

Document of
The World Bank

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Report No: 47244 - CF

PROJECT PAPER

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR 5.1 MILLION
(US\$ 8 MILLION EQUIVALENT)

TO THE

CENTRAL AFRICAN REPUBLIC

FOR AN

EMERGENCY POWER RESPONSE PROJECT

February 2, 2009

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CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2008)

Currency Unit = CFA Franc (XAF)
XAF 457.60 = US\$1
US\$1.5566 = SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AFD	<i>Agence Française de Développement</i> (French Development Agency)
AfDB	African Development Bank
ARSE	<i>Agence de Régulation du Secteur de l'Electricité</i> (Electricity Sector Regulation Agency)
AGETIP-CAF	<i>Agence d'Exécution des Travaux d'Intérêt Public</i> (Public Works Agency)
CAR	Central African Republic
CEMAC	Central African Economic and Monetary Community
CFAA	Country Financial Accountability Assessment
CFAF	African Financial Community Franc
CFL	Compact Fluorescent Lamp
CPIP	Country Procurement Issues Paper
CQS	Consultant's Qualifications
EA	Environmental Assessment
EC	European Commission
EDF	<i>Electricité de France</i> (French power utility)
EMP	Environmental Management Plans
ENERCA	<i>Energie Centrafricaine</i> (CAR power utility)
EPRP	Emergency Power Response Project
ESMF	Environmental and Social Management Framework
ESPF	Economic and Social Policy Framework
EU	European Union
EUIRMP	Emergency Urban Infrastructure Rehabilitation and Maintenance Project
FBS	Selection under a Fixed Budget
FMR	Financial Monitoring Reports
FMS	Financial Management Specialist
FOMUC	<i>Force Multinationale en Centrafrique</i>
GDP	Gross Domestic Product
GoCAR	Government of Central African Republic
GNP	Gross National Product
IBRD	International Bank for Reconstruction and Development
HIPC	Heavily Indebted Poor Countries
IC	Individual Consultant
ICB	International Competitive Bidding
IDA	International Development Association
IMF	International Monetary Fund
ISC	Inter-ministerial Steering Committee
JISN	Joint Interim Strategy Note

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LCS	Least Cost Selection
LICUS	Low Income Countries Under Stress
M&E	Monitoring and Evaluation
MICOPAX	<i>Mission de Consolidation de la Paix en Centrafrique</i>
MMEH	<i>Ministère des Mines, de l'Energie et de l'Hydraulique</i>
NCB	National Competitive Bidding
NGOs	Non-Governmental Organizations
OP/BP	Operations Policy/Bank Procedures
PCB	Polychlorinated biphenyl
PDO	Project Development Objective
PRGF	Poverty Reduction and Growth Facility
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Paper
QCBS	Quality Cost Base Selection
RAP	Resettlement Action Plans
RFP	Request for Proposal
RPF	Resettlement Policy Framework
SBD	Standard Bidding Documents
SDR	Special Drawing Rights
SODECA	<i>Société de Distribution de l'Eau de Centrafrique (CAR Water Utility)</i>
SOE	Statement of Expenses
SPP	Simplified Procurement Plan
SSA	Sub Saharan Africa
SSC	Sole Source Contracting
SSS	Single Source Selection
WB	World Bank

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**CENTRAL AFRICAN REPUBLIC
CAR - Emergency Power Response Project**

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CENTRAL AFRICAN REPUBLIC
 CAR - EMERGENCY POWER RESPONSE PROJECT
 PROJECT PAPER DATASHEET

AFRICA

AFTEG

Date: February 2, 2009	Team Leader: Moez Cherif
Country Director: Mary A. Barton-Dock	Sectors: Power (100%)
Sector Manager/Director: Subramaniam V. Iyer	Themes: Urban
Project ID: P114111	Environmental screening category: B
Lending Instrument: Emergency Recovery Loan	

Project Financing Data

[] Loan [] Credit [X] Grant [] Guarantee [] Other:

For Loans/Credits/Others:
 Total Bank financing (US\$m.): 8.00
 Proposed terms: Standard

Financing Plan (US\$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	0.00	0.00	0.00
International Development Association (IDA)	1.00	7.00	8.00
Total:	1.00	7.00	8.00

Borrower:
 Central African Republic

Responsible Agency:
 Energie Centrafricaine (ENERCA)
 Avenue de l'Indépendance
 BP 880, Bangui
 Fax: +236 21 61 54 43

Estimated disbursements (Bank FY/US\$m)									
FY	2009	2010	2011	2012					
Annual	0.50	2.50	3.00	2.00					
Cumulative	0.50	3.00	6.00	8.00					
Project implementation period: Start March 17, 2009 End: December 30, 2011									
Expected effectiveness date: March 16, 2009									
Expected closing date: June 29, 2012									
Does the project require any exceptions from Bank policies? <i>Ref. Section Appraisal of Project Activities</i> [] Yes [X] No									
Have these been approved by Bank management? [] Yes [] No									
Does the project include any critical risks rated "substantial" or "high"? [X] Yes [] No <i>Ref. Section Project Risks and Mitigating Measures</i>									
<p>Project development objective</p> <p>The project development objectives are to partially restore reliable electricity supply to Enerca's customers in Bangui, including essential service providers such as the water company and hospitals, and to improve the financial and operational performance of the sector. In particular, the project will rehabilitate the Boali 1 and 2 hydropower facilities, thereby increasing reliable power supply. Through the introduction of more efficient lighting devices, the project is expected to reduce peak electricity demand by up to 10%, and through the loss reduction and collection improvement components of the operation, including the introduction of pre-payment meters, the project is also expected to improve the utility's ability to generate more cash flow and coverage of operating and maintenance expenditure.</p>									
<p>Project description [<i>one-sentence summary of each component</i>] <i>Ref. Section Bank Response</i></p> <p>The project would consist of the following components dealing with both supply and demand:</p> <p>Component 1: Rehabilitation of Boali 1 and Boali 2 hydropower stations (\$4,000,000): The objective of this component is to restore generation capacity at Boali 1 and 2. It consists in rehabilitating electro-mechanical equipment at Boali 1 and 2, which will complement the rehabilitation being funded by AFD. This component will provide for the rehabilitation and the procurement of transformers and protection devices, and the replacement of regulation devices of hydropower turbines. This component will address the lack of protection devices in the substations that put the integrity of the entire network system in jeopardy.</p> <p>Component 2: Compact Fluorescent Lamp (CFL) Program (\$300,000): Given the minimal amount of electricity available on the national grid, there is an urgent need to conserve it. Most of the electricity consumed by residential consumers, especially at peak, is for lighting. This component will distribute CFLs in order to reduce energy usage for lighting purposes.</p> <p>Component 3: Pre-payment Meters (\$1,600,000): The objective of this component is to increase bill collection rates and to induce energy conservation among users. This component would be a pilot program to introduce pre-payment meters among the main consumer categories, particularly those from whom collection rates are low (households, government institutions, Bangui city council). The target is to introduce some 5,500 pre-payment meters at customer premises out of about 18,000 customers. Priority would be given to the 5,000 customers who</p>									

currently have no meters. This would enable Enerca to improve its cashflow, in order to start maintaining its infrastructure.

Component 4: Loss Reduction Program (\$1,300,000): Currently distribution lines in Bangui, which are about 40 years old and made of bare copper, are subject to high levels of technical losses and electricity theft. Some illegal users make temporary connections at night, which they remove during the day, thus avoiding detection. This component will focus on replacing these old low-voltage distribution lines in six Bangui neighborhoods with PVC insulated aluminum cables, where technical losses are lower and theft of electricity is much more difficult, and on equipping existing and new transformers to improve the quality of service.

Component 5: AGETIP-CAF (\$400,000): This component is constituted of the fees to be paid for the services of AGETIP-CAF in procurement and financial management of the project on behalf of ENERCA, given the low fiduciary capacity of the latter.

Note: the project also includes a provision for contingencies of \$400,000.

Which safeguard policies are triggered, if any? Environmental Assessment (OP/BP 4.01)
Safety of Dams (OP/BP 4.37)

I. INTRODUCTION

1. This Project Paper seeks the approval of the Board for a grant in the amount of US\$8 million equivalent to the Central African Republic (CAR) to finance a Power Emergency Response Project (PERP). The objectives of the Project are to partially restore reliable electricity supply to the Project Implementing Entity's customers in Bangui, including essential service providers such as the Recipient's water company and hospitals, and improve the financial and operational performance of the sector.

2. The project will achieve these objectives through four main components: (i) rehabilitate hydropower generation capacity, (ii) distribute compact fluorescent lamps (CFLs) to consumers, (iii) introduce pre-payment meters, (iv) reduce distribution losses and improve quality of service. The rehabilitation of hydropower generation will be closely coordinated with Agence Française de Développement (AFD), who is also financing the emergency rehabilitation of power generation in CAR.

II. THE EMERGENCY CHALLENGE

A. Country Context

3. Development in the Central African Republic has been set back by several years of recurring internal conflict. Conflict has been triggered by mutinies within the armed forces in 1996 and 1997, three attempted coups d'état in 1999, 2001 and 2002, and a coup d'état in March 2003. The last of these brought General François Bozizé to power before a general election in 2005 confirmed his position as head of state. The 2003 regime change marked the culmination of a long-standing vicious cycle whereby mutinies and conflicts would cripple economic activity and government finances, leading to inability to pay civil service (including military) wages or sustain even basic public services. This, in turn, fueled further discontent and disturbance. Collateral effects of the conflicts in neighboring countries, including Chad and Sudan, have been contributing factors in sparking or propagating CAR conflicts. The simmering and growing regional insecurity, when combined with the difficult situation of the population in Bangui with more than 50 percent of CAR's urban population, may trigger an even greater regional emergency.

4. In the summer of 2008, the government signed a peace accord with two of the three main rebel groups operating in the CAR. The country took significant steps toward national reconciliation with an Amnesty Bill adopted by Parliament in October 2008 and the organization of political dialogue with the participation of rebels and the opposition, including a former President of CAR in exile, in December 2008 and the formation of a new government of national unity in January 2009. However, the security situation remains fragile. The regional peacekeeping force, Force Multinationale en Centrafrique (FOMUC), has been replaced by a new force, Mission de Consolidation de la Paix en Centrafrique (MICOPAX), provided by the Communauté Economique des Etats de l'Afrique Centrale (CEMAC).

5. Beyond the political turmoil, economic development has also been hampered by the country's landlocked position, a poor transport system, a largely unskilled workforce, and a legacy of misdirected economic policies. The government has also had poor revenue collection and budget outcomes. With income per capita of \$370 in 2006, the country remains poor despite the economic potential of CAR's natural resources (diamonds, gold, uranium, timber, etc.) and favorable farming conditions. CAR continues to emerge from a fragile economic environment, but economic performance and policy implementation have strengthened.

6. In 2006 and 2007, growth was close to 4% per annum, the highest in a decade, due in part to improvement in the fiscal position resulting from better fiscal management. For 2008, Ministry of Finance and Budget forecasts a growth rate of 4.3 percent. Donors have been providing assistance to CAR for the strengthening of numerous activities in public financial management and governance. The IMF-backed Poverty Reduction and Growth Facility (PRGF) was approved in December 2006, and Heavily Indebted Poor Countries (HIPC) Decision Point was attained in September 2007.

7. Political instability has contributed to poor socioeconomic outcomes. CAR ranked 171st out of 177 countries in United Nation Development Program's 2007/08 Human Development Index. Poverty is widespread, with an estimated 67 percent of the population living under the poverty line, and the incidence of poverty in rural areas is higher. Access to even basic education and health services is minimal, and outcomes are worsening as these sectors have been significantly under-funded for several decades. Life expectancy at birth is estimated at 39 years, and adult literacy rate for persons 15 years and above is 65 percent. The incidence of HIV/AIDS, estimated at 6.2 percent has continued to climb because of a lack of health services and prevention programs, and is now at a crisis level.

8. A huge humanitarian crisis looms over CAR cities and Bangui in particular. Almost all infrastructure services are currently badly dilapidated, breaking down, and creating an urban sector crisis situation. Urbanization is rapidly increasing in CAR, fed by the mass movement of rural populations to cities, especially Bangui, as people flee lawlessness in rural hinterlands of CAR. High unemployment rate and worsening living conditions define life in Bangui, especially among a young and restless growing migrant population receiving little or no infrastructure or social services. In the absence of progress in shared economic growth, aggravated by poor access to infrastructure and energy services, the resulting social stress is fueling potential for reignited instability.

B. Sector Context

9. The dilapidated state of the power sector plays an important role in this crisis. During the summer of 2008, the electricity utility Enerca lost about half its generation (Boali 2) and supply capacity in Bangui due to a technical failure that lasted several weeks. This was caused by the theft of the grounding equipment for the Boali 2 transmission line, which means that when lightning struck a transmission pole there was no protection for electromechanical equipment. During that time, power shortages affected the water utility, Société de Distribution de l' Eau de Centrafrique (SODECA), resulting in water shortages in some residential neighborhoods due to lack of pumping capability; hospitals were also affected by lack of power. As a result, Bangui came close to a humanitarian crisis, which is why the prime minister issued a call to the development partners to help restore reliable and sustainable electricity supply to the capital. Enerca managed to restart generation at Boali 2, but all its infrastructure remains in a critical state, and it faces frequent technical failures, in addition to insufficient generation capacity to meet demand, high energy losses and a dire financial situation. Lack of power for public lighting also creates a security hazard. Outside Bangui, Enerca provides a few hours of electricity per night at best using diesel generators in some provincial towns.

10. The Bangui interconnected power system is small. On the generation side, there are two hydropower facilities (Boali 1 and 2) with a current generation capacity of 15 MW; this capacity is not reliable because of lack of maintenance and there are frequent power failures. In addition, there is currently 2 MW of diesel power in Bangui (though the utility has limited ability to pay for fuel). Peak demand in 2008 is estimated at 27 MW, but given estimated system losses of 45%, there is a large gap between supply and demand. System losses are approximately composed of 15% technical losses and 30% non-technical losses (i.e. theft and inaccurate billing). Theft of electricity is widespread, as bare copper distribution wires are an easy target for illegal connections. For billed electricity, the cash

collection rate is estimated to be 66%. As a result, Enerca does not currently collect sufficient revenue to cover all its operating and maintenance costs, despite a relatively high average tariff at US\$15/kWh; and there are no government subsidies to cover the shortage of funds.

11. Upstream of Boali 1 and 2, there is a regulation dam called Boali 3, where an additional 10 MW of capacity could be installed in the future. Boali 2 also has the potential to be expanded by 10 MW. However, these are significant generation investments, which are not suitable for an emergency operation and whose costs far outweigh funds available under this project. The government is looking for ways of financing these investments in the medium term.

12. The State owned utility Enerca is so far the only power sector operator in CAR. Enerca's general manager reports to the Ministry of Mining, Energy and Hydraulics. Since January 2005, there is a new Electricity Law, which enables private sector participation in the sector. There is also a newly appointed electricity sector regulator (ARSE) whose capacity is still low.

