

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: 53802

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Project Name	Additional Financing for the Ghana Energy Development and Access Project
Region	AFRICA
Sector	Power (100%)
Project ID	P120016
Borrower(s)	Government of GHANA
Implementing Agency	Electricity Company of Ghana (ECG)
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	March 23, 2010
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1. Country and Sector Background

1.1 Ghana is a low-income country of about 24 million inhabitants with a per capita income of US\$670 (2008). Despite progress in raising per capita income and improving indicators of human development over the last twenty years, there are still large regional disparities within the country. While 51 percent of the population lives in rural areas, these areas account for three quarters of those living on one dollar or less a day.

1.2 There are also large differences in provision of services between urban and rural areas, which are reflected in the difference in electricity access. In 2008, Ghana's electrification rate reached 59 percent, significantly higher than the average of 28.5 percent of Sub-Saharan Africa. However, in the rural areas, only 23 percent of the population has access.

1.3 The financial condition of the power companies Volta River Authority (VRA), Ghana Grid Company, and Electricity Company of Ghana (ECG) is fragile. The financial problems stem from below-cost tariffs that do not reflect the increased generating cost resulting from higher oil prices and increased share of oil fired generation in the generation mix. The delayed completion of the West African Gas Pipeline has deprived the sector of much cheaper natural gas and imposed a significant additional cost burden.

1.4 Inadequate investment and preventive maintenance have led to deterioration in electricity distribution infrastructure resulting in poor quality of electricity supply and operational inefficiencies. Losses in the distribution network are about 25 percent.

1.5 The Government's sector reform strategy includes: (i) Increasing generation capacity; (ii) Restoring the financial viability of the power companies; (iii) Improving the operational

performance of the power companies; and (iv) Scaling up access to electricity to reduce urban-rural imbalances.

2. Objectives

2.1 The development objective of the original Ghana Energy Development and Access Project (GEDAP) is “to improve the operational efficiency of the electricity distribution system and increase the population’s access to electricity, and to help transition Ghana to a low-carbon economy through the reduction of greenhouse gas emissions”.

2.2 The GEDAP development objectives will remain unchanged under the additional financing. No significant changes are proposed to the general design and implementation modalities of the Project.

3. Rationale for Bank Involvement

3.1 In line with Ghana's poverty reduction objectives and Millennium Development Goals the Bank's *Country Assistance Strategy (CAS) 2008-2011* aims at supporting Ghana to: (a) sustain economic growth of at least 6% per year; (b) surpass the 2015 Millennium Development Goal of halving poverty to 26% already during this CAS period; and (c) start to reduce inequalities. Through investments targeted to improve the efficiency of electricity supply, the project will help improve the financial viability of the sector, which in turn will reduce the power sector’s fiscal burden on the economy and create space for social investments. The project will directly support objective (a) and indirectly objectives (b) and (c).

3.2 The long history of partnership in the energy sector places the Bank in a unique position to assist Ghana in tackling its energy challenges. The GEDAP additional financing will: (a) provide supplementary financing for network reinforcement in densely populated urban areas; (b) provide knowledge and experience for improved distribution system management, particularly with respect to commercial performance.

4. Description

4.1 The original project was approved by the Board on July 26, 2007 for an IDA credit of US\$90 million and a GEF grant of US\$5.5 million. It has three components: (1) Sector and Institutional Development; (2) Distribution System Improvement; and (3) Electricity Access expansion and renewable Energy Development. The total project costs were estimated at US\$210.6 million. The balance of project costs were to be covered through commitments / contributions made by the following partners: African Development Bank – AfDB; African Catalytic Growth Fund – ACGF; the Swiss Secretariat for Economic Affairs – SECO; Global Partnership on Output-Based Aid – GPOBA; the Government of Ghana – GoG; ECG; and the private sector.

4.2 The proposed additional financing will focus on scaling up the Distribution System Improvement activities that are being implemented by the Electricity Company of Ghana (ECG). The new activities will include distribution system improvements and upgrades in the Ashanti Region, with a special focus on Kumasi and its vicinity. About 346,000 of ECG's customers in the Ashanti Region are using post-paid (credit) meters. Meter tampering, electricity theft, meter reading errors, and payment arrears have led to high commercial losses by ECG in that area. The Ashanti Region has the highest energy losses amongst ECG's operational areas (approximately 32%), which is unacceptably high. The goal of the proposed investments is to reduce the system losses in the Ashanti region from 32% to about 22%, and to improve revenue collection.

4.3 Activities will include: (i) Improving/upgrading transformer capacities; (ii) Up-rating the line capacities and bulk-metering of all the feeder lines; (iii) Metering of all new customers and installation of pre-paid meters; (iv) Improving performance of the lines by replacing broken equipment; (v) System expansion to cater for new customers; and (vi) Improving customer services and customer relations.

Specific activities are as follows:

AF-Activity B.1: ECG Electricity Distribution System Upgrade

4.4 Distribution materials and equipment in the amount of US\$15 million would be procured to further improve the 11 kV and LV networks. This investment will help improve voltage quality, reduce outages, and improve reliability of supply. This also aims at reducing technical losses in 11 kV and low voltage distribution networks.

4.5 In order to meet the growing demand, ECG would use part of the AF for the construction of a 33/11 kV primary substation at Anyinam, in Ashanti West. In addition, new 33 kV and 11 kV lines will be constructed, and two 33 kV feeders will be upgraded, to offload power from the new and existing stations and reinforce the 33 kV sub-transmission network. This would improve the reliability of supply in the Kumasi metropolis.

4.6 Two new Bulk Supply Points (BSPs) would be erected at: (i) **Tema** - for the evacuation of power from the various Thermal Power Generating Stations under construction in the city; and (ii) **Nungua** - in Accra for optimizing the transfer of power between BSPs.

AF-Activity B.2: ECG Commercial and Technical Capacity Upgrade (Integrated Approach in the Ashanti Region)

4.7 The objective of this activity is to implement an integrated solution that would address several of ECG's technical and commercial problems in the Ashanti region: (i) high level of technical and non technical losses; (ii) low rates of revenue collection; (iii) inefficient metering system; (iv) unreliable and overloaded lines and transformers; and (v) necessary improvements in customer service.

4.8 To help reduce commercial losses and improve revenue collection, about 70% of the credit meters in the Ashanti region will be replaced with the split-type prepaid meters. An estimated number of about 140,000 ECG customers (mainly residential) will be upgraded under this project. Provision is also made for connecting an extra 14,000 new customers, bringing the total number of upgraded / new customers to about 154,000.

4.9 To bring ECG closer to its customers and to enhance ECG's operational efficiency, five (5) additional District offices and two (2) new Customer Service Centers would be constructed in the Ashanti Region.

4.10 The entire ECG Low Voltage (LV) network and customers have already been mapped under the Distribution Engineering Geographic Information System (DEGIS) Project. In order to effectively measure the losses in the distribution network, and be able to anticipate and avoid overloaded lines and transformers, the Additional Financing would take the opportunity to finalize the 11 kV and 33 kV network mapping in the Ashanti region using GIS. Some secondary substations are already metered in the Ashanti Region. The rest of the distribution substations that are not metered in Kumasi would be covered under this component.

5. Financing

5.1 Indicative project costs for the scaling up distribution system improvements and the proposed financing plan are depicted in the table below:

	Additional (scaled up) Activities	IDA Additional Financing (US\$ million)	Borrower / Recipient Contributions (US\$ million)	Total (US\$ million)
	Distribution System Improvement	70.0	7.0	77.0

6. Implementation

6.1 *Overall Project Responsibility.* Under the original GEDAP, the Ministry Of Energy (MOE) is in charge of coordinating the overall project, including monitoring and evaluating project progress and achievement of its development objectives, reporting, and ensuring that environmental and social management plans are implemented as required. Each of the participating institutions - VRA, ECG, and MOE - has a dedicated Project Implementation Team.

6.2 *Additional Financing.* ECG will be responsible for implementation of the proposed scaled-up activities under the additional financing.

7. Sustainability

7.1 Sustainability of the ECG component will be enhanced by (a) improving the electricity distribution system infrastructure; (b) reducing losses; and (iii) increasing net revenue per unit of

electricity sales. Results of a preliminary financial analysis indicate that based on conservative assumptions the benefit cost ratio of the proposed additional financing is about 1.79, and the Internal Rate of Return (IRR) is about 23%.

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

8.1 *Electricity Distribution:* Improvements in the sector’s business processes are important for better customer service, while investments are important for the provision of better quality of service to increase political and public support for greater financial rigor. Experience also indicates that annual customer satisfaction surveys are a useful tool for monitoring results and keeping stakeholders engaged. The project has incorporated these lessons through providing the necessary financial support for ECG and incorporated annual customer satisfaction surveys in the ECG’s institutional development component.

9. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No	OP/BP 4.00
Environmental Assessment (OP/BP 4.01)			X
Natural Habitats (OP/BP 4.04)	X		
Pest Management (OP 4.09)		X	
Physical Cultural Resources (OP/BP 4.11)			X
Involuntary Resettlement (OP/BP 4.12)	X		
Indigenous Peoples (OP/BP 4.10)		X	
Forests (OP/BP 4.36)		X	
Safety of Dams (OP/BP 4.37)		X	
Projects in Disputed Areas (OP/BP 7.60)*			N/A
Projects on International Waterways (OP/BP 7.50)			N/A

9.1 The original project is a pilot for the Bank’s “use of country safeguard systems”. A multidisciplinary team from the World Bank and African Development Bank conducted a two-stage review of the Ghanaian social and environmental safeguard systems. The first stage was to determine which of the safeguards are equivalent to the Bank’s and AfDB’s, in terms of meeting the operational principles of the Bank’s policies as outlined in OP 4.00 Piloting the Use of Borrower Systems to Address Environmental and Social Safeguards Issues in Bank-supported Projects. In the second stage, the Bank/AfDB team assessed the acceptability of the Ghanaian systems that were found to be equivalent, by reviewing experience with implementation in both Bank-supported and non-Bank-supported projects.

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

9.2 The Regional Safeguards Unit has confirmed that with respect to the proposed activities under the additional financing the environmental and social mitigations measures of the parent project would still apply and the use of country safeguards systems would continue.

10. **Contact point**

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