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Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 17-Jul-2018 | Report No: PIDISDSA23670



BASIC INFORMATION

A. Basic Project Data

Country Western Africa	Project ID P162933	Project Name North Core/Dorsale Nord Regional Power Interconnector Project	Parent Project ID (if any)
Region AFRICA	Estimated Appraisal Date 16-Jul-2018	Estimated Board Date 31-Oct-2018	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Government of Nigeria, Government of Burkina Faso, Government of Benin, Government of Niger	Implementing Agency WAPP Secretariat	

Proposed Development Objective(s)

The Project Development Objectives are : (i) to increase the capacity to trade electricity between Nigeria, Niger, Benin and Burkina Faso, (ii) to reduce the cost of supply of electricity in Niger, Benin and Burkina Faso through increased regional energy trade, and (iii) to increase access to electricity in Burkina Faso.

Components

Power Interconnection between Niger, Nigeria, Benin and Burkina Faso
National Electrification linked to the North Core Regional Interconnector
Institutional Framework and Project Oversight
Strengthening Institutional Capacity for Regional Electricity Trade

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	640.22
Total Financing	640.22
of which IBRD/IDA	465.47
Financing Gap	0.00

DETAILS



World Bank Group Financing

International Development Association (IDA)	465.47
IDA Credit	280.66
IDA Grant	184.81

Non-World Bank Group Financing

Counterpart Funding	4.93
Borrower	4.93
Other Sources	169.83
African Development Bank	119.65
EC: European Commission	16.10
FRANCE: Govt. of [MOFA and AFD (C2D)]	34.07

Environmental Assessment Category

B-Partial Assessment

Decision

The review did authorize the team to appraise and negotiate

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Other Decision (as needed)

B. Introduction and Context

A. Regional and Country Context

1. Two-thirds of Sub-Saharan Africa’s population or approximately 600 million people are without access to electricity, despite the region’s significant energy endowment. For those with access, average residential electricity consumption per capita in 2014 was equivalent to only about half the average level of China or one-fifth that of Europe.¹ The lack of reliable and affordable electricity constraints significantly economic activity and growth in these countries, and affects disproportionately the poorest segment of their population. It also has a profound

¹ World Energy Outlook 2014 Factsheet: Energy in Sub-Saharan Africa today, International Energy Agency.



impact on women and children.

2. While current levels of consumption are among the lowest in the world, a 2015 study by McKinsey estimates that demand for electricity in Sub-Saharan Africa will increase four-fold between 2010 and 2040, representing average growth of 4.5 percent per annum.² This growth will result from average annual increases in industrial and commercial demand of 4.1 percent and in residential demand of 5.6 percent. The increase in demand could vary significantly between sub-regions. In West Africa, it is expected that demand for industrial and commercial electricity would grow faster than average, by 5.3 percent per year.³

3. Sub-Saharan Africa is rich in sources of energy. Potential solar generation capacity was estimated at a staggering 10 terawatts. Excluding solar, the McKinsey study estimates that there are 1.2 terawatts of potential capacity: (i) 400 gigawatts (GWs) of gas-generated power (Mozambique, Nigeria, and Tanzania represent 60 percent of this capacity); (ii) 350 GW of hydropower (the Democratic Republic of the Congo accounts for 50 percent); (iii) 300 GW of coal capacity (Botswana, Mozambique, and South Africa represent 95 percent); and (iv) 109 GW of wind capacity, although at relatively high cost. The geothermal resource potential of 15 GW is important for Ethiopia and Kenya, since they hold 80 percent of this potential.

4. If each country were to build infrastructure to fulfill its electricity needs independently, the McKinsey study estimates that the region would require about US\$490 billion for new generating capacity by 2040, plus another US\$345 billion for transmission and distribution. In this context, regional integration is a game changer that could shape the energy landscape of Sub-Saharan Africa. The study estimates that significantly increasing regional integration could save more than US\$40 billion in capital spending, saving the African consumer nearly US\$10 billion per year by 2040, as the levelized cost of energy would fall from US\$70 to US\$64 per megawatt-hour. Similarly, an assessment of Africa's Infrastructure by the World Bank in 2010 estimated that fostering regional power trade could reduce the annual costs of power system operation and development by up to US\$2 billion per year. The cost saving for beneficiary countries is estimated to be in the range of US\$0.01 to US\$0.07 per kWh.⁴ Other events could change the sector in Africa. Completing the Grand Inga Dam hydroelectric project could help save US\$32 billion in investment, and tapping the underexplored gas potential on the coasts could lower the levelized costs of energy.

² Brighter Africa: The growth potential of the sub-Saharan electricity sector: Castellano, A.; Kendall A; Nikomarov. M; Swemmer T; February 2015. McKinsey & Company.

³ This strong growth of electricity demand results from high economic growth, rapid urbanization, large population increases, and active policies to expand access. This is particularly the case for emerging countries where the rate of growth of commercial and industrial demand usually exceeds GDP growth by an average of 1.66 percent. Efforts to increase efficiency may reduce the rate of growth, but this gradual process would likely affect mainly the later part of the forecast period.

⁴ Foster, V., Briceño-Garmendia, C. Africa's Infrastructure: A Time for Transformation, World Bank, 2010.



5. Promoting regional interconnections not only allows for an increase in the total electricity supplied at a cheaper average cost, but also diversifies the sources of electricity, which in turn increases the system reliability and grid stability. In particular, regional integration facilitates scaling up renewable energy generation, because the greater grid stability from integration increases the amount of intermittent sources that can be connected to the grid.

6. There are differences among sub-regions across Africa. In terms of long-term security of supply (the extent to which potential base load capacity exceeds long-term demand for power), the McKinsey study notes that Central Africa is the best endowed sub-region due to its massive hydro potential, although this potential has proven difficult to harness. On the other hand, West Africa appears to have the tightest supply and demand picture, as its total estimated base-load potential capacity is 105 GW while the demand gap in 2040 is likely to reach 101 GW. In this context, it is important to optimize supply through regional integration that maximizes economies of scale and links sources of supply to distant centers of consumption, as well as through development of cost-efficient supply, such as hydroelectricity and gas.

7. To fight inequity and inequalities, countries in the ECOWAS region have made commitments to promote gender equality with the development of National Gender Policies and the creation of Gender Ministries. The countries adhere to several international and regional conventions and agreements, which in principle have a positive effect on the status of women.⁵ However, the practical application of those commitments remains problematic, and there are significant challenges in closing opportunity and outcome gaps between women/girls and men/boys. Other vulnerable groups such as handicapped or youth (both sexes) are also marginalized with respect to these opportunities for better living standards and more economic opportunities. Women constitute the majority of the poor/extremely poor. They have low socio-economic status, with limited access to education, health facilities, agricultural productive resources, formal employment, income and energy resources and services.

8. Women and girls, especially in rural areas, bear a significant burden from the lack of energy access. Time spent on household needs, such as collecting firewood and water for drinking and burning high-polluting charcoal and kerosene for cooking and lighting, prevents their full and active participation in educational and economic activities. The Economic Community of West African States (ECOWAS) has approved a policy directive requiring the 15 countries to include gender assessments in evaluating and approving energy infrastructure projects. The effort, led by the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), has received strong support from government leaders and countries are pursuing national legislation to implement the ECOWAS Directive and are committed to bringing clean energy sources to urban and rural areas.

⁵ It includes the United Nations Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol)



West African Power Pool

9. Faced with the task of expanding power systems to meet development needs, the fifteen member states⁶ of the Economic Community of West African States (ECOWAS) acknowledge that efforts to achieve national self-sufficiency in electricity supply have been uneconomic due to the high cost of establishing power generation and transmission infrastructure at national levels. They have decided to support a regional approach to effectively addressing the need for more energy. Table 1 below offers a snapshot of electricity supply and demand in the WAPP sub-region. Large surpluses of electricity in some countries contrast with the scarcity of cost efficient sources of electricity in others, offering fertile ground for regional energy trade. A dynamic analysis of opportunities for trade of electricity has been undertaken as part of the economic analysis of regional transmission projects financed by the World Bank (see Annex 4 on the economic analysis for the North Core Regional Interconnector).

Table 1. WAPP Supply/ Demand Situation

Country	Installed Capacity (MW)	Domestic available capacity (MW)	Peak demand (MW)	Domestic power generation (GWh)	Exports (GWh)	Imports (GWh)	Reserve Margin (%)
Benin_2013	160	41	362	5	0	1,097	-793
Burkina Faso_2012	297	175	175	625	0	514	0
Cote d'Ivoire_2013	1,521	N/A	1,077	7,515	820	0	N/A
Gambia, The_2013	101	45	N/A	251	0	0	N/A
Ghana_2013	2,811	2,267	1,943	12,870	530	27	14
Guinea_2013	338	169	162	654	0	0	4
Guinea-Bissau_2010	6	N/A	N/A	N/A	0	0	N/A
Liberia_2014	22	16	11	56	0	0	32
Mali_2013	270	N/A	236	584	0	794	N/A
Niger_2013	176	N/A	135	213	3	603	N/A
Nigeria_2014	7,044	6,493	N/A	30,715	1,412	0	N/A
Senegal_2013	660	495	483	2,734	0	322	2
Sierra Leone_2012	94	N/A	N/A	195	0	0	N/A
Togo_2013	143	N/A	163	260	0	834	N/A

Source: Trimble, C. M. Kojima, I. Perez Arroyo, and F. Mohammadzadeh. 2016. “Financial Viability of Electricity Sectors in Sub-Saharan Africa: Quasi-Fiscal Deficits and Hidden Costs.” Policy Research Working Paper 7788, World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/24869>. cited in: Energy and Extractive Global Practice, World Bank.: “From Transmission Lines to Regional Power Markets”, April 24, 2017.

10. To foster the expansion of regional energy markets, ECOWAS established the West African Power Pool (WAPP) in 1999. This cooperative mechanism aims to integrate national power systems (except Cape Verde) into a regional electricity market, with the expectation that this would help to provide stable and reliable electricity at affordable cost over the medium to long-term. The WAPP, a “flagship infrastructure project” of the New Partnership for African Development (NEPAD) aims to foster the development of electricity in ECOWAS member states.

