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Report No: PAD1260

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL CREDIT

IN THE AMOUNT OF SDR 42.7 MILLION  
(US\$60 MILLION EQUIVALENT)

TO THE

REPUBLIC OF GHANA

FOR THE

ENERGY DEVELOPMENT AND ACCESS PROJECT

April 9, 2015

Energy and Extractives Global Practice (GEEDR)  
Africa Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2015)

Currency Unit = Ghanaian Cedis (GHS)  
GHS 3.5 = US\$1  
US\$1 = SDR 0.71

## FISCAL YEAR

January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AfDB	African Development Bank
AMI	Advanced Metering Infrastructure
CMS	Commercial Management System
ECG	Electricity Company of Ghana
FY	Fiscal Year
GDP	Gross Domestic Product
GEDAP	Ghana Energy Development and Access Project
GEF	Global Environmental Facility
GHS	Ghanaian Cedis
GoG	Government of Ghana
GPOBA	Global Partnership on Output-based Aid
GRIDCo	Ghana Grid Company Limited
IDA	International Development Association
IMS	Incident Management System
IPPs	Independent Power Producers
IRR	Internal Rate of Return
ISR	Implementation Status and Results Report
kV	Kilovolt
kWh	Kilowatt hour
MCC	Millennium Challenge Corporation
MDM	Meter Data Management
MS	Moderately Satisfactory
MW	Megawatt
NEDCo	Northern Electricity Distribution Company
PDO	Project Development Objective
PSP	Private Sector Participation
PURC	Public Utilities Regulatory Commission
PV	Photovoltaic
RPP	Revenue Protection Program
SDR	Special Drawing Right
SCADA	Supervisory Control and Data Acquisition

SECO  
VRA

State Secretariat for Economic Affairs (Switzerland)  
Volta River Authority

Vice President:	Makhtar Diop
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**Ghana Energy Development and Access Project (GEDAP)  
Second Additional Financing**

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## ADDITIONAL FINANCING DATA SHEET

*Ghana*

*GEDAP Second Additional Financing ( P147878 )*

*AFRICA*

*GEEDR*

Parent Project ID:	P074191	Original EA Category:	B - Partial Assessment				
Current Closing Date:	31-Jul-2015						
<b>Basic Information – Additional Financing (AF)</b>							
Project ID:	P147878	Additional Financing Type (from AUS):	Scale Up				
Regional Vice President:	Makhtar Diop	Proposed EA Category:	B – Partial Assessment				
Country Director:	Yusupha B. Crookes	Expected Effectiveness Date:	17-Jul-2015				
Senior Global Practice Director:	Anita Marangoly George	Expected Closing Date:	31-Jul-2017				
Practice Manager/Manager:	Meike van Ginneken	Report No:	PAD1260				
Team Leader(s):	Sunil W. Mathrani						
<b>Borrower</b>							
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Electricity Company of Ghana	Julius Kpekpena	Director of Engineering	233-302 676719	d.eng@ecggh.com			
<b>Project Financing Data–Parent (Ghana: Energy Development and Access Project-P074191)</b>							
Key Dates							
Project	Ln/Cr/TF	Status	Approval Date	Signing Date	Effectiveness Date	Original Closing Date	Revised Closing Date
P074191	IDA-43560	Effective	26-Jul-2007	08-Aug-2007	06-Dec-2007	30-Nov-2012	31-Jul-2015
P074191	IDA-47300	Effective	29-Jun-2010	08-Sep-2010	06-Dec-2010	30-Nov-2013	31-Jul-2015
P074191	TF-90450	Closed	08-Aug-2007	08-Aug-2007	06-Dec-2007	30-Nov-2012	30-Nov-2012