13. If no urgent measures are taken, the electricity crisis experienced last summer could recur in an even more severe form leading to high socioeconomic cost or even a humanitarian crisis in Bangui. Widespread electricity shortages are worsening social tensions in Bangui at a time when the government and the opposition are trying to put an end to civil war. Enerca lacks funds to perform vital maintenance and rehabilitation of its dilapidated infrastructure, and reengagement from the donor community is urgent.

C. Government Recovery Strategy

14. Due to lack of internal resources, GoCAR has appealed to the international community for assistance in reestablishing reliable power supply to the capital Bangui. Enerca's technicians are constantly repairing failing generation equipment; but this is not sustainable, as the infrastructure needs major rehabilitation. Enerca's revenues are not sufficient to cover all its operating cost, let alone rehabilitate its infrastructure.

15. In 2008, GoCAR appealed to the Chinese government for help. The Chinese EXIM Bank sent a mission to the CAR in order to investigate financing the expansion of hydropower generation at Boali 2 and 3 dams. However, even though they have not submitted a formal response, their conclusion was that they would not fund this expansion for the time being as the GoCAR and the sector are not credit worthy.

16. The only significant donor funds currently available for sector rehabilitation are provided by AFD, who have started disbursing an envelope of Euro 4.2 million. EDF, who is funded by AFD as engineering consultant to Enerca, has estimated the cost of rehabilitating existing generation and transmission infrastructure at Euro 9.2 million. (For a fuller description of the AFD operation and its complementarity with the project, see section B below.)

17. There is a project funded by the EU under CEMAC for the electrification of 10,000 homes in Bangui over the period 2007-11, but without reliable generation there would not be sufficient power for these new customers. There is also a sector reform study being financed by Banque de Développement des Etats d'Afrique Centrale (BDEAC) at a cost of half a million US\$. The terms of reference of this study foresee that Boali 3 would be managed by a private operator in the future and

that there would be private sector involvement in power distribution. The Bank presented the government with a brief action plan to improve the governance and performance of Enerca, and expressed its readiness to participate in the dialogue over sector reform with stakeholders. Beyond this emergency operation, the sector will need further investment to expand generation, transmission and distribution.

18. The project team has met with and is coordinating its action with GoCAR, including the Ministry of Mining, Energy and Hydraulics, the Ministry of the Economy, Planning and International Cooperation, and the electricity sector regulator (ARSE); and with the main donors with an interest in the sector, including AFD, the Chinese Embassy and the EU.

III. PROJECT DESCRIPTION

A. Project Development Objective

19. The project development objectives are to partially restore reliable electricity supply to Enerca's customers in Bangui, including essential service providers such as the Water Company and hospitals, and to improve the financial and operational performance of the sector. In particular, the project will rehabilitate the Boali 1 and 2 hydropower facilities, thereby increasing reliable power supply. Through the introduction of more efficient lighting devices, the project is expected to reduce peak electricity demand by up to 10%, and through the loss reduction and collection improvement components of the operation, including the introduction of pre-payment meters, the project is also expected to improve the utility's ability to generate more cash flow and coverage of operating and maintenance expenditure.

B. Project components

20. The project components are dictated by the nature of the emergency affecting the power system as well as by considerations of sustainability and equilibrium, i.e. bringing demand and available supply into closer balance. The project design and financing have been closely coordinated with the AFD, who is already financing the partial rehabilitation of power generation in CAR. The project design has been kept simple and proportionate with the local implementation capacity. Initially, the government considered purchasing or leasing thermal generators to deal with the emergency situation. However, it was found that rehabilitating existing hydropower facilities would be more economic and faster to implement.

21. The project would consist of the following components dealing with both supply and demand:

22. **Component 1: Rehabilitation of Boali 1 and Boali 2 hydropower stations (\$4,000,000):** The objective of this component is to restore electricity supply to Bangui to more acceptable levels and quality of service. This component (in conjunction with the AFD project) will secure firm generation capacity of 18 MW at Boali 1 and 2, at least 3 MW higher than it is currently. This component will cover:

- (a) the installation of electrical protection devices at the Boali 1 60kV substation so as to restore and improve the overall electrical protection plan;
- (b) the replacement of the regulation set comprising the regulator and the wicket gates for all five(5) turbines of Boali 1 hydropower plant. The present condition of the turbines does not allow for the proper control of the flow of water from the input pipes to the turbine propellers (runners); and

- (c) the retrofitting of the Boali 2, 5.5/60kV 11MVA transformer which shows oil leakage, the upgrading of the Boali 1, 5.5/60kV 11MVA transformer by the installation of cooling fans and the procurement of a new 2/5.5 kV 2.2MVA spare transformer to secure the five (5) hydropower turbine feeding transformers, and a 5.5/60kV 11MVA spare transformer to replace the current one in Boali 1.

23. These actions were selected on the basis of diagnostic work and reports prepared by EDF, who will help Enerca to prepare technical specifications for the procurement of goods under this component. The procurement process is expected to start before Board approval, but contracts can only be signed after project legal agreements are signed.

24. The recommendations of the dam safety expert (see Environmental Aspects in section C below) for any urgent remedial actions will be incorporated in the design of this component.

25. **Component 2: Compact Fluorescent Lamp (CFL) Program (\$300,000):** Most consumers in CAR currently use either incandescent bulbs or neon lights. This component will aim mainly to replace incandescent bulbs in households and for public lighting. The benefits of energy efficient CFLs will accrue both to the consumers (increased availability of power supply at peak hours, reduced power bills and much longer life of light bulbs) and to the country (lower unserved energy). It has been conservatively estimated that the proposed program would allow, when fully deployed, a saving of about 2 MW of peak power. Given the minimal amount of electricity available on the national grid, there is an urgent need to conserve it. Residential consumers use electricity mainly for lighting. Lighting is therefore a good starting point to manage electricity usage.

26. The first step is to design and implement a survey to identify the quality and quantity of lamps currently used by households and for street lighting. It is estimated, based on experience in other African countries, that households require on average 4 lamps, multiplied by some 20,000 customers, this is equivalent to 80,000 CFLs (to be confirmed through survey) at an estimated unit cost of \$2 per CFL.

27. Distribution of CFLs will be undertaken free of charge by Enerca. Priority will be given to customers who are current on bill payments (as an incentive for consumers to pay their bills); they will exchange their incandescent bulbs for CFLs of equivalent lighting capacity. Enerca will organize a media campaign prior to this distribution in order to disseminate knowledge of CFL benefits. We expect that once consumers experience the benefits of CFLs, they will start purchasing them in shops when they need to replace them, this ensuring sustainability of this component.

28. The project will include a TA component in the form of a knowledge transfer program with Electrogaz of Rwanda, who has already implemented a similar program. This will be funded through the project and the Multidonor South-South Experience Exchange Trust Fund. Enerca will put in place measures for collecting used CFLs, including incentives for consumers to bring their used CFLs to the utility, so that they can be disposed of safely.

29. **Component 3: Pre-payment Meters (\$1,600,000):** Enerca does not generate sufficient cash to cover all its operating and maintenance cost, let alone invest in renewing its dilapidated infrastructure. Part of the problem is the fact that Enerca has a low collection rate of some 66% on billed electricity. Besides, due to lack of adequate meters, many households receive fixed estimated bills that do not fully cover the cost of their consumption and do not incentivize them to conserve energy. Experience in other African countries (such as Rwanda and Liberia) and sectors (mobile telephony) show that when correctly implemented consumers are willing and prefer to pay for utility

services using pre-payment methods. During implementation, experience of other African utilities will be drawn upon to design a successful pre-payment meter program.

30. The objective of this component is to increase bill collection rates and to induce energy conservation among users. This component would be a pilot program to introduce pre-payment meters among the main consumer categories, particularly those from whom collection rates are low (households, government institutions, Bangui city council). The target is to introduce some 5,500 pre-payment meters at customer premises out of about 18,000 customers. Priority would be given to the 5,000 customers who currently have no meters. This would enable Enerca to improve its cashflow, in order to start maintaining its infrastructure. The target is to increase overall collection rates from 66% currently to 80% by 2012; this is achievable based on improvements in collection rates achieved in other countries in Africa, including those in post-conflict situations.

31. The twinning arrangement with Rwanda’s utility Electrogaz mentioned above would be used to provide technical assistance to Enerca in order to implement this component as well. This would include advice on how to manage two billing systems simultaneously (using traditional and pre-payment meters).

32. **Component 4: Loss Reduction Program (\$1,300,000):** Currently distribution lines in Bangui, which are about 40 years old and made of bare copper, are subject to high levels of technical losses and electricity theft. Some illegal users make temporary connections at night, which they remove during the day, thus avoiding detection. This component will focus on replacing these old low-voltage distribution lines in six Bangui neighborhoods with PVC insulated aluminum cables, where technical losses are lower and theft of electricity is much more difficult, and on equipping existing and new transformers to improve the quality of service.

33. **Component 5: AGETIP-CAF (\$400,000):** This component is constituted of the fees to be paid for the services of AGETIP-CAF in procurement and financial management of the project on behalf of ENERCA.

34. **The cost breakdown is summarized in the table below.**

	Total
Component 1 – Rehabilitation of Boali 1 and Boali 2 hydropower stations	4.0
Component 2 – Compact Fluorescent Lamps (CFLs)	0.3
Component 3 – Prepayment Meters	1.6
Component 4 – Loss Reduction Program	1.3
Component 5 – AGETIP-CAF fees	0.4
Total base line Costs	7.6
Contingencies	0.4
Total Project Costs in US\$ million	8.0

C. Complementarities with AFD project

35. As stated above, AFD has already started implementing a Euro 4.2 million operation to rehabilitate Enerca’s hydropower and thermal power generation. EDF, who is funded by AFD as engineering consultant to Enerca, has conducted several technical missions to CAR and has prepared reports and a detailed action plan, including equipment to be procured, in order to rehabilitate existing generation and transmission infrastructure, whose total cost was estimated at Euro 9.2 million. Given the fact that AFD funds are not sufficient to cover the whole action plan, the Bank was asked to cover

part of the gap under component 1 of this project¹. Priority actions were classified by EDF into several categories in descending order of priority. The general principle is that AFD would cover the most urgent actions, such as the refurbishment of thermal generators in Bangui, given the fact that funds are already available. Once Bank funds are available, the second tier of priority items would be procured and installed rapidly, while AFD covers other priority actions to the extent of funds available.

36. AFD funds will enable Enerca to undertake rehabilitation and major maintenance on three of its thermal generators and provide some fuel for emergency purposes, which would increase thermal generation capacity from 2 MW to 8 MW. This, in turn, would enable thermal power to be used as a back up when turbines at Boali 1 or 2 need to be turned off for rehabilitation.

37. AFD and the Bank are closely coordinating their interventions, so as to maximize their impact and to reduce implementation risk.

D. Eligibility for processing under OP/BP 8.00

38. In the summer of 2008, the Government of CAR has requested an urgent assistance from the Bank to avert the complete collapse of power supply in the capital city. The current crisis in the electricity sector has caused a major adverse economic and social impact, which is likely to worsen in the future unless urgent action is taken to mitigate it. If no urgent measures are taken, the electricity crisis experienced last summer could recur in an even more severe form leading to high socioeconomic cost or even a humanitarian crisis in Bangui, as Enerca and the government lack funds to perform vital maintenance and rehabilitation of its dilapidated infrastructure, and reengagement from the donor community is urgent. OP 8.00 identifies specific objectives that may be supported through emergency assistance, including the facilitation of support to mitigate or avert the potential effects of future crises in countries at high risk. The proposed Bank assistance, in partnership with the French aid agency (AFD), will support an integrated emergency program that focuses direct assistance to areas of Bank core development and economic competencies. In compliance with O.P. 8.00, this operation does not address long-term power sector issues in CAR, including investing in new generation capacity.

39. The Bank response is adapted in form and scope to the particular circumstances of the emergency being experienced by the power sector in Central African Republic. It is mainly limited to restoring reliable power supply to the capital Bangui and preventing the future recurrence of the crisis. This operation will provide visible benefits to the population of Bangui, including more reliable power supply and public lighting, and its success in alleviating the power crisis is predicated upon the rapid deployment of the activities financed under the project and on the flexibility and accelerated processing procedures allowed under OP 8.00. Emergency procedures allow faster processing, more flexible procurement procedures and the disclosure of environmental assessments after project effectiveness, thus resulting in faster implementation of the project. This could be crucial in averting the total collapse of electricity supply in Bangui.

E. Consistency with the Country Assistance Strategy

40. A joint AfDB/WB Interim Strategy (JIS) for FY07-08 was endorsed by the World Bank in January 2007. The strategy supports: (i) economic recovery and strengthening public sector governance and technical capacity; and (ii) human development, with emphasis on the poor. In 2007,

¹ The AFD funds and component 1 of this project only add up to about Euro 7.2 million, which means that only the most urgent actions up to the sum available will be covered by both operations. This will be done in such a way that no emergency actions are left out.

the Government completed a participatory PRSP, which has four strategic pillars: (a) restore security, consolidate peace and prevent conflict; (b) promote good governance and the rule of law; (c) rebuild and diversify the economy; and (d) develop human capital. Under this strategy, the Bank approved two projects in FY07 aimed at delivering visible impacts on the CAR population and strengthening technical capacity and governance. These include an Emergency Urban Infrastructure Rehabilitation and Maintenance Project (US\$18 million) and a Regional Trade and Transit Facilitation Project (US\$24 million). In the course of 2008, the Bank approved two projects for CAR: an IDA grant of US\$7.9 million for Economic Management and Reform and an Emergency operation of US\$ 3.0 million to help CAR address the Food Crisis. In FY09, there are two projects under preparation, in addition to the Emergency Power Response Project, one in education (\$45 mn from EFA-FTI Catalytic Fund) and one in regional development (\$8 mn from IDA), which is also being processed under emergency procedures.

41. A new joint Country Partnership Strategy 2009-2012 currently under preparation with the African Development Bank plans to promote strong economic growth and employment, through two main axes: (i) consolidation of state capacities and economic governance; and (ii) rehabilitation and development of basic socio-economic infrastructure, in particular energy, agriculture and rural development.

42. The proposed project lays out a program of emergency support to rebuild the country's infrastructure and restore basic public services with a focus on short-term emergency needs while laying out the ground for longer-term sector development. The project is also in line with the Poverty Reduction Strategy Paper (PRSP) with its emphasis on the rehabilitation of infrastructure, and restoration of basic public services.

43. The project is essential to economic recovery in CAR and particularly in Bangui where almost a quarter of the country's population lives and which contributes about 30 percent of the country's GDP. Without reliable electricity supply, Bangui's economy would have to rely on individual diesel generation with fuel imported over vast distances at a great cost or simply go on without electricity supply. It would be crippling economically, would worsen insecurity associated with lack of lighting and pose serious risks to the country's stability. Delivering international assistance to the country, under these circumstances, would be a challenge, including for the Bank.