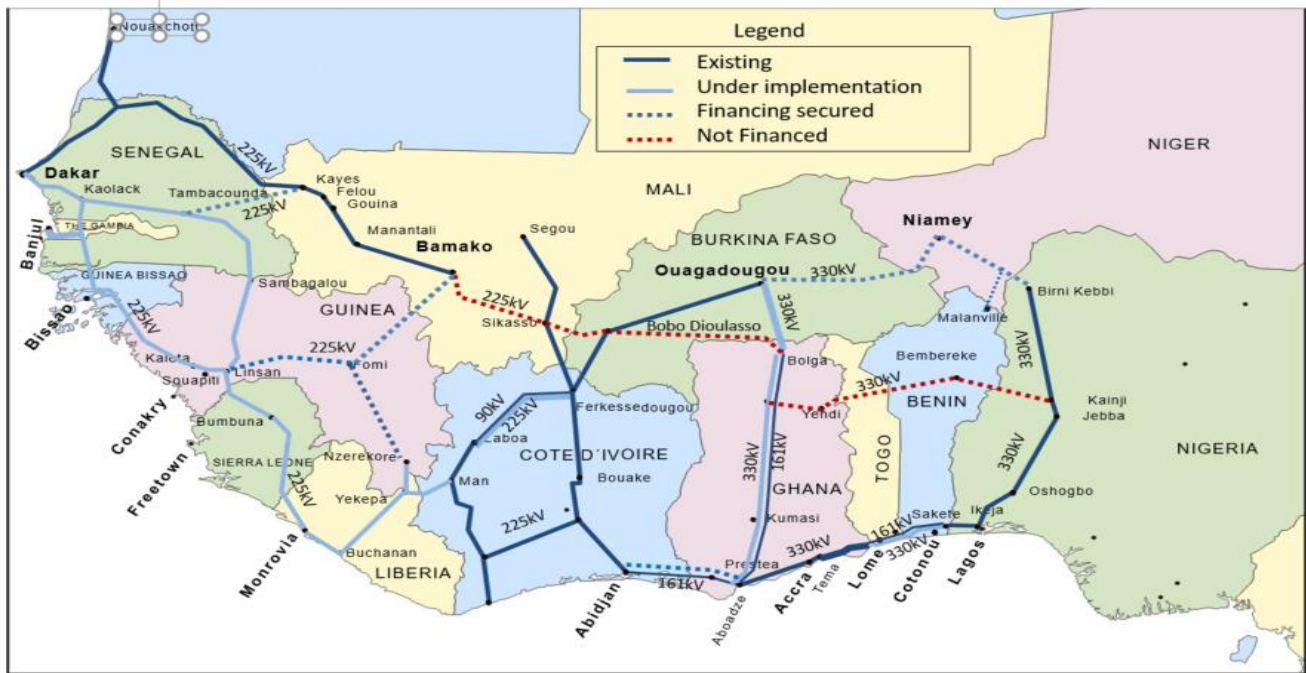
⁶ Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria,

Senegal, Sierra Leone, and Togo.



11. The Implementation of the "road map" of the WAPP Infrastructure Program was launched based on five distinct but mutually reinforcing infrastructure sub-programs that will converge into a unified, well-functioning regional power pooling mechanism in West Africa. These programs are being implemented through a number of investment projects supported by the World Bank, the African Development Bank (AfDB) and other multilateral and bilateral institutions. Countries in the WAPP sub-region are already engaged in bilateral exchanges, trading about six percent of sub-regional generation capacity. Trade is expected to increase further in the medium term, when the various regional transmission lines under implementation are completed (CLSG, OMVG, OMVS, Guinea-Mali).
12. The original five sub-programs in the original road map that launched the implementation of the WAPP infrastructure program were the following: (see also Figure 1):
- i. Coastal Transmission Backbone Subprogram (Côte d'Ivoire, Ghana, Benin/Togo, Nigeria) to establish a robust interconnection between the ECOWAS Coastal Member States.
 - ii. Inter-zonal Transmission Hub Sub-program (Burkina Faso and Mali via Ghana) to establish secure, reliable transmission corridors for transfer of low cost energy to displace diesel-based sources especially in Burkina Faso, through Ghana.
 - iii. OMVG and OMVS Power System Development Subprogram (The Gambia, Guinea, Guinea Bissau, Mali, Senegal) to interconnect national systems of The Gambia, Guinea, Guinea Bissau, Mali, and Senegal and secure access to sources of low cost energy to be built on the Gambia River, the Senegal River and the Konkoure River Basins.
 - iv. North-core Transmission Sub-program (Nigeria, Niger, Burkina Faso, Benin) to upgrade and extend existing capacity to transfer low cost energy supply to Niger, Burkina Faso, and northern Benin and Togo.
 - v. Côte d'Ivoire–Liberia-Sierra Leone-Guinea Power System Redevelopment Sub-program (Côte d'Ivoire, Liberia, Sierra Leone, Guinea) to interconnect these countries into the WAPP Energy System and to develop the hydropower resources in the sub-region.

**Figure 1. Map of WAPP Infrastructure
May 2017**



13. strengthen commercial arrangements for sustainable trade of electricity because existing trading arrangements often lack contracts with clear rights and responsibilities for all parties and well-defined conflict resolution mechanisms. The first Power Purchase Agreements (PPA) signed under the CLSG project in 2016, for the sale of 81 MW from Côte d'Ivoire to Liberia, Sierra Leone and Guinea (27 MW each), are examples of improved commercial agreements that aim to establish well organized energy exchanges through the CLSG interconnector.⁷ In an effort to develop a comprehensive and consistent regulatory framework for regional energy exchanges, the Regional Electricity Regulatory Authority for the ECOWAS countries (ERERA) has developed standard Purchase Power Agreements templates, in collaboration with the WAPP.

14. The use of such improved and standardized PPA documents would strengthen trading arrangements by reducing the risks for investors in large generation projects and for large consumers and utilities that purchase this power. Complementing ERERA and WAPP efforts, the Bank is conducting analytical work on securitizing electricity trade to ensure the sustainability of these exchange arrangements. Securitization of payment is another important element of sustainable regional trade, since most utilities in West Africa do not have cost reflective tariffs and subsidies are pervasive. There are substantial payment arrears among the power utilities of Côte d'Ivoire, Liberia, Ghana, Togo, Benin, and Nigeria. On the other hand, importers like Burkina Faso, which regularly pay for electricity imports, complain of unreliability in delivery of imported electricity. In this situation, well articulated PPAs will be essential to minimize the risks for both sellers and buyers and credible mechanisms for securitization of payments would help

⁷ These PPAs are expected to become effective once the line is commissioned in late 2019 or early 2020.



ensure that exporters are paid and importers receive reliable service.

World Bank Support to the WAPP

15. The World Bank has developed a strong partnership with the WAPP. Together with other donors, it is financing parts of all five WAPP Master Plan Investment sub-programs. It also supports the preparation of key generation projects for cost efficient electricity in the region and assists member countries in building commercial and technical instruments to create an energy market. To channel this support, the Bank uses three main instruments: (i) investment project financing, (ii) technical assistance, and (iii) guarantees.

16. The World Bank's rationale for supporting the regional integration agenda as a major tool to expand access to affordable and reliable electricity in West Africa is grounded in: (i) the need for regional transmission infrastructure since cost-effective generation, such as hydropower, is often far from markets; (ii) the fact that a regional power system allows some countries to overcome inefficiencies related to their small economies, enabling development of large projects through export of excess production, or import of lower cost electricity from other countries; (iii) recognition that a regional approach optimizes the use of resources for electricity supply and reduces overall capital costs of generation, even if energy trade is not fully developed and infrastructure is not fully utilized in the short term; (iv) the fact that regional interconnectors serve as an important part of the national transmission grid for countries like Liberia and Sierra Leone, where national transmission networks are nascent; and (v) the appreciation that pooling of generation assets through regional interconnectors improves flexibility and reduces net variability across power systems, permitting the incorporation of greater amounts of variable renewable energy from sources such as solar generation. Regional interconnectors can also provide access to communities along the lines through the use of low-cost shield wire scheme (SWS) technology,⁸ and through grid densification around sub-stations.

17. The World Bank has financed the construction of regional transmission infrastructure through IDA/IBRD credits and provided IDA credits for regional renewable energy generation, mainly large hydro projects. It first financed a WAPP project in June 30, 2005, when the Bank Board endorsed an Adaptable Program Loan (APL) as the main vehicle for providing IDA support to the WAPP, within the framework of the World Bank's Regional Integration Assistance Strategy for West Africa.⁹ At that time, the World Bank dedicated US\$350 million in IDA resources under the IDA Regional Pilot Program for a multi-year, programmatic framework to support WAPP priority investments and technical assistance activities under the Revised WAPP Master Plan. The APL framework allowed for the reinforcement of policies through policy triggers, such as country commitments and

⁸ Grid access is complemented by off-grid solutions that will bring access to more remote areas.

⁹ See Report No: 32276-AFR.



ratification of the ECOWAS Energy Protocol.

18. On-going World Bank support to the WAPP energy investment program is summarized in Table 2.

Table 2. World Bank Support to the WAPP Energy Infrastructure Program- in Implementation					
Project	Countries	WB Project	WB Financing (US \$M)	Project Cost (US \$M)	Expected Date of Commissioning
APL1- Coastal Transmission Backbone					
Coastal Transmission Backbone	Ghana, Benin	APL1-Phase 1: Ghana	US\$40 - Ghana.	US \$83	2010
		APL2-Phase 2: Ghana-Benin	US\$45 - Ghana US\$15 - Benin WB Total: US \$60M	US\$ 75	2013 (Ghana) Not yet built (Benin)
APL2: OMVG and OMVS Inter-zonal Transmission Hub					
Organisations pour la mise en valeur du fleuve Senegal (OMVS)	Mauritania, Senegal, Mali	OMVS Felou Hydropower APL2 – Phase 1 (Parent (2006) and Additional Financing (2009)	US\$67.5 - Mali US\$25 - Mauritania US\$67.5 - Senegal WB Total: US\$160	US\$ 175	2013
		OMVS reinforcement - APL2 - Phase 3	US\$97 M - Senegal.	US\$103	2020
Organisations pour la mise en valeur du fleuve Gambie (OMVG)	Senegal, The Gambia, Guinea, Guinea Bissau	OMVG Interconnection loop APL2- Phase 2	US\$47 - The Gambia US\$30 - Guinea US\$78 - Guinea-Bissau US\$45 - Senegal. WB Total: US\$200	US\$711	2019
APL3 -Inter-zonal Transmission Hub					
Inter-zonal Transmission Hub	Burkina Faso, Mali, Ghana	Phase 1: Ghana (Bolgatanga)-Burkina Faso (Ouaga)*	US\$16 - Burkina Faso US\$25.9 - Ghana WB Total: US\$41.9	US\$111	2018
APL4- WAPP-CLSG Power System Redevelopment					
WAPP-CLSG Power Interconnection Project	Côte d'Ivoire, Liberia, Sierra Leone, Guinea	CLSG Interconnection Phase 1 (with single circuit)	US\$ 144.5 – Liberia	US444.3	2019

*Phase 2 is planned: Burkina Faso (Bobo Dioulasso)- Mali (Sikasso)

19. In addition to ongoing projects, a pipeline of World Bank financed regional investment projects is in preparation, aiming to foster regional integration and further expand electricity services in the region (Table 3). The Bank is preparing an on grid access program to connect about 500,000 new customers and benefit about 3 million people, an off grid regional project using renewable energy (mostly solar) in multiple countries, and a new Guinée-Mali high voltage



transmission project from N’Zérékoré, Guinea to Sanankoroba, Mali, including the construction/extension of seven substations and the electrification of nearby communities.

