1: Grid densification and network strengthening in selected rural localities

29. Some existing COOPELs activities is constrained by saturated network to extend their clients base to reach critical mass and improve financial performance. This component will reinforce and expand existing power system and connect households in selected rural localities. This component shall comprise:

- (i) Technical studies, preparation of designs and safeguards instruments, bidding documents for increasing the capacity of existing generation facilities and the provision and installation of 100 new distribution transformers, replacement of conductors which appropriate sized conductors, construction of 100km new medium and 400km low voltage networks within proximity of households and MSMEs.
- (ii) The provision and installation of 25,000 complete service connection materials including conductors, meter, meter mounting board and accessories.

³¹ Preliminary estimated to be confirmed/adjusted during preparation based on the business plan developed for Solar PV/ storage based mini-grids



Component 2: Grid extension

30. This component will support the electrification of 170 rural localities within a maximum distance of 30km of the nearest primary interconnected national grid substation with the capacity to support additional load, along the route of the transmission lines and the connection of an estimated 50,000 households, SMEs, and community infrastructures. Prioritization of localities will be carried out based on national criteria (see para. 15) and selection will be based on least cost option. This component shall comprise:

- (i) Technical studies, preparation of designs and safeguards instruments, bidding documents for the supply and construction of new medium voltage network from existing power substations and extension existing medium voltage network over technically feasible distances
- (ii) installation of distribution transformers and construction of low voltage networks to reach households, MSMEs and community infrastructures.
- (iii) Provision and installation of complete service connection materials including conductors, meter, meter mounting board and accessories.

Component 3: Development of green mini-grid by private concessionaires

31. This component will support for the development, installation and operation of PV-based mini-grids with storage (total target of 10MWc) and connection of 25,000 households and SMEs by competitively selected private concessionaires to provide reliable, sustainable and affordable. The extend and the form (selected investments, result based financing, etc.) of the public-funded contribution needed to offer an internal rate of return attractive to qualified bidders will be precised during project preparation based on the business plan developed for solar PV / storage based mini-grid (see para. 20). This component shall comprise:

- (i) Technical studies, project implementation and operation structuring, preparation of designs and safeguards instruments, bidding documents for the supply, construction and operation of PV-based mini-grids with storage.
- (ii) Provision and construction of distribution network to reach households, MSMEs and community infrastructures.
- (iii) Provision and installation of complete service connection materials including conductors, meter, meter mounting board and accessories.

Component 4: Capacity building

32. This component will finance technical assistance and capacity building to ABER and COPELs to support the implementation of the project for 36 months. Activities will be based on an extensive capacity assessment of newly established ABER and be based on the track record of FDE in the implementation of IDA-financed project³². This shall cover:

- (i) recruitment of firms to (i) implement Resettlement Action Plans (RAPs) and (ii) supervise construction works (owner's engineers).

³²In particular under the ongoing PASEL project (P128768) whose component 2 on rural electrification is implemented through FDE.



- (ii) Strengthen ABER’s capacity on environmental and social safeguards, PPPs and concession arrangements, project monitoring, through training of staff as well as recruitment of consultants to support the implementation of Environmental and Social Management Plans (ESMPs) and Resettlement Action Plans (RAPs) and the supervision of works for the project.
- (iii) Support to improve the operation and commercial performance of COOPELs.
- (iv) Support campaign programs on Gender Violence, HIV-AIDS, energy efficiency.
- (v) Support direct costs associated with the execution of the project.

33. **Special attention will be provided to Engaging female entrepreneurs, female-headed households, and female customers through information campaigns and tailored support.** A social and gender approach will be applied in the rural communities to ensure equal access to electrification and its associated benefits. Considering how closely women’s gendered responsibilities within the home are connected to their under-recognized role as energy consumers and producers, as well as energy entrepreneurs, COOPEL and mini-grid operators have an incentive to enhance women’s participation and agency in order to increase sustainability of operations. Rural electrification through network extension and mini-grids has the potential to spur productivity and thereby drive income-generating activity of micro, small and medium businesses, including home-based livelihoods. Applications of electricity in rural areas such as milling, grinding, carpentry, food processing, phone charging and tailoring help save the time, labor burden of men and women, and contribute to income-generating opportunities. However, women’s access to productive resources and community participation are usually more restricted and limited. They often lack knowledge about business opportunities, technology options and maintenance services to equipment. In this context, interventions will be designed jointly by ABER, local women’s associations and gender-focused NGOs to effectively communicate the benefits of the energy access and design the appropriate interventions to close gender gaps. An analysis will be prepared during preparation to underpin the identify of specific actions to improve women’s empowerment.