F. Expected Outcomes

44. Expected outputs/outcomes of the activities to be financed under the project are as follows (Project Development Objectives and indicators as well as other details are given in Annex 2):

Component	Output	Outcome	Monitoring
Rehabilitation of Boali hydropower stations	<ul style="list-style-type: none"> Boali 1 and Boali 2 rehabilitated 1x100 MVA transformer installed Increase in firm generation capacity by 3 MW 	<ul style="list-style-type: none"> Number of hours of power outage decreases from 8 hours per day currently to only 3 hours per day on average by 2012. 	<ul style="list-style-type: none"> <u>Baseline:</u> 8 hours per day <u>Final:</u> 3 hours per day on average
Compact Fluorescent Lamps (CFLs) Program	<ul style="list-style-type: none"> Awareness campaign About 80,000 CFLs are purchased 	<ul style="list-style-type: none"> About 20,000 customers use efficient lighting by 2012 About 2 MW of generating 	<ul style="list-style-type: none"> <u>Baseline:</u> Zero. <u>Final:</u> 20,000 customers use CFLs. <u>CFLs are sold by private businesses</u> <u>Baseline:</u> 0

	and installed	capacity are saved each year through a fully deployed CFL program.	<ul style="list-style-type: none"> • <u>Final</u>: 2 MW
Prepayment Meters	<ul style="list-style-type: none"> • Awareness campaign • About 7,000 prepayment meters are purchased installed • Card distribution mechanism is in place across the city of Bangui 	<ul style="list-style-type: none"> • About 5500 prepayment meters are installed by 2012 • Bill collection improves from 65% to 80% by December 2012 	<ul style="list-style-type: none"> • <u>Baseline</u>: Zero. • <u>Final</u>: 7,000 prepayment meters are installed • Baseline: 65% • Final: 80%
Loss Reduction Program	<ul style="list-style-type: none"> • About 15 km of PCV insulated aluminum cables are laid. • Seven transformers are equipped 	<ul style="list-style-type: none"> • Losses reduced by 10 percentage points from about 50% in 2008 	<ul style="list-style-type: none"> • <u>Baseline</u>: Technical and non-technical losses are about 50% of energy sent out • <u>Final</u>: Total losses lowered by 10 percentage points by 2011.

IV. KEY ELEMENTS OF APPRAISAL AND IMPLEMENTATION ARRANGEMENTS

45. A summary of the technical, economic, financial, institutional, fiduciary, environmental and social aspects of the proposed project activities is given below (details are provided in annexes to this report):

A. Technical

46. The project includes investment in (a) hydropower generation: the rehabilitation and the procurement of transformers and protection devices, and the replacement of regulation devices of hydropower turbines, among other measures; (b) the distribution network through the replacement of bare electrical wires which are causing significant technical and non-technical losses by PVC insulated aluminum cables; and (c) CFLs and pre-payment meters, which will help customers reduce their consumption, increase collection rates and lower the electricity load. In summary, the main objectives are to restore production capacity and the reliability of electricity supply, reduce peak demand and improve collection rates.

B. Economic and Financial

47. The rehabilitation of Boali 1 and Boali 2 would both secure the existing capacity of the two hydropower stations and increase firm capacity by an estimated 3 MW. The net present value and the rate of return of the proposed rehabilitation are estimated at \$2.41 million and 20%, respectively. On the demand side, there are three major components, namely: the compact fluorescent lamps, the prepayment meters and the loss reduction program with a particular focus on the reduction of non-technical losses (reduction of theft of electricity, faulty meters, etc.).

48. The compact fluorescent lamps (CFLs) will replace the existing incandescent lamps. The benefits of energy efficient CFLs will accrue both to the consumers (increased availability of power supply at peak hours, reduced power bills and much longer life of light bulbs) and to the country (reduced fuel consumption and avoided investments for peak load capacity). A simulation of potential

savings through the use of 11 watts CFLs in replacement of 60 watts incandescent lamps shows that about \$1 million of generation costs could be avoided each year. Such programs have been deployed worldwide (Brazil, Rwanda, Cape Verde, Timor Leste, etc.). They are an essential component of an emergency program dealing with an electric power crisis.

49. Prepayment meters are also an important tool both for demand management and collection. As shown in Annex 6, the energy saved through their use compensates adequately for their costs and prepayment meters are therefore cost-effective. Their added advantage, in the case of ENERCA with a poor collection record, is to significantly improve collection. This would allow the utility to maintain its power system and avoid the repetition of the current crisis. One, however, should be mindful of the age and the weight of years of neglect on the power infrastructure. The foreseen improvements in existing generation do not negate the need for new generation capacity to be installed over the medium term to cater for future demand and provide a reserve capacity in a system where there is none.

50. Loss Reduction Program: The main economic benefits of the loss reduction program are the generating, transmission and distribution capacity that does not have to be built to accommodate system losses. It saves economic resources that can be used to supply more consumers or to provide more electricity to existing consumers or a combination of both. The discussion is necessarily technical but the basis of the economic analysis is simple enough. It rests on the trade-off between increased system investment to reduce the level of technical losses and the economic value of the savings in technical loss reduction.

51. Technical losses: Benefits accruing from loss reduction may be of two kinds: capacity savings, and energy savings. Since incremental technical losses constitute a component of the incremental demand on the system, incremental technical losses must also be valued at the long run marginal cost of supply. Therefore, kilowatt and kilowatt-hour losses are valued at the long run marginal capacity cost and the long run marginal energy cost, respectively. Technical losses are currently estimated at 15% of the energy generated. The project aims at bringing down this level to at least 12 % during the project implementation period. The results show substantial benefits to reducing technical losses with a net present value of benefits of US\$0.29 million and an IRR of 32%.

52. Non-Technical losses: The level of non technical losses has been estimated at 30% of generation in 2007. The main economic benefit of non technical loss reduction is the resource savings in generation, since a share of the energy previously consumed free of charge, will no longer have to be produced. There are two costs involved: the first is the decline in consumer's surplus due to the loss of energy consumption and the second is the cost of the project dedicated to the reduction of non-technical losses. The loss in consumer's surplus has not been taken into account in the calculations. Although the loss is not considered significant, the benefits of the project are slightly overestimated to that extent. The estimated net present value of benefits is US\$0.25 million with an IRR of 54% (see annex 8 for details).

C. Fiduciary

53. To minimize the corruption and fraud risks in a fragile environment, AGETIP-CAF will be entrusted with the financial management and procurement activities of the project. AGETIP-CAF is already carrying these functions in a satisfactory manner for the Emergency Infrastructure project supported by IDA. The financial management system and performance of AGETIP-CAF have been determined to be satisfactory by the Bank's Financial Management Specialist (FMS) and meet the Bank guidelines as stated in OP10.02. The Bank's Procurement Specialist also evaluated AGETIP-CAF's ability to implement the project's procurement plan and found it to be satisfactory. Technical

specifications for the procurement plan will be provided by Enerca, with support from EDF for component 1 and other TA for other components; Enerca will also provide technical input in evaluating bids with the same support arrangements. AGETIP-CAF is adequately staffed to deal with the workload associated with the project, as they expect other projects to be phased out as this project begins.

D. Social

54. The project has no negative social impact. It does not require land acquisition or resettlement.

E. Environment

55. The Project is considered Category B for environmental safeguards. The project is expected to have no major negative environmental and social impact. The project triggers: (a) OP/BP 4.01 Environmental Assessment because the presence of PCB is suspected from the old transformers. A qualified organization would need to do the sampling and analysis and if the presence of PCB is confirmed, an adequate management plan will be proposed with clear budget, as well as roles and responsibilities for implementation. The PCBs sampling and analysis report will be disclosed in the country and at the WB Info shop before any disbursements associated with the refurbishment and/or replacement of transformers under component 1; and (b) OP/BP 4.37 on Safety of Dams because the project depends for its success on the performance of the Boali hydropower stations. A dam specialist has been recruited to examine the dams and make recommendations for remedial actions that may be necessary. The report was completed by January 2009. Regarding component 2, Enerca will put in place measures for collecting used CFLs, including incentives for consumers to bring their used CFLs to the utility, so that they can be disposed of safely. See Annex 7 for details on environmental aspects.

F. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP 4.01)</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input type="checkbox"/>	<input type="checkbox"/>
Physical Cultural Resources (OP/BP 4.11)	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OP/BP 4.10)	<input type="checkbox"/>	<input type="checkbox"/>
Forests (OP/BP 4.36)	<input type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Projects in Disputed Areas (OP/BP 7.60)*	<input type="checkbox"/>	<input type="checkbox"/>
Projects on International Waterways (OP/BP 7.50)	<input type="checkbox"/>	<input type="checkbox"/>

G. Policy Exceptions and Readiness

56. The project does not involve any exceptions to Bank policies.

H. Lessons Learned and reflected in the project's design

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

57. Bank experience to date with emergency response operations has underscored the need to approach the immediate challenge with realism and simplicity, and to work with organizations that have proven experience in the type of activities that are proposed. As such, the project's proposed implementation arrangements take into consideration limited procurement and financial management capacity in CAR and within Enerca, and relies on AGETIP-CAF for those aspects of the project. AGETIP-CAF is already working on the Bank's CAR – Emergency Urban Infrastructure Project and has the capacity to accomplish those tasks. The presence of EDF as consulting engineer to Enerca will facilitate the implementation of the rehabilitation of generation component of the project.

58. Based on IEG findings, the following lessons apply to emergency power operations²:

- (a) The objectives of short-term emergency assistance and medium to long-term institutional development and policy assistance are sufficiently different that they should be treated in separate operations. The benefits of energy sector reform need to be better explained to decision-makers, managers of energy companies, opinion leaders and the population as a whole in order to build their ownership and support.
- (b) Care must be given to adapt the scale and complexity of projects to ensure that the borrower has the capacity to both manage the projects and absorb the information and lessons that are derived from them.
- (c) Bank supervision teams need to have the necessary range of expertise to deal effectively with the major project components.

59. The project incorporates these lessons as (i) project design focuses on emergency needs, and while preparing the sector for future sustainability, it does not aim to implement major reforms; (ii) project components are relatively simple and well understood by the client; (iii) the supervision team will incorporate the right mix of expertise in order to cover all project components.

V. IMPLEMENTATION AND INSTITUTIONAL ARRANGEMENTS

60. The project is expected to be fully implemented within three years (the completion date is currently estimated to be December 31, 2011). The most urgent rehabilitation components of the hydropower stations of Boali 1 and Boali 2 are already underway. They are financed by AFD which has financing already in place. Further work on Boali 1 and Boali 2 would be supported by the Bank. Bank financing, however, would at best be available in March 2009, though the procurement process would start before that. It is expected that the rehabilitation work on the hydropower stations would be completed by the end of June 2010. Similarly, the replacement of distribution lines would also be implemented rapidly in 2009. The implementation of other less urgent components is expected to take longer such as the CFL program and the deployment of prepayment meters, with support from a twinning arrangement with Electrogaz, the Rwandan power utility.

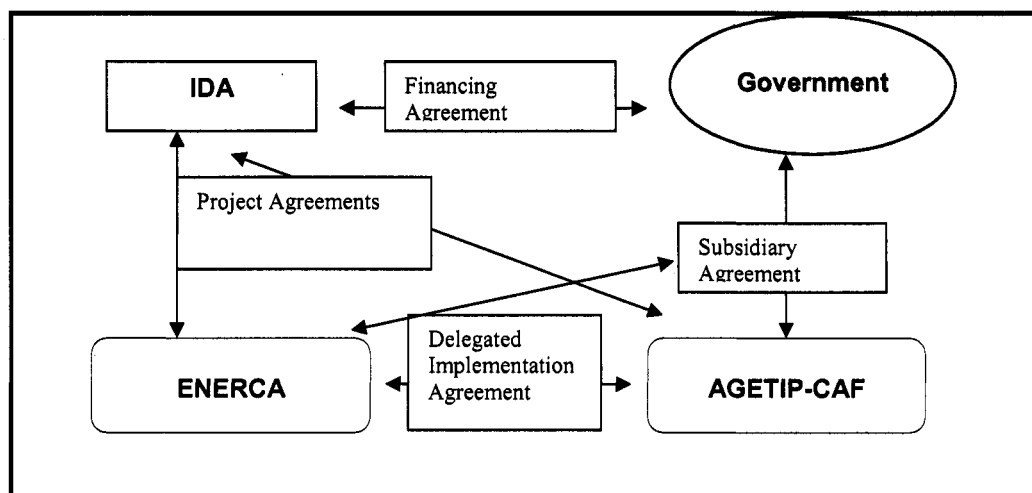
61. In view of the limited institutional and implementation capacity of ENERCA, and the lack of time to build it, the project implementation relies on successful arrangements used by the Bank for the implementation of the *Emergency Urban Infrastructure Rehabilitation and Maintenance Project* which was approved by the Board on May 24, 2007, and by other donors as well such as AFD and the

² PROJECT PERFORMANCE ASSESSMENT REPORT, MOZAMBIQUE - ENERGY TECHNICAL ASSISTANCE AND REHABILITATION PROJECT, September 2004, p. 18.

European Union. The performance of AGETIP-CAF under the *Emergency Urban Infrastructure Rehabilitation and Maintenance Project* has been exemplary so far. These projects use AGETIP-CAF to carry out the procurement and financial management functions and supervise the implementation of the project. Under the proposed Emergency Power Response Project (EPRP), AGETIP-CAF will carry out the procurement and financial management functions under a service contract to be concluded with ENERCA; though ENERCA would retain responsibility for technical project implementation. Technical specifications for the procurement plan will be provided by Enerca, with support from EDF for component 1 and other TA for other components; Enerca will also provide technical input in evaluating bids with the same support arrangements. The capacity of AGETIP-CAF to carry out the procurement and financial management of the proposed project, in addition to its current workload, and the capacity of ENERCA to supervise the implementation of the project, have been assessed during appraisal and found to be adequate. As some of AGETIP-CAF's current projects are tapering off, they will have the necessary human resources to implement this project. ENERCA would be supported by Electricité de France (EDF) as consulting engineer for the rehabilitation of the hydropower stations. Assistance in implementing the CFL and prepayment meters programs would also be provided, mainly through a twinning arrangement with Electrogaz of Rwanda that has implemented similar programs successfully. The ministry in charge of energy will have overall project oversight responsibility. The institutional and implementation arrangements for the project have been agreed upon as follows:

- (a) IDA will sign a Finance Agreement with the Central African Republic and two Project Agreements: one with ENERCA and one with AGETIP-CAF. The Central African Republic in turn will sign a subsidiary agreement with ENERCA and AGETIP-CAF, the public agency that will be retained by ENERCA, through a delegated implementation agreement, to carry out the procurement and the financial management of the project;
- (b) ENERCA, the national electricity utility, will be the implementing entity. The General Manager of ENERCA will ensure that the project is implemented efficiently and in a timely fashion, and that its development objectives are achieved. The funds will be legally transferred from CAR to ENERCA as an equity contribution. In practice, the flow of funds will be from CAR to AGETIP-CAF which will be in charge of the financial management of the project;
- (c) AGETIP-CAF will prepare the bidding documents; manage the procurement process, sign contracts, and pay contractors and other service providers for all contracts in the project, after a technical validation by ENERCA. AGETIP-CAF is responsible for all financial management aspects of the project, including project and account audits and the production of all documents and reports normally required by the Bank. It will collaborate with ENERCA to obtain technical specifications for bidding documents and in project supervision in order to discharge its fiduciary responsibilities.