Project	Countries	Proposed WB Financing (US \$M)	Project Cost (US \$M)	Expected Date Commissioning
North Core Regional Interconnection Project (P162933)	Niger Nigeria Bénin Burkina Faso	US\$94.4 - Niger US\$53.3 - Nigeria US\$23.9 M - Bénin US\$147.1 - Burkina Faso Total: US\$418.6	US\$610	2020
Guinea-Mali Interconnection (P166042)	Guinea- Mali	US\$83.6	US\$404.4	Identification stage
Regional Off-Grid Electrification (P160708)	Benin, Burkina Faso, Cameroon, Central Africa Republic, Chad, Côte d’Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Islamic Mauritania, Niger, Nigeria, Senegal, Sierra Leone Togo	US\$200	US\$200	In preparation
On-Grid Regional Electricity Access Project (P164044)	Guinea Guinea Bissau Mali Senegal The Gambia	US\$312	US\$312	Identification stage
Grid Connected Solar Electricity Development in Sub-Saharan Africa (Solar SSA SOP) (P162580)	Benin, Burkina Faso, Central African Republic, Côte d’Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sierra Leone, Senegal, Chad, Togo, The Gambia	US\$25	US\$25	Identification stage

20. The Bank provides technical assistance to the WAPP and its members to strengthen the legal and regulatory framework for regional electricity trade, build capacity for trade, address issues that hinder power trade, and scale up trading initiatives. An example is the US\$20M grant to the WAPP under the CLSG Project for capacity building for regional trade, improving the synchronization of national electricity systems, scaling up the use of storage to enhance system reliability and the use of renewable energy, and preparing new strategic generation and transmission projects included in the WAPP Master Plan. A WAPP Task Force has endorsed the recommendations of the Bank’s technical assistance to facilitate power trade in Sub Saharan Africa, seeking to identify commercial arrangements to strengthen payment discipline, develop mechanisms to securitize payments, and eventually incentivize private sector participation at both the regional and transaction levels. The recommendations will then be submitted to



WAPP's Executive Committee, and eventually to the Ministers of Energy of ECOWAS and Ministers of Finance of ECOWAS. Additionally, the Bank has initiated technical assistance to support solar generation in West African countries.

21. Finally, the Bank supports private investment in regional projects through guarantee instruments to back up off-taker payments. The Bank supported the West Africa Gas Pipeline through a Partial Risk Guarantee to cover the risks faced by investors in the West Africa Pipeline Gas Company, arising from non-payment by the largest gas purchaser (VRA). The Bank extended IBRD enclave guarantees of up to US\$200 million and an IDA guarantee of up to US\$500 million for the Sankofa Gas Project in Ghana, which is expected to leverage private sector participation and enable the mobilization of nearly US\$8 billion of foreign direct investment in the country.

The WAPP Market Design Phases and Implementation Roadmap

22. The ECOWAS Regional Electricity Authority adopted the WAPP Regional Market Rules (RMR) in 2015. The Rules identify three phases of market development. The first phase concerns the enforcement of the bilateral agreements through a standardized model contract by the regional regulator, which is about to be issued. The second phase envisages bilateral trading with transit through third party countries based on standard commercial instruments. Short term exchanges through the day ahead market will be established with optimization of the dispatch model. The regional regulator will regulate transmission prices. The third and the final phase will establish a competitive energy and ancillary services market in the WAPP. The availability of regional transmission capacity and generation reserve is required for the regional market. The North Core Interconnector is an essential building block in realizing each of the phases.

Country Context

23. **Nigeria**, with a population of 182.2 million people in 2015, had a GDP of close to US\$500 billion (2012) in 2014, making it the world's 26th largest economy. It features significant contrasts in economic and social outcomes, including disparities between dynamic urban growth centers and isolated rural areas and widening social and income disparities despite abundant natural and human resources. In 2016, Nigeria recorded its first recession in 25 years as GDP contracted by 1.6 percent. Negative oil price and production shocks spilled-over to other sectors, since revenues from the oil sector accounted for most of the foreign exchange receipts and for three quarters of fiscal revenues, even though the oil sector only generated 8.3 percent of GDP. This situation resulted in high inflation, foreign exchange shortages, and worsening fiscal balances. Available generation capacity declined from over five GW in March 2016 to less than four GW in February 2017, resulting in the contraction of the electricity sector and affecting other sectors. In the absence of reliable grid power, businesses with stand-alone diesel generators have used them as a substitute thus increasing the cost of production.

24. Economic growth is expected to be above one percent in 2017, driven by the restoration of oil production due to a more stable security situation in the Niger Delta, continued strong growth in



agriculture, and recovery of non-oil related sectors. The Government's *Economic and Recovery Growth Plan 2017-2020* sets out structural reforms to diversify the economy, including plans to expand power sector infrastructure. However, with the recovery depending on the oil sector, Nigeria's outlook remains fragile with domestic policy and external risks. Current data indicates poverty levels of about 49 percent in 2017.¹⁰ Two-thirds of the poor reside in northern Nigeria and the poverty rate in the North East is the highest in the country. In Nigeria, various gender gaps exist in connection rates with wealth being one proxy for access rates. Overall, 63 percent of female-headed households versus 54 percent of male-headed households have an electricity account (45 percent of rural female-headed households have electricity versus 32 percent of rural male-headed households and 79 percent of urban female-headed households have electricity versus 85 percent of urban male-headed households) while 40 percent of those with electricity are concentrated in the highest wealth quintile.

25. **Niger**, a landlocked and mostly arid country, is the sixth biggest country in Africa and the largest in West Africa. About three quarters of the population lives along the Niger River in the west and the 1500 km border with Nigeria in the south. In 2016, the population was 20.7 million, of which 82 percent was rural. The population is growing rapidly at 3.9 percent per year; it is expected to reach 36 million by 2030. Since 2011, the Government has been rebuilding democracy while combatting organized crime and terrorism. The surrounding region is marked by violence in northern Nigeria, Tuareg separatist and armed Islamist movements in Mali, and state collapse in Libya.

26. Poverty in Niger declined from 53.7 percent in 2005 to 44.5 percent in 2014. Nevertheless, Niger's low per capita GDP of US\$895 (2011 US\$) in 2015 made it one of the poorest nations in the world; it ranked last of 188 countries on the 2014 UNDP Human Development Index. GDP growth was 11.1 percent in 2012, 6.9 percent in 2014, and 3.5 percent in 2015. The main growth has been in agriculture and animal husbandry, together accounting for 40 percent of GDP and 80 percent of the workforce. Extractive industries increased from 4 percent of GDP in 2007 to 9 percent in 2016. Estimates suggest that the alleviation of power constraints could add up to 1.5 percent to per capita growth if generation capacity and access rates, now among the lowest in the region, were increased.¹¹ Niger's *Economic and Social Development Plan (2012–2015)* defined the improvement of electricity access as a critical element underpinning future sustainable economic growth. At the same time, climate variability and climate change effects are becoming more pronounced. Cultural norms in Niger restrict women's mobility, their access to public information or networks, which accentuates their inequality and disadvantages in relation to men. Together with very low literacy rates, these restrictions may keep poor women, female household heads (which constitute 16 percent of all household heads in Niger) and female entrepreneurs from learning about the possibility of getting an electricity connection, or successfully applying for and obtaining a connection.

27. **Benin** had a population of 11 million in 2015, concentrated in the south along the Atlantic coast. For more than three decades, it has enjoyed democracy. Forty-four percent of the population lives in urban areas. New agro-industries based on cotton, pineapple, and cashews are realizing Benin's agricultural potential. In contrast, energy resources are limited and Benin depends on Nigeria and Ghana for energy. GDP growth averaged close to 6 percent from 2012-15 but declined to 4.6 percent in 2016,

¹⁰ (US\$1.9 /day purchasing power parity terms)). Sources: NBS, World Bank and IMF staff projections, cited in "Nigeria: Power Sector Recovery Performance Based Loan , Project Appraisal Document ", 2018.

¹¹ Niger Constraints Analysis, Millennium Challenge Corporation, January 2014.



due to a slowdown of exports to Nigeria and a drop in agriculture production. The informal service sector accounts for 56 percent of GDP and 90 percent of employment, while agriculture accounts for 23 percent of GDP.

28. Benin's economic outlook is sound, but is vulnerable to external shocks, such as cotton and oil prices, developments in Nigeria, and adverse weather conditions. Its fiscal deficit has increased as the Government tries to balance ambitious public investment plans with a fiscally responsible budget. With a gross national income per capita of US\$860 in 2015, Benin is one of the poorest countries in the world. The poverty rate in 2015 was 40.1 percent, up from 36.2 percent in 2011. Women are more vulnerable, suffer from a lack of economic opportunities and are under-represented in high-level positions. Although Benin has made progress, more needs to be done, including in the energy sector, to enhance economic growth and reduce poverty.

29. **Burkina Faso**, a landlocked, low-income country in Sub-Saharan Africa, has high population growth and high levels of poverty. The population was 18.1 million in 2015 and is forecast to reach 21.5 million by 2020. Per capita gross national income was US\$660 in 2015; 45 percent of the population lived in poverty in 2014. The country was ranked 183 out of 188 countries on the 2015 UNDP Human Development Index. Recent economic performance has been relatively strong, but is not translating into poverty reduction. The economy relies on agriculture, with close to 80 percent of the active population employed in the sector.

