

AFRICAN DEVELOPMENT FUND



PROJECT: CONAKRY ELECTRICITY NETWORK REHABILITATION AND EXTENSION PROJECT 2

COUNTRY: GUINEA

APPRAISAL REPORT

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EQUIVALENTS, WEIGHTS AND MEASURES, ACRONYMS AND ABBREVIATIONS

CURRENCY EQUIVALENTS

March 2013

1 UA = FGN 10 590.1

1 UA = EUR 1.15380

1 UA = USD 1.51483

WEIGHTS AND MEASURES

• m meter	1 m	• kep Kilogram oil equivalent
• cm centimeter	0.01 m	• V volt 1 V
• mm millimeter	0.001 m	• kV kilovolt 1000 V
• km kilometer	1.000 m	• kVA kilovolt Amp 1000 VA
• m ² square meter	1 m ²	• W Watt 1 W
• cm ² square centimeter	0.0001 m ²	• kW kilowatt 1000 W
• mm ² square millimeter	0.01 cm ²	• MW Mega Watt 1000 kW
• km ² square kilometer	1 000 000 m ²	• GW Giga Watt 1000 MW
• ha hectare	10 000 m ²	• kWh Kilo Watt-hour 1000 Wh
• kg kilogram	1000 g	• MWh Mega Watt-hour 1000 kWh
• t ton	1 000 kg	• GWh Giga Watt-hour 1000 MWh

ACRONYMS AND ABBREVIATIONS

DDP	=	Detailed draft project
IDB	=	Islamic Development Bank
EBID	=	ECOWAS Bank for Investment and Development
LV	=	Low voltage
ECOWAS	=	Economic Community of West African States
PIU	=	Project Implementation Unit
BD	=	Bidding Document
CSP	=	Country Strategy Paper
PRSP	=	Poverty Reduction Strategy Paper
EDG	=	Electricité de Guinée (Electricity Corporation of Guinea)
ESIA	=	Environmental and social impact assessment
ADF	=	African Development Fund
IMF	=	International Monetary Fund
GNF	=	Guinean Franc
HV	=	High voltage
IEC	=	Information, Education and Communication
ESDPL	=	Energy Sector Development Policy Letter
MV	=	Medium voltage
MDG	=	Millennium Development Goals
ODRG	=	Organization for the Development of River Gambia
PAESE	=	Project to Improve efficiency in the Electricity Sector
REP	=	Rural Electrification Project
ESMP	=	Environmental and Social Management Plan
GDP	=	Gross Domestic Product
SME	=	Small and Medium Enterprises
SMI	=	Small and Medium Industry
PREREC	=	Conakry Electricity Network Rehabilitation And Extension Project
TFP	=	Technical and Financial Partners
PCR	=	Project Completion Report
ERR	=	Economic Rate of Return
FRR	=	Internal Financial Rate of Return
UA	=	Unit Account
NPV	=	Net Present Value

PROJECT INFORMATION SHEET

Client information sheet

BORROWER/DONEE : GUINEA GOVERNMENT
EXECUTING AGENCY : ELECTRICITE DE GUINEE (EDG)

Funding plan

Sources	Amount (UA Million)	Instrument
Cancellation of ADF outstanding loan on projects	4.69	Loan
Country allocation of ADF 12	5.44	Grant
Cancellation of ADF outstanding grant on projects	0.87	Grant
IDB	8.67	Loan
GOVERNMENT	1.98	Counterpart contributions
TOTAL COST	21.65	

Important financial information of the ADB

Currency of grant/loan	Unit of Account
Type of interests	Not applicable
Interest rate margin	Not applicable
Service charge	0.75% per year (for the loan)
Commitment charge	0.50% (for the loan).
Maturity	50 years
Grace period	10 years
FRR, NPV (baseline scenario)	13.1% -47.50 billion GNF
ERR (baseline scenario)	26.1%, -217.70 billion GNF

Timeline – main stages (expected)

Project approval	September 2013
Entry into force of grant	November 2013
Entry into force of loan	January 2014
First disbursement	April 2014
Last disbursement	June 2017
Completion	December 2017
Last reimbursement	February 2043

Project Summary

1. Project overview

1.1. The Conakry Electricity Network Rehabilitation and Extension Project 2 (PREREC 2) is based on the priority actions of the electricity sub-sector's recovery plan emanating from the diagnostic study conducted in 2011. The restructuring of the sub-sector and the Electricity Corporation of Guinea (EDG) and the establishment of a strategic partner through a management contract, are at the center of these priority actions. PREREC2 aims to contribute toward improving governance and commercial management of EDG, to support the Government in reforming the sub-sector and to extend the electricity distribution network to 12 neighborhoods in the Ratoma and Matoto municipalities in Conakry. It is a follow-up to Project 1 (PREREC1) under completion in 30 other neighborhoods of the same municipalities and whose execution has significantly improved the quality of electricity supplied to consumers. The overall cost of PREREC2 is UA 21.65 million and its execution runs from 2013 to 2017.

1.2 The project, consisting of the Ratoma and Matoto municipalities has an estimated population of 1.4 million inhabitants, of whom 52.1% are women and it has approximately 2300 handicraft and commercial very small enterprises (VSEs), some forty factories and 141 active women's associations. The direct beneficiaries of the project are the 40,000 subscribers made up of households, women's associations VSEs.

1.3. The project will enhance the income of women and the well-being of beneficiaries thanks to access to quality electricity that will induce development of social and income-generating activities. Public lighting will enhance security; will enable women to extend the hours of their commercial activities and young people to improve on their academic performance. The beneficiaries will contribute to strengthening the impacts of the project as a result of the awareness campaign aimed at citizens adopting behaviors that espouse the principle of energy efficiency, bill payment, and cooperation with EDG to fight against fraud and vandalizing the networks.

2. Needs assessment : The electricity sub-sector is facing a real crisis in Guinea: insufficient supply results in permanent shedding, distribution networks are unreliable with a loss rate of 49%, managerial and commercial performances of the national electricity corporation are low and access to electricity is only 10% nationally. This project will reduce the rate of loss to 15% in the project area; will help increase the access rate to 20% by 2017 while supporting the Government to reform and vitalize the subsector. The extension of the distribution network and the strengthening of institutional and human capacity earmarked in the project are activities that will help undertake ongoing operations to increase production capacity for an effective revamping of the subsector.