2. Overall Risk and Explanation

Table 4. Risks summary table

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project	Moderate
5. Institutional capacity for implementation and sustainability	Substantial
6. Fiduciary	Moderate
7. Environmental and Social	Moderate
8. Stakeholders	Substantial
9. Other – Security and fragility	Substantial
Overall	Moderate

34. **The overall risk of the project is Moderate.** The proposed project has a simple design and does not present significant technical, environmental or social risks. The implementing entity, ABER, has experience in implementing IDA-financed rural electrification activities and is acquainted with World Bank policies, guidelines and process. Risks deemed substantial and proposed mitigation measures are presented below.



35. **Sector Strategies and Policies.** Risks in this area are assessed as **Substantial**. Increasing access in rural area is a top priority for the sector with an extensive support from decision makers at all levels. However, the energy sector is going through a change process, including institutional reforms, with a new law promulgated in April 2017 and secondary legislation currently under preparation to make it fully effective. The organizational structure of the ministry has been revised multiple times with key functions, such as sector planning, not fully effective yet. New structures have been created, such as ANEREE³³, with no capacity but an extensive mandate on energy efficiency and renewable energy that overlaps, on paper, with SONABEL and ABER mandates, generating duplication of efforts, inefficiencies and tensions among sector's stakeholders that may affect Project's implementation. IDA is actively supporting the authorities in the sector (see para. 16). IDA team will maintain a close sector dialogue with the government to mitigate risks in this area, notably in the articulation of mandates and the effective coordination between SONABEL and ABER for the electrification of rural localities through grid extension. IDA support will also facilitate the discussion between ABER, SONABEL and COPEL on wholesale electricity tariffs.

36. **Macroeconomic risks.** Risks in this area are assessed as **Substantial**. Exogenous shocks and policy slippage constitute a source of risks. This could divert resources away from priority needs and reduce the government's efforts and ability to sustainably implement the agreed fiscal adjustment. It could also reduce resources for improving public service delivery. The country is vulnerable to external shocks which could threaten the attainment of tax collection objectives. A larger than expected decline in cotton and gold prices, as well as larger than expected increase in oil imports and high oil prices may put further pressure on Burkina Faso's macroeconomic framework. This would translate into a slowdown in growth, reduced fiscal revenues and a larger current account deficit. The World Bank works with the authorities on both revenue generation and expenditure rationalization in order to reduce the deficit and limit the rise in public debt, while protecting GDP growth

37. **Institutional capacity for implementation and sustainability.** Risks in this area are assessed as **Substantial**. The newly established ABER, formerly known as FDE, is going through a change process and reorganization to adjust to his new mandate expanded to a fully fledged rural electrification agency. Secondary legislation on status, organization and operation is currently being prepared. Although FDE has a significant experience in the implementation of IDA-financed activities in rural electrification, its staff is overstretched, and lack required capacities, notably on social safeguards, and resources to supervised contractors for works and studies in a thorough and timely manner. The component 2 under the ongoing PASEL project has been downgraded to Moderately Unsatisfactory due to weaknesses in compliance with Bank's safeguards policies. An action plans to address this situation has been prepared, agreed upon and is currently being implemented. These risks will be mitigated by the comprehensive assessment of ABER's capacity to be carried out by the task team during project preparation to identify relevant reinforcement measures aimed to ensure a fully compliant and timely implementation of activities.