30. Over the last 15 years, economic growth has averaged about 5.5 percent. However, the recent fall in gold and cotton prices, combined with drops in grain production and political instability, have contributed to low-tax revenues and a slowdown in poverty reduction. Urban poverty has almost doubled, rising from 10.4 percent in 1994 to 20 percent today. The country also faces increasingly harsh climatic conditions, which hinder efforts to reduce poverty. In 2015, one year after the uprising of 2014, the country held successful national elections, restoring the rule of law. In 2016, the Government adopted the *2016–2020 National Economic and Social Development Plan*, including strategic directions for the energy sector.

Nigeria, with a population of 182.2 million people in 2015, had a GDP of close to US\$500 billion (2012) in 2014, making it the world's 26th largest economy. It features significant contrasts in economic and social outcomes, including disparities between dynamic urban growth centers and isolated rural areas and widening social and income disparities despite abundant natural and human resources. In 2016, Nigeria recorded its first recession in 25 years as GDP contracted by 1.6 percent. Negative oil price and production shocks spilled-over to other sectors, since revenues from the oil sector accounted for most of the foreign exchange receipts and for three quarters of fiscal revenues, even though the oil sector only generated 8.3 percent of GDP. This situation resulted in high inflation, foreign exchange shortages, and worsening fiscal balances. Available generation capacity declined from over five GW in March 2016 to less than four GW in February 2017, resulting in the contraction of the electricity sector and affecting other sectors. In the absence of reliable grid power, businesses with stand-alone diesel generators have used them as a substitute thus increasing the cost of production.

31. Economic growth is expected to be above one percent in 2017, driven by the restoration



of oil production due to a more stable security situation in the Niger Delta, continued strong growth in agriculture, and recovery of non-oil related sectors. The Government's *Economic and Recovery Growth Plan 2017-2020* sets out structural reforms to diversify the economy, including plans to expand power sector infrastructure. However, with the recovery depending on the oil sector, Nigeria's outlook remains fragile with domestic policy and external risks. Current data indicates poverty levels of about 49 percent in 2017.¹² Two-thirds of the poor reside in northern Nigeria and the poverty rate in the North East is the highest in the country. In Nigeria, various gender gaps exist in connection rates with wealth being one proxy for access rates. Overall, 63 percent of female-headed households versus 54 percent percent of male-headed households have an electricity account (45 percent of rural female-headed households have electricity versus 32 percent of rural male-headed households and 79 percent of urban female-headed households have electricity versus 85 percent of urban male-headed households) while 40 percent of those with electricity are concentrated in the highest wealth quintile.

32. **Niger**, a landlocked and mostly arid country, is the sixth biggest country in Africa and the largest in West Africa. About three quarters of the population lives along the Niger River in the west and the 1500 km border with Nigeria in the south. In 2016, the population was 20.7 million, of which 82 percent was rural. The population is growing rapidly at 3.9 percent per year; it is expected to reach 36 million by 2030. Since 2011, the Government has been rebuilding democracy while combatting organized crime and terrorism. The surrounding region is marked by violence in northern Nigeria, Tuareg separatist and armed Islamist movements in Mali, and state collapse in Libya.

33. Poverty in Niger declined from 53.7 percent in 2005 to 44.5 percent in 2014. Nevertheless, Niger's low per capita GDP of US\$895 (2011 US\$) in 2015 made it one of the poorest nations in the world; it ranked last of 188 countries on the 2014 UNDP Human Development Index. GDP growth was 11.1 percent in 2012, 6.9 percent in 2014, and 3.5 percent in 2015. The main growth has been in agriculture and animal husbandry, together accounting for 40 percent of GDP and 80 percent of the workforce. Extractive industries increased from 4 percent of GDP in 2007 to 9 percent in 2016. Estimates suggest that the alleviation of power constraints could add up to 1.5 percent to per capita growth if generation capacity and access rates, now among the lowest in the region, were increased.¹³ Niger's *Economic and Social Development Plan (2012–2015)* defined the improvement of electricity access as a critical element underpinning future sustainable economic growth. At the same time, climate variability and climate change effects are becoming more pronounced. Cultural norms in Niger restrict women's mobility, their access to public information or networks, which accentuates their inequality and disadvantages in relation to men. Together with very low literacy rates, these restrictions may keep poor women, female household heads (which constitute 16 percent of all household heads in Niger) and female

¹² (US\$1.9 /day purchasing power parity terms)). Sources: NBS, World Bank and IMF staff projections, cited in "Nigeria: Power Sector Recovery Performance Based Loan , Project Appraisal Document ", 2018.

¹³ Niger Constraints Analysis, Millennium Challenge Corporation, January 2014.



entrepreneurs from learning about the possibility of getting an electricity connection, or successfully applying for and obtaining a connection.

34. **Benin** had a population of 11 million in 2015, concentrated in the south along the Atlantic coast. For more than three decades, it has enjoyed democracy. Forty-four percent of the population lives in urban areas. New agro-industries based on cotton, pineapple, and cashews are realizing Benin's agricultural potential. In contrast, energy resources are limited and Benin depends on Nigeria and Ghana for energy. GDP growth averaged close to 6 percent from 2012-15 but declined to 4.6 percent in 2016, due to a slowdown of exports to Nigeria and a drop in agriculture production. The informal service sector accounts for 56 percent of GDP and 90 percent of employment, while agriculture accounts for 23 percent of GDP.

35. Benin's economic outlook is sound, but is vulnerable to external shocks, such as cotton and oil prices, developments in Nigeria, and adverse weather conditions. Its fiscal deficit has increased as the Government tries to balance ambitious public investment plans with a fiscally responsible budget. With a gross national income per capita of US\$860 in 2015, Benin is one of the poorest countries in the world. The poverty rate in 2015 was 40.1 percent, up from 36.2 percent in 2011. Women are more vulnerable, suffer from a lack of economic opportunities and are under-represented in high-level positions. Although Benin has made progress, more needs to be done, including in the energy sector, to enhance economic growth and reduce poverty.

36. **Burkina Faso**, a landlocked, low-income country in Sub-Saharan Africa, has high population growth and high levels of poverty. The population was 18.1 million in 2015 and is forecast to reach 21.5 million by 2020. Per capita gross national income was US\$660 in 2015; 45 percent of the population lived in poverty in 2014. The country was ranked 183 out of 188 countries on the 2015 UNDP Human Development Index. Recent economic performance has been relatively strong, but is not translating into poverty reduction. The economy relies on agriculture, with close to 80 percent of the active population employed in the sector.

37. Over the last 15 years, economic growth has averaged about 5.5 percent. However, the recent fall in gold and cotton prices, combined with drops in grain production and political instability, have contributed to low-tax revenues and a slowdown in poverty reduction. Urban poverty has almost doubled, rising from 10.4 percent in 1994 to 20 percent today. The country also faces increasingly harsh climatic conditions, which hinder efforts to reduce poverty. In 2015, one year after the uprising of 2014, the country held successful national elections, restoring the rule of law. In 2016, the Government adopted the *2016–2020 National Economic and Social Development Plan*, including strategic directions for the energy sector.



Sectoral and Institutional Context

38. The proposed North Core/Dorsale Nord Regional Interconnector commences in Nigeria, stretching across Niger into Benin and Burkina Faso (See Figure 1). These countries have a track record of energy trade, although the total volume traded is small in relation to the potential for regional exchanges. Nigeria and Niger have long engaged in energy trade, in part because they share the use of the Niger River, which passes through nine countries.¹⁴ Burkina Faso on the other hand, has been importing electricity from its immediate neighbor Côte d'Ivoire, Ghana and on a minor scale from Togo. The text below discusses the electricity context in each country while Table 4 summarizes key sector indicators.

Table 4. Summary of Key Electricity Sector Indicators North Core Countries

	Nigeria		Niger		Benin		Burkina Faso	
Access (% of population)	56%		10%		29.2%		18%	
Urban	78%		35%		56.4%		58	
Rural		39%		1%	5.5%			5%
Utility Characteristics								
Name	TCN		NIGELEC		CEB		SONABEL	
Installed Capacity (MW)	7,500		143		295		315	
% Thermal	82		100		50		89	
% Hydro	18		0		50		11	
Available Capacity (MW)	3,900						157	
Peak Demand (MW)	5338		130		409		256	
# of electricity customers	5,400,000		218,000		507,000		508,500	
Utility Financials								
Average tariff (\$/kWh)	0.094		0.14		0.22		0.2	
Average cost of service (\$/kWh)	0.2		0.12		0.26		0.23 ¹⁵	
Utility Efficiency Indicators								
Bill Collection Rate (%)	64		80		60		97.5	
System losses (%)	50		19		24		16.8	

Sources: Niger – Niger Country Engagement Note (2016); Nigeria – World Bank Energy Data (2014); Benin – Benin Country Engagement Note (2016); Burkina Faso – Burkina Faso Country Engagement Note (2016). https://energycharter.org/fileadmin/DocumentsMedia/Occasional/Niger_Energy_Sector.pdf (2015), p.10. Update of Feasibility Study for the 330 kV North Core Interconnection Project (Nigeria - Niger - Togo/Benin - Burkina Faso) -Final report April 2016-FICHNTER

39. **Nigeria.** While the rate of electrification is higher than in the other North Core countries, access to electricity services in Nigeria remains low in comparison to the level of economic development, with a national access rate of 56 percent. About 40 percent of those connected to the national power grid face multiple daily power cuts. Domestic generation is mostly thermal, followed by hydro, including plants along the Niger River. Nigeria’s electricity sector is characterized by excess capacity but inadequate supply. Although the installed capacity is 13.2 GW, available capacity is much lower and peak generation decreased from 5.1 GW on February 2, 2016, to 3.3 GW on February 2, 2017. The national 330kV high voltage

¹⁴ Niger and Nigeria cooperate through the Autorité du Bassin du Niger (ABN), an organization for integrated development of the river’s resources comprising Benin, Burkina Faso, Cameroon, Chad, Cote d’Ivoire, Guinea, Mali, Niger and Nigeria.

¹⁵ Data: Energy & Extractives Global Practice (GEEDR) Country Engagement Notes (2016) (Internal).



transmission system is secure and in good condition, but the capacity of the system to deliver electricity is hampered by a weak sub-transmission system at the level of 132kV lines and transformation from 330 to 132 kV and 132 to 33 kV.¹⁶ Poor electricity service delivery in Nigeria results from serious and interlinked challenges including: (i) poor financial performance of DISCOs resulting in non-payment of their bills and rejection of loads; (ii) erratic gas supply mainly due to lack of payment by GENCOs and to a lesser extent, sabotage of gas pipelines; (iii) weak sector governance and lack of enforcement of contracts as a main cause of non-payments throughout the value chain in the industry; (iv) lack of investment planning and maintenance, and absence of efficient procurement; and (v) low levels of access.