Disbursements									
Project	Ln/Cr/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P074191	IDA-43560	Effective	USD	90.00	90.00	0.00	88.58	2.77	98.42
P074191	IDA-47300	Effective	USD	70.00	70.00	0.00	51.69	17.04	73.84
P074191	TF-90450	Closed	USD	50.00	49.82	0.18	49.82	0.00	100.00
<b>Project Financing Data –GEDAP Second Additional Financing (P147878 )</b>									
<input type="checkbox"/> Loan <input type="checkbox"/> Grant <input type="checkbox"/> IDA Grant <input checked="" type="checkbox"/> Credit <input type="checkbox"/> Guarantee <input type="checkbox"/> Other									
Total Project Cost:		60.00		Total Bank Financing:		60.00			
Financing Gap:		0.00							
Financing Source – Additional Financing (AF)								Amount	
BORROWER/RECIPIENT								0.00	
International Development Association (IDA)								60.00	
Total								60.00	
<b>Policy Waivers</b>									
Does the project depart from the CAS in content or in other significant respects?							No		
Explanation									
Does the project require any policy waiver(s)?							No		
Explanation									
<b>Team Composition</b>									
<b>Bank Staff</b>									
Name	Role	Title					Unit		
Sunil W. Mathrani	Team Leader (ADM Responsible)	Senior Energy Specialist					GEEDR		
Charles John Aryee Ashong	Procurement Specialist	Procurement Specialist					GGODR		
Robert Wallace DeGraft-Hanson	Financial Management Specialist	Senior Financial Management Specialist					GGODR		
Ayishetu Terewina	Team Member	Program Assistant					AFCW1		



Carol A. Litwin	Team Member	Senior Energy Specialist	GEEDR
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Pedro Antmann	Team Member	Lead Energy Specialist	GEEDR
Maiada Mahmoud Abdel Fattah Kassem	Team Member	Finance Officer	WFALA
Gerard Joseph Mataban Jumamil	Team Member	ET Consultant	LEGAM

**Locations**

Country	First Administrative Division	Location	Planned	Actual	Comments
Ghana		Volta Region			
Ghana		Greater Accra Region			
Ghana		Central Region			
Ghana		Western Region			
Ghana		Eastern Region			
Ghana		Ashanti Region			

**Institutional Data**

**Parent ( Ghana: Energy Development and Access Project-P074191 )**

**Practice Area (Lead)**

Energy & Extractives

**Contributing Practice Areas**

**Cross Cutting Topics**

- [ ] Climate Change
- [ ] Fragile, Conflict & Violence
- [ ] Gender
- [ ] Jobs
- [ ] Public Private Partnership

<b>Sectors / Climate Change</b>				
Sector (Maximum 5 and total % must equal 100)				
Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Energy and mining	Transmission and Distribution of Electricity	86		
Energy and mining	Other Renewable Energy	7		
Public Administration, Law, and Justice	Central government administration	7		
Total		100		
<b>Themes</b>				
Theme (Maximum 5 and total % must equal 100)				
Major theme	Theme	%		
Financial and private sector development	Infrastructure services for private sector development	29		
Rural development	Rural services and infrastructure	29		
Environment and natural resources management	Climate change	14		
Financial and private sector development	Regulation and competition policy	14		
Public sector governance	Other public sector governance	14		
Total		100		
<b>GEDAP Second Additional Financing ( P147878 )</b>				
<b>Practice Area (Lead)</b>				
Energy & Extractives				
<b>Contributing Practice Areas</b>				
<b>Cross Cutting Topics</b>				
[ ] Climate Change				
[ ] Fragile, Conflict & Violence				
[ ] Gender				
[ ] Jobs				

[ ] Public Private Partnership

**Sectors / Climate Change**

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Energy and mining	Transmission and Distribution of Electricity	100		

Total 100

**Themes**

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Public sector governance	Other public sector governance	30
Financial and private sector development	Infrastructure services for private sector development	70

Total 100

**Consultants (Will be disclosed in the Monthly Operational Summary)**

Consultants Required? Consultants will be required



## **I. Introduction**

1. This Project Paper seeks the approval of the Executive Directors to provide an additional credit in an amount of SDR 42.7 million (US\$60 million equivalent) to the Republic of Ghana for the Energy Development and Access Project (GEDAP, P074191: credit numbers 4356 and 4730-GH). This would be the second AF for GEDAP. A first AF in the amount of US\$70 million equivalent was approved on June 3, 2010.