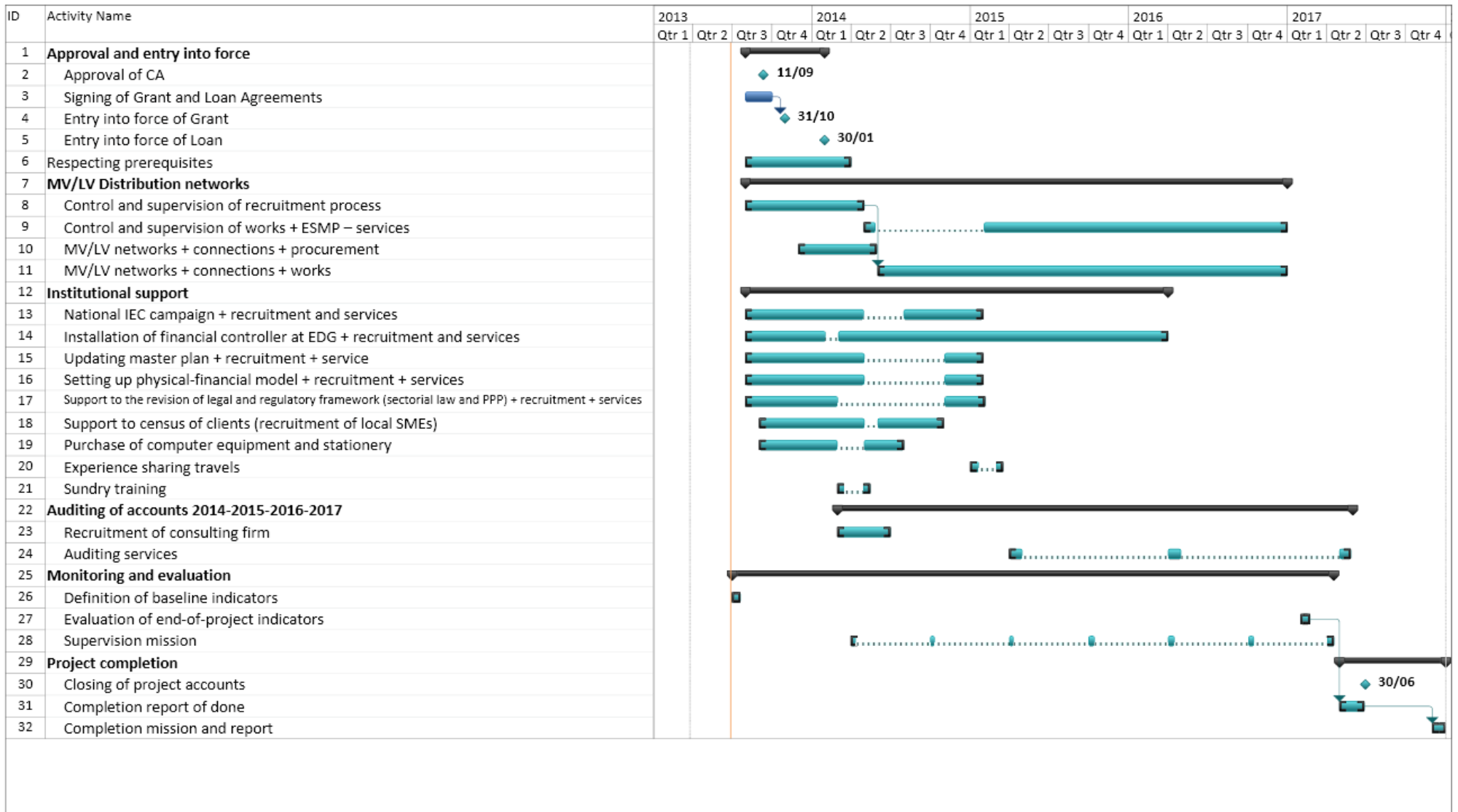
3. Added value by the Bank : Lessons learned by the Bank from the execution of PREREC1 and similar projects in the sub-region have helped better determine the components of PREREC2. The Bank has contributed its expertise to the development of the ESMP. Activities retained for capacity building and governance in the sub-sector are the result of the experiences of the Bank. Also, the intervention of the Bank has made it possible to raise funds from the IDB which to the tune of about 40% of the project cost.

4. Knowledge management : The monitoring and evaluation expert will submit a progress report explaining the progress of indicators. Also, supervision mission reports of the Consulting Engineer responsible for supervising the works and the accounts auditor of the project are the sources from which the Bank will draw lessons on the achievement of project objectives.

RESULTS-BASED LOGICAL FRAMEWORK
GUINEA – CONAKRY ELECTRICITY NETWORK REHABILITATION AND EXTENSION PROJECT 2 (PRERC 2)
Project Goal : Strengthen the electricity distribution network and contribute to improving governance and capacity building in the sub-sector

CHAIN OF OUTCOMES		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS AND MITIGATION MEASURES						
		Indicators	Baseline situation (Year 2013)	Target (Year 2017)								
IMPACT	People's access to energy services at national level has improved.	Rate of access to electricity nationally	10%	20%	Reports: - Ministry in charge of Energy - EDG - National Statistical Institute - Project Implementation Unit at EDG	Risks: Persistence of poor governance at EDG, electricity fraud and lack of financial resources for proper maintenance of infrastructure to be installed Mitigation measures - The construction of a new distribution network in the project area and the installation of meters for each subscriber and an IEC campaign will reduce fraud - The installation of a financial controller at EDG and the culmination of ongoing reforms (installation of Strategic Partner) will improve governance. - Strengthening commercial management of EDG, loss reduction will improve its financial situation and enable it to properly maintain infrastructure.						
EFFECTS	1- Number of subscribers connected to the network increased 2- Performance of the distribution network improved 3- Financial and commercial performances of EDG improved	a) The number of subscribers connected to the network in the project zone (including % of women) b) Rate of overall losses of the network in the project zone c) Billing rate in the project zone d) Private debt recovery rate in the project zone	16000 49% 51% 80%	40 000 subscribers (including 20% women household heads) 15% 85% 95%								
OUTPUTS	<table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">A. MV/LV distribution network</td> <td> <ul style="list-style-type: none"> • Power lines constructed • Stations constructed and equipped • Connections done and prepayment meters installed • Street lights functional </td> </tr> <tr> <td>B. Institutional support</td> <td> <ul style="list-style-type: none"> • Financial controller installed • Master plan updated • Financial model developed • Regulatory framework revised • IEC campaign </td> </tr> <tr> <td>C. Project management</td> <td> <ul style="list-style-type: none"> • Supervision of works • Auditing of accounts </td> </tr> </table>	A. MV/LV distribution network	<ul style="list-style-type: none"> • Power lines constructed • Stations constructed and equipped • Connections done and prepayment meters installed • Street lights functional 	B. Institutional support	<ul style="list-style-type: none"> • Financial controller installed • Master plan updated • Financial model developed • Regulatory framework revised • IEC campaign 	C. Project management	<ul style="list-style-type: none"> • Supervision of works • Auditing of accounts 	1.1. Linear mixed network constructed 1.2. Linear LV network constructed 1.3. Number of stations constructed and equipped 1.4. Number of connections made 1.5. Number of meters installed 1.6. Number of street lights installed 2.1. Production and Transmission master plan updated 2.2. Financial model developed 2.3. Laws on the sector and PPP revised 2.4. Financial controller operational 2.5. Number of workers trained	0 0 0 0 0 0 - 0 - 0 0 0	52 km 167 km 85 40 000 of which 40% rehabilitated 40 000 14 000 1 1 1 1 18 of which 50% women	Reports: Ministry in charge of Energy - EDG - Project Implementation Unit at EDG - Consulting Engineer charged with supervising the project	Risk: Delay in putting up production facilities leading to insufficient supply to meet the demand for electricity after project Mitigation measures The Kaleta hydroelectric power plant (240 MW, with 70% for national needs) is under construction and the addition of 100 MW is ongoing in Conakry. Monitoring the proper execution of these projects ensures that these plants will be operational by the end of 2015 while the execution of this project will be completed in 2017. The production of electricity from these plants and existing ones will satisfy national needs by this date.
A. MV/LV distribution network	<ul style="list-style-type: none"> • Power lines constructed • Stations constructed and equipped • Connections done and prepayment meters installed • Street lights functional 											
B. Institutional support	<ul style="list-style-type: none"> • Financial controller installed • Master plan updated • Financial model developed • Regulatory framework revised • IEC campaign 											
C. Project management	<ul style="list-style-type: none"> • Supervision of works • Auditing of accounts 											
KEY ACTIVITY PER COMPONENT	A. MV/LV distribution network: (i) extend the MV/LV network ; (ii) build transformation cabin stations ; (iii) make connections and install prepayment meters; (iv) install street lights and (v) implement and monitor the ESMP B. Institutional support: (i) Develop a financial model; (ii) Update the production and transmission master plan, (iii) Recruit and IEC consultant; (iv) Revise the regulatory framework of the sub-sector and the PPP; (vii) Recruit the Financial controller of EDG and (viii) Train EDG/DNE staff. C. Project management: (i) supervise works; (ii) contribute to running costs of the UGP ; (iii) audit the accounts of the project;			Resources ADF grant : UA 6.31 million ADF loan : UA 4.69 million IDB : UA 8.67 million Government : UA 1.98 million Jobs Component 1 : UA 18.54 million Component 2 : UA 2.06 million Component 3 : UA 1.05 million								