38. **Environmental Risks** – Risks in this area are assessed as **Moderate**. The objective of the proposed project is to expand access to reliable electricity services in rural areas. This operation has not been screened for short and long-term climate change and disaster risks. The project aims to finance a wide range of activities among which: (i) Grid densification and network strengthening in selected rural localities; (ii) Grid extension; and (iii) Development of green mini-grid by private concessionaires. These types of investments are generally associated with environmental risks and negative impacts such as excavations, dust, noise, and particularly Community health and safety with solid wastes management during civil works and different installations (transformers, conductors, construction of 100km new medium and 400km low voltage networks, supply and construction of new medium voltage network, supply and construction of PV-based mini-grids with storage, etc.). The project is rated as a category "B" (Partial Assessment) with three environmental policies triggered (OP/BP 4.01: Environmental Assessment, OP/BP 4.11: Physical Cultural Resources) and OP/BP 4.04: Natural

³³ Agence National des Energies Renouvelables et de l'Efficacité Energétique (ANEREE) created by the above mentioned new electricity law



Habitats). The risk is Moderate. An environmental and social management framework (ESMF) will be prepared, reviewed, consulted upon and disclosed in the country and on the World Bank website prior appraisal. This ESMF will identify risks and impacts and propose an environmental and social management Plan (ESMP), including mitigation measures, costs, responsibilities and a capacity building program.

39. **Social Risks** – Risks in this area are assessed as **Moderate**. The proposed project aims to maximize the number of households provided with electricity services while fostering local economic industrial development as well as attracting private investments. The expected social impacts of the proposed project will be overall positive in terms of (i) the number of people provided with new or improved electricity service, of which poorest families; (ii) the number of micro-small enterprises in rural areas provided with new electricity services, of which women and youth MSEs; (iii) the number of community infrastructures provided with new or improved electricity services. However, significant social risks are to be considered mainly regarding the health and the security of the neighboring communities, the management of the complaints, gender-based violence and sexual exploitation and abuse, local manpower, if applicable, etc. Therefore, social risk assessment will be undertaken, and strong mitigation measures are required to mitigate the specific assessed risks and impacts according to the relevant Environmental and Social Standards. Some of the project activities would involve land acquisition that would lead to the loss or the disruption of income or livelihood activities for individuals or groups of people, as well as restriction of access to the natural resources. The specific sites and the types of these investments are not known with certainty to date. Therefore, a Resettlement Policy Framework (RPF) and the subsequent Resettlement Action Plans (RAP) will be developed, once the types and the sites of investments are known precisely. The RPF and the subsequent RAPs will be reviewed, consulted upon, approved and disclosed both within the country and on the World Bank's web site prior the commencement of the civil works. The project team will include a social specialist to ensure that the social measures advocated are properly taken into account and implemented.

40. **Stakeholders**. Risks in this area are assessed as **Substantial**. The technical, commercial and financial capacities of COOPELs are very diverse but overall limited. Private operators contracted by COOPEL to operate the distribution network have also constraint in terms of technical and commercial capacities. The revision of COOPEL electrification model to improve its performance also relies on the revision of the financing agreements with ABER/FDE and wholesale electricity tariff with SONABEL. The private sector appetite for rural mini-grid electrification concession remain untested and would require significant subsidies to incentivize qualified bidders in an overall fragile environment. These risks will be mitigated by (i) the upstream preparation an action plan, discussed and agreed with stakeholders, to improve the performance of the COOPEL model (see Table 5 below) and (ii) the upstream preparation of a business case for the concession model for the private operated mini-grid, with flexibility kept along implementation to adjust the model base on market feedbacks.

41. **Security and fragility**. Risks in this area are assessed as **Substantial**. The security situation of the country has been significantly deteriorating recently. There have been numerous terrorist attacks targeting state institutions and representatives in northern and eastern parts of the country, as well as in Ouagadougou. Recent deterioration of the security situation exacerbates the country's endogenous fragility risks (see para. 5). This situation may translate into lower interest from bidders which would come with a significant security premium. These risks will be mitigated by the simple design of the proposed project with standardized activities for which companies originating from the country and the sub-region, better equipped to assess and address these risks, have proven to be fully qualified to implement it in previous projects.



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

Summary of Screening of Environmental and Social Risks and Impacts

The following ESS's are expected to apply to the project :ESS1 (Assessment and Management of Environmental and Social Risks and Impacts); ESS2 (Labor and Working Conditions); ESS4 (Community Health and Safety); ESS5 (Land Acquisition, Restrictions of Land Use and Involuntary Resettlement); ESS8 (cultural heritage); and ESS10 (Stakeholder Engagement and Information Disclosure).

Note To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document.

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