2. The proposed AF would scale-up the scope and impact of ongoing activities aimed at improving the Electricity Company of Ghana's (ECG) operational efficiency by concentrating efforts on improvements to ECG's billing and metering system. As the agency responsible for cash collection from end-users, ECG performance has a major impact on the entire energy value chain. The activities supported by the AF are part of a concerted, multi-donor effort underpinning the Government's power sector development plans.

3. The Project Development Objective (PDO) of the Ghana Energy Development and Access Project (GEDAP), and retained under the first AF, 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. The proposed scale-up of activities under the proposed second AF is consistent with the PDO. Progress towards achievement of the development objective and implementation progress are currently rated moderately satisfactory (MS). Implementation of ECG-managed activities has been satisfactory. However, implementation of the mini-grid and off-grid components has been partially satisfactory. Improvements in ECG's commercial and financial performance have been unsatisfactory. The activities to be financed by the proposed AF will support ECG's efforts to improve its metering and billing systems and revenue collection, which will ultimately contribute to ECG reaching its financial performance ratios.

To allow sufficient time to implement the activities under the project, including the second AF, it is proposed to extend the current closing date of the project by two years, from July 31, 2015 to July 31, 2017. The results framework has been revised to incorporate new indicators to track the activities of the second AF and end-target dates have been updated to reflect the proposed new closing date. In addition, while the project is in substantial compliance with its legal covenants, a covenant relating to ECG's supply contract with the Volta River Authority (VRA) will be amended to permit additional time for its fulfillment. In recent years ECG has been unable to meet its obligations under the Project Agreement with IDA related to financial performance ratios due inter alia to unsatisfactory revenue collection by ECG combined with the accumulation of customer arrears from public sector institutions and state-owned enterprises.

## **II. Background and Rationale for Additional Financing**

### **A. Country and Sector Background**

4. Ghana has a population of about 25 million and a GDP per capita of US\$1,730. Ghana has experienced strong and broadly inclusive growth over the past two decades, which accelerated with the start of oil production in late 2010. This growth has led to significant improvements in poverty reduction and human development. Nevertheless, about one quarter of the population lives below the poverty line, including over eight percent in extreme poverty. Six to seven million jobs will need to be created in the

next two decades to absorb new entrants into the labor market. Success in addressing these challenges will critically depend on complementing extractive industries with diversified, private sector-led growth in labor intensive industries. The Government of Ghana's (GoG) strategy is to leverage the new domestic gas and oil resources to develop the manufacturing sector and higher value agriculture. This will require significant investments in infrastructure to remove bottlenecks to economic growth.

5. Recently, economic growth in Ghana has slowed from a high of 15 percent in 2011, the first full year of oil production, to below seven percent in 2014. This is a result of macroeconomic imbalances stemming from a combination of high fiscal spending and lower world market prices for the country's main export commodities, crude oil, gold, and cocoa. Growth is expected to remain modest at around four to six percent over the near term. To address the macroeconomic situation, the GoG has recently concluded an agreement with the International Monetary Fund on economic and policy reforms that forms the basis of a Fund-supported program.

6. Electricity access in Ghana is about 76 percent (as of 2013), which is well above the average for Sub-Saharan Africa. Ghana's power sector has an unbundled structure composed of generation, transmission, and distribution subsectors. Power generation is predominantly undertaken by the VRA, while the transmission system is owned and operated by the Ghana Grid Company (GRIDCo). The distribution of electricity is carried out by the Electricity Company of Ghana (ECG), with about 2.6 million customers accounting for about 90 percent of retail power sales, and the Northern Electricity Distribution Company (NEDCo, a subsidiary of VRA), which handles the remaining 10 percent. The Ministry of Power is responsible for formulating, implementing, monitoring and evaluating energy sector policies, while the Energy Commission and the Public Utilities and Regulatory Commission (PURC) regulate the industry. Ghana has an installed power generation capacity of over 2,800 MW, made up of 1,600 MW of hydropower plants, 2.5 MW grid connected solar photovoltaic (PV) plant; the remainder are gas/oil thermal facilities. Electricity demand at peak is currently about 2,000 MW.