40. Following the Electric Power Sector Reform Act of 2005, the sector was profoundly transformed, with the privatization in November 2013 of 11 distribution companies (DISCOS) and five generation companies (successors of the vertically integrated utility). Hydropower was concessioned to private operators while the transmission company TCN was maintained under public ownership. The Nigerian Bulk Electricity Trading (NBET) company was established.

41. Three years after privatization, the reform program has failed to deliver improvements in electricity services. The privatized distribution and generation companies have not made investments, in part because tariffs have been lower than required for cost recovery and governance arrangements are weak. The DISCOs have not made remittances to NBET, and NBET in turn has been unable to make full payments to GENCOs (and, indirectly, gas suppliers). Sector finances have deteriorated since 2015, resulting in a deficit of approximately US\$1.6 billion of unpaid invoices to gas suppliers, GENCOs, TCN and others. About 10 percent of the deficit is due to the non-payment of electricity bills by government ministries, departments, and agencies. The sector was also severely affected by sabotage of petroleum infrastructure in 2016 and 2017 that reduced the supply of gas for generation. Despite this reduction of production, the Nigerian electricity sector has excess electricity supply, since lack of payments from end users have resulted in disconnection and hence reduction of actual demand, further reduced as the Discos, unable to pay their bills to the generators and NBET, have started to reject loads. This has left many operators with stranded production and revenues-deprived, and has affected negatively the stability of the overall electricity network.

42. To address the deterioration in the sector's financial viability that has led to poor quality electricity service to industry and households, the Government approved a Power Sector Recovery Program (PSRP) in March 2017, in the context of the Economic Recovery and Growth Plan (ERGP). The objectives of the PSRP are to restore the sector's financial viability by improving power supply reliability, and take transitory support measures to meet growing demand, and strengthen sector governance and its institutional framework. The Program will also promote actions to de-bottleneck constraints to the utilization of generation, gas and transmission assets.¹⁷

43. Nigeria, Niger and Benin have a long tradition of intergovernmental agreements for exchange of

¹⁶ The World Bank is preparing a transmission project in Nigeria (NETAP) aiming to increase the capacity and reliability of the transmission network; approval is expected in 2017.

¹⁷ The PSRP was prepared in consultation with the World Bank Group (WBG), which provided technical support.



electricity, that build on the cooperation between the countries that share the waters of the Niger River.¹⁸ Nigeria has exported electricity for decades, in exchange for Niger and Benin refraining from damming the waters upstream. The current amounts traded are small in relation to its overall capacity, 180MW to Niger and 200 MW to Benin. The interconnection between Nigeria and Benin was inaugurated in 2007 with the line to Saketé in Benin. The initial agreement with Niger was between NIGELEC and the Nigerian Electricity Company (NEPA), while for Benin the agreements were between CEB and NEPA. These intergovernmental agreements were grandfathered during the market reforms of the Nigerian energy sector. After the electricity market was unbundled, export contracts were handled in Nigeria by PHCN (ex-NEPA) and then passed to TCN. In late 2017, the Government of Nigeria announced that all existing export contracts should be handled by NBET (Nigerian Bulk Energy Trade), but the transition has yet to be effected. The Government stressed the importance of converting NIGELEC and CEB contracts from government agreements to PPAs with NBET, while also seeking to encourage bilateral contracts with generators and wheeling contracts with TCN for expanded supply.

44. Electricity exported from Nigeria to Niger is transported through two 132 kV lines (the Birnin Kebbi-Niamey and the Katsina Gazaoualine lines) that bring electricity from the Kainji Generation Plant. Nigeria is supplying the full 180 MW contracted to Niger, utilizing current transmission capacity to the maximum. Electricity exported from Nigeria to Benin is transported through 70 km of 330kV line between Ikeja in Nigeria and Sakete in Benin, with a contracted amount under intergovernmental agreements of 260 MW. In December 2017, a separate contract for 60 MW was signed between SBEE and Parras, a Nigerian self generator using a 1year renewable PPA. Given the capacity constraints of the HV transmission line between Nigeria and Benin, the total actual amount traded is 200 MW with priority given to the electricity sold by Parras, despite the higher price for this power.

45. With respect to payment for Nigerian exports to Benin and Niger, NIGELEC has always paid regularly and in full while CEB has incurred significant payment arrears.¹⁹ Although the price of electricity exports is low, exports are attractive to Nigerian stakeholders (the GENCOs and TCN) because payments are made in hard currency, and are a source of stable revenues in the case of the exporters to Niger and SBEE-Parras to Benin). During the current crisis in the Nigerian energy sector, these exports have lessened the burden of unpaid bills from DISCOs to generators, while allowing the GENCOs to redirect electricity production towards export markets that could otherwise have been rejected by the DISCOs.

46. In the context of limited effective demand in the Nigerian electricity market, it is expected that Nigeria will be able to supply the electricity exports required for the Project in the short to medium term. In the longer term, the measures supported by the PRSP aim to re-establish normal functioning of the energy market by releasing the bottlenecks that prevent electricity from flowing efficiently in the system and repress the levels of demand (due to lack of supply of gas, non payment by end users to DISCOs, and payment arrears from DISCOs to GENCOs). Continuing to export electricity to the regional market through the North Core Interconnector would be consistent with the Government's overall sector strategy and would help

¹⁹ In summer 2017, payment arrears from CEB amounted to 1.1 % of combined GDP of Togo/Benin.



strengthen the Nigerian energy market, since: (i) the additional amounts of exported electricity are modest in relation to the Nigerian market;²⁰ (ii) the exports will generate hard currency for the economy; and, (iii) Nigeria's exports of electricity to Niger and Benin are grounded in the country to country agreements on sharing water resources of the Niger River.

47. **Niger.** The rate of access to electricity in Niger is one of the lowest in Sub-Saharan Africa, at 10 percent. Access in urban areas is 35 percent while it is less than 1 percent in rural areas. Nationwide aggregated installed capacity is only about 170 MW (excluding mining operations) of which 130 MW in the Western Grid (Niamey, Tillabery, Dosso). The country imports 70 percent of its electricity from Nigeria. The remaining 30 percent is produced by diesel-fired thermal power plants that utilize imported fuel. Imports of cheaper electricity from Nigeria have been critical for meeting the strong growth in electricity demand that averaged 8.5 percent per year 2001-14, significantly outpacing annual GDP growth of about 4 percent. Two 132 kV transmission lines supply the majority of the imported electricity: the Birnin Kebbi – Niamey line and the Katsina-Maradi line. However, infrastructure limitations are creating issues, such as load shedding. Niamey, the capital, experiences frequent service interruptions largely attributed to the Birnin Kebbi -Niamey line reaching its limit of 90 MW.

48. Niger has significant potential for additional generation. However, projects such as the 130 MW Kandadji hydropower plant have been delayed and are not expected to operate in the short term. To meet increasing demand over the next 5-7 years, Niger has commissioned the Gorou Banda thermal power plant (100 MW in 2017). The Government has adopted a multi-pronged strategy to expand supply of electricity, and mitigate cost increases due to more expensive thermal generation. This strategy includes scaling up investment in domestic solar potential, and expanding imports of electricity from Nigeria. Furthermore, to expand access, investment will be needed in transmission and distribution, as well as isolated mini-grids. Increasing electricity imports from Nigeria through the North Core Regional Interconnector is a national priority because it would increase the supply of electricity available at relatively low prices, helping to maintain affordability of electricity for Nigerian consumers. Mainstream Energy Solutions Ltd., a generation company in Nigeria of which NIGELEC, (the state-owned electrical utility of Niger) is a shareholder, has approached the Government of Niger to discuss exports from their hydroelectric plants in Jebba and Kainji.

49. **Benin.** The overall energy access rate in Benin is 29.2 percent, ranging from 56.4 percent in urban areas, to 5.5 percent in rural areas. In 2013, the country's installed capacity was about 105 MW, most of which is in one hydroelectric plant and a gas turbine.²¹ The hydropower plant needs rehabilitation and is plagued by service interruptions due to droughts, while the gas turbine regularly faces technical difficulties.

²⁰ Exports from the North Core in the latest version of Fichtner's Master Plan for Generation and Transmission are expected to grow from 630 MW in 2025 to 750 MW in 2035, equivalent to four and 2 percent of the total expected demand in these years. Exports through the North Core Interconnector in Fichtner's feasibility study of the North Core project are somewhat higher (see table A4.3), but remain below 5 percent of total projected demand for Nigeria.



As a result, the Communauté Électrique du Bénin (CEB), the public utility owned by Benin and Togo that is responsible for electricity generation, transmission and infrastructure development, is frequently unable to produce at full power. Electricity imports play a significant role, with 88.6 percent of Benin and Togo's power in 2010 supplied from Ghana, Nigeria and Cote d'Ivoire. However, these exchanges have mostly benefited the southern areas that are served by the national grid, whereas the northern part of Benin is relatively isolated and has limited access to cost efficient sources of energy.

50. The Government is seeking to diversify electricity supply by developing the hydroelectric potential of Benin and Togo, and signing contracts for emergency thermal based generation. It negotiated a costly 200 MW emergency contract for diesel generation and is preparing to commission a 240 MW heavy fuel oil (HFO) plant with private investors. It is trying also to diversify supply through additional interconnections with the regional market. The distribution company in Benin signed a contract with Paras Energy to import 60MW in addition to the CEB agreement for 200 MW already in place with Nigeria. The most important benefit for Benin of the North Core Project is that it will connect with the 161 kV Onigbolo-Parakou-Malanville transmission line, currently under construction, and thus increase the reliability of supply. Furthermore, it will allow the isolated northern part of Benin (Malanville, Kandi, Bembéréké) to have access to reliable and continuous electricity.

51. **Burkina Faso.** Electricity coverage is less than 18 percent, with urban areas at 58 percent, and rural areas at less than 5 percent. Nearly 90 percent of people rely on firewood and charcoal for the bulk of their energy needs. While the per capita electricity consumption is only 50 kWh per year, demand is growing rapidly at 10 percent annually. The electricity sector is unable to meet growing demand; severe load shedding is projected for 2017 and 2018. Part of the reason is that Burkina Faso has limited resources of energy. The country is a net electricity importer, with supply coming from Cote d'Ivoire (50 to 100 MW in 2015), and is constrained to import more by the limited number of interconnectors. In 2015, its installed capacity was 260 MW (26MW hydro and 234 MW thermal) for a peak demand of 234 MW. It experiences significant irregularities of supply; load shedding is caused by unavailability of thermal generation plants, lack of fuel and irregularity in imports from Côte d'Ivoire.

52. The Government's most urgent priority is to significantly increase the supply of reliable electricity to meet domestic demand. To this end, it expects to develop firm base supply by bringing online 80MW of additional capacity and to commission more than 150 MW by 2020. It plans to develop renewable energy, notably solar energy. It also aims to increase imports of electricity and diversify sources of supply, with the signature of purchase power agreements with new suppliers in Nigeria to import through the North Core interconnector. This is consistent with the least cost option to meet baseload demand, which is a mix of rehabilitation of existing HFO-fired generation, imported electricity and greenfield fossil fuel generation.

C. Proposed Development Objective(s)



Note to Task Teams: The PDO has been pre-populated from the datasheet for the first time for your convenience. Please keep it up to date whenever it is changed in the datasheet. *Please delete this note when finalizing the document.*

Development Objective(s) (From PAD)

53. The Project Development Objectives are: (i) to increase the capacity to trade electricity between Nigeria, Niger, Benin and Burkina Faso; and, (ii) to reduce the cost of supply of electricity in Niger, Benin and Burkina Faso through increased regional energy trade.

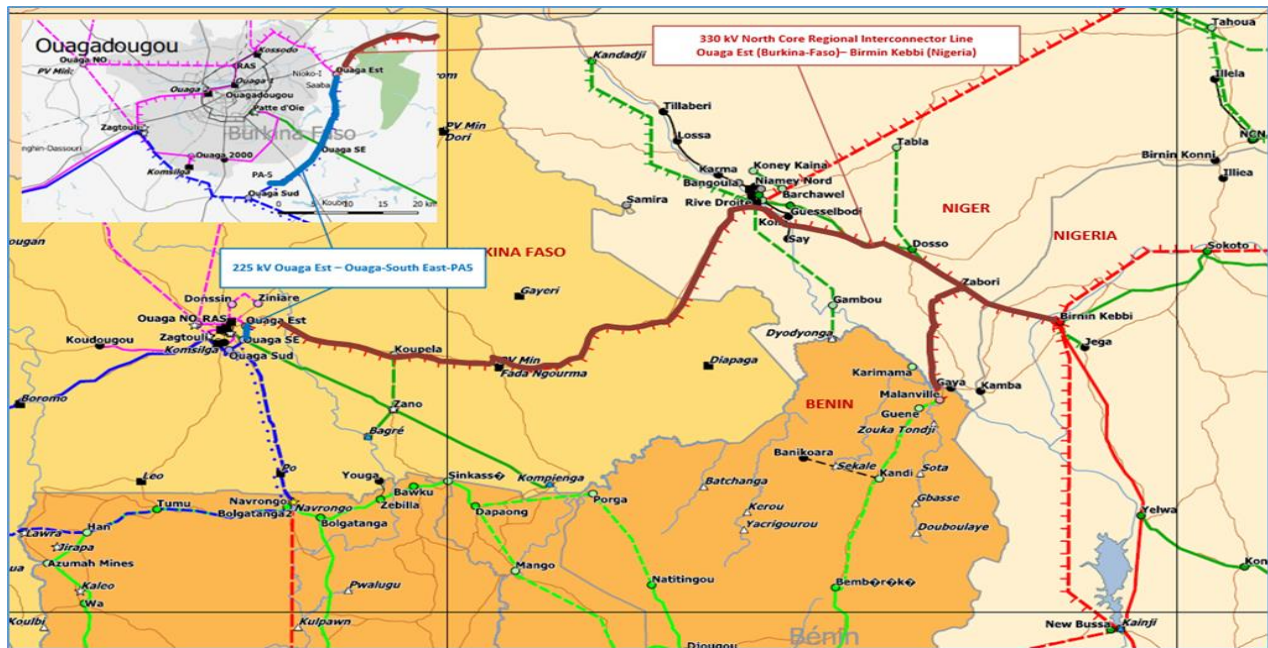
Key Results

54. The key PDO-level results indicators include:
- The increase in the transmission capacity to trade electricity between Nigeria, Niger, Benin and Burkina Faso.
 - The difference between the annual weighted average cost of electricity imported through the North Core Regional Interconnector and the annual weighted average cost of other sources for the utilities in Niger, Benin and Burkina Faso.

D. Project Description

55. The proposed Project aims to connect Nigeria, Niger, Benin and Burkina Faso with a high voltage 330 kV transmission line to facilitate efficient energy trade in the sub-region, provide technical assistance to foster efficient commercial exchange agreements among its participants, and expand access to populations along the transmission line. The North Core Regional Interconnector will have an initial capacity of about 430 MW, which could reach over 600 MW five to ten years after its entry in service. The WAPP Secretariat, TCN, NIGELEC, CEB and SONABEL will collaborate to implement the proposed Project. In addition to the transmission line, the Project will construct or extend five substations, as well as install SCADA and fiber optic cables (OPGWS) along the line. (See Figure 2 below). The African Development Bank (AfDB), the Agence Française de Développement (AFD) and the World Bank (WB) will finance the project.

Figure 2: Project Area in Burkina Faso, Benin, Nigeria and Niger



Source: WAPP Interconnected Power Systems. WAPP GIS database - VERSION 1.1. January 2017

56. Based on the Feasibility Study for the proposed Project, demand for electricity will increase significantly in the four Project countries over the medium-to-long term (see Table 5). By 2030, Nigeria’s demand is expected to reach 34,600 MW from 11,400 MW in 2015; Niger River Zone’s demand will reach 750 MW from 138 MW in 2015; Benin and Togo’s demand is predicted to be 1,221 MW compared to 412 MW in 2015; and Burkina Faso’s demand is expected to exceed 920 MW, compared to the 2015 level of 256 MW.

Table 5 Electricity Demand in Project Countries

Country	2015	2020	2025	2030	2035	Average annual growth 2015-35
Nigeria	11400	16900	24500	34600	47682	7.4%
Niger	138	332	550	750	908	9.9%
Benin	412	839	1007	1221	1495	6.7%
Burkina Faso	256	395	608	920	1378	8.8%
Total	330/12206	18466	26665	37491	51463	7.5%

Source: Fichtner Consulting: “Update of Feasibility Study and Preparation of Bidding Documents”, October 2016.

57. Looking forward, the additional exports of electricity enabled by the North Core Interconnector are expected to come initially from the same sources in Nigeria that supply current exports to Niger and

²² Fichtner Consulting: “Update of Feasibility Study and Preparation of Bidding Documents”, October 2016.



Benin, including the Kainji Generation Plant. Other options include the new Zungeru Hydropower Plant located on the Kaduna River in Niger State, 150 km from Abuja or else electricity purchased from the national system through NBET. Discussions have taken place between the three countries interested in buying electricity (Niger, Benin and Burkina Faso, and Nigerian parties interested in increasing exports, mainly Mainstream Energy (in which the Government of Niger holds 5 per cent of the shares), and NBET.

58. The Interconnector will allow Niger to increase significantly the availability of lower cost energy supply from Nigeria, by releasing the transmission constraint that has hindered increasing these exports beyond amounts agreed in country-to-country agreements. Since Nigeria is exporting the full 180 MW currently committed to Niger, increased exports will require new Power Purchase Agreements and Transmission Service Agreements, expected to be a condition of Project disbursement. In the case of Benin-Togo, the North Core Interconnector would release transport constraints and allow the full purchase of amounts under the existing PPAs (an additional 60MW). It will provide access to electricity to the Northern part of Benin, which currently is isolated from the Benin National Grid. In the longer term, it will expand the supply available to Benin and Togo as a whole, once the 161 kV Bembéréké-Malanville is built, connecting the North Core Interconnector to the Benin/Togo national transmission network. It will also allow Nigeria to export electricity to Burkina Faso to relieve its dependence on expensive fuel-based generation and increase supply reliability. The Interconnector will facilitate access to regional markets for Niger, when additional generation projects in that country become operational.

59. The North Core Regional Interconnector would also facilitate the development and export of an estimated 235 MW of variable renewable energy (VRE) from solar generation now under development in Niger and Burkina Faso, in the medium to long term. Pooling transmission interconnection is a valuable tool to facilitate the integration of VRE. The pooling of generation assets through interconnection improves the flexibility and reduces net variability across the power system. This flexibility would: (i) increase the amount of VRE that can be accommodated in power systems; (ii) improve investor confidence in VRE; (iii) decrease the risk of negative market pricing for VRE that results when conventional generators cannot decrease output during times of high VRE output; (iv) and increase environmental benefits by increasing system efficiency and maximizing the utilization of VRE.

60. With more than 90 per cent of the total line crossing through Niger and Burkina Faso, the Project will also help to increase access to electricity in these two countries that have the lowest rate of electrification among the countries participating in the North Core Interconnection Project. In addition to facilitating regional energy trade, the Project will provide access to populations along the transmission line by extending the MV line or using low cost shield wire technology to supply electricity from the 330MV transmission line to bring the electricity to the end users. These electrification components are financed in Niger by AFDB (with funding from EU), and co-financed in Burkina Faso by the World Bank and AFD (with funding from EU). In Benin, such a component will be integrated to the national access projects currently in the pipeline, to be supported by the World Bank.²³ Providing access to electricity to populations along the line would help support the physical security of the line as local people then would have a strong interest in ensuring that the line is functioning. The approach is consistent with best practice in transmission line construction and with the WAPP's interest in incorporating the regional access agenda in regional interconnection projects; this approach is now fully supported by other financing partners.

²³ In Nigeria, the Rural Agency for Electrification (REA)'s priorities are now more focused on expanding off grid electrification, rather than developing new grid connected projects.



61.

E. Implementation

62. Institutional and Implementation Arrangements

63. The governments of Nigeria, Niger, Togo, Benin and Burkina Faso and their respective utilities involved in electricity transmission (TCN, NIGELEC, CEB and SONABEL) have adopted a regional vision for the development of the North Core Transmission project, which was translated into the WAPP North Core Protocol, signed in 2015. In this Protocol, they reflected this regional vision with their agreement to implement the project with a centralized approach during the construction phase, to maximize the economies of scale, ensure efficient coordination and timely construction of the facilities, and harmonization of technical specification and operational and maintenance procedures. This said, the four countries have decided to maintain separate ownership and operation of the interconnections on their respective territories once the lines have been built. Each utility will own its line and be responsible for operation and maintenance. As future owners of the lines, the four utilities will need to be closely involved during project design and at key milestones during project implementation to ensure that the line is completed to their satisfaction.

