PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: 47079

Project Name	CAR - Emergency Power Response Project
Region	AFRICA
Sector	Power (100%)
Project ID	P114111
Borrower(s)	CAR GOVERNMENT
	Central African Republic Central African Republic
Implementing Agency	
	Energie Centrafricaine (ENERCA) Central African Republic
Environment Category	[ ] A [X] B [ ] C [ ] FI [ ] TBD (to be determined)
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1. Country and Sector Background

Central African Republic (CAR) with an area of 623,000 km^2, a population of 4.3 million, growing at 1.7 percent per annum, an average of five inhabitants per km^2, and a per capita income of US$350 in 2006, remains one of the poorest countries in the world (***WDI 2008)***. Average life expectancy is estimated at 44 years at birth, and 39 percent of the total population is literate. Poverty is pervasive in CAR. It is estimated that two-thirds of the population live in poverty, and one-third in extreme poverty (World Bank, DPO documentation, Nov. 2006). CAR has rich but almost unexploited natural resources. Only one-tenth of its arable land is under cultivation and forest resources are plentiful. Economic development however has been disrupted by recurrent conflicts during much of the past decade.

Rapid Urban Growth: Urbanization in CAR has been accelerating since the end of the 1970s, and the role of urban markets and service centers is becoming increasingly important in the modernization of the economy. As a result of the increased insecurity in the rural areas fanned by bands of rebel soldiers roaming the rural countryside and causing mayhem to the populations making a poor rural market access even more precarious, more people have moved to Bangui and other urban centers. By 2010, the population of Greater Bangui is projected to top 980,000 inhabitants and will represent over 52% of the country's urban population.

Power Sector. Bangui relies on the state-owned utility ENERCA for electricity supply to some 18,000 customers, including households, government and businesses. ENERCA's power generation comes almost entirely from two rundown hydropower facilities, Boali I and II. ENERCA is facing severe challenges, which include dilapidated infrastructure, high energy losses and theft, and low bill collections, which leads to operational and financial difficulties.

Outside Bangui, ENERCA provides a few hours of electricity per night at best using diesel generators in some provincial towns.

The recent past has seen unprecedented levels of load shedding in Bangui. The city has been experiencing load shedding since at least the year 2000 but with increasing severity with the passage of time: from 30 minutes in 2000 to 3 to 5 hours per day depending on the geographical area affected. Boali II hydropower facility failed as a result of lightning striking a transmission pole in June 2008 and the fact that grounding equipment had been stolen. This resulted in more than half of electricity supply to the capital being disrupted, and it took several weeks to bring it back into operation. Lack of power also affected water supply, which relies on electricity for pumping water around the city, and hospitals. The supply situation improved somewhat from the second half of June 2008 when only about 6 MW were reported to be available to about 14 to 16 MW early August 2008 after ENERCA's engineers repaired the two units of the Boali II hydropower station.

Even after more rehabilitation work meant to bring about supply and demand into some reasonable relationship and demand management measures, the situation would remain critical with a significant risk of load shedding until new generation capacity is put in place at a yet to be defined date in the future. Agence Francaise de Développement (AFD) has committed Euro 4.2 million for the rehabilitation of Boali I and II; this sum is not sufficient even for short term emergency rehabilitation of these facilities.

The main sector issues are:

1. **Insufficient capacity to meet demand**. The existing power infrastructure is dilapidated by years of neglect. Peak demand has been estimated at 27 MW in 2008. Against this, the existing hydropower stations Boali I and Boali II can only deliver about 18 MW, leaving a gap of about 9 MW to be delivered by the Bangui Thermal Power Station (BTPS) in addition to energy losses of about 45%. Currently only one diesel set at BTPS is working and has a capacity of 2 MW. AFD plans to rehabilitate some diesel sets to fill the gap between demand and supply. This would also facilitate the rehabilitation of Boali I and II: in order to rehabilitate these facilities, hydropower generating units have to be temporarily shut down; the increased capacity of BTPS would enable ENERCA to minimize shortages of power during those temporary shut downs. As explained below, ENERCA suffers from high technical losses of energy, from electricity theft and from unpaid bills. Getting a handle on those problems would help to reduce energy requirements.

2. **Lack of resources for maintenance and equipment renewal**: Because ENERCA barely generates enough cashflow to cover its operating expenses, it is unable to adequately maintain and renew aging equipment. This question is tied to a whole set of other issues: tariffs, metering, billing, collection and payment of public and private arrears.

3. **Unpaid bills:** ENERCA has an estimated FCFA 16 billion in arrears, mainly unpaid bills. In addition, collection rates on billed amounts continue to be poor.

4. **Heavy technical and non technical losses:** These losses reached more than 50 % of the energy sent out in 2007. Technical losses are physical energy losses on the transmission and

distribution network, whereas non-technical losses represent theft of electricity from illegally connected consumers as well as billing errors.

2. Objective

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.

The project development objective will be achieved through:

i. The rehabilitation of existing hydropower stations, which will reduce the risk of another power supply crisis and help to meet peak demand, to be measured through the increase in generation capacity and the reduction in unserved energy;
ii. The introduction of more efficient lighting, which will to reduce peak electricity demand by up to 10%;
iii. The introduction of pre-payment meters to improve revenue colletion; and
iv. Loss reductions through the replacement of old distribution lines with PVC insulated ones, which make it harder to steal electricity.

3. Rationale for Bank Involvement

The project constitutes the Bank's response to the government of CAR's (GoCAR) request for urgent help to the donor community following the June 2008 power crisis in Bangui[1]. The project meets the eligibility criteria of OP 8.00 - Rapid Response to Crises and Emergencies: the aim of the operation is to restore electricity assets and services in the Bangui area, which are essential for urban economic activity and the mitigation of future humanitarian crises. This rationale is strengthened by the extreme vulnerability of the entire system due to ageing and lack of maintenance. In order to minimize the humanitarian and economic risk to Bangui's population, it is important to restore the electricity system to a functional state. The proposed Power Emergency Response Project will contribute to this objective by increasing supply and managing demand in an economically efficient manner as well as improving the capacity of ENERCA, the national utility, to generate more cash flow to operate and maintain the power system.

[1] A meeting was convened at the prime minister's office on July 2nd, 2008 with the main donors to discuss the electricity crisis in Bangui.

This project will be closely coordinated with AFD (the French aid agency) which has already committed funds for the rehabilitation of thermal power and Boali I and II. However, these funds are not sufficient and IDA will contribute to the completion of the rehabilitation of the hydropower stations, in addition to other project components described below.

4. Description

The estimated total cost of the proposed project would be US$ 8 million. It would be entirely financed by IDA.

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

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. This component, which will complement the rehabilitation being funded by AFD, 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.

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.

Component 3: Pre-paid Meters ($2,000,000): 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 7,000 pre-paid 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.

Component 4: Loss Reduction Program ($900,000): Technical and non technical losses account for about half, if not more, of the energy sent out. Currently distribution lines in Bangui, which are about 40 years old and made of bare copper wires, 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. The project would put at the disposal of ENERCA the technical means to reduce these losses through the replacement of existing bare copper wires with PVC insulated aluminum conductors.

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.

5. Financing

Power Emergency Response Project Financing Plan
(In US$ million)

	Foreign Cost	Local Cost	Total
I.D.A.	7.0	1.0	8.0
Total Financing	7.0	1.0	8.0

6. Implementation

The project is expected to be fully implemented within three years (the completion date is currently estimated to be June 30, 2012). 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 a 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 by 2010. The implementation of other less urgent components is expected to take longer such as the CFL program and the deployment of prepayment meters.

7. Sustainability

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.

8. Lessons Learned from Past Operations in the Country/Sector

The following lessons have been learned from Bank experience dealing with emergency operations: (i) speed of both preparation/appraisal and implementation is crucial for success; (ii) the simpler the project design the better; (iii) the institutional framework for implementation and the strategic management of an emergency are crucial for project success; (iv) mitigation measures should always be included to avoid the repetition of the same situation; and (v) procurement needs to start early. These lessons have been fully incorporated through a simple project design with a few contracts, rapid preparation/appraisal, completion of the contracting from advertising for bids to contract award within a short period of time, and strategic project oversight from the highest level of government. The team also consulted widely within and outside the Africa region to benefit from the best available expertise on design of emergency operations.

9. Safeguard Policies (including public consultation)

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.

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 within 180 days after project effectiveness.

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 of the dam) and the dismal financial situation of the sector in particular and the country in general.

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.

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 is expected to be available by end of December 2008. It will include recommendations for urgent dam safety measures, if any are identified by the expert, to be put in place during the project implementation period as well as a sustainable system of operation and maintenance of the dams

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	
Environmental Assessment (OP/BP 4.01)	X
Natural Habitats (OP/BP 4.04)	
Pest Management (OP 4.09)	
Physical Cultural Resources (OP/BP 4.11)	
Involuntary Resettlement (OP/BP 4.12)	
Indigenous Peoples (OP/BP 4.10)	
Forests (OP/BP 4.36)	
Safety of Dams (OP/BP 4.37)	X
Projects in Disputed Areas (OP/BP 7.60)*	
Projects on International Waterways (OP/BP 7.50)	
Piloting the Use of Borrower Systems to Address Environmental and Social Safeguard Issues in Bank-Supported Projects (OP/BP 4.00)	

10. List of Factual Technical Documents

Note on the electricity sector in Central African Republic, 2008, The World Bank.
Document de Stratégie de Réduction de la Pauvreté 2008 – 2010
Draft Emergency Project Paper

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

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