Relationships between the agencies involved in project implementation



A. Project Costs and Financing

62. The project costs are estimated at US 8 million dollars, 100% of which will be financed by an IDA grant. A summary of project costs is given in Table 1. Below.

Table 1. Project Cost Estimate

	Cost (US\$ million)
Rehabilitation of Boali 1 and Boali 2 hydropower stations	4.0
Carbon Fluorescent Lamps (CFLs)	0.3
Pre-Payment Meters	1.6
Loss Reduction Program	1.3
Sub-total	7.2
AGETIP-CAF fees	0.4
Contingencies	0.4
Total	8.0

B. Procurement Arrangements

63. AGETIP-CAF will be entrusted with conducting procurement for all components of the project. As described above, AGETIP-CAF's ability and staffing to conduct procurement for the project was evaluated during appraisal and found to be appropriate. While ENERCA will provide technical specifications and technical input in evaluating bids, with support from EDF for component 1 and through the utility twinning arrangement for other components, AGETIP-CAF will be responsible for ensuring that procurement is conducted in accordance with Bank guidelines and will sign all contracts awarded under the project. Priority will be given to ensuring adequate transparency of the procurement process to reduce opportunities for corrupt practices. Procurement methods and arrangements to be used under the project will build on experience to date with completed and ongoing projects managed by AGETIPs in Africa.

64. Procurement will be conducted in accordance with applicable World Bank guidelines. Procurement methods will rely on competitive processes in most cases – essentially, International Competitive Bidding (ICB) and National Competitive Bidding (NCB) for goods and works, and Quality-Cost Based Selection (QCBS) for services. The existing NCB standard bidding documents that were prepared as part of a prior World Bank financing and used by all the agencies of the AFRICATIP network (umbrella organization of all the AGETIPs in Africa) will be amended to add the new requirements from the 2004 World Bank procurement directives (as revised in October 2006) related to fraud and corruption. Sole source contracting (SSC), however, will be used in a limited number of specific cases which meet the criteria set in OP 8.00 when absolutely indispensable to avoid significant delays in implementation. Detailed procurement arrangements and a Simplified Procurement Plan (SPP) are presented in Annex 5.

65. Component 1 on hydropower rehabilitation will benefit from existing reports and technical specifications to be prepared by EDF. For components 2 and 3 (CFLs and pre-payment meters), ENERCA and AGETIP-CAF will be supported through a twinning arrangement with Electrogaz of Rwanda that has already implemented similar programs. For component 4 (replacement of distribution lines), ENERCA has the necessary in-house capacity to prepare the specifications.

C. Disbursement Arrangements

66. The project will finance 100 percent of all expenditures, excluding taxes except the 5% contract registration duty. This is consistent with the Country Financing Parameters for CAR. The disbursement schedule is expected to be about: 6 percent in FY09; 31 percent in FY10; 38 percent in FY11, and 25 percent in 2012. The proposed disbursement arrangements include the establishment of one Designated Account managed by AGETIP-CAF on behalf of ENERCA. Detailed disbursement arrangements are presented in Annex 4

D. Financial Management, Reporting, and Auditing

67. The financial management system of AGETIP-CAF has been determined to be satisfactory by the Bank's Financial Management Specialist (FMS) and meet the Bank guidelines as stated in OP10.02. AGETIP-CAF is adequately staffed to deal with the workload associated with the project, as they expect other projects to be phased out as this project begins. Detailed financial management arrangements are presented in Annex 4.

68. AGETIP-CAF will be required to submit quarterly Interim Unaudited Financial Reports (IFR) within 45 days following the first day of each calendar quarter after effectiveness. The formats and the content of the IFR and of the Annual Financial Statements have been discussed and agreed upon. Independent auditors acceptable to IDA will audit the use of all funds available under the project grant, including the Designated Account and the statements of expenditures. Audit reports will be submitted to IDA no later than six months after the end of the fiscal year. The format and the frequency of periodic reporting will be maintained as defined in the Project Manual.

69. There will be one Designated Account managed by AGETIP-CAF on behalf of ENERCA.

E. Compliance with Bank Safeguard Policies

70. The Project is considered Category B for environmental safeguards. The project is expected to have no major negative environmental and social impact. The AFD is co-financing the project: their

focus is on rehabilitating thermal power generation in Bangui and on the rehabilitation of Boali 1 and 2 hydropower facilities, which is being closely coordinated with component 1 of this project.

71. The project triggers OP/BP 4.01 Environmental Assessment, because at Boali hydropower stations, existing transformers may contain polychlorinated biphenyl (PCB) which is classified as a persistent organic pollutant that might affect human health. Even if it is unlikely that the transformer that may be replaced at Boali 1 contains PCB (considering that it was manufactured in 1976, while PCB was banned in 1971), the bidding documents and contracts would require contractors to test the old and new transformers for the presence and levels of PCB prior to installation. Transformers with PCB levels of 0.05 mg/L or higher will not be installed or used. The proper disposal of the old transformer will also be included in the bid document. A qualified organization would need to do the sampling and analysis. If significant PCB levels are detected, an adequate management plan including protection measures for people working for the transformers' maintenance will be prepared, and remedial work at the site if there have been leaks or spills undertaken. For the implementation of the management plan, an adequate budget, role and responsibilities will be clearly defined. The report of the qualified organization will be disclosed in the country and at WB Infoshop before any disbursements associated with the refurbishment and/or replacement of transformers under component 1.

72. The project also triggers OP/BP 4.37 on Safety of Dams. Although the project will not have any impact on the structure of existing dams, OP 4.37 is triggered because the project relies for its success on the safety of existing hydropower dams at Boali 1, 2 and 3. In the context of project appraisal, a specialized consultant has been hired to conduct a dam safety inspection and make recommendations for any necessary urgent remedial actions. The last Dam safety inspection of Boali dams was carried out in 2004 by Coyne & Bellier who observed that: (a) from the civil works point of view the dam is well maintained and "behaving" remarkably well; and (b) the system of measurement is well maintained and operated by the dam monitoring team. The consultant recommendations dealt essentially with the acquisition of instrumentation to improve the monitoring for the dam. Furthermore, it was recommended that the 10-year dam examination be done with specialized divers to examine the foot of the dam. None of these recommendations were followed due to mainly to the lack of urgency (given the good "behavior" and maintenance assessment of the dam) and the dismal financial situation of the sector in particular and the country in general.

73. Regarding component 2 (CFLs), Enerca will put in place measures for collecting used CFLs, including incentives for consumers to bring their used CFLs to the utility, so that they can be disposed of safely.

74. The proposed Emergency Power Response Project places a very strong emphasis on cost recovery through the demand component of the project which comprises the acquisition of prepayment meters, efficient lamps and reducing technical and non technical losses. Cost recovery from users not only strengthens sustainability but would also provide the cash necessary to maintain the power system, including the Boali hydropower stations. Our expectation is therefore that the dams will be properly maintained in the future, including the acquisition of the necessary tools and instruments. The Dam Inspection being funded by the Bank as part of due diligence was made available by January 2009. It includes recommendations for urgent dam safety measures to be put in place during the project implementation period.

75. From the social aspects point of view, no policy is triggered. The rehabilitation and maintenance work to be financed under the project does not require land acquisition or involuntary resettlement as confirmed by the field visit.

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP/GP 4.01)</u>	[X]	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input type="checkbox"/>	<input type="checkbox"/>
Cultural Property (OP 4.11)	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OP 4.10)	<input type="checkbox"/>	<input type="checkbox"/>
Forests (OP/BP 4.36)	<input type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	[X]	<input type="checkbox"/>
Projects in Disputed Areas (OP/BP/GP 7.60)	<input type="checkbox"/>	<input type="checkbox"/>
Projects on International Waterways (OP/BP/GP 7.50)	<input type="checkbox"/>	<input type="checkbox"/>

F. Bank Supervision

76. Three supervision missions per year will be conducted by the World Bank in the first two years of project implementation, followed by supervision missions conducted twice a year for the remainder of the project implementation period. Supervision teams will include procurement, financial management and safeguards specialists in addition to the Task Team Leader and the technical specialists. Implementation support and supervision, through missions as well as direct involvement by the CAR Country Office will focus, in particular, on performance of AGETIP-CAF in managing contracts, procurement and financial management, as well as in completing the agreed upon implementation plans. The mission will also focus on the performance of Enerca in implementing project components and will monitor performance indicators.

77. Annual reviews will be carried out after effectiveness, to assess progress, achievement of the overall objectives, the role of the different partners, and to eventually restructure the project if needed to ensure achievement of objectives. The reviews will involve visits by specialists to selected sites for first-hand assessment of the project's performance.

G. Implementation Schedule

78. Assuming the grant becomes effective in early February 2009, the key milestones for implementation are expected to be as follows:

(a) Rehabilitation of Boali 1 and Boali 2 Hydropower Stations

- Completion of the dam safety inspection: done
- Preparation of bidding documents by February 2009
- Contract award by end May/June 2009
- Work completed by June 2010;

(b) Compact Fluorescent Lamps (CFLs) Program

- Consumers' survey by end February 2009
- Preparation of bidding documents by March 2009
- Contract award by May/June 2009
- Works completion by end-June 2010;

- (c) Pre-Payment Meters
 - o Design of program by end-March 2009
 - o Preparation of bidding documents by March 2009
 - o Contract award by May/June 2009
 - o Works completion by end-December 2011;
- (d) Loss Reduction Program
 - o Design of program: done
 - o Preparation of bidding documents, February 2009
 - o Contract award by April/May 2009
 - o Works completion by end-December 2010.

VI. PROJECT RISKS AND MITIGATING MEASURES

Potential Risks and Mitigation

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating ^a of risk</i>	<i>Mitigation measures</i>	<i>Rating ^a of residual risk</i>
I. Country Risks				
Macro-economic framework	Further deterioration in the external financial environment and/or increased domestic social pressures for improved public service delivery (in particular in the social and energy sectors) could jeopardize the medium term macroeconomic program as well as the CAR's ability to remain current on debt servicing with MDBs.	High	The current macroeconomic program aims at strengthening debt and fiscal sustainability, and to reduce the impact of energy and food price increases on the population. By restoring electricity supply and quality of service to a higher level, the project will contribute to economic growth and stability in the capital city.	High
Security situation	Security deterioration is a risk, as the government only controls parts of the country, while other parts are under rebel control or lawless. Regional conflicts in Chad, Sudan and DRC may have spill-over effects on CAR.	High	These security risks are exogenous and their mitigation falls largely outside the scope of the operation. However, recent positive developments include the deployment of an EU peacekeeping force for Chad and CAR (EUFOR), and the signing of a comprehensive peace agreement between the government and rebels.	High

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating ^a of risk</i>	<i>Mitigation measures</i>	<i>Rating ^a of residual risk</i>
Political situation	The recent history of political instability and its post-conflict status leave CAR highly vulnerable to internal political instability. Public discontent is likely to be exacerbated by the current electricity crisis in CAR as well as high oil and food prices.	High	This operation to some extent mitigates this risk as it will restore electricity supply to more economically and socially acceptable levels in Bangui.	High
II. Operation-specific Risks				
Corruption and fraud	Corruption and fraud are of particular concern with regard to procurement and financial management.	High	This risk will be mitigated by: (i) using AGETIP-CAF as project implementation entity for procurement and financial management, including payment of suppliers; (ii) ensuring close supervision; and (iii) requesting the Government to impose immediate sanctions in case of misuse of resources.	Moderate
Implementation capacity	Lack of administrative and technical capacity for project coordination and implementation within Enerca.	Substantial	This risk will be mitigated by EDF being consulting engineer to Enerca for the hydropower rehabilitation component and the provision of technical assistance through a twinning arrangement with Electrogaz of Rwanda for components 2 and 3. In addition, the procurement and financial management of the project will be delegated by ENERCA to AGETIP-CAF	Substantial
Financial Sustainability	<p>Currently Enerca does not generate enough revenue to cover all its operating cost; it does not invest in or maintain its infrastructure adequately. There is a risk that improvements brought in by the project will not be sustained due to lack of maintenance and/or poor management.</p> <p>Given the culture of unpaid electricity bills and electricity theft, the introduction of pre-payment meters may not be well received by consumers, who may look for ways of avoiding payment.</p>	High	<p>By investing in pre-payment meters, the project is helping the company to improve its revenue generation. Furthermore, there is a study being conducted using BDEAC funding on sector reform and commercialization of Enerca. The Bank has also made recommendations for improving governance and performance of Enerca and will participate in dialogue over sector reform.</p> <p>Pre-payment meters will be introduced after components 1 and 4 are in place, which means that quality of service would have improved already. Experience in other African countries and sectors (mobile telephony) shows that when correctly implemented consumers are willing and prefer to pay for utility services using</p>	Substantial

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating^a of risk</i>	<i>Mitigation measures</i>	<i>Rating^a of residual risk</i>
			pre-payment methods. During implementation, experience of other African utilities will be drawn upon to design a successful pre-payment meter program.	
Disbursement of AFD funds	AFD has already committed funds to the emergency rehabilitation of Boali 1 and 2. If these components were delayed, this may jeopardize the overall performance of that project component.	Moderate	AFD and WB project teams have a good working relationship and are cooperating in financing emergency sector needs.	Low
Dam safety	The successful operation of Enerca and the project depends on the safety of its hydropower dams at Boali 1, 2 and 3. If one of the dams had a structural failure, at least half of Bangui's power supply would be disrupted for a significant period of time.	Moderate	Further to the 2004 dam safety inspection by Coyne et Bellier, which found the dams to be structurally sound, the Bank has hired a dam safety specialist as part of this project's appraisal, who confirmed this finding and is recommending a number of actions to rehabilitate the dams' hydro-mechanical equipment, control system and instruments, in order to prevent future risks to dam safety. These recommendations will be shared with ENERCA and EDF, in order to ensure that they are covered either under the AFD project or component 1 of this project.	Low
III. Overall risk (including Reputational Risks)				
Overall Risk	Despite the limited scope of the activities proposed and the use of existing or tested implementation mechanisms in country, the country risk, governance, fiduciary and capacity environment of CAR justify the rating of the overall risk as High for this operation. However, it is considered that the risks (including reputational risks) of not doing the operation outweigh the risks of doing it.			High
Memo items:				
^a Rating of risks on a four-point scale – High, Substantial, Moderate, Low – according to the likelihood of occurrence and magnitude of potential adverse impact.				

VII. TERMS AND CONDITIONS FOR PROJECT FINANCING

79. The project is expected to be funded through an US\$8 million equivalent grant, which will cover 100 percent of expenditure as per OP8.00 and the Country Financing Parameters.

80. In line with OP8.00, conditions are limited to a minimum and only to those directly related to the emergency recovery activities:

- (a) Board presentation: None
- (b) Negotiations: None

(c) Effectiveness:

- Receipt by IDA of a Legal Opinion from the *Conseil d'Etat* confirming that the Financing Agreement has been duly signed by GoCAR and published in the official gazette, and that each of the Project Agreements, the Subsidiary Agreement and the Delegated Implementation Agreement, has been duly authorized and signed by AGETIP-CAF, ENERCA and GoCAR, and that each of these agreements is valid and enforceable according to its respective terms.
- Signature of a Delegated Implementation Agreement, in form and substance satisfactory to the Association, by ENERCA and AGETIP-CAF, outsourcing procurement and financial management from ENERCA to AGETIP-CAF.
- Signature of a Subsidiary Agreement, in form and substance satisfactory to the Association, between CAR, ENERCA and AGETIP-CAF.

The Effectiveness Deadline date is at most ninety (90) days after the date of the signing of the Financing Agreement.

(d) Disbursement:

- This condition only affects disbursements associated with the refurbishment and/or replacement of transformers under component 1: Recruitment by ENERCA of an environmental specialist, with terms of reference, qualifications and experience satisfactory to the Association, for the purpose of, *inter alia*, carrying out sampling and analysis of the polychlorinated biphenyl (PCB) which may be contained in the transformers at Boali 1 or Boali 2, and transmitting his or her sampling and analysis report ("PCB Sampling and Analysis Report"), including a management plan if polychlorinated biphenyl has been detected, to the Project Implementing Entity. The analysis and sampling report will be disclosed in country, and at World Bank Infoshop.

(e) Other Covenants:

- ENERCA will carry out the recommendations of the PCB Sampling and Analysis Report and the Dam Safety Plan³.

Financial Management Action Plan:

³ The Bank has recruited a dam safety specialist for the purpose of, *inter alia*, (i) inspecting and evaluating the safety of dams at Boali 1, 2 and 3, their appurtenances and performance history, and (ii) and providing a written report of findings and recommendations for any remedial work or safety-related measures that may be necessary (the "Dam Safety Plan").

Issue	Action	Responsible party	Deadline
External audit	Signing of the contract with External auditor of ENERCA	GOCAR/ENERCA	1 month after effectiveness date
AGETIP-CAF procedures manual	Include accounting, reporting and disbursement arrangements of the new project	AGETIP-CAF	1 month after effectiveness date

Annex 1: Description of Project Components and Implementation Arrangements
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

1. For all components AGETIP-CAF will be in charge of procurement and financial management; Enerca will be responsible for technical implementation, with TA as appropriate.

Component 1: Rehabilitation of Boali 1 and Boali 2 hydropower stations (\$4,000,000)

2. Background: Boali 1 and 2 provide almost all the power supplied to Bangui. Boali 1 started operating in 1955 and Boali 2 in 1976. They are both critically dilapidated and subject to frequent technical problems and stoppages, which result in load shedding in Bangui

3. EDF, as consulting engineer to Enerca, has diagnosed problems at Boali 1 and 2 and established a list of priority investments needed for emergency rehabilitation. If properly rehabilitated and maintained, this infrastructure still has a useful life of more than 10 years. The most urgent actions are being financed by AFD through its Euro 4 million project, which is already under implementation. This funding is not sufficient to cover all emergency rehabilitation, which is why the Bank has incorporated a set of priority actions that come just after those covered by AFD in the order of priorities.

4. Design: The objective of this component is to restore electricity supply to Bangui to more acceptable levels and quality of service. This component (in conjunction with the AFD project) will secure firm generation capacity of 18 MW at Boali 1 and 2, at least 3 MW higher than it is currently. This component will cover:

- (a) the installation of electrical protection devices at the BOALI 1 60kV substation so as to restore and improve the overall electrical protection plan;
- (b) the replacement of the regulation set comprising the regulator and the wicket gates for all five(5) turbines of BOALI 1 hydropower plant. The present condition of the turbines does not allow for the proper control of the flow of water from the input pipes to the turbine propellers (Runners);
- (c) the retrofitting of the BOALI 2, 5.5/60kV 11MVA transformer which shows oil leakage, the upgrading of the BOALI 1, 5.5/60kV 11MVA transformer by the installation of cooling fans and the procurement of a new 2/5.5 kV 2.2MVA spare transformer to secure the five (5) hydropower turbine feeding transformers, and a 5.5/60kV 11MVA spare transformer to replace the current one in BOALI 1.

5. These actions were selected on the basis of diagnostic work and reports prepared by EDF, who will help Enerca to prepare technical specifications for the procurement of goods under this component. The procurement process is expected to start before Board approval, but contract can only be signed after the approval of the Board.

6. The recommendations of the dam safety expert for any urgent remedial actions will be incorporated in the design of this component: this includes the preparation by Enerca of a dam safety plan, an Emergency Preparedness Plan and arrangements for public awareness and training.

7. Emergency procurement procedure may be launched before Board approval; however, contracts can only be signed after Board approval of this project. Procurement contract will cover goods and installation, so that Enerca benefits from supplier's guarantee.

Schedule:

- Completion of the dam safety inspection: done
- Preparation of bidding documents by February 2009
- Contract award by end May/June 2009
- Work completed by June 2010.

Component 2: Compact Fluorescent Lamp (CFL) Program (\$300,000):

8. Background and design: Most consumers in CAR currently use either incandescent bulbs or neon lights. This component will aim mainly to replace incandescent bulbs in households and for public lighting. The benefits of energy efficient CFLs will accrue both to the consumers (increased availability of power supply at peak hours, reduced power bills and much longer life of light bulbs) and to the country (lower unserved energy). It has been conservatively estimated that the proposed program would allow, when fully deployed, a saving of about 2 MW of peak power. Given the minimal amount of electricity available on the national grid, there is an urgent need to conserve it. Residential consumers use electricity mainly for lighting. Lighting is therefore a good starting point to manage electricity usage.

9. Design: The first step is for Enerca to design and implement a survey to identify the quality and quantity of lamps currently used by households and for street lighting. It is estimated, based on experience in other African countries, that households require on average 4 lamps, multiplied by some 20,000 customers, this is equivalent to 80,000 CFLs (to be confirmed through survey.) at an estimated unit cost of \$2 per CFL

10. Distribution of CFLs will be undertaken free of charge by Enerca. Priority will be given to customers who are current on bill payments (as an incentive for consumers to pay their bills); they will exchange their incandescent bulbs for CFLs of equivalent lighting capacity. Enerca will organize a media campaign prior to this distribution in order to disseminate knowledge of CFL benefits. We expect that once consumers experience the benefits of CFLs, they will start purchasing them in shops when they need to replace them, thus ensuring sustainability of this component.

11. The project will include a TA component in the form of a knowledge transfer program with Electrogaz of Rwanda, who has already implemented a similar program. This will be funded through the project and the Multidonor South-South Experience Exchange Trust Fund. Enerca will put in place measures for collecting used CFLs, including incentives for consumers to bring their used CFLs to the utility, so that they can be disposed of safely.

12. Implementation:

- Consumers' survey by end February 2009
- Preparation of bidding documents by March 2009
- Contract award by May/June 2009
- Works completion by end-June 2010;

Project cost:

Activity	Cost (US\$)
Acquire CFLs	200,000
Media campaign	60,000
TA with foreign utility	40,000
Total	300,000

Component 3: Pre-payment Meters (\$1,600,000):

13. Background: Enerca does not generate sufficient cash to cover all its operating and maintenance cost, let alone invest in renewing its dilapidated infrastructure. Part of the problem is the fact that Enerca has a low collection rate of some 66% on billed electricity. Besides, due to lack of adequate meters, many households receive fixed estimated bills that do not fully cover the cost of their consumption and do not incentivize them to conserve energy. Some utilities in Africa have introduced pre-payment meters and have achieved significantly higher collection rates as a result of that.

14. Design: The objective of this component is to increase bill collection rates and to induce energy conservation among users. This component would be a pilot program to introduce pre-payment meters among the main consumer categories, particularly those from whom collection rates are low (households, government institutions, Bangui city council). The target is to introduce some 5,500 pre-payment meters at customer premises out of about 18,000 customers. This would enable Enerca to improve its cashflow, in order to start maintaining its infrastructure.

15. Assistance from Rwanda's utility Electrogaz mentioned above would be used to provide technical assistance to Enerca in order to implement this component as well. This would include advice on how to manage two billing systems simultaneously (using traditional and pre-payment meters).

Schedule:

- Design of program by end-March 2009
- Preparation of bidding documents by March 2009
- Contract award by May/June 2009
- Works completion by end-December 2011;

Component 4: Loss Reduction Program (\$1,300,000):

16. Background and design: Currently distribution lines in Bangui, which are about 40 years old and made of bare copper, are subject to high levels of technical losses and electricity theft. Some illegal users make temporary connections at night, which they remove during the day, thus avoiding detection. This component will focus on replacing these old low-voltage distribution lines in six Bangui neighborhoods with PVC insulated aluminum cables, where technical losses are lower and theft of electricity is much more difficult and on equipping existing and new transformers.

Schedule:

- Design of program: done
- Preparation of bidding documents, February 2009
- Contract award by April/May 2009
- Works completion by end-December 2010.

Component 5: AGETIP-CAF (\$400,000):

17. This component is constituted of the fees to be paid for the services of AGETIP-CAF in procurement and financial management of the project on behalf of ENERCA, i.e. 5% of the cost of components 1-4.

The overall cost breakdown (see Annex 3 for details).

Key Implementation Support Arrangements

18. Three supervision missions per year will be conducted by the World Bank in the first two years of project implementation, followed by supervision missions conducted twice a year for the remainder of the project implementation period. Supervision teams will include procurement, financial management and safeguards specialists in addition to the Task Team Leader and the technical specialists. Implementation support and supervision, through missions as well as direct involvement by the Bangui Country Office will focus, in particular, on performance of AGETIP-CAF in managing contracts, procurement and financial management, as well as in completing the agreed upon implementation plans. The mission will also focus on the performance of Enerca in implementing project components and will monitor performance indicators.

19. Annual reviews will be carried out after effectiveness, to assess progress, achievement of the overall objectives, the role of the different partners, and to eventually restructure the project if needed to ensure achievement of objectives. The reviews will involve visits by specialists to selected sites for first-hand assessment of the project's performance.

20. In addition, the following measures will be taken to strengthen project implementation:

(a) Transparency and disclosure:

- Posting of the project procurement plan (which includes a complete list of activities to be funded under the project and their corresponding cost estimates) in local newspapers in addition to Development Gateway (dgMarket) and United Nations Development Business (UNDB); and
- Complete disclosure of procurement notices, award of contracts, winners of contracts and contract costs/amounts to be published in dgMarket, UNDB and local newspapers.

(b) Increase control and oversight of project implementation:

- Contracts will be subject to prior-review by the Bank; and
- Technical audits will be carried out on an annual basis to ensure that procurement processes have been properly followed and that the quality of works and studies are consistent with unit costs and terms of reference;

21. Specific indicators measuring the performance of transparency in the procurement processes, as well as the control and oversight of project implementation, will be actively followed during project supervision. In particular, the following indicators will be monitored during Bank supervision missions:

- The number of days between the date of Bank non-objection and the signature of a contract and contract's approval (benchmark: 15 days);
- The number of days taken by the AGETIP-CAF Evaluation Committee to review the bids evaluation report and prepare a report (Benchmark: 15 days);

- The number of days between receipt of the Bank’s “no objection” to the recommendation of contract award and the publication of results (within two weeks of receiving the Bank’s “no objection” to the recommendation of contract award, the Recipient shall publish results in UNDB online and in dgMarket for large value contracts and at least in one newspaper of national coverage for NCB contracts);
- The number of cases of misprocurement (Benchmark: 0 cases); and
- The number of days taken to respond to complaints (benchmark: 15 days).

Annex 2: Results Framework and Monitoring
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

Results Framework

PDO	Outcome Indicators	Use of Outcome Information
The project primary objective is to partially restore reliable electricity supply to Enerca's customers in Bangui and to improve the financial and operational performance of the sector.	Number of hours of load shedding decreases from 8 hours per day currently to 3 hours per day by 2012.	To monitor the reliability of supply and assess the additional generation needed to provide higher level of service.
	ENERCA increases its cash generation and expenditure on operation and maintenance of its system in Bangui.	To assess the level of tariffs and design cost recovery measures.
Intermediate Results: One per component	Results Indicators for each Component	Use of results monitoring
<u>Component 1: Rehabilitation of the Boali 1 and Boali 2 hydropower stations</u>		
	An additional firm generation capacity of about 3 MW is added to the system.	Assess the actual implementation of the rehabilitation works
<u>Component 2: Compact Fluorescent Lamps (CFLs)</u>		
	About 20,000 consumers use efficient lamps by 2012 About 2 MW of generating capacity are saved each year through the use of a fully deployed CFL program.	Assess the equilibrium between demand and supply of electricity. Refine calculations of savings by the economy and consumers
<u>Component 3: Pre-Payment Meters</u>		
	About 5,500 pre-payment meters are installed by June 2012 Bill collection improves from 65% to 80% by December 2010.	Assess the ability of ENERCA to generate sufficient cash for operation and maintenance.
<u>Component 4: Loss Reduction Program</u>		
	About 15 km of PCV insulated aluminum LV cable laid to replace bare copper wires where technical and non-technical losses are high and seven transformers are equipped. Overall losses are reduced from 50% to 40% by 2011	Assess the reduction of technical and non-technical losses and the improvement in ENERCA's financial situation

Arrangements for results monitoring

Outcome Indicators	Data targets (cumulated) calendar year					Data Collection and Reporting		
	Baseline	2009	2010	2011	2012	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Partially restore reliable electricity supply to ENERCA's customers in Bangui <ul style="list-style-type: none"> Number of hours of load shedding decreases from 8 hours per day currently to 3 hours per day by 2012. 	8	8	6	4	3	Annual	ENERCA's Reports	ENERCA
Improve the financial and operational performance of the sector <ul style="list-style-type: none"> ENERCA generates sufficient cash for operation and maintenance of its system in Bangui. 	2 billion FCFA	2	2.2	2.4	2.7	Annual	ENERCA's Reports	ENERCA
Results Indicators for Each Component								
Component 1 : Rehabilitation of Boali 1 and Boali 2 hydropower stations								
About 3 MW of additional firm generation capacity restored.	15	15	16	18	18	Annual	ENERCA's Reports	ENERCA
Component 2 : Carbon Fluorescent Lamps (CFLs)								
About 20,000 consumers use efficient lighting	0	0	10,000	15,000	20,000	Annual	ENERCA's Reports	ENERCA
About 2 MW of generating capacity are saved each year through the use of a fully deployed CFL program.	0	0	0.5	1	2	Annual	ENERCA's Reports	ENERCA
Component 3 : Pre-payment Meters								
Number of prepayment meters installed	0	0	1,500	3,000	3,500	Annual	ENERCA's Reports	ENERCA
Bill collection improves from 65% to 80% by June 2012.	65%	65%	70%	75%	80%	Annual	ENERCA's Reports	ENERCA
Component 4 : Loss Reduction Program								
15 km of LV cable laid to replace bare copper wires where technical and non-technical losses are high.	0	5	15	15	15	Annual	ENERCA's Reports	ENERCA
Seven transformers are equipped	0	0	4	3	7			

Overall losses reduced from about 50% to 30% by 2011.									
	50%	48%	45%	40%	40%	40%	Annual	ENERCA's Reports	ENERCA

Annex 3: Summary of Project Costs
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

Table A
Project Costs Summary by Component

Project Components	(US\$ million)		
	Local	Foreign	Total
Component 1 – Rehabilitation of Boali 1 and Boali 2 hydropower stations	0.1	3.9	4.0
Component 2 – Compact Fluorescent Lamps (CFLs)	0.1	0.2	0.3
Component 3 – Prepayment Meters	0.2	1.4	1.6
Component 4 – Loss Reduction Program	0.2	1.1	1.3
Component 5 – AGETIP-CAF fees	0.4	-	0.4
Total Base line Costs	1.0	6.6	7.6
Contingencies	-	0.4	0.4
Total Project Costs in US\$ million	1.0	7.0	8.0

Table B
Financial Summary
(US\$ million equivalent)

	FY09	FY10	FY11	FY12	Total
Project Costs	0.5	2.5	3	2	8.0
Total Project Financing Cumulative	0.5	3.0	6	8	8.0
Percent from IDA	100	100	100	100	100

Annex 4: Financial Management and Disbursement Arrangements
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

Executive Summary

1. Bank policy requires that the Borrower puts in place adequate Financial Management arrangements including budgeting, accounting, internal controls, funds flow, financial reporting and auditing arrangements. These arrangements need to be in place before project implementation begins and must be maintained during project implementation. Emergency operations, as is the case here are processed under accelerated, consolidated, and simplified procedures and are subject to streamlined *ex-ante* requirements, including in fiduciary and safeguards areas.
2. The objective of the financial management arrangements is to ensure that the systems in place are sufficiently robust to permit adequate use of funds; in an economical and efficient way and that all transactions are duly accounted, reported and audited. Unfortunately, CAR financial management and institutional systems are weak as shown by various analytical and advisory activities undertaken either by donors or Government of CAR.
3. An assessment of ENERCA (Energie Centrafricaine) proved that this corporation was not capable of managing Bank funds due to (i) significant internal control weaknesses and (ii) a compromised financial situation that required either close or restructure the corporation.
4. ENERCA will therefore implement the project except for procurement and financial management. Financial management will be carried out by AGETIP-CAF, which is currently implementing the Urban Emergency Infrastructure Project in a satisfactory manner. The overall residual financial management risk under these conditions is thus considered **modest**, provided that the proposed arrangements are implemented satisfactorily. AGETIP-CAF will ensure that financial management arrangements proposed are robust and maintained throughout project implementation:

Financial Management arrangements

5. AGETIP-CAF is currently managing the CAR - Emergency Urban Project and is thus acquainted with Bank financial management procedures. It has currently established a sound FM system that runs effectively. IFRs are submitted on a quarterly basis; the 2007 audit report, though not required was submitted before June 30, 2008.
6. The financial management system of the AGETIP-CAF will include (i) accounting (ii) internal control (iii) reporting (iv) budgeting (v) external audit and (vi) disbursement.

Accounting system and staff

7. The system must permit to record all financial transactions, including receipts and expenses, and maintain an accrual basis accounting system running on a HIBTP accounting software. A new Designated Account will be opened, so to separate the current operation of AGETIP-CAF with the Emergency Urban Infrastructure Project management operations. Inside

the HIBTP software system, a new project will be created to permit separate accounting, reporting, budgeting and auditing of the Emergency Power Project.

8. The current accounting and financial staff will stay in place. They comprise of (i) a financial manager (ii) two accountants (iii) one cashier and (iv) and an internal auditor. Their capacities were assessed and considered satisfactory. They also attended various trainings on Bank's financial management, disbursement and procurement procedures.

Internal control

9. Internal control arrangements will ensure that every transaction is duly authorized and properly recorded, that assets are safeguarded and tasks properly segregated. A special focus will be made on anti-corruption safeguards. All the above will be streamlined with the same procedure manual, currently in place. Any future document or regulation related to the Emergency Power Project will automatically constitute a part of the procedures manual and integrated in the internal control system.

10. The current internal auditor will continue to perform with the same due diligences.

Reporting

11. AGETIP-CAF will produce a quarterly interim financial report (IFR) under World Bank guidelines, which include sources and uses of funds; expenditures by project activities with comparative actual and budgeted amounts for the period under review and cumulatively for the project life; opening and closing balance of advances received from the Bank; projected expenditures and cash forecast for the next reporting period; and explanatory notes as needed. These reports will be submitted to the Bank within 45 days following the end of each reporting period. Formats of the IFRs are similar to those used in the Emergency Urban Infrastructure Project.

Budgeting

12. ENERCA will prepare a budget with terms and conditions accepted and cleared by the Bank. The budget, which should be approved by the Ministry of Energy, will be components based.

External audit

13. The current legal auditor (Commissaire aux Comptes) will audit the project under terms of references acceptable to IDA. The external independent auditor will work jointly with the Supreme Audit Institution (SAI). The auditors will submit two different sets of reports: (i) an audit report and (ii) a management letter.

14. A single opinion will be provided on (i) project accounts; (ii) transactions on the designated account; and (iii) disbursement based SOEs. The auditor will also prepare a management letter providing observations, comments, and recommendations to improve internal control systems and management of Bank's funds. The reports (audit report and management letter) will be submitted to the Bank within six months of the end of the project fiscal year. The contract with the external auditor will be signed one month after effectiveness.

Disbursement

Designated Account (DA)

15. AGETIP-CAF will open a Designated Account in a local commercial bank acceptable to IDA and will run under the same arrangements as the one currently in use with the Emergency Urban Infrastructure Project. Withdrawal from the DA will be made under two joint signatures or as will be specified in the Authorized Signatory Letter which will be provided to IDA after grant signing. The Designated Account will be Segregated and maintained in FCFA currency in a local commercial bank acceptable to the Bank. The ceiling will be fixed at 250,000,000 FCFA.

Disbursement methods

16. The project will be entitled to use four (4) disbursement methods: reimbursement, advance, direct payment or special commitment. After project effectiveness and following submission of a withdrawal application by the Recipient to IDA, an initial advance of up to the DA ceiling will be deposited in the Designated Account. Subsequent requests to disburse to the DA or to reimburse for eligible project expenditures will be supported with Statements of Expenditures (SOE) subject to the thresholds specified in the Disbursement Letter. Direct payments to third party suppliers will be permitted for amounts equal to at least 20% of the DA ceiling. The Recipient may also request payments to a third party supplier for eligible expenditures under special commitments entered into, in writing, at the Recipient's request and on terms and conditions agreed between the Bank and the borrower.

Types of Supporting Documentation

17. The Bank requires either copies of the original documents evidencing eligible expenditures ("Records") or summary reports of expenditures ("Summary Reports"). Records include such documents as invoices and receipts. The Summary Report will be statement of expenditures summarizing eligible expenditures paid during a stated period ("Statement of Expenditures" or SOEs). In all cases, AGETIP-CAF is responsible for retaining the original documents evidencing eligible expenditures and making them available for audit or inspection.

Financial management Action Plan

18. The action plan below indicates the actions to be taken and the dates by which the actions are due to be completed as well as the person(s) responsible for the specific actions.

Issue	Action	Responsible party	Deadline
External audit	Signing of the contract with External auditor of ENERCA	GOCAR/ENERCA	1 month after effectiveness date
AGETIP-CAF procedures manual	Include accounting, reporting and disbursement arrangements of the new project	AGETIP-CAF	1 month after effectiveness date

Supervision plan:

19. This is an emergency project in response to the energy crisis that will be managed by ENERCA and AGETIP-CAF. The project will be supervised on a risk-based approach. Supervision will focus on the status of financial management system to verify whether the system continues to operate well and provide support where needed. Based on the current risk assessment which is **Modest**, the project FM field supervision will be carried out **once at least once per year**. The supervision output will comprise a financial management supervision report indicating progress and weaknesses identified and recommendations to address the issues. To the extent possible, mixed supervision missions will be undertaken with procurement monitoring and evaluation and disbursement colleagues

Financial management Risk Rating Summary

20. The risk assessment below is based on the current situation in CAR and takes into account the financial management and institutional arrangements provided. The risk will be updated from time to time during implementation.

Risk Rating Summary

	<i>Risk assessment</i>				<i>Previous risk assessment</i>	<i>Risk mitigating measures</i>	<i>Residual risk</i>
	H	S	M	L			
INHERENT RISKS	H	S	M	L			
Country level Quality of PFM institutions (see PEFA-PMF, CFAA, CPAR, CPIA & other diagnostics), standard of financial accounting, reporting and auditing, quality of FM profession	X						H
Entity level - Independence of entity's management, appropriateness of the organizational structure, impact of civil service rules			X			AGETIP-CAF is already implementing another Bank's project in a satisfactory way	M
Project level - Relative size of the Bank loan, type of lending instrument, complexity of the project (e.g. sectors involved, number of Implementing and sub-implementing entities, multi-donor etc.)			X			IDA will be the sole funder and the lending instrument is a grant with which AGETIP-CAF is already accustomed	M

OVERALL INHERENT RISK			X			M
CONTROL RISKS						
Budget		X			ENERCA will prepare a component based budget. It has a n acceptable budgeting system	M
Accounting			X		AGETIP-CAF has a satisfactory accounting system	M
Internal Controls			X		the same system of AGETIP will be used. It comprises an internal auditor, a procedures manual, a qualified fiduciary personnel	M
Funds flow			X		Segregated DA and disbursement based on SOEs	L
Financial Reporting			X		Use of the same format than Urban Infrastructure project one	L
Auditing			X		The current external auditor of ENERCA + SAI will audit the project	L
OVERALL CONTROL RISK						M
RESIDUAL RISK RATING						M
H – High S – Substantial M – Modest L – Low						

Annex 5: Procurement Arrangements

CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

Background

Procurement Environment

1. With IDA financial support, the Government of CAR has undertaken a reform of its procurement system that led in June 2008 to the promulgation of a law on public procurement and concession of public services. Although promulgated, this law is not yet enforced because the application decrees are not yet ready. The 1961 law is still therefore in effect. This system is characterized by. (i) centralization: All bids are issued by the *Commission Nationale des Marchés* chaired by the Minister of Finance and contracts are awarded by the *Commission Nationale d'Attribution des Marchés de l'Etat* chaired by an advisor at the Presidency; and (ii) slow processing in all phases of the procurement process (bid opening, analysis, approval and signing). Bids take as much as five months and sometimes more before they are open. The decision to award contracts may itself take quite a long time. The consequences have been poor disbursement performance on all projects under implementation in the country. While insisting that the grant agreement has primacy over national regulations in this matter and arguing of the emergency nature of the project, IDA has proposed to the Government to delegate the fiduciary management (financial management and procurement) to AGETIP-CAF which has a good knowledge of management procedures of IDA funded projects. AGETIP-CAF would therefore be suitable for managing the fiduciary aspects of the Power Emergency Response Project. For this purpose, a Project Agreement between the Government of CAR and AGETIP-CAF and an agreement delegating the implementation from ENERCA to AGETIP-CAF would be signed.

Use of Bank Guidelines

2. Procurement for the proposed project would be carried out in accordance with the World Bank's (i) "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004, revised October 1st, 2006; (ii) "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, revised October 1st, 2006, (iii) simplified procurement procedures in line with O.P./B.P. 8.00 on emergency operations; and (iv) the relevant provisions of the financing agreement.

3. The various items under different expenditure categories to be financed are described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame were agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually, or as required, to reflect the actual project implementation needs and the improvement in institutional capacity.

4. The procurement procedures and IDA's Standard Bidding Documents that will be used by AGETIP-CAF will be those defined in its Manual of procedures of administrative, financial, accounting, and procurement management acceptable to the Bank.

Procurement Methods

5. **Works:** No civil works contract envisaged under this project

6. **Goods:** The goods to be acquired under this project could include (i) the supply and installation of speed regulators on the turbines of Boali 1, (ii) the supply and installation of transformers and protection devices at Boali 1 and 2; (iii) the strengthening of the cooling system of the 5.5/60 KV/ 11 MVA transformer of Boali 1; and (iv) the purchase of CFLs, etc. Each goods contract package estimated to cost the equivalent of US\$500,000 or more shall be procured using International Competitive Bidding procedures. Contracts package estimated to cost less than the equivalent of US\$500,000 would be procured through National Competitive Bidding procedures acceptable to IDA. National and international shopping as well as single source procedures can also be used with prior approval by the Bank.

7. **Selection of consultants** (i) the financial audit; (ii) the technical audit; (iii) the procurement audit; and (iv) other consultant's services. The methods of procurement selected are the following: (i) Selection based on technical quality and cost (QCBS) for contracts whose amount exceeds the equivalent of 100,000 dollars US; (ii) Selection based on least-cost (LCS) for the financial audits, individual consultants and single source selection for all other services.

8. **Prior Review.** The procurement plan defines the contracts that are subject to prior review by the World Bank. All other contracts will be subject of a post-review by the World Bank.

9. **Training and seminars.** Training, when this is foreseen, will be delivered on the basis of approved annual programs. The programs will identify the general framework of the training and other similar activities for the whole year, including the nature and objectives of the training and seminars in relation to the objectives of the project.

10. **Fast Procurement Procedures.** Given the new framework for rapid intervention in case of crisis or emergency set in OP/BP 8.00, and to facilitate the implementation of the project and obtain quick results, no objection will be raised concerning the following: .
 - Goods and services (other than consultancy services): Use of rapid procurement methods (direct contracts or consultations of suppliers nationally and internationally) to call on qualified suppliers; use of lists of pre-qualified suppliers having an excellent track-record and to whom invitations are sent periodically. The pre-qualification document could have a simple format; extension of contracts currently being implemented by ENERCA by increasing their respective amounts; International competitive bidding and national competitive bidding with a submission period of 4 weeks and 20 days, respectively; simplified procedures and implementation of World Bank rules concerning the use of declarations of guarantee and; elimination of submission of bid security.

 - Consultants: The use of a « group of consultants » or a list of pre-selected firms of consultants and/or individual consultants could represent an appropriate method of assistance for project implementation. Such method should remain conform to SBQC, SBQ, Single source selection and/or procedures for the selection of individual consultants. Again, no objection will be raised concerning the sub-contracting to a single firm of consultants when doing this presents obvious benefits and advantages compared

to competitors.

11. **Bidding Documents.** Call for proposals and the standard bidding documents will be used, except for National Competitive Bidding for which alternative formats, acceptable to the World Bank, could be used.

Appraisal of ENERCA's procurement capacity

12. An appraisal of ENERCA's procurement capacity has been conducted during the preparation/appraisal of the project. The main conclusions are as follows: ENERCA does not have a procurement division or service for externally financed projects nor does it have staff qualified in procurement for IDA financed projects. ENERCA is under the financial supervision of the Ministry of Finance. This Ministry supports ENERCA in the preparation, launch, appraisal and award of important contracts.

13. Because of the concentration of all matters of public bidding in the Ministry of Finance and the sluggish pace observed in the bidding process, constituting a significant risk for the project, it was agreed that all bidding and award of contracts will be undertaken by AGETIP-CAF. AGETIP-CAF has a recognized expertise in procurement: AGETIP-CAF has the necessary staff with the requisite technical, financial and procurement skills. It also has modern management and control tools, namely (i) a software with technical, financial, budgetary, accounting and procurement capabilities, (ii) an internal controller, (iii) an external financial auditor; and (iv) an external technical auditor. Based on this appraisal and on the context of crisis of this electricity project, AGETIP-CAF seems to be ideal for the financial management and procurement for the project on behalf of ENERCA. All procurement for the project would therefore be undertaken according to the administrative, financial, accounting and procurement management manual of procedures of AGETIP-CAF. To give a legal basis for this arrangement, a project agreement will be signed between AGETIP-CAF and CAR on the one hand, and an agreement for the delegation of implementation between ENERCA and AGETIP-CAF on the other.

14. While ENERCA will provide technical specifications and technical input in evaluating bids, with support from EDF for component 1 and through the utility twinning arrangement for other components, AGETIP-CAF will be responsible for ensuring that procurement is conducted in accordance with Bank guidelines and will sign all contracts awarded under the project.

15. Given that the fiduciary management of the project will be entrusted to AGETIP-CAF whose procurement procedures are diligent, the overall procurement risk is assessed as moderate.

16. **Procurement Plan:** An 18-month procurement plan was prepared by AGETIP-CAF in coordination with ENERCA. Component 1 (hydropower rehabilitation) is based on reports and the action plan prepared by EDF under AFD funding; technical specifications for this component will be prepared jointly by EDF and ENERCA. The procurement plan reflects the planned activities and budget of the project. This plan has been examined and approved during the mission and will be updated on a yearly basis.

17. **Review a posteriori, technical and procurement audits:** Reviews a posteriori will be effected during supervision missions at least twice a year. Furthermore, no later than three months after the end of each year, AGETIP-CAF will submit to Bank, through the General Manager of ENERCA, a procurement audit report prepared by consultants recruited in accordance with relevant guidelines and on the basis of terms of reference approved by the Bank.

18. **Publication of contract awards:** The outcomes of all international competitive bidding and national competitive bidding on goods but also on consultancy contracts estimated to cost \$200,000 or more, in accordance with paragraphs 2.60, 2.65, and 3.4 of the «Guidelines: Procurement under IBRD Loans and IDA Credits» of the World Bank of May 2004, revised in October 2006, and paragraphs 2.28 and 2.29 of the « Guidelines: Selection and Employment of Consultants by World Bank Borrowers» dated May 2004 and revised in October 2006, should be published in *UNDB Online* and *dgMarket*.

19. **Fraud and corruption :** All participants to the bidding process, bidders and service providers, for example suppliers, sub-contractors and consultants, should uphold the highest levels of ethical conduct during the procurement process and the execution of contracts financed under the project, in accordance with paragraph 1.14 of the procurement Guidelines and paragraph 1.22 of the consultants Guidelines.

Details on procurement mechanisms involving international competition

Goods and services (other than consultancy services)

(a) The list of main contracts that will go to international bidding (ICB, international consultations or single source) during the next 18 months is presented in the table below:

1	2	3	4	5	6	7	8	9
N° réf.	Contract (Description)	Estimated Cost (US\$)	Procurement method	P-Q	National Preference (Yes/No)	Review by Bank (a priori/a posteriori)	Date of Opening of bids	Remarks
01	Supply and installation of speed regulators	3,080,000	ICB	Post qualification	No	A priori	05/29/2009	
02	Supply and installation of transformers and protection devices	728,000	ICB	Post qualification	No	A priori	05/29/2009	
03	Supply of CFLs	300,000	NCB	Post qualification	No	A posteriori	05/29/2009	
04	Supply of prepayment meters	1,600,000	ICB	Post qualification	No	A priori	05/29/2009	
05	Strengthening of the cooling system of the 5.5/60 KV, 11 MVA transformer at Boali 1	28,000	Single source	Post qualification	No	A priori	N/A	
06	PCV Insulated aluminum cables	1,300,000	ICB	Post qualification	No	A priori	03/31/2009	

Bids through ICB of US\$500,000 or more for goods and all single source contracts will be subject to prior review by the Bank.

Consultants Services

(a) List of main consultants services with short lists of international firms.

1	2	3	4	5	6	7
N° réf.	Description of the mission	Estimated cost	Method of selection	Review by Bank (a priori/a posteriori)	Date for submission of proposals	Remarks
01	Financial audit of the project	100,000	Single Source	A priori	09/21/2009	
02	Technical audit of the project	60,000	IC	A posteriori	09/21/2009	
04	Financial management and procurement services of AGETIP-CAF	400,000	Single Source	A priori	Date of effectiveness of the grant	
05	Procurement audit	60,000	IC	A posteriori		

Advisory Services.

Consultants services estimated to cost \$200,000 or more for consultancy firms and \$100,000 or more for individual consultants and all single sources are subject to prior review by the Bank.

Short lists composed entirely of national consultants: Short-lists of consultant services estimated to cost less than the equivalent of \$100,000 per contract could be, in accordance with paragraph 2.7 of the Guidelines on the employment of consultants, entirely composed of national consultants,

ICB : International competitive bidding

NCB : National competitive bidding

SBQC : Selection based on technical quality and cost

QC : Qualification of Consultant

LCS : Least cost selection

IC: Individual consultant

SS. Single source

Annex 6: Economic and Financial Analysis

CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

1. This section is concerned with the evaluation of the economic and financial costs and benefits of the principal components of the proposed Emergency Power Response Project, namely Component 1 dealing with the rehabilitation of Boali hydropower stations, Component 2 dealing with the Compact Fluorescent Lamps (CFLs), Component 3 and Component 4 dealing with pre-payment meters and loss reduction program. The analysis of each component is presented in turn.

Rehabilitation of Boali 1 and Boali 2 hydropower stations

Total energy (with rehabilitation) 15.7 MW x 8760h x 0.6 =	82.5 GWh
Total energy (without rehabilitation) 12.7 MW x 8760h x 0.6 =	66.8 GWh
Incremental energy	15.7 GWh
Average tariff	0.15 US\$/kWh
Marginal cost transmission and distribution	0.07 US\$/kWh

Total Benefits = 15.7 (0.15 - 0.07) = 1.26 US\$ millions per year

O&M cost = 2% of investment cost

Year	Invest cost	O&M	Total cost	Benefits	Net Benef.
1	2	0.04	2.04		-2.04
2	2	0.10	3.1		-3.1
3		0.10	0.1	1.26	1.16
4		0.10	0.1	1.26	1.16
5		0.10	0.1	1.26	1.16
6		0.10	0.1	1.26	1.16
7		0.10	0.1	1.26	1.16
8		0.10	0.1	1.26	1.16
9		0.10	0.1	1.26	1.16
10		0.10	0.1	1.26	1.16
11		0.10	0.1	1.26	1.16
12		0.10	0.1	1.26	1.16
13		0.10	0.1	1.26	1.16
14		0.10	0.1	1.26	1.16
15		0.10	0.1	1.26	1.16
16		0.10	0.1	1.26	1.16
17		0.10	0.1	1.26	1.16
18		0.10	0.1	1.26	1.16
19		0.10	0.1	1.26	1.16
20		0.10	0.1	1.26	1.16

NPV
IRR

\$2.41 Million
20%

Compact Fluorescent Lamps (CFLs)

2. A survey to determine the number and type of CFLs to be acquired under this project will be carried out by ENERCA. This survey will serve as a basis for the bidding documents for this component. The following is an illustration of the very important savings to be had through the use of CFLs in lieu of incandescent lamps. The energy that is thus freed could be used to serve the additional needs of existing consumers and/or connect new consumers.

3. As shown in the table below, the CFL program has an expected cost of US\$160,000, compared to total benefits of over \$1 million in just one year of operation.

Benefits of CFLs (Reduction of Peak Demand and Energy Consumption)

	Conventional	Efficient
Technologies	Incandescent Lamps (A)	Compact Fluorescent Lamps (B)
Average Rating, Watts	60	11
Number of CFLs distributed		80,000
Unit cost of CFL US\$		2
Total cost of CFL		160,000
Diversity factor		50%
T&D Losses		20%
Peak demand savings (MW)		2
Number of hours of use per day		4
Number of days		365
Annual energy savings (MWh)		3,577
Cost of energy (US\$/kWh)		0.15
Avoided cost of energy - US\$		536,550
Cost of setting up new generation capacity (US\$/kW/yr)		200
Avoided Capacity Cost of Generation - US\$		490,000
Total annual benefit (avoided energy & capacity cost) US\$		1,026,550

Prepayment meters

4. The following is a simulation of the use of a prepayment meter for an existing unmetered consumer. This example clearly shows the very important energy and economic savings through the use of a prepayment meter. The charge for the prepayment meter itself is modest (about \$5 per month) vs. the benefit of energy savings estimated at US\$15 per month. On this basis, the prepayment meter program of the project is clearly economic. This program has the additional non negligible advantage of increasing collection and improving the financial situation of ENERCA. The collection rate for existing customers is estimated at 66%; for customers with pre-payment meters, this rate would increase to almost 100%. This would enable the utility to

generate sufficient resources to maintain its power system (and therefore avoid the repetition of the current crisis) and set aside resources for its expansion.

	Existing Consumer	Prepayment meter
Cost of Meter	Not metered	\$5 per month(*)
Fixed amount due/month	\$5	
Est. Monthly Consumption	150 kWh	100 kWh
1. Energy saved	(150 kWh - 100 kWh)/month x 5500 prepayment meters x long run marginal cost generation (est. at \$0.3/kWh)	
Value of Energy Saved =	\$82,500 per month	
Saving per consumer =	\$15	
(*)		
Cost of a prepaid meter	\$300	
Discount rate (%)	12	
Equipment life	10 years	
Capital Recovery Factor	17.70%	
O&M cost	1.50% of investment cost	
Annual charge	= \$300x(17.7%+1.5%)= \$57.60 per year	
	Or	\$57.6/12= \$4.80 per month

Distribution loss reduction⁴

5. This section is concerned with the evaluation of ENERCA's loss reduction program. It outlines the methods used to estimate the value of savings from power loss reduction as well as the assumptions used in the calculation of technical and non-technical losses. It also shows that ENERCA's loss reduction program is economic.

Technical loss reduction

6. Benefits accruing from loss reduction may be of two kinds: capacity savings, and energy savings. Since incremental technical losses constitute a component of the incremental demand on the system, incremental technical losses must also be valued at the long run marginal cost of supply. Therefore, kilowatt and kilowatt-hour losses are valued at the long run marginal capacity cost and the long run marginal energy cost, respectively. Technical losses are currently estimated at 15% of the energy generated. The project aims at bringing down this level to 12%.

7. The kilowatt charge is based on the investment and fixed operation and maintenance cost of the incremental capacity adopted as the least cost means of providing the incremental kilowatt demand. In ENERCA's capacity constrained system, an incremental kilowatt demand is likely

⁴ This analysis for component 4 does not include investing in equipping distribution transformers to improve quality of service and reduce losses at a cost of about US\$400,000.

to be provided by a diesel engine. On this basis, the marginal capacity cost has been estimated at \$ 200/kW/year⁵.

8. The marginal energy cost is derived on the basis of incremental fuel and variable operation and maintenance costs of the generating facilities that would be used to provide the incremental kilowatt-hour. The marginal energy cost is calculated as a weighted average incremental cost of peak and off-peak energy. The estimated marginal energy cost of \$0.15/kWh used in the calculations is estimated based on the cost of gas-oil that would be used by the Bangui diesel units to provide the additional kWh.

9. The basis of the economic analysis is the trade-off between increased system investment to reduce the level of technical losses and the economic value of the savings in technical loss reduction. The results show substantial benefits to reducing technical losses with a net present value of benefits of US\$0.29 million and an IRR of 32%.

Non technical loss reduction

10. The level of non technical losses has been estimated at 35% of generation in 2007. The main benefit of non technical losses is the resource savings in generation, since a share of the energy previously consumed free of charge, will no longer have to be produced; this is calculated in the same way as for technical loss reductions. There are two costs involved: the first is the decline in consumer's surplus due to the loss of energy consumption and the second is the cost of the project dedicated to the reduction of non-technical losses. The loss in consumer's surplus has not been taken into account in the calculations. Although the loss is not considered significant, it overestimates the benefits of the project to that extent.

11. The estimated net present value of benefits is US\$0.25 million and an IRR of 54%. See detailed results in the table below.

⁵ Investment cost \$1000/kW, discount rate 12%, econ life 15 years, Capital recovery factor 14.5% of investment cost, and O&M 1.5% of investment cost. This gives an annual charge of $\$1000 \times (14.5\% + 1.5\%) = \$160/\text{year}$. If one assumes a 20% de-rating to accommodate actual operating conditions and possible outages, the cost rises to $\$160/.2 = \$200/\text{year}$ at generation.

CENTRAL AFRICAN REPUBLIC

**ENERCA's Loss Reduction Program
Technical Losses**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Without Loss Reduction											
Demand, MW	25	25.50	26.01	26.53	27.06	27.06	27.06	27.06	27.06	27.06	27.06
Estimated Peak Demand Loss, MW a/	4	4	4	4	4	4	4	4	4	4	4
Generation, GWh	109.50	111.69	113.92	116.20	118.53	118.53	118.53	118.53	118.53	118.53	118.53
Energy Lost, GWh	16	17	17	17	18	18	18	18	18	18	18
As a % of total generation	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
With Loss Reduction											
Incr Loss Reduction, MW b/			0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Incr Loss Reduction, GWh			0.34	0.35	0.36	0.36	0.36	0.36	0.36	0.36	0.36
New Demand, MW			25.93	26.45	26.98	26.98	26.98	26.98	26.98	26.98	26.98
New Generation Requirement, GWh			113.58	115.85	118.17	118.17	118.17	118.17	118.17	118.17	118.17
Losses, GWh			16.75	17.08	17.42	17.42	17.42	17.42	17.42	17.42	17.42
As a % of energy requirements			0.07	7.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Investments, \$Million	-	0.30									
Benefits, \$Million			0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Net Benefits, \$Million	-	-0.30	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Present worth of costs	\$0.27										
Present worth of benefits	\$0.55										
Net Present Worth@12%	\$0.29	\$Million									
IRR	32%										
Marginal Capacity cost c/	200	\$/kW/Year									
Marginal Energy Cost d/	0.25	\$/kWh									

Non Technical Losses

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Target loss reduction	35%	33%	30%	25%	25%	25%	25%	25%	25%	25%	25%
Reduction of losses (GWh)	39	38	35	30	30	30	30	30	30	30	21
Increment			-3	-5	0	0	0	0	0	0	0
Marginal energy cost (Uscents/kWh)	0.15										
Investment Cost		0.6									
Value of non technical losses	0.00	0.00	0.41	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Benefits		-0.6	0.41	0.78	0.00	0	0	0	0	0	0
PV of costs@12%	\$0.54	Million									
PV of benefits@12%	0.79	Million									
NPV@12%	\$0.25	Million									
IRR	54%										

There are two main benefits from non technical loss reduction. The first one is resource savings in generation, since a share of the energy previously consumed free of charge, will no longer have to be produced. The second benefit arises because the project might avoid higher tariffs, or lead to a higher demand level. In the present case, the first benefit predominates.

The tariff is subsidized and the benefit from the project is smaller than in a situation of marginal cost pricing. The benefit from the project consists of the resource savings (which are valued at the marginal cost of energy) less the reduction in the consumer's surplus and the project costs. The loss in consumer's surplus has not been taken into account in these calculations, and the benefits are therefore slightly overstated.