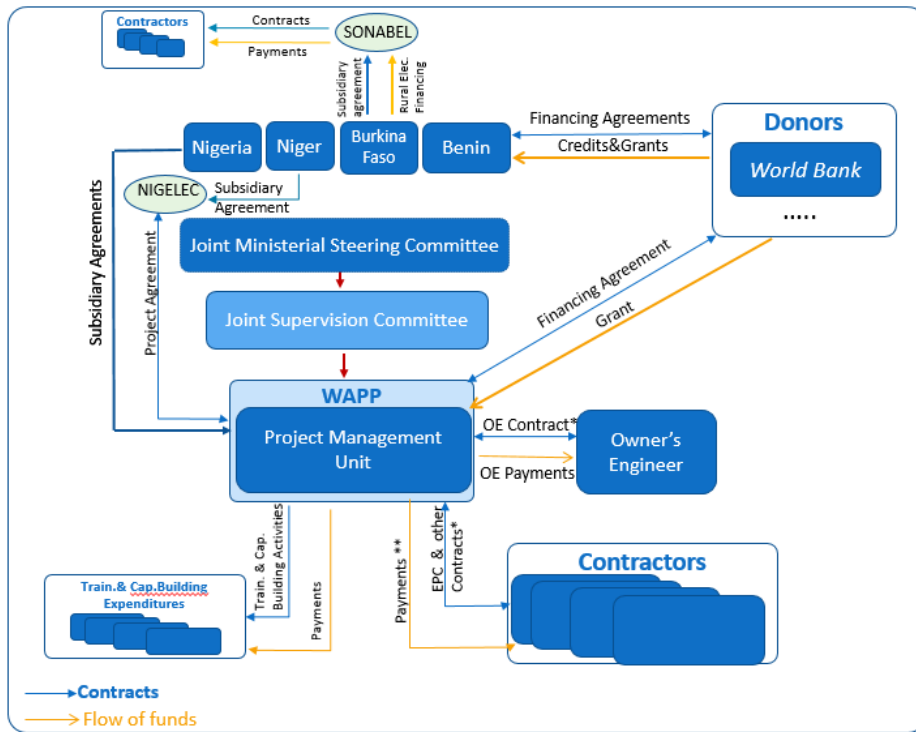
64. Following the strategic decision of a centralized approach for the day to day implementation of the Project and an active involvement of the utilities at key decision points during the realization of the Project, the four countries have agreed on the governance structure for the implementation of the project, described below and shown in Figure 4:

a) A Joint Ministerial Steering Committee (JMSC) comprised of respective Energy Ministers will provide guidance on strategic and policy issues. The JMSC shall meet as and when required, but at least once per year during project preparation and implementation.

b) A Joint Supervision Committee (JSC), for the supervision and monitoring of the Project, comprised of core members, namely the four DGs or CEOs of the four national Utilities and of the Secretary General of the WAPP. Representatives of the Energy Ministries and Finances Ministries will also participate in the Committee, but mandatory participation will be limited to the core members. The JSC will oversee the work of the PMU. The JSC is expected to meet at least twice a year or as needed to ensure timely implementation of the Project. The DGS in the JSC will also be co-signing the major contracts for the implementation of the Project for their respective sections together with the Director of the PMU (see next).

c) A Project Management Unit (PMU) within the WAPP Secretariat. The PMU will oversee the day-to-day management of the Project, including: (i) coordination and planning of works; (ii) supervision and monitoring/control of the Project activities, including environmental, health & safety and social safeguards aspects; (iii) administrative and financial management (except in Niger where financial management responsibility will be shared with NIGELEC); (iv) and procurement activities. An Owner's Engineer will support the PMU on the construction contracts preparation and implementation of the Construction ESMPs (CESMPs), Health & Safety Plans and RAPs and other key aspects.

Figure 4: Proposed North Core/Dorsale Nord Implementation Structure



*EPCs and OE Engineers will co-signed by the UGP Director and by the four DGs, and the contract will be managed by the PMU
 ** Direct Payments will be authorized by the PMU, and for the case of works done in Niger, will be co-authorized by PMU and NIGELEEC.

65. The centralized PMU will be responsible for management of the Project during the construction phase. To this end, the participating countries have decided not to create a separate entity (Special Purpose Vehicle or Company), but rather to set up a self-contained PMU attached to the WAPP General Secretariat, since the PMU would have no legal existence on its own. However, while the PMU will be a Unit within the WAPP, it will be fully staffed to assume the complete responsibility for the implementation of the Project, and will not depend on the existing WAPP staff. The main office of the PMU will be located in Abuja, based on the decision taken by the four national utilities in consultation with the WAPP Secretariat.²⁴ The PMU will also have local offices in the participating countries to ensure effective supervision of the works and timely collaboration with the national authorities and utilities.

66. A Director will head the PMU and will be responsible for the implementation of the Project. The Director will report to the Joint Supervision Committee, which will approve his annual work program and budget. The Director and other headquarter staff will be recruited through an international competitive process. The Personnel in the local offices of the PMU will be recruited either through an open competitive process on the local market, or through a competitive selection, based on three CVs for each position of personnel of the local utilities that would be detached to the PMU for the duration of the construction phase of the Project. The PMU will be dissolved at the end of the Project; it will hand the responsibility for the operation and maintenance of the assets over to the national utilities that will own and operate the assets after construction is complete.

²⁴ This decision of the four utilities, agreed with the WAPP and the four donors, was based on the key role of Nigeria as the main supplier of the electricity traded through the North Core Interconnector, at least during the initial years of operation, and therefore the importance of a significant presence of the Project's representatives in that country to secure timely and efficient exports to the other three countries.



67. The funds for the setup of the PMU, US\$3 million, have been earmarked under the existing WAPP Integration and Technical Assistance Project Grant (P113266) and are available immediately. The budget for the functioning of the PMU during project implementation will be co-financed under this project, through grants from IDA and AfDB.

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F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

The proposed Project will comprise the construction of 875 km of a 330 kV high voltage transmission line across four countries; from Birnin Kebbi (Nigeria) to Ouagadougou (Burkina Faso) through Zabori (Niger), Niamey (Niger) and with a connection to Malanville (Benin). The right-of-ways of the transmission line cross some sensitive areas such as protected forests, such as touching the limits of the Gonse protected forest near Ouagadougou, natural habitats, although no national parks will be affected as they have been avoided. In Niger, the Dallol Maouri Ramsar site will be crossed for 24 km as well as the Dallol Bosso Ramsar site for 37 km. The line crosses in Niger the bird and biodiversity area of Makalondi for 50 km and passes through an area of classified forests; line will also cross some human settlements and farms although these have, as far as possible, been avoided. In Nigeria and Benin no sensitive ecosystems will be crossed. In the project design and line routing, significant efforts have been made to avoid and minimize negative impacts to the physical environment as well as the local populations. Mitigation measures are included in the safeguards instruments for the project; ESIA and RAPs.

G. Environmental and Social Safeguards Specialists on the Team

Robert A. Robelus, Environmental Safeguards Specialist

Fatoumata Diallo, Social Safeguards Specialist

Paivi Koskinen-Lewis, Social Safeguards Specialist



SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	<p>The construction of the 875 km transmission line will cause environmental, social and Health & Safety impacts, which need to be avoided, mitigated and managed. The ESMP is comprehensive and Health and Safety measures are included. A detailed Analysis of Alternatives was carried out to select the most optimal line route from a technical, environmental and social perspective by applying a Multi-criteria Analysis. Three different line routes were analyzed in detail. The Project will comply with the applicable World Bank Safeguard Policies, the World Bank Group General Environmental, Health and Safety Guidelines of April 2007 and the EHS Guidelines for Electric Power Transmission and Distribution. All Contractor employees need to sign a Code of Conduct in which misbehavior of employees is forbidden and it is clearly stated that sexual harassment and other forms of gender based violence and sex with minors (<18 years of age) is strictly forbidden. Contractors will be responsible for monitoring the Code of Conduct. Non-compliance could result in project stoppage. The Contractors, Owner’s Engineer should report on a monthly basis to the PMU on environmental, social and health and safety aspects. In case of a fatal or serious accident the PMU should report to the Bank within 24 hours. It is forbidden for contractors to employ child labor or use forced labor. A labor influx management plan, which prescribes how temporary local employees are hired, will be prepared and implemented by the Contractors. This needs to be a very orderly and transparent process. Non-transparent labor recruitment could result in social unrest. Unskilled labor will be by preference recruited from the communities near the area where construction is taking place and should shift with progress of construction. Temporary laborers need to have a contract; working conditions should comply with ILO labor standards and Labor Laws of the four countries. Contractors will need to have sufficient insurance for workers in case of disability or a fatal accident. The Contractors will be required to prepare</p>



and implement a Workers Camp Management Plan in compliance with international standards. Special care is needed with regard to Health and Safety during construction and operation. The four ESIA's spell out the responsibilities with regard to the ESMPs and Health and Safety Plans (H&S Plans) to be prepared and implemented by the Contractors, and the supervising responsibilities of the Owner's Engineer. The Contractors will be required to prepare and implement Construction ESMPs (CESMPs) and H&S Plans in compliance with OHSAS 18001: 2007, NEBOSH or similar and employ qualified personal with international experience in these fields (e.g. work experience in international projects within their own countries or abroad). The CESMPs will include, among other aspects, a Labor Influx Management Plan, a Worker's Camp Management Plan, a Waste Management Plan, a Traffic Management Plan and others. The World Bank guidelines for the maximum exposure to noise for daytime industrial activities of 70 dB and 45 dB during the night will be enforced. The Owner's Engineer will supervise the preparation and implementation of the CESMPs and H&S Plans and will employ qualified personal with international experience in these fields. The Contractors and the Owner's Engineer will be requested in their bids to provide a specific budget line for the CESMP and H&S Plan preparation and implementation. In case of non-compliance these amounts will be withheld. These amounts should also be stated in Contractors and Owner's Engineer Contracts.

Performance Standards for Private Sector Activities OP/BP 4.03	No	The project does not include private sector activities.
Natural Habitats OP/BP 4.04	Yes	The Right-of-Way (RoW) of the Project has been carefully selected through Multi-criteria Analysis, which included technical, economic, environmental and social criteria. Satisfactory biodiversity surveys have been carried out for the entire RoW. The Project will have no environmental impacts on critical natural habitat as defined in OP/BP 4.04, but it will have impacts on natural habitat. These natural habitat areas could not be avoided since they are very long and extended along the rivers. The Niger Giraffe distribution area is very large and the main



road passes through the reserve. Avoiding these natural habitat areas would have added hundreds of km to the length of the transmission line and make the project unaffordable. One protected forest area will be affected in Burkina Faso, and there will minor residual impacts after the implementation of the 5 Biodiversity Action Plans in Niger on the habitat of the Niger Giraffe, the Dallol Bosso Ramsar site, the Dallol Maouri Ramsar site, the Makalondi Important Bird Area (IBA) and the Dosso Partial Reserve. These impacts will be managed through the implementation of 5 Biodiversity Action Plans, which are part of the Niger Environmental and Social Management Plan (ESMP) by the PMU. The expected result will be a net gain in biodiversity in these 5 natural habitat areas. The environmental impacts on natural habitat in Nigeria and Benin are minimal.

Forests OP/BP 4.36	Yes	The transmission line Right-of-Way passes through a protected forest area. In Niger the lines passes through an area of classified forests, as well as the limits of the protected Gonse forest near Ouagadougou.
Pest Management OP 4.09	No	The policy is not triggered since no pesticides will be procured under the project, nor will project activities lead to an increase in the use of pesticides.
Physical Cultural Resources OP/BP 4.11	Yes	Consultation with local communities did not identify any physical cultural resources sites such as graves. However, during construction of the towers accidental finds could occurs. For this reason all construction contracts will include "A Chance Find Procedure."
Indigenous Peoples OP/BP 4.10	No	There are no Indigenous Peoples as per the criteria in OP 4.10 in the project areas.
Involuntary Resettlement OP/BP 4.12	Yes	This policy is triggered due to the adverse social impacts related to land acquisition (permanent or temporary) and clearing of the Right-of-Way (ROW); the construction of new substations and tower spots; and stringing of the transmission line. To mitigate such impacts, Resettlement Action Plans were prepared and consulted upon for each of the countries following the requirements of OP 4.12. They were publicly disclosed prior to appraisal in-country and on the Bank's external website. All structures will need to be permanently relocated



from the Right of Way (“RoW”) because no structures are allowed under the transmission line, and therefore some physical relocation will occur. In Niger, 110 households have structures or assets in the RoW for which they will have to be compensated and there are 13 households that will need to be physically relocated. In Burkina Faso, there are 116 households that will be economically and physically displaced. In Benin, four households will need to be relocated and in Nigeria, 25 households will need to be relocated. The land for the towers and sub-stations will be permanently acquired. The RAPs for Benin, Burkina Faso and Niger will be financed by the Project, following the requests from these countries to use part of the IDA loan to this purpose and the approval of the request by the Africa RVP on July 12, 2018. This includes total costs related to resettlement (cash compensation for expropriated land and properties; moving allowances; temporary income losses; and other resettlement assistance for the vulnerable groups), with total budget for these RAPs at 4.24 million US dollars. The RAP for Nigeria will be funded from counterpart funds.

Safety of Dams OP/BP 4.37	No	The project does not include any dam.
Projects on International Waterways OP/BP 7.50	No	The project will not affect international waterways
Projects in Disputed Areas OP/BP 7.60	No	There are no disputed areas in the project Right-of-Way

KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Components 1 and 2, construction of the transmission lines, construction/extension of substations, and national electrification program in Burkina Faso, are likely to have adverse environmental and social impacts as well as significant positive impacts. Positive impacts include, among others, more reliable energy provision to households in importing countries by the national utilities, and job creation including opportunities for women. Negative impacts are due to the fact that the main transmission lines will cross human settlements and farms. The Right-of-Way (RoW) of the Project has been carefully selected through Multi-criteria Analysis, which included technical, economic, environmental and social criteria. This has enabled to minimize physical resettlement, and also reduce losses of assets. Satisfactory biodiversity surveys have been carried out for the entire RoW. The Project will have no environmental impacts on critical natural habitat as defined in OP/BP 4.04. One protected forest area will be affected in Burkina Faso,



and there will be minor residual impacts after the implementation of the 5 Biodiversity Action Plans in Niger on the habitat of the Niger Giraffe, the Dallol Bossotwo Ramsar site, the Dallol Maouri Ramsar site, the Makalondi and one Important Bird Area (IBA) and the Dosso Partial Reserve. Avoiding these natural habitat areas would have added hundreds of km to the length of the transmission line and make the project unaffordable. These impacts will be managed through the implementation of 5 Biodiversity Action Plans, which are part of the Niger Environmental and Social Management Plan (ESMP) by the PMU. The expected results will be a net gain in biodiversity in these protected areas. The environmental impacts on natural habitat in Nigeria and Benin are minimal.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
n/a

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The Right-of-Way (RoW) of the Project has been carefully selected through Multi-criteria Analysis, which included technical, economic, environmental and social criteria. Satisfactory biodiversity surveys have been carried out for the entire RoW. The Project will have no environmental impacts on critical natural habitat as defined in OP/BP 4.04, but it will have impacts on natural habitat. These natural habitat areas could not be avoided since they are very long and extended along the rivers. The Niger Giraffe distribution area is very large and the main road passes through the reserve. Avoiding these natural habitat areas would have added hundreds of km to the length of the transmission line and made the project unaffordable.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

To manage the adverse social impacts, the Project triggers OP 4.12 on Involuntary Resettlement, since some land acquisition leading to physical resettlement and/or losses of assets or access to resources will occur in relation to clearing the Right of Way (RoW) and the sites for substations. Resettlement Action Plans (RAPs) have been prepared in each of the four countries in the regional component with a view to minimizing physical resettlement. The RAPs contain a census of the affected population, their socio-economic characteristics, eligibility criteria, an inventory of losses as well as the evaluation of compensation measures, description of physical resettlement modalities (site, status of infrastructure, access to services, logistics for moving etc.), institutional responsibilities for implementing the RAP, a grievance redress mechanism, monitoring and evaluation plan, as well as a budget and timeline. These documents cover the entire length of transmission line (875 kms of 330 kV and 24 km of 225 kV lines). There are three different types of PAPs: those affected economically i.e. losing crops or trees or secondary structures, those affected by loss of residence i.e. primary home and those who are affected both by loss of assets and loss of residence. In Niger, 110 households have structures or assets in the RoW for which they will have to be compensated. There are 13 households that will need to be physically relocated. In Burkina Faso, there are 116 households that will be economically and physically displaced. In Benin, four households will need to be relocated. In Nigeria, physical relocation will affect 25 households. The Project will also finance National Rural Electrification component in Burkina Faso, for which some land acquisition is required, leading to physical and/or economic displacement of affected people. 2 PAPs will lose residences and will be physically relocated while 34 PAPs will lose trees and receive compensation for those losses.

For environmental issues, the Project will apply the following World Bank Safeguard Policies: OP/BP 4.01 (Environmental Assessment), OP/BP 4.04 (Natural Habitats), OP/BP 4.11 (Physical Cultural Resources), OP/BP 4.12 (Involuntary Resettlement), and OP/BP 4.36 (Forests). One protected forest area will be affected in Burkina Faso, and there will be minor residual impacts in Niger on the habitat of the Niger Giraffe, two Ramsar sites and one Important Bird Area (IBA). These impacts will be managed through a Biodiversity Action Plan, which is part of the Environmental and Social Management Plan (ESMP). The environmental impacts in Nigeria and Benin are minimal. Two ESIA's for the



National Electrification component for Burkina Faso and for Niger are under preparation. These two ESIA's were disclosed in-country and on the World Bank website prior to appraisal. Similarly, a RAP and a RPF for Burkina Faso were prepared and disclosed for this component. All safeguards documents for this component were disclosed in-country on 7/13/18 and on Bank's external website on 7/16/18.

The assessment of the national level capacity to plan and manage the safeguards measures for the project indicates that while there is some capacity, refresher training and skilled staff are necessary enhancements in each country. The four countries and their utilities are used to working with Bank financed projects and while they do have some capacity in terms of safeguards management based on previous projects, this needs to be further strengthened. Similarly, the technical capacity of the national EPAs is in general good, but they do not have enough staff for regular supervision missions, and for that reason the project is ensuring that the PMU safeguards staff, contractor safeguards staff and especially the Owner's Engineer safeguard staff will have adequate capacity and staffing. To ensure there is adequate capacity and skills especially on Occupational Health and Safety matters and Grievance Redress Management issues, staff at these institutions will be trained prior to project implementation. In addition, the national implementing units as well as the HQ safeguards units will have experienced environmental and social specialists in charge of the day-to-day supervision. An experienced consultancy firm with experience in environmental and social safeguards as well as in health & safety will be hired under the Project to provide capacity building for the Environmental, Health & Safety and Social Units of the four Electric Utilities: TCN in Nigeria, NIGELEC in Niger, SONABEL in Burkina Faso and CEB in Benin.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Key stakeholders include the national utilities, local level authorities and the affected populations in the four countries. The RAPs have been prepared in consultation with affected populations. Four stakeholder information and consultation rounds have been carried out during the preparation of the four Environmental and Social Impact Assessments (ESIAs), one for each country. The four ESIA's for the regional components of the Project will be disclosed in-country and on the Bank's website prior to appraisal.

Stakeholder engagement will continue through continuous consultation process with the affected communities to keep them up-to-date on the project progress. The RAPs were prepared in consultation with affected people and with a view to minimizing physical resettlement. A grievance redress mechanism will be put in place in each country at the local levels, and by using existing systems where feasible.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank 15-May-2018	Date of submission for disclosure 09-Jul-2018	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
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"In country" Disclosure

Burkina Faso
29-Jun-2018

Comments



Newspaper La Nation

Benin

04-Jul-2018

Comments

Newspaper L'Observateur

Niger

29-Jun-2018

Comments

Newspaper Sahel

Nigeria

04-Jul-2018

Comments

Newspaper Daily Trust

Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank

15-May-2018

Date of submission for disclosure

09-Jul-2018

"In country" Disclosure

Burkina Faso

04-Jul-2018

Comments

Newspaper L'Observateur

Benin

29-Jun-2018

Comments

Newspaper La Nation

Niger

29-Jun-2018

Comments

Newspaper Sahel

Nigeria

04-Jul-2018



Comments

Newspaper Daily Trust

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

Yes

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

NA



Does the project design include satisfactory measures to overcome these constraints?

NA

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

NA

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

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APPROVAL

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Approved By

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Practice Manager/Manager:	Charles Joseph Cormier	17-Jul-2018
Country Director:	Rachid Benmessaoud	24-Sep-2018

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