Project implementation timetable



**REPORT AND RECOMMENDATIONS OF THE MANAGEMENT TO THE BOARD OF
DIRECTORS CONCERNING A LOAN AND GRANT TO GUINEA TO FINANCE THE
CONAKRY ELECTRICITY NETWORK REHABILITATION AND EXTENSION
PROJECT 2 (PREREC2)**

Management hereby submits this report and recommendations on a proposed loan of UA 4.69 million and a grant of UA 6.31 million to the Government of the Republic of Guinea for part funding of PREREC2.

I. STRATEGIC GUIDELINES AND OBJECTIVES

5.2. *Project link with country strategy and objectives*

1.1.1. The project will promote people's access to energy services and contribute to improving governance and commercial management of EDG. It falls in line with pillars i, iii and iv of the third Poverty Reduction Strategy Paper (PRSP III) of Guinea for the 2013-2015 period. In fact, the main pillars of the PRSP III are: (i) governance and institutional and human capacity building, (ii) acceleration, diversification and sustainable growth, (iii) development of infrastructure to support growth and (iv) improving access to basic social services and household resilience of which one of the sub-pillars is "improving access to energy services in urban and suburban areas."

1.1.2. The "governance" and "infrastructure" pillars remain at the center of the PRSP III and it is in this sense that the Bank had retained the following two pillars in the 2012-2016 CSP: (i) economic and financial governance and (ii) support of infrastructures to development. The project fits into these two pillars and its orientation towards people living in underprivileged neighborhoods of Conakry will strengthen its impact on inclusive growth which is a major avenue of both the energy policy and long-term strategy of the Bank.

5.3. *Rationale for the Bank's involvement*

1.2.1. The many challenges facing the electricity sub-sector prompted the Government to carry out a diagnostic study in 2011 which led to a recovery plan with priority actions to be implemented in the short and medium term. Consultations were conducted with potential strategic partners internationally to better define the terms of the proposed management contract. It is in this light that the governmental solicited donors including the Bank, at a round table in April 2011, to help in its investment and reform efforts of the sub-sector. This project is part of this vision and provides for the extension of networks in neighborhoods not covered by PREREC1 in the two municipalities of Ratoma and Matoto. In fact, PREREC1 helped install an efficient electricity distribution network that has enabled beneficiaries to have access to better quality service.

1.2.2. The Bank's expertise in defining and implementing similar projects in countries and in the sub-region has been instrumental in designing PREREC2. In fact, it helped put special emphasis on improving governance and building institutional and human capacity to ensure, in a sustainable manner, the viability of infrastructure. The intervention of the Bank will also help raise funds from other technical and financial partners of the country.

5.4. Coordination of donors

Sub-sector	Importance (average 2008-2012)		
	GDP	Exports	Manpower
Electricity	0.58%	0%	1.0%
Stakeholders – Government spending for the period 2008-2012			
Government	Donors	<i>ADF</i>	6.01%
UA M	139,6	336,7	<i>IDA</i>
%	29 %	71%	<i>EximBank China</i>
			<i>Other donors</i>
			22.67%
Aid coordination level			
Existence of thematic working groups in the sub-sector			No
Existence of a general sector program			Yes
Role of the ADB in coordinating aid			Member

The amount of funding from technical and financial partners in the sub-sector in the past four years amounted to a combined total of UA 336.7 M. The Bank is leading multilateral donors with a total of UA 28.62 M. Consultations are underway for the setting up of an electricity sub-sector thematic group which the Bank intends to lead. Projects funded by donors and the volume of their interventions are presented in Appendix III.

II. PROJECT DESCRIPTION

2.1 Project components

The project aims to strengthen the electricity distribution network in Ratoma and Matoto municipalities and contribute to the improvement of governance and institutional and human capacity building in the sub-sector. Its specific objectives are: (i) connect 40,000 subscribers with the installation of prepayment meters, (ii) reduce the rate of overall losses in the project area from 49% to 15%, (iii) strengthen financial management of EDG by instituting financial control and financial balancing and (iv) improve commercial management of EDG by increasing the billing rate from 51% to 85% and the collection rate from 80% to 95% in the project area.

No.	Component name	Cost estimate	Component description
A	MV/LV DISTRIBUTION NETWORK	18.54	<ul style="list-style-type: none"> Rehabilitation and construction of 52 km of mixed lines and 167 km of low voltage lines, construction of 85 sub-stations 630 kVA Creation of 40,000 connections (including 40% rehabilitation), installing 40,000 prepayment meters and 14,000 street lights Environmental and social mitigations
B	INSTITUTIONAL SUPPORT	2.06	<ul style="list-style-type: none"> Recruitment of a Consulting firm for the EDG financial control Revision of the electricity and PPP regulatory framework IEC campaign (pricing, energy efficiency, fight against fraud and vandalizing the networks) Updating production and transmission infrastructure master plan Development of a physical-financial model for the sub-sector Support to customer census in Conakry Training and acquisition of computer and office equipment
C	PROJECT MANAGEMENT	1.05	<ul style="list-style-type: none"> Auditing project accounts; Control and supervision of works Running of the Project Implementation Unit
TOTAL COST OF PROJECT		21.65	

2.2 *Technical solutions retained and alternatives studied*

2.2.1 That decision was taken to build the overhead distribution network using transformer sub-stations of 630 kVA with an average service radius of 300 meters for proper voltage level of electricity supplied. This solution, which includes the construction of a mixed MV/LV network, is consistent with current international standards for the use of overhead stations is no longer recommended in high consumption areas. It is also less expensive than the construction of an underground network that is not even necessary in the area concerned.

2.2.2 Construction works of the network, as planned, will take into account the entire customer distribution chain (network connection and installation of the meter) and take into consideration best practices in terms of construction of sub-stations with the installation of internal station metering to facilitate loss measuring.