Annex 7: Environmental and Social Safeguards Framework

CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

1. The Project is considered Category B for environmental safeguards. The project is expected to have no major negative environmental and social impacts. The AFD is co-financing the project: Initially the idea was to leave the rehabilitation of the hydroelectric power stations to AFD while Bank financing would concentrate on other components such as the pre-payment meters, etc. However, after a diagnostic of the work to be done and the evaluation of the costs, it became clear that the available AFD financing would be insufficient to complete the rehabilitation of the Boali 1 and Boali 2 hydropower stations in a meaningful way and that additional financing was required from the only available other source which is the Bank: The nature of the work involved, therefore, is rehabilitation of the hydropower stations, regardless of the financing source

2. The project triggers OP/BP 4.01 Environmental Assessment, because at Boali hydropower stations, existing transformers may contain polychlorinated biphenyl (PCB) which is classified as a persistent organic pollutant that might affect human health. Even if it is unlikely that the transformer that may be replaced at Boali 1 contains PCB (considering that it was manufactured in 1976, while PCB was banned in 1971), the bidding documents and contracts would require contractors to test the old and new transformers for the presence and levels of PCB prior to installation. Transformers with PCB levels of 0.05 mg/L or higher will not be installed or used. The proper disposal of the old transformer will also be included in the bid document. A qualified organization would need to do the sampling and analysis, If significant PCB levels are detected, an adequate management plan including protection measures for people working for the transformers' maintenance will be prepared, and remedial work at the site if there have been leaks or spills undertaken. For the implementation of the management plan, an adequate budget, role and responsibilities will be clearly defined. The report of the qualified organization will be disclosed in the country and at WB Infoshop before any disbursements associated with the refurbishment and/or replacement of transformers under component 1.

3. The project also triggers OP/BP 4.37 on Safety of Dams. Although the project will not have any impact on the structure of existing dams, OP 4.37 is triggered because the project relies for its success on the safety of existing hydropower dams at Boali 1, 2 and 3. In the context of project appraisal, a specialized consultant has been hired to conduct a dam safety inspection and make recommendations for any necessary urgent remedial actions. The last Dam safety inspection of Boali was carried out in 2004 by Coyne & Bellier who observed that: (a) from the civil works point of view the dam is well maintained and "behaving" remarkably well; and (b) the system of measurement is well maintained and operated by the dam monitoring team. The consultant recommendations dealt essentially with the acquisition of instrumentation to improve the monitoring for the dam. Furthermore, it was recommended that the 10-year dam examination be done with specialized divers to examine the foot of the dam. None of these recommendations were followed due to mainly to the lack of urgency (given the good "behavior" and maintenance of the dam) and the dismal financial situation of the sector in particular and the country in general.

4. The proposed Emergency Power Emergency Project places a very strong emphasis on cost recovery through the demand component of the project which comprises the acquisition of prepayment meters, efficient lamps and reducing technical and non technical losses. Cost recovery from users not only strengthens sustainability but would also provide the cash necessary to maintain the power system, including the Boali hydropower stations. Our expectation is therefore that the dams will be properly maintained in the future, including the acquisition of the necessary tools and instruments. The Dam Inspection funded by the Bank as part of due diligence was made available by January 2009. It includes recommendations for urgent dam safety measures to be put in place during the project implementation period.

5. Regarding component 2 (CFLs), Enerca will put in place measures for collecting used CFLs, including incentives for consumers to bring their used CFLs to the utility, so that they can be disposed of safely.

6. From the social aspects point of view, no policy is triggered. The rehabilitation and maintenance work to be financed under the project does not require land acquisition or involuntary resettlement as confirmed by the field visit.

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP/GP 4.01)</u>	[X]	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input type="checkbox"/>	<input type="checkbox"/>
Cultural Property (OP 4.11)	<input type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OP 4.10)	<input type="checkbox"/>	<input type="checkbox"/>
Forests (OP/BP 4.36)	<input type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	[X]	<input type="checkbox"/>
Projects in Disputed Areas (OP/BP/GP 7.60)	<input type="checkbox"/>	<input type="checkbox"/>
Projects on International Waterways (OP/BP/GP 7.50)	<input type="checkbox"/>	<input type="checkbox"/>

Annex 8: Project Preparation and Supervision
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

	Planned	Actual
Appraisal	October 23, 2008	October 23, 2008
Decision meeting	December 16, 2008	December 16, 2008
PID to PIC	December 22, 2008	December 22, 2008
ISDS to PIC	December 22, 2008	December 22, 2008
Negotiations	January 12, 2009	January 16, 2009
Board/RVP approval	February 17, 2009	
Planned date of effectiveness	March 16, 2009	
Mid-term review	February 15, 2010	
Closing date	June 30, 2012	

Key institutions responsible for preparation of the project:

Ministry of Mines and Energy, Ministry of Planning, ENERCA, AGETIP-CAF, EDF and AFD

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Moez Cherif	Task Team Leader	AFTEG
Noureddine Bouzaher	Infrastructure Specialist (Consultant)	AFTEG
Etienne Nkoa	Sr. Financial Management Specialist	AFTFM
Charles Donang Ningayo	Sr. Procurement Specialist	AFTPC
Rita Ahiboh	Program Assistant	AFTEG
Helene Bertaud	Sr. Counsel	LEGAf
Emeran Serge M. Menang Evouna	Forestry/Environmental Specialist	AFTEN
Lucienne M. M'Baipor	Social Development Scientist	AFTCS
Leopold Sedogo	Energy Specialist	AFTEG
Aissatou Diallo	Finance Officer	LOAFC
Alessandro Palmieri	Lead Dam Specialist	OPCQC
Bernard Hagin	Engineer (Consultant)	AFTEG
Tjaarda P. Storm Van Leeuwen	Adviser	AFTEG
Jelena Pantelic	Country Manager	AFMCF

Annex 9: Statement of Loans and Credits

CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

Project ID	FY	Purpose	Original Amount in US\$ Millions					Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF	Orig.			Frm. Rev'd	
P104595	2007	CF-Emergency Urban Infrastruct ERL (F07)	0.00	18.00	0.00	0.00	0.00	13.39	0.97	0.00	
P073525	2002	CF-HIV/AIDS (FY02)	0.00	17.00	0.00	0.00	0.00	15.24	12.31	0.00	
Total:			0.00	35.00	0.00	0.00	0.00	28.63	13.28	0.00	

**CENTRAL AFRICAN REPUBLIC
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars**

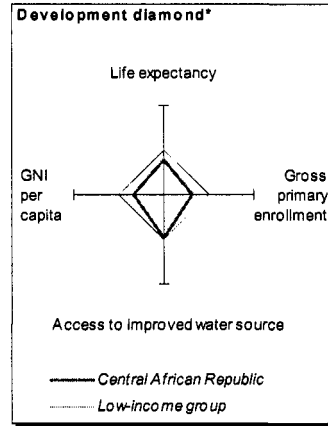
FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
Total portfolio:		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic.
Total pending commitment:		0.00	0.00	0.00	0.00

Annex 10: Country at a Glance

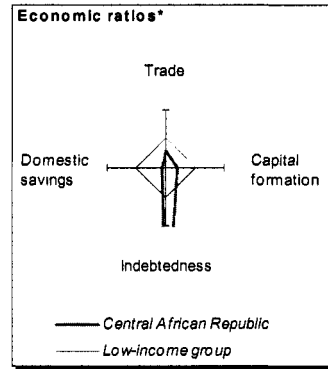
CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project

POVERTY and SOCIAL	Central African Republic	Sub-Saharan Africa	Low-income
2007			
Population, mid-year (millions)	4.3	800	1296
GNI per capita (Atlas method, US\$)	380	952	578
GNI (Atlas method, US\$ billions)	17	762	749
Average annual growth, 2001-07			
Population (%)	17	2.5	2.2
Labor force (%)	17	2.6	2.7
Most recent estimate (latest year available, 2001-07)			
Poverty (% of population below national poverty line)
Urban population (% of total population)	38	36	32
Life expectancy at birth (years)	44	51	57
Infant mortality (per 1,000 live births)	115	94	85
Child malnutrition (% of children under 5)	..	27	29
Access to an improved water source (% of population)	66	58	68
Literacy (% of population age 15+)	..	59	61
Gross primary enrollment (% of school-age population)	61	94	94
Male	72	99	100
Female	49	88	89



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

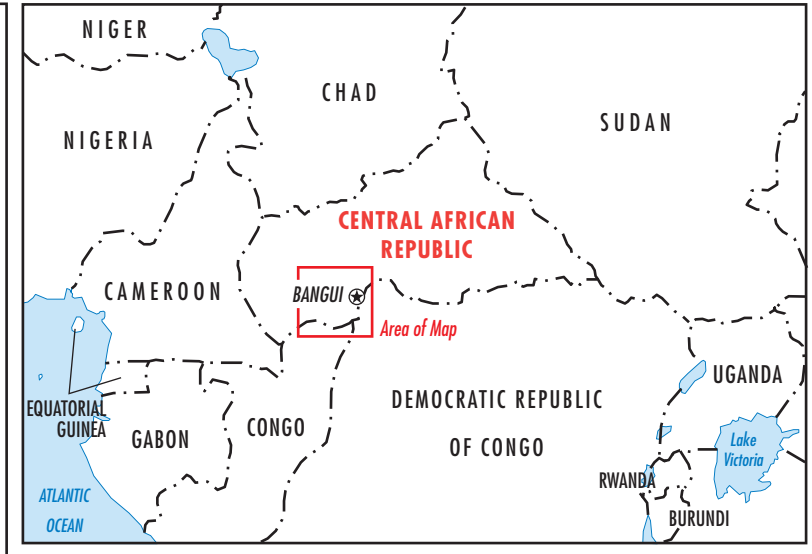
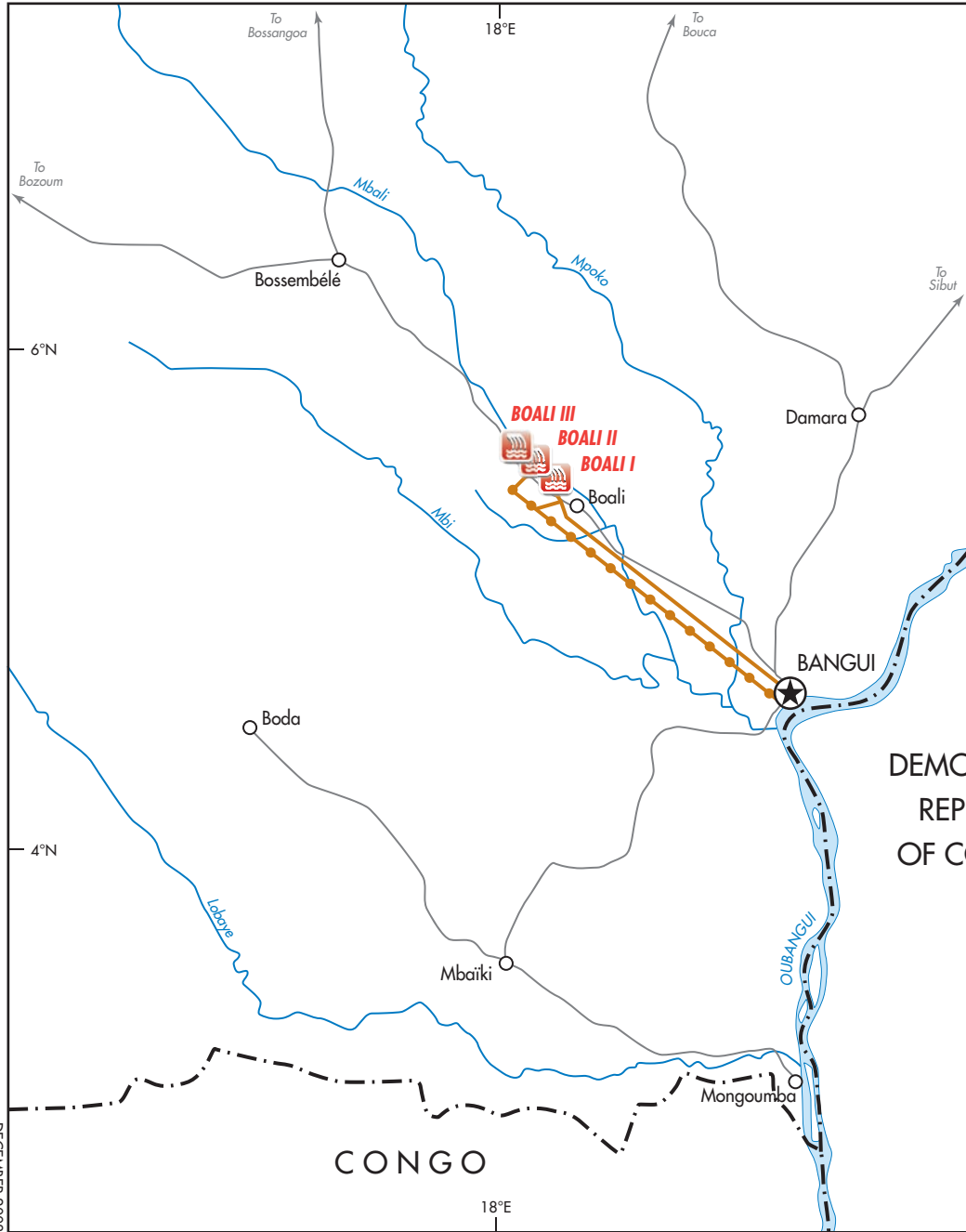
	1987	1997	2006	2007
GDP (US\$ billions)	12	10	15	17
Gross capital formation/GDP	12.5	9.8	8.9	9.2
Exports of goods and services/GDP	12.2	13.5	14.0	15.0
Gross domestic savings/GDP	-0.3	4.4	1.1	2.2
Gross national savings/GDP	..	4.1	11.7	8.1
Current account balance/GDP	-11.1	-5.6	-2.7	-4.0
Interest payments/GDP	0.7	0.2	1.1	..
Total debt/GDP	51.0	88.0	69.0	..
Total debt service/exports	13.9	7.9	32.3	..
Present value of debt/GDP	49.4	..
Present value of debt/exports	334.7	..
(average annual growth)				
	1987-97	1997-07	2006	2007
GDP	0.3	0.5	4.0	4.2
GDP per capita	-2.3	-1.2	2.2	2.3
Exports of goods and services	..	-1.6	14.4	10.6
	2007-11			4.6











STRUCTURE of the ECONOMY

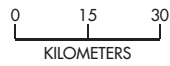
Annex 11: Map

CENTRAL AFRICAN REPUBLIC: CAR - Emergency Power Response Project



CENTRAL AFRICAN REPUBLIC EMERGENCY POWER RESPONSE PROJECT

-  EXISTING HYDRO PLANTS
-  TRANSMISSION LINES - BOALI I 63kV
-  TRANSMISSION LINES - BOALI II 110kV (OPERATED AT 63kV)
-  MAIN ROADS
-  RIVERS
-  NATIONAL CAPITAL
-  MAIN TOWNS
-  INTERNATIONAL BOUNDARIES



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