7. Ghana is currently experiencing a significant shortage of electricity due to (i) low water levels in the country's main hydropower reservoir serving the Akosombo hydroelectric plant; (ii) low and erratic gas supplies from Nigeria through the West Africa gas pipeline; (iii) low availability of thermal generation plants due to equipment breakdowns; and (iv) lack of funding to purchase oil to make up for gas shortages. The power sector is in need of additional power generation capacity and there is significant interest from the private sector to invest in the sector. However, a key risk has been the weak cash flow that has adversely impacted ECG's ability to meet its payment obligations to existing bulk power providers. This has led to delays in reaching financial close for privately supported generation projects. Lack of electricity is a significant additional cost burden on large parts of the economy, but particularly affects poorer households and microenterprises in the informal sector which are unable to afford the cost of a generator to secure alternative electricity supply. This situation is also curtailing economic growth and adversely affecting the profitability and sustainability of businesses.

8. Despite substantial tariff increases, the financial health and performance of the power sector has deteriorated since 2012. This is largely a result of poor revenue collection by ECG that has impacted the cash flow in the entire power sector. Poor revenue collection has constrained ECG's ability to meet its payment obligations to VRA, GRIDCo and the IPPs. As a result, Ghana has faced difficulty in developing independent power projects to ensure sufficient generation capacity to meet growing electricity demand. The current generation shortage in turn adversely impacts ECG's cash flow by suppressing power sales.

9. ECG's operational and financial performance is critical for the sustainability of the entire energy sector value chain. Despite continued efforts in reducing operational losses and cost-reflective tariffs, ECG's revenue collection performance has declined, while its costs have increased sharply. Non-payment for electricity by public bodies is a long-standing issue that continues to bedevil the sector, as GoG is now increasingly unable to step in and reimburse ECG for these uncollected revenues. Public sector bodies account for nearly 20 percent of total sales by ECG but for more than half of total consumer arrears. Under the Millennium Challenge Corporation (MCC) Compact II program, GoG has committed to settle its arrears to ECG and maintain public sector receivables to less than two months of sales.

10. ECG needs to invest about US\$200 million annually to keep up with rapidly growing power demand and improve service quality to acceptable levels. A significant portion of ECG's investments are funded by short-term commercial debt and suppliers' credits. In July 2014, the Parliament of Ghana approved the Second Compact with the MCC aimed at improving power sector performance. Under the US\$536 million MCC Compact, GoG has committed to proceed with introducing private sector participation (PSP) in ECG, either through a concession or partial privatization. GoG expects the private operator to invest substantial resources in ECG, and MCC is expected to provide US\$340 million in grant funds to ECG for investments to support the PSP process, which could be expected to take at least two to three years. However, ECG requires urgent investments in the meantime to continue its services. At present it only has firm financing of a US\$60 million African Development Bank (AfDB) credit for network upgrades.

## **B. Project Description**

11. GEDAP was approved by the World Bank Board on July 26, 2007, with an original closing date of November 30, 2012. The total project costs at appraisal were estimated at US\$210.6 million, of which IDA financed US\$90 million and the Global Environment Facility (GEF) US\$5.5 million. Other financiers include the AfDB, the Africa Catalytic Growth Fund, the State Secretariat for Economic Affairs (SECO, Switzerland), GoG, and ECG. Following the contributions of the Global Partnership on Output-based Aid (GPOBA), total financing for GEDAP increased to US\$227.5 million.

12. In June 2010, the Board approved an AF in the amount of US\$70 million equivalent to concentrate efforts on improving ECG's operational performance in high-loss regions (Ashanti East and West). The following activities were added to the original project scope, under a new component: (i) distribution upgrade; and (ii) commercial and technical capacity upgrade, including a program for replacement of faulty meters and implementation of a loss reduction program, a new customer management system, and revenue improvement measures. As part of this first AF, the closing date of the project was extended to July 31, 2015.