2.2.3 Alternative solutions envisioned and reasons for rejection are listed in the following table:

Alternative solutions	Brief description	Reasons for rejection
Construction of MV/LV distribution networks using overhead stations.	Use of overhead transformer stations with maximum capacity of 160 kVA which are placed high on a pole	<ul style="list-style-type: none"> • Low power and limited service capacity • Unreliable station in the face of significant load changes and atmospheric overvoltage • Risk of more frequent fires • Maintenance difficulties due to working high up the pole
Construction of underground MV/LV networks	Installation of underground medium voltage distribution cables	<ul style="list-style-type: none"> • Very expensive investment • Costly maintenance • Currently not indispensable in the project area

2.3 *Project type*

The project is an independent investment operation that will receive an ADF grant and loan, an IDB loan and national budget resources. Parallel funding of project activities was chosen to avoid difficulties related to incompatibilities with the procurement rules and procedures of various donors.

2.4 *Project cost and funding arrangements*

2.4.1 The total project cost, excluding taxes and customs duties, is estimated at UA 21.65 million. This cost includes a provision of 3% for physical contingencies and technical unforeseen and a 5% provision for price increases and it will be funded to the tune of UA 11 million by the ADF. Project costs per component, per source of funding and per expenditure category are presented in Tables 2.3, 2.4 and 2.5 below:

Components	Foreign exchange cost	Cost in local currency	Total	% Foreign exchange
MV/LV distribution network	14.57	2.57	17.14	85%
Institutional support	1.24	0.67	1.90	65%
Project management	0.63	0.34	0.97	65%
Total basic cost	16.44	3.58	20.02	82%
Provision for physical contingencies	0.49	0.11	0.60	82%
Provision for price increase	0.85	0.18	1.03	82%
Total project cost	17.78	3.87	21.65	82%

2.4.2 The project is co-funded by the IDB to the tune of AU 8.67 M (or EUR 10 million) and the Government to the tune of AU 1.98 M. Activities to be funded by the IDB are located in the Matoto municipality and those to be funded by the Government and the Bank are located in the Ratoma municipality. The IDB will evaluate the project during the second half of 2013; the identification mission was jointly conducted by the two institutions. In addition, ADF funds are divided into a grant of AU 6.31 M and a loan of AU 4.69 M under the terms specified in the project information sheet on page (iii) that were negotiated and accepted by the Government (the exchange rates used are those on page (i)).

Funding sources	Foreign exchange cost	Cost in local currency	Total	% Total
ADF	8.73	2.27	11.00	51%
IDB	7.37	1.30	8.67	40%
GOVERNMENT	1.68	0.30	1.98	9%
Total project cost	17.78	3.87	21.65	100%

2.4.3 Project cost per categories of expenditures is presented as follows:

Expenditure categories	Foreign exchange cost	Cost in local currency	Total	% Foreign exchange
Works	14.57	2.57	17.14	85%
Goods	0.02	0.01	0.03	65%
Services	1.66	0.89	2.55	65%
Running	0.19	0.10	0.29	65%
Total basic cost	16.44	3.58	20.02	82%
Provision for physical contingencies	0.49	0.11	0.60	82%
Provision for price increase	0.85	0.18	1.03	82%
Total project cost	17.78	3.87	21.65	82%

2.4.4 Expenditures timetable per project component is present as follows:

Components	2 014	2 015	2 016	2 017	Total
MV/LV distribution network	3.71	5.56	7.42	1.85	18.54
Institutional support	0.82	1.03	0.21	0.00	2.06
Project management	0.16	0.37	0.37	0.16	1.05
Total project cost	4.69	6.96	7.99	2.01	21.65
% Total	21.7%	32.1%	36.9%	9.3%	100%

2.4.5 ADF resources will be used to partially fund the "MV/LV distribution Networks"¹ and fully fund the "Institutional Support" and "Project Management" components. The ADF loan will be fully used to fund the "works" category to the tune of AU 4.69 M and the ADF grant will fund the rest of the works and all the other expenditure categories. These funds are allocated per category of expenditure as follows:

Expenditure categories	Foreign exchange cost	Cost in local currency	Total	% foreign exchange
Works	6.71	1.18	7.89	85%
Goods	0.02	0.01	0.03	65%
Services	1.79	0.97	2.76	65%
Running	0.21	0.11	0.32	65%
Total	8.73	2.27	11.00	79%

2.5 Area and beneficiaries targeted by the Project

The project area covers the municipalities of Ratoma and Matoto whose population is estimated at 1.4 million, of which 52.1% are women. There are about 2300 handicraft and commercial very small enterprises (VSEs), some forty factories and 141 active women's associations. The direct beneficiaries are the 40,000 subscribers made up of households, women's associations and handicraft, commercial and industrial VSEs that will be connected to the new network. The main expected outputs of the project by the target group are having access to quality electricity service and improving the environment to become more suitable for the development of socio-economic activities.

2.6 Participatory approach in identifying, designing and executing the project

Local authorities, community leaders, women associations and other beneficiaries of the project were consulted during the preparation and evaluation missions and during the preparation of the ESMP. The sessions helped inform them and get their concerns of which the most frequent are on the use of local labor during construction work and putting up street lights. During the implementation of the project, it is envisaged that consultations continue through the workshop on the ESMP. Also, an Information Education and Communication (IEC) Consultant will be

¹Works funded by the ADB concern: 20 km of mixed MV/LV networks; 87 km of LV network; 20 000 connections; 20 000 prepayment meters; 43 stations 630 kVA ; 3500 street lights and environmental and social mitigation measures.

recruited for a campaign to raise public awareness on billing, energy efficiency, use of prepayment meters, the fight against fraud and vandalizing infrastructures.

2.7 Taking into consideration the experience of the Bank Group and lessons learned in designing the project

2.7.1 The experience gained by the Bank during the execution of similar projects in the sub-region and in Guinea and those of other donors in the country, have helped to define the technical components, include street lights and adjust the project execution timetable (which takes into consideration the average time taken for signing contracts in Guinea). In fact, through the various supervision reports of PREREC1 (average supervision score was 2.26 on 3 in 2012), it was noted that separating the contract to build the networks from that of supplying and installing meters, delayed connecting subscribers to the new network that was completed but consumers were not connected. To avoid this weakness in the PREREC2, the construction of the distribution network, connections and installation of meters will be made by the same company under a single contract.

2.7.2. Also, through execution reports of PREREC1, the PCRs of projects in other sectors funded by the Bank in Guinea and discussions with other technical and financial partners of Guinea on their ongoing operations, it was noted that there were significant delays by the Administration to meet prerequisites for the first disbursement and especially for the signing of contracts, weak governance at sectoral level and at the level of EDG and the need to build human capacity of EDG and its technical supervision. In order to reduce the time taken by the Administration to sign contracts, a focal point was appointed at the Ministry of Finance to specifically follow-up contracts funded by the Bank and whom the Project Coordinator may directly contact to better monitor developments in contract files within the Ministry. Similarly, the effective presence of the country economist on site in Guinea will facilitate closer monitoring of the process of signing contracts while strengthening dialogue between the Bank and Guinea. In addition, actions to strengthen human capacity (including training) and governance have been included in PREREC2.

2.8 Main performance indicators

2.8.1 Project performance will be measured through the development of indicators in the logical framework. Output indicators are: (i) mixed linear networks constructed, (ii) LV linear networks constructed, (iii) number of stations constructed, (iv) number of connections made, (v) number of prepayment meters installed, (vi) number of street lights installed, (vii) master plan for production and transmission infrastructures upgraded, (viii) physical and financial model available and functional, (ix) laws on the sub-sector and PPP revised. The outcome indicators are: number of connected subscribers and change in loss rates, billing and collection in the project area. Continuous monitoring of the number of newly connected customers by the monitoring and evaluation officer will assess progress made during implementation. The only outcome indicator is access rate to electricity at national level.

2.8.2 All data will be collected and analyzed by the monitoring and evaluation officer directly in the field during construction and from various sources such as the reports of the Consulting Engineer, EDG activity reports, periodic progress reports of the project and surveys conducted on beneficiary. S/he will also collect information from the Ministry in charge of Energy and administrative authorities of the project area. All this information will be included in periodic reports to be prepared by the monitoring and evaluation officer and submitted to the Bank.

III. PROJECT FEASIBILITY

3.1. Economic and financial performances

Table 3.1 Main economic and financial data of the project		
Baseline scenario	FRR : 13.1%	NPV : 47.5 GNF billion
	ERR : 26.1%	NPV : 217.7 GNF billion

NB: detailed calculations can be found in Annex B7

3.1.1. *Economic and financial performances of the project:* they were analyzed respectively on the basis of the financial internal return rate (FRR) and the economic return rate (ERR). The FRR is calculated from the financial costs of the project and revenue from electricity sales to new customers. As for the ERR, it is calculated from economic costs (investment costs adjusted to conversion factors) and expected economic benefits of the project (enhancement of reduction of technical losses, cutback made by households on electricity costs before and after the project).

3.1.2. *Sensitivity of financial and economic performance of the project:* It was been analyzed with respect to (i) the 10% increase in investment costs, (ii) the 10% increase in operating expenses and (iii) 10% decrease in the average selling price of energy. It follows from this analysis that the return rate and net present value of the project, although sensitive to changes in various factors, remain at acceptable levels, thus confirming the financial and economic viability of the project.

3.2. Environmental and social impact

Environment

3.2.1. The project is classified as Category 2 as it will not have significant adverse environmental impacts. The lines will be constructed on existing streets and stations will be installed in public areas and thus avoiding expropriation. The project will be implemented in accordance with the policies and procedures of the Bank on the environment. The Environmental and Social Management Plan (ESMP) has been prepared and will be subject to regular monitoring to help mitigate the negative effects envisioned in the implementation phase, namely: (i) noise, temporary obstruction of roads and rising dust (ii) risks associated with dismantling, disposal and storage of old equipment and (iii) the limited risk on vegetation inherent in pruning of trees to free space. The ESMP has defined objectives to be achieved after analyzing identified impacts and highlighted prevention and intervention plans during the execution and exploitation of the project. These plans take into account the situation of the environment (soil, air, water, etc...)

and its interaction with project activities. The Ministry in charge of the environment will be associated in the execution phase to ensure enforcement of regulations on the environmental.

3.2.2. Compliance with standards in force in terms of work safety, storage or destruction of hazardous products and network exploitation will help mitigate its negative effects. It should be noted that Guinea has ratified several international conventions on the environment among which are those relating to: (i) nature protection, (ii) waste management, (iii) protection of the ozone layer, and (iv) climate change. In addition, in order to mitigate negative impacts and enhance positive impacts, it is provided that there be an information and awareness campaign on these aspects during and after the implementation of the project.

Climate change

3.2.3. PREREC2 will help mitigate greenhouse gas emissions. In fact, if it is achieved, people will stop using the multiple small highly polluting generators that are now in use in the project area. Electricity that will be distributed by the project will come mainly from hydro and thermal power plants. In addition, kerosene, candles and biomass used for lighting will be replaced by cleaner electric power inducing a positive environmental impact. The project will prevent the release of nearly 695 tons of CO² per year.

Gender

3.2.4. In the project area, the literacy rate of women over 15 years of age is 54% as against 77% for men in the same age category, while the enrollment of women below 20 years is 60% as against 75% for men. Women hold small businesses and carry out handicraft activities with very low incomes. Access to reliable electricity will facilitate household chores which are traditionally done by women and this will give them more free time to focus on literacy work, vocational training or schooling. Women who had difficulty developing their restaurant activities, small-scale industry (manufacture of ice-cream and dairy products, oil mill, etc..) and handicraft (dyeing, basketry ...) activities will strengthen their businesses and increase their incomes. Also, improved access to media and other information technologies will have a positive impact on the empowerment of women, their mastery of family planning methods and good dietary practices, as well as seizing career and training opportunities. Finally, the street lights proposed by the project will benefit mostly women and youths. In fact, it has been observed that there are growing nocturnal small businesses activities around street lights. They also help students who do not have electricity at home to revise their courses at night under the bulbs.

Social

3.2.5. During the execution of the project, it is envisaged, based on the experience of PREREC1, that approximately 560 temporary jobs will be created of which 20% will be held by skilled workers and 10% will be held by women. Furthermore, because of the presence of this large number of workers, income-generating activities will include developing small shops and restaurants run by women. After the commissioning of the project, availability of electricity will have a significant positive impact on the functioning of social infrastructure in the project area, including (i) fifteen public and private health centers (ii) some thirty markets, (iii) more than 80 government schools and several rehabilitation centers. Negative social impacts that could result

from the work of the project are accidents and the risk of HIV/AIDS spreading. In the operational phase, misuse of electricity could cause electrocution of users and fires. An NGO will be recruited during the works to raise awareness about these risks and measures to be taken (based on active women's organizations in these areas).

3.2.6. The project area includes nearly 2,300 small handicraft, commercial and semi-industrial businesses that are unable to develop their activities due to lack of electricity and the high cost of using generators. Access to quality electricity and at lower cost (compared to self-production) will enable these undertakings to increase in volume, create more wealth and jobs and in turn reduce poverty.

Forced resettlement

3.2.7. The project will not engender any resettlement. The lines will be laid exclusively along the roads and will avoid hanging over homes. Moreover, the nature of the project allows for flexibility in erecting stations. Hawkers who use the roadsides will have to go back a few meters and this will not result in the destruction of buildings.

IV. EXECUTION

4.1 Execution arrangements

4.1.1. The Ministry in charge of Energy is the contract owner and contracting authority of the project. The Donee/Borrower will on-lend the grant and the loan to the project executing agency (EDG). In line with the Bank's on-lending policy, the terms and conditions of the on-lending – which should be similar to the terms and conditions of the grant and loan to the Donee/Borrower – will be approved by the Fund prior to any disbursement. Project management will be delegated to EDG that will exercise it through its Directorate of Planning and Equipment which is attached to the Project Implementation Unit (PIU). The PIU has satisfactorily implemented PREREC1. The PIU will be reassigned to manage PREREC2 and its workforce and will be reinforced by an electrical network engineer and an expert in monitoring and evaluation. It is expected that the administrative and financial officer and two accountants of the PIU receive further training on the Bank's disbursement procedures and project accounting. The procurement expert and the environmentalist of the PIU will also be trained at the Bank in their respective fields. The PIU will be supported by an engineering consulting firm that will be responsible for supervising the works. The implementation of the ESMP will be done by the works company and the consulting engineer in charge of control will follow up with the PIU's environmentalist.

4.1.2. Acquisitions financed from the Bank's resources will comply with national procurement procedures (goods and works). They shall abide by the rules and procedures of the Bank and use the sample files of the Bank, for international competitive bidding (goods and works) and shortlist consultations (services). The procedures for procurement of works, goods and services and the procurement plan are presented in the Technical Annex B5. The PIU will be responsible for procurement and financial management of the project.

4.1.3. The financial management system will be strengthened especially by developing a manual of administrative, financial and accounting procedures and reviewing the design of the accounting software. Direct payments and Special Account methods will be used for Bank disbursements. A special account will be opened for this purpose in a bank acceptable to the Bank to receive foreign exchange resources, and a sub-account in Guinean Franc will be opened to carry out local operating costs. The project will be audited by an independent external auditor recruited on the basis of terms of reference approved by the Bank, and reports will be submitted to the Bank within six months after the end of the financial year.

4.2. Monitoring

4.2.1. The monitoring and evaluation expert will submit a progress report explaining the progress of project indicators. Periodic supervision missions of the Bank, Consulting Engineer responsible for supervision of works and the Auditor of the accounts of the project will also help to monitor each step of project execution, to learn about the achievement of project objectives and appropriate actions to be taken to avoid shorfalls where necessary.

4.2.2. The main stages of implementation of the project are presented chronologically as follows:

<u>Duration</u>	<u>Stages</u>	<u>Monitoring activities/feedback loop</u>
October-Nov 2013	Signing of Loan Agreement and Grant Memorandum	Government/ADF
October 2013	Preparation and publication of contract overview	EDG/ADF
31 March 2014	Meeting preliminary conditions for 1st disbursement	EDG/Government
August 13 –April 14	Recruitment of Works Control Consultant	EDG/ADF
Sept 13-May 14	Selection of works companies	EDG/ADF
August 13 –Sept 14	Recruitment of other consultants	EDG/ADF
June 14- Dec 16	Execution of network construction works	EDG/CE
May 14-Dec 16	Control and supervision of works	Consulting Engineer/EDG
March 14 - March 15	Training and experience sharing travels	EDG
Twice a year	Supervisions of the project by the Bank	ADF/EDG/CE
June 2017	Completion report of the Borrower/Donee	State of Guinea
December 2017	Completion report of ADF	ADF

4.3. Governance

It is recognized that poor governance practices are one of the main causes of the current crisis in the electricity sub-sector in Guinea. The Guinea Electricity Corporation (EDG) was managed until recently by a Management Committee headed by a General Coordinator, initially established for a transitional period of 18 months pending the recruitment of a private strategic partner to manage the company. No supervisory body of the Committee had been set up to act as a Board of Administrators. But in March 2013, the Government issued a decree establishing a supervisory board for EDG to be assisted by a Consulting Firm of independent accountants. This

Firm will act as Financial Controller until the installation of the strategic partner that should not take more than two years. In the same move toward normalcy, a Director General was appointed in April 2013 to replace the General Coordinator. Restructuring measures of the subsector and of EDG are contained in the priority actions of the recovery plan supported by all donors including the Bank. PREREC2 will take over the financing of the financial controller for a period of two years. Also, with the framework of the fight against illegal connections, it was revealed that some unscrupulous EDG agents are colluding with fraudsters. It is planned that all EDG workers responsible for connections, fighting fraud and recovery are also involved in the awareness and education campaign envisioned in the PREREC2 for its "fight against fraud and illegal connections" component. In addition, the PIU will keep separate accounts for the project, which will identify expenditures per component, per category and per source of funding and facilitate the conduct of planned audits.

4.4. Sustainability

4.4.1. Making the electricity sub-sector viable is a priority for the government that has undertaken several actions in this direction, including: (i) the ongoing reform in the sub-sector for the introduction of a private strategic partner to manage the EDG, (ii) work to increase the production capacity under execution, (iii) strengthening governance, financial and commercial management of EDG, (iv) rehabilitation of distribution networks to reduce losses, the promotion of prepayment meters, customer identification and the fight against fraud, and (v) the organization of consultations to implement recommendations of the billing study aimed at balancing the finances of the sub-sector. These actions explain Government's enthusiasm for the project whose activities align perfectly with its present vision.

4.4.2. EDG has recently adopted a policy of preventive maintenance of all facilities. The constraint of lack of financial resources for proper maintenance of facilities will be gradually overcome with ongoing revamping actions. In addition, annual maintenance and operational costs of the works to be done by PREREC2, estimated at 2.5% of the investment cost, will be widely covered by the expected profits from the implementation of the project (details in annex B7).

4.5. Risk management

4.5.1. The main risks identified are: (a) delay in the execution of production facilities currently under execution resulting in insufficient supply of electricity to meet the needs of existing customers and new ones who will be connected to the grid under this project, and (b) the persistence of poor governance and fraud at EDG as well as the lack of financial resources for the proper maintenance of infrastructure to be installed.

4.5.2. Corresponding cushioning measures are two prong : (a) Increased production capacity: before exploitation of PREREC2 in 2017, the 100 MW thermal power station in Conakry and the Kaleta hydroelectric plant (240 MW, 70% for national needs) will be commissioned. In fact, for the 100 MW plant that has to be installed in Conakry, work is progressing and has helped commission the first installment of 24 MW in 2013, the other two units of 26 MW and 50 MW will be operational by the end of 2014. As for the Kaléta power plant, work started since 2012 and will be completed by August 2015, (b) Reducing fraud and improving governance and the

financial situation of EDG: The rehabilitation and construction of a new distribution network, installing a meter for each subscriber, an awareness campaign involving all consumers and EDG workers as well as activation of the anti-fraud unit of EDG will reduce fraud on the networks. The installation of a financial controller at EDG and the completion of ongoing reforms including the introduction of a strategic partner will improve governance. In addition, the following activities of the project will improve the financial situation of EDG: (i) identification of all customers and installation of prepayment meters and (ii) upgrading the distribution network, which reduces losses. The additional revenue from these actions will finance maintenance costs of production, transmission and distribution of electricity.

4.6. Knowledge development

4.6.1. Management of prepayment meters is new to EDG and the project will support the introduction of these meters through raising awareness on accepting the concept without any hitch. An innovative approach adopted will be to address the needs of sector reform (governance, billing ...) not in terms of conditionality, but in terms of information, awareness and commitment of all stakeholders. The purpose is to get a consensus of all stakeholders on the need to reform the sub-sector and to adopt good civic behaviors such as paying bills on the due date, EDG support in the fight against fraud and vandalizing of networks and the adoption of simple attitudes toward energy efficiency.

4.6.2. For each use of external expertise, EDG workers will be designated for specific monitoring of the services for knowledge transfer. Also, the project includes training and experience-sharing travels to similar structures in the sub-region. All these activities will be the subject of periodic reports by the monitoring and evaluation officer of the PIU who will bring out appropriate lessons.

4.6.3. The reports of the monitoring and evaluation expert, external audit reports and periodic project progress reports will serve as a basis for supervision missions of the Bank after which maximum lessons will be recorded. The publication of supervision reports and the project completion report will help make the knowledge available to the staff of the Bank for consideration in future operations.

V. LEGAL FRAMEWORK

5.1 Legal instrument

The project will be funded with an AFD loan and grant.

5.2 Conditions for the Bank's intervention

A) Prerequisites for entry into force

5.2.1. The entry into force of the Grant Protocol Agreement shall be subject to its signing by the Fund and the Donee. As for the entry into force of the Loan Agreement it shall be subject to the fulfillment by the Borrower, to the satisfaction of the Fund, of the conditions set out in Section 12.01 of the General Conditions applicable to Loan Agreements and Warranty Agreements of the ADF.

B) Prerequisites to the first disbursement of the Bank's funds

5.2.2. In addition to the entry into force of the Grant Protocol Agreement and the Loan Agreement, the first disbursement of the ADF funds shall be subject to the Donee / Borrower fulfilling, to the satisfaction of the ADF, the following conditions :

- Provide to the Fund evidence of the opening of a special account, in a bank acceptable to the ADF, to receive ADF funds for the functioning of the PIU, planned training and experience sharing visits ;
- Provide to the Fund evidence of the Donee's on-lending the Grant by to EDG by an agreement, under terms and conditions similar to those of Protocol Agreement signed with the ADF and approved a priori by the Fund ; and
- Provide to the Fund evidence of the Borrower's on-lending the Loan to EDG by an agreement, under terms and conditions are similar to those of the Loan Agreement signed with the ADF and approved a priori by the Fund.

C) Other conditions

5.2.3. The Donee/Borrower shall submit for non-objection by the ADF, no later than 3 (three) months upon signing the Grant Protocol Agreement, the CVs of the Electrical Engineer and the monitoring and evaluation officer to be assigned to the PIU, and

5.2.4. The Donee/Borrower shall, within 3 (three) months after the adoption of the 2014 budget, provide the ADF with proof of inclusion in the 2014 investment budget, country contribution funds to finance the Project.

D) Commitments

5.2.5 The Donee/Borrower undertakes to :

- Continue reforms in the electricity sub-sector and to install the strategic partner to manage the EDG ;
- Execute the project and the Environmental and Social Management Plan (ESMP) and have them executed by its contractors in accordance with national law, recommendations, requirements and procedures contained in the ESMP and the rules and procedures of the Fund in this regard ; and
- Provide the Fund with quarterly reports on the implementation of the ESMP, including as necessary failures and corrective actions undertaken or to be undertaken.

5.3 Compliance with Bank policies

The project complies with all applicable rules of the Bank.

VI. RECOMMENDATIONS

Management recommends that the Board of Directors should approve the proposed loan of UA 4.69 million and a grant of UA 6.31 million to the Government of the Republic of Guinea for financing of the Conakry Electricity Network Rehabilitation and Extension Project 2, in accordance with the conditions set out in this report.

Appendix I. Comparative socio-economic indicators

Guinea – Development indicators				
Social indicators	Guinea		Africa	Developing countries
	1990	2011 *		
Area (000 Km ²)	246		30 323	98 461
Total population (millions)	5.8	10.2	1 044.3	5 733.7
Annual population growth (%)	4.5	2.4	2.3	1.3
Life expectancy at birth -Total (years)	43.7	54.1	57.7	77.7
Infant mortality rate (for 1000)	137.6	86.7	76.0	44.7
Number of medical doctors (for 100000 inhabitants)	13.4	10.0	57.8	112.0
Birth attended by qualified health personnel (%)	...	46.1	53.7	65.3
Rate of vaccination against measles (% children from 12-23 months)	35.0	51.0	78.5	84.3
Primary school enrollment rate (% brut)	36.0	94.4	101.4	107.8
Boy/girl ratio at primary (%)	46.7	83.8	88.6	...
Literacy rate (% of the population >15 years)	...	41.0	67.0	80.3
Access to clean water (% of the population)	51.0	74.0	65.7	86.3
Access to health services (% of the population)	10.0	18.0	39.8	56.1
HDI value (0 to 1)	...	0.3	0.5	...
Human poverty Index (HPI-1) (% of the Population)	...	50.5	33.9	...
Macroeconomic indicators				
	2000	2009	2010	2011
GNI per inhabitant, Atlas method (current \$)	400	380	400	...
GDP (Million in current dollars)	2 995	4 460	5 050	5 911
Real GDP growth (annual %)	-1.9	-0.3	1.9	4.0
Real GDP growth per inhabitant (annual %)	-3.3	-2.3	-0.3	1.6
Gross domestic investment (% of GDP)	13.6	16.4	19.7	19.7
Inflation (annual %)	6.9	4.7	15.5	21.2
Budget balance (% of GDP)	-3.4	-7.9	-13.9	-13.8
Trade, External debt and Financial Flows				
	2000	2009	2010	2011
Change in volume of exports (%)	5.7	-4.9	-7.3	11.5
Change in volume of imports (%)	-5.6	-2.5	17.1	-1.8
Change in terms of trade	-10.1	3.4	33.7	-24.5
Trade balance (Million of US Dollars.)	83	-10	66	-204
Trade balance (% of GDP)	2.8	-0.2	1.3	-3.5
Current account balance of (Million of US Dollars.)	-200	-403	-327	-538
Current account balance (% of GDP)	-6.7	-9.0	-6.5	-9.1
Debt service (% of exports)	14.8	7.7	4.2	14.0
Total external debt (% of GDP)	108.9	67.6	63.6	54.1
Total net financial flow (Million of US Dollars)	329	189	216	...
Net public development assistance (Million in US Dollars.)	153	214	218	...
Net direct investments (Million US Dollars.)	10	141	303	...
International reserves (months of imports)	1.6	...	...	...
Private sector development and infrastructure				
	2000	2009	2010	2011
Time required to start a business (days)	...	40	40	40
Investors protection index (0-10)	...	2.7	2.7	2.7
Landline phone subscribers (for 1000 hab.)	2.9	2.3	1.8	...
Cell phone subscribers (for 1000 hab.)	5.0	357.4	400.7	...
Internet users (for 1000 hab.)	1.0	9.7	9.9	...
Paved roads (% of all roads)	16.5	...	...	...
Railway, goods transported (million ton-km)	...	...	...	...

Source: Statistical department of the ADB, from national and international sources.

* Most recent year.

Last update: May 2012

Appendix II. Table of the portfolio of the Bank in Guinea

Sector/Project	Approval Date	Date of Signat.	Compl Date	Source of funding	Approved (AU)	% Dec.	Project performance	Risk
REHABILITATION. A 2x2 WAY ROAD TOMBO-AIRPORT. GBESSIA	13.07.05	22.07.05	30.11.12	Don FAD	8,250,000	66.09	2.01	PPP
GUINEA – ADDITIONAL GRANT REHABILITATION A 2x2 WAY ROAD TOMBO-AIRPORT. GBESSIA	29.04.09	13.05.09	31.12.12	Don FAD	5,170,000	58,78	-	Not rated
REHABILITATION OF ELECTRICITY NETWORK (PRRECI)	29.10.08	13.05.09	31.12.13	Don FAD	12,000,000	69.03	2.26	Non PP
RURLA LECTRIFICATION PROJECT	21.01.11	15.02.11	31.12.15	Don FAD	14,960,000	1.08	2.36	Non PP
STUDY OF THE GUINEA-MALI LINE	12.01.11	15.02.11	31.12.12	Don FAD	1,667,000	0.00	-	Not rated
Total Infrastructure/Energy					42,047,000	40.28	2.21	
Education IV	13.07.05	22.07.05	30.11.12	Don FAD	14,000,000	85.35	2.0	Non PP
PDSO HTE & M. GUINEA PHASE II	09.02.11	15.02.11	31.12.13	Don FAD	5,000,000	33.04	2.78	Non PP
Total Social Sector					19,000,000	71.59	2.39	
SUPPORT PROJECT TO ECONOMIC AND FINANCIAL MANAGEMENT CAPACITY (PARCGEF)	31.01.11	15.02.11	31.12.14	Don FAD	7,544,000	11.05	2.48	Non PP
SUPPORT PROGRAMME TO ECONOMIC REFORMS	18.05.11	10.06.11	30.06.12	Don FAD	20,000,000	100.00	2.69	Non PP
SUPPORT TO NAT. STATISTICAL DEVELOPMENT STRATEGY (NSDS)	30.06.11	18.08.11	31.12.13	Don FSF	1,136,000	60.00	-	Not Rated
SUPPORT TO THE PRDP III PROCESS	27.06.11	29.07.11	30.06.13	Don FSF	1,337,000	60.00	2.31	Non PP
Total Multi-Sector					30,017,000	74.35	2.49	3 NR
GRAND TOTAL – 11 Ongoing projects					91,064,000	58.04 %	2.61	1 PPP 7 Non PP

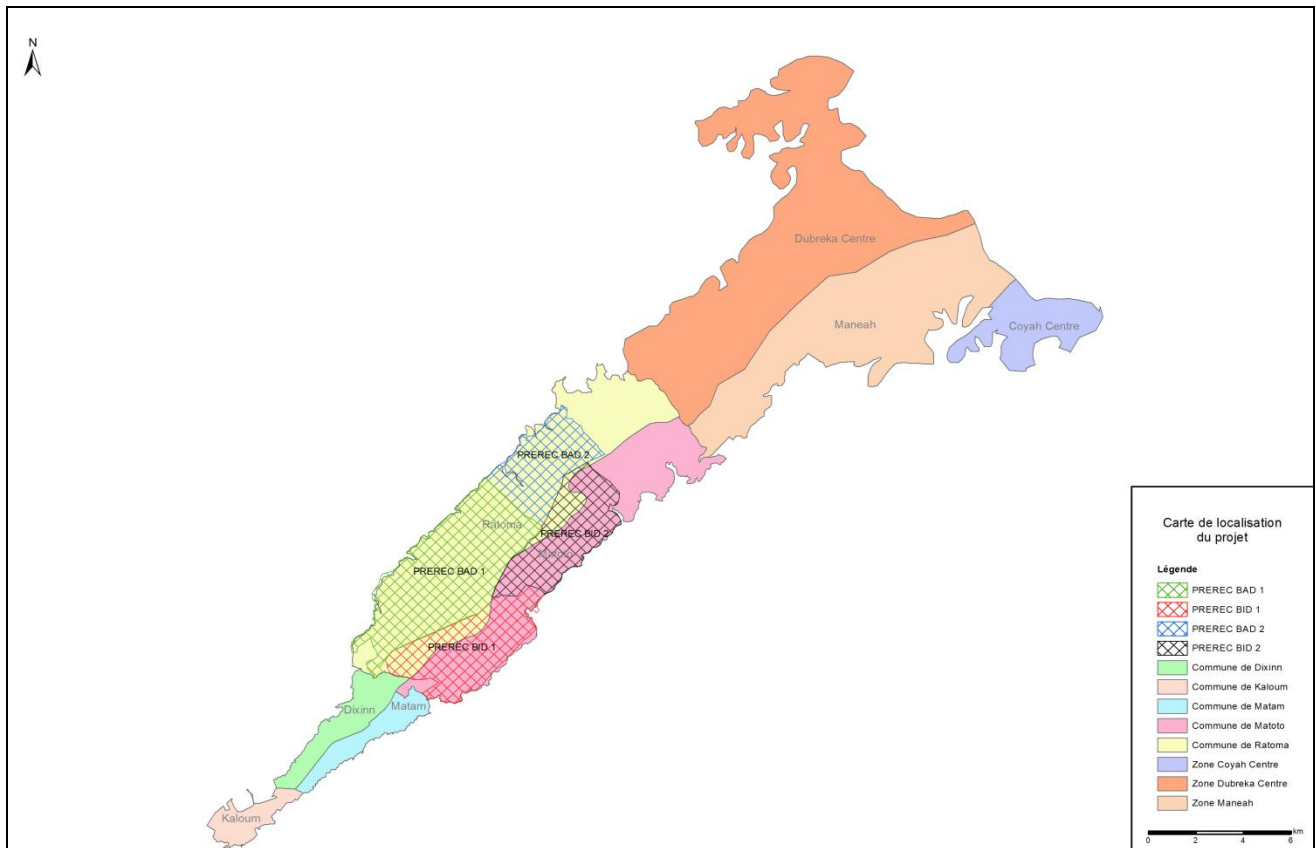
**Appendix III. Major related projects funded by the Bank and other partners
in developing countries**

Donor	Amount millions	currency	Projects	Progress status
World Bank	37.30	USD	Improving energy sector efficiency - 2006	70% executed
	4.10	USD	Decentralized rural electrification - 2002	Fully executed
African Development Fund	12.00	UC	Rehabilitation and extension of Conakry distribution network (PREREC 1) - 2008	Ongoing completion
	14.96	UC	Rural electrification project - 2011	Ongoing
	1.66	UC	Study Guinea-Mali interconnection line Mali - 2011	Ongoing
Islamic Development Bank	11.50	USD	Rehabilitation and extension of Conakry distribution network (PREREC 1) - 2008	80% executed
	17.45	USD	Rehabilitation of the Tombo power plants - 2012	Starting
ECOWAS Investment and Development Bank	30.0	USD	Rehabilitation of the networks of 4 regional headquarters - 2008	Ongoing
ECOWAS Commission	10.0	USD	Rehabilitation of power plants -2011	Ongoing
ECOWAS Commission	20.0	USD	Purchase of fuel oil and spare parts -2011	Ongoing
French Development Agency	1.0	EUR	Fund for surveys and capacity building in the energy sector - 2012	Ongoing
Eximbank China	334.5	USD	Rehabilitation of Kaleta hydropower plant -2012	Ongoing

Appendix IV. Map of the project area MAP OF GUINEA



MAP OF CONAKRY – PROJECT AREA



This map was prepared by the staff of the ADB Group exclusively for the use by the readers of the report to which it is attached. The names and boundaries shown on this map do not imply on the part of the ADB Group and its members any judgment concerning the legal status of a territory nor any approval or acceptance of these borders