## **C: Implementation Status of the Ongoing Project**

13. The original project has three components: (A) sector and institutional development; (B) electricity distribution improvement; and (C) electricity access and renewable energy. The implementation status for the components under the original project and the first AF is as follows:

### **Component A: Sector and institutional development**

14. Four sector entities, including the then Ministry of Energy, ECG, and the two energy sector regulators, the PURC and the Energy Commission, were supported by this component. Implementation

results have been mixed. The Renewable Energy Act was approved by Parliament in late 2011 as a result of work carried out under GEDAP. Renewable resource assessments have been completed for biomass energy, wind, and mini/micro-hydro electricity generation. Tariff studies and utility benchmarking were carried out by the PURC, along with capacity building activities for several oversight agencies. However, while measures to enhance ECG's operational performance helped to reduce losses, this did not achieve the expected improvements in ECG's financial performance.

### **Component B: Electricity distribution improvement**

15. This component has been completed. It helped to upgrade the ECG distribution system, reduced technical energy losses on the network and improved the quality of supply to consumers. A 2012 loss-reduction study estimated these to be about 11 percent, which is considered to be reasonable and which could not have been achieved without the interventions under the original project scope. As a result, overall system losses were brought down from 26 percent in 2007 percent to around 22 percent in 2012.

### **Component C: Electricity access and renewable development**

16. Implementation of activities under this component is proceeding well. ECG and NEDCo have connected over 150,000 households to their distribution networks. In addition, solar PV systems were provided to 17,000 remote rural households who have little prospect of getting grid supply in the near term. This program demonstrated a successful business model involving the participation of small rural credit agencies for distributing PV systems to remote rural communities where the grid is not expected to reach. One activity that is still under implementation is the construction of pilot mini- and micro-grids in inaccessible areas in and around Lake Volta. The construction of these systems is expected to be completed by the third quarter of 2015, and the contractor will operate them until July 2017, under a contract with the Ministry of Power.

### **Component D: Expanded Capacity for Electricity Distribution Improvement**

17. The activities under the first AF were included under a new Component D. The implementation status of the activities under this component is as follows:

- (a) *Distribution system upgrade.* Substation and medium-voltage line works are progressing satisfactorily and are expected to be completed successfully.
- (b) *Commercial and technical capacity upgrade.* Seven district offices/customer service centers have been built to deal with the growth in customer population. Implementation of a new, company-wide Commercial Management System (CMS) is well under way and is expected to be completed by September 2015. The installation of 140,000 pre-payment meters in the Ashanti region will begin on April 15, 2015 and will be carried out by private subcontractors to ECG and is expected to be completed by end-2015.

18. **Legal Covenants.** The project is in substantial compliance with legal covenants, including audit and financial management reporting requirements. Covenants related to sector issues and project implementation matters have been complied with, barring one relating to ECG's supply contract with VRA, which is expected to be finalized by end-July 2016. Reaching agreement on this contract has proven to be slower than anticipated due to the ongoing reforms of the Ghanaian power market. In recent years ECG has been unable to meet its obligations under the Project Agreement with IDA related to



financial performance ratios. This is largely a result of unsatisfactory revenue collection combined with the accumulation of customer arrears from public sector institutions and state-owned enterprises. ECG's financial performance and covenant compliance is further discussed in Section III. There are no overdue financial audit reports, interim financial reports, or unresolved environmental, social, or other safeguard issues under the project.

### **C. Rationale for Additional Financing**

19. The proposed AF is being processed in line with OP/BP 10.00, *Investment Project Financing*, which indicates that AF can be provided for “scaling up the development effectiveness of a project”. There is a critical need to scale up activities to address the core challenges of cash flow in the power sector. The Implementation Status and Results Report (ISR) ratings for progress towards achievement of PDO and implementation progress have been consistently rated MS over the past 12 months.

20. The proposed activities are consistent with the PDO. The proposed second AF will complement the activities financed by the original project and the first AF, in particular the new company-wide CMS that is currently being rolled out. This AF will support ECG's program for improved revenue collection, a bulk metering program, and an Incidents Management System (IMS), to improve ECG's financial performance and help reduce the existing sector cash flow risks. The investments under the AF will help ECG address its revenue collection weakness so as to improve its financial performance. As a result, ECG would be able to better meet its payment obligations to power generating companies. To supplement the activities under the AF, the Government has tasked PURC to develop a cash management mechanism to ensure that the revenue collected by ECG is managed throughout the energy value chain. The combined activities of improved revenue collection and a cash management mechanism will help to improve conditions for attracting private financing in new power generation. The bulk of the AF will support a reduction in ECG's commercial losses, which are currently about 12 percent of total energy sales. By targeting large customers that represent 60 percent of ECG's revenue, the proposed second AF is expected to have a significant impact on overall commercial losses and contribute to increased revenue and cash flow.

21. Improvement in ECG's revenues is supported through the implementation of a “revenue protection program (RPP),” focused on systematic recording and monitoring of the consumption of the company's largest customers (a “high-value” segment comprising less than three percent of total number, but representing about 60 percent of revenues). The largest customers include those with electricity consumption above 600 kWh per month. Experience in emerging countries worldwide shows that systematic under-billing of customers in that high value segment is not unusual, as there are clear economic incentives for this practice. Collusion between utility staff involved in meter reading and customers is the predominant cause of such under-billing. The RPP eliminates this risk by design, because advanced metering infrastructure (AMI) permits the consumption of those large customers to be remotely recorded and monitored without any interaction between them and the utility's staff. This ensures that all customers in the high-value segment are billed per actual consumption, and thus commercial losses in this segment (about 60 percent of current sales) are eliminated. This will have a direct positive impact on ECG's revenues, as collection is a second-degree problem in the high consumption end of the market. The RPP will also include a bulk metering program, which will help the company to identify the geographic areas with high total losses in electricity supply and allow it to focus corrective field actions in those zones. Results of the financial analysis (see Section III) indicate that ECG would recover US\$2.4 million after the first year of operation of the RPP and, over the life of the

project, total cash recovery is estimated at US\$125.9 million. Under the bulk metering program, ECG would be expected to recover US\$1.4 million in the first year of operation and, over the life of the project, about US\$74.6 million is expected to be recovered.

22. Improvements in the quality of electricity service provided to ECG's customers will be supported through the incorporation of an IMS. This is an information system that supports reception and management of customers' complaints related to outages and other issues in electricity supply, making possible efficient and fast attention and resolution of the incidents. Incorporation of the IMS will reduce the duration of interruptions in electricity supply and, in the medium term, will also lead to lower frequency of outages.

23. The two additional components of the second AF (Revenue Collection Improvement and Management and Planning Enhancement) will contribute to improve ECG's financial performance and help reduce the existing sector cash flow risks. This will create better conditions for attracting private financing in new power generation. The RPP will support a reduction in ECG's commercial losses, which are currently about 12 percent of total energy sales, by targeting large customers representing 60 percent of the company's current revenue. The IMS will make possible increased electricity sales and improve consumer perception of ECG's service quality. In summary, the proposed second AF is expected to have a significant impact on overall commercial losses and contribute to increased revenue and cash flow.

24. The proposed activities are strategically aligned with the FY13-16 Ghana Country Partnership Strategy.<sup>1</sup> In particular, the activities support the two strategic pillars of improving economic institutions and improving competitiveness and job creation. The scale and scope of the proposed additional activities can be fully accommodated within the current project arrangements and the Borrower's implementation capacity.

25. With the proposed second AF, overall financing for GEDAP would amount to US\$364.5 million (see Table 1 below). The original project included parallel financing from several other donors amounting to US\$105.7 million. The Africa Catalytic Growth Fund grant closed on November 30, 2012, the GPOBA grant closed on September 20, 2014, AfDB funding closed on December 31, 2014, and the GEF financing closed on March 31, 2015.

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<sup>1</sup> *Country Partnership Strategy for the Republic of Ghana for the Period FY13-16*, Report No. 76369-GH, August 20, 2013.

**Table 1. GEDAP Summary of Financing (US\$ million)**

	Component	IDA			GEF	GPOBA	Parallel financing from other Donors	Counterpart financing (ECG and GoG)
		Original Credit	1 <sup>st</sup> Additional Financing	Proposed 2 <sup>nd</sup> Additional Financing				
A.	Sector & Institutional Development	6.00	0.00	0.00	0.75	0.00	6.00	1.20
B.	Distribution Improvement	40.50	0.00	0.00	0.00	0.00	58.70	20.70
C.	Electricity Access & Renewable Energy	42.50	0.00	0.00	4.75	4.40	41.00	0.00
D.	Expanded Capacity for Electricity Distribution Improvement	0.00	70.00	0.00	0.00	0.00	0.00	7.00
E.	Revenue Collection Improvement	0.00	0.00	55.00	0.00	0.00	0.00	0.00
F.	Management and Planning Enhancement	0.00	0.00	5.00	0.00	0.00	0.00	0.00
	Project Preparation Facility	1.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sub-total</b>		<b>90.00</b>	<b>70.00</b>	<b>60.00</b>	<b>5.50</b>	<b>4.40</b>	<b>105.7</b>	<b>28.9</b>

### III. Proposed Changes

<b>Summary of Proposed Changes</b>	
<p>The proposed GEDAP second AF will support ECG’s program for improved revenue collection and bulk metering program to improve ECG’s financial performance and reduce non-technical losses. The activities under the second AF will be reflected in two new components: (E) Revenue Collection Improvement; and (F) Management and Planning Improvement. A closing date extension of two years, to July 31, 2017, is proposed to allow for completion of activities under the project, including the second AF. The disbursement estimates and implementation schedule are revised in line with the proposed new activities and closing date. The project results framework is revised to include indicators related to the new activities under the second AF and to reflect the new closing date. The legal covenant related to the ECG-VRA supply contract has been revised to permit more time for compliance.</p>	
Change in Implementing Agency	Yes [ ] No [ X ]
Change in Project's Development Objectives	Yes [ ] No [ X ]
Change in Results Framework	Yes [ X ] No [ ]
Change in Safeguard Policies Triggered	Yes [ ] No [ X ]
Change of EA category	Yes [ ] No [ X ]
Other Changes to Safeguards	Yes [ ] No [ X ]
Change in Legal Covenants	Yes [ X ] No [ ]
Change in Loan Closing Date(s)	Yes [ X ] No [ ]
Cancellations Proposed	Yes [ ] No [ X ]
Change in Disbursement Arrangements	Yes [ ] No [ X ]
Reallocation between Disbursement Categories	Yes [ ] No [ X ]
Change in Disbursement Estimates	Yes [ X ] No [ ]
Change to Components and Cost	Yes [ X ] No [ ]
Change in Institutional Arrangements	Yes [ ] No [ X ]
Change in Financial Management	Yes [ ] No [ X ]
Change in Procurement	Yes [ ] No [ X ]
Change in Implementation Schedule	Yes [ X ] No [ ]
Other Change(s)	Yes [ ] No [ X ]
<b>Development Objective/Results</b>	
<b>Project’s Development Objectives</b>	
<b>Original PDO</b>	
<p>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.</p>	

**Change in Results Framework**

Explanation: The result framework has been updated and simplified. End-target dates have been revised to reflect the proposed new project closing date.

A new Intermediate Results Indicator has been added:

- Improvement in billing (amount) in the targeted consumer segments (above 600 units/month).

**Compliance**

**Covenants - Additional Financing ( GEDAP Second Additional Financing - P147878 )**

Source of Funds	Finance Agreement Reference	Description of Covenants	Date Due	Recurrent	Frequency	Action
IDA-56290	Section V.A of Schedule 2	Not later than July 31, 2016, the Recipient shall ensure that VRA and ECG shall enter into a bulk power supply contract for the sale and purchase of power upon consultation with the Association.	Not yet due	<input type="checkbox"/>		Proposed

**Covenants - Parent ( Ghana: Energy Development and Access Project - P074191 )**

Ln/Cr/TF	Finance Agreement Reference	Description of Covenants	Date Due	Status	Recurrent	Frequency	Action
IDA-43560		Finance Agreement :Financing Agreement Sec V. C   Description :carry out tariff study; adopt plan to achieve full cost recovery   Due Date :30-Jun-2011		Partially complied with	<input type="checkbox"/>		No Change

IDA-43560		Finance Agreement :Sec. V. D.1   Description :tech & opern'l review of ECG & VRA   Due Date :30-Jun-2011		After delay complied with	<input type="checkbox"/>		No Change
IDA-43560		Finance Agreement :Sec V.D.2   Description :ann'l perf contracts between GoG and ECG & VRA   Frequency :Yearly		After delay complied with	<input type="checkbox"/>		No Change
IDA-43560		Finance Agreement :Sec V. E.   Description :bulk supply contract betw/ ECG & VRA   Due Date :30-Sep-2010		Not complied with	<input type="checkbox"/>		Revised
IDA-43560		Finance Agreement :Sec V. F.   Description :ECG to hire mgmt support services   Due Date :31-Jan-2011		Partially complied with	<input type="checkbox"/>		No Change
IDA-43560		Finance Agreement :Sec V. G.   Description		After delay complied with	<input type="checkbox"/>		No Change

		:GoG to submit renewable energy bill to parliament   Due Date :31-Dec-2010					
<b>Conditions</b>							
<b>Source Of Fund</b>							
<b>Name</b>		<b>Type</b>					
IDA		Execution of Subsidiary Agreement		Effectiveness			
<b>Description of Condition</b>							
The Subsidiary Agreement has been executed on behalf of the Recipient and the Project Implementing Entity.							
<b>Risk</b>							
<b>Risk Category</b>				<b>Rating (H, S, M, L)</b>			
1. Political and Governance				Moderate			
2. Macroeconomic				Substantial			
3. Sector Strategies and Policies				Substantial			
4. Technical Design of Project or Program				Low			
5. Institutional Capacity for Implementation and Sustainability				Moderate			
6. Fiduciary				Moderate			
7. Environment and Social				Low			
8. Stakeholders				Substantial			
9. Other							
OVERALL				Substantial			
<b>Finance</b>							
<b>Loan Closing Date - Additional Financing ( GEDAP Second Additional Financing - P147878 )</b>							
<b>Source of Funds</b>				<b>Proposed Additional Financing Loan Closing Date</b>			
International Development Association (IDA)				31-Jul-2017			

**Loan Closing Date(s) - Parent ( Ghana: Energy Development and Access Project - P074191 )**

Explanation:

An additional two years is required to complete some of the original project activities and the supplementary activities to be funded by the AF.

Ln/Cr/TF	Status	Original Closing Date	Current Closing Date	Proposed Closing Date	Previous Closing Date(s)
IDA-43560	Effective	30-Nov-2012	31-Jul-2015	31-Jul-2017	30-Nov-2013, 31-Jul-2015
IDA-47300	Effective	30-Nov-2013	31-Jul-2015	31-Jul-2017	30-Nov-2013, 31-Jul-2015
TF-90450	Closed	30-Nov-2012	30-Nov-2012		30-Nov-2012

**Change in Disbursement Estimates (including all sources of Financing)**

Explanation:

Disbursement estimates only reflect the second AF amount and proposed new closing date. A new Designated Account will be opened at the bank where the existing Designated Account is located. Statement of expense-based financial reporting will continue to be used.

**Expected Disbursements (in USD Million)(including all Sources of Financing)**

Fiscal Year	2015	2016	2017	2018
Annual	0.00	25.00	30.00	5.00
Cumulative	0.00	25.00	55.00	60.00

**Allocations - Additional Financing ( GEDAP Second Additional Financing - P147878 )**

Source of Fund	Currency	Category of Expenditure	Allocation	Disbursement % (Type Total)
			Proposed	Proposed
IDA	XDR	Works and Goods under Part E & F	54.00	100.00
IDA	XDR	Consultant Services under Part E & F	6.00	100.00
		<b>Total:</b>	60.00	

**Components**



## **Change to Components and Cost**

### **Explanation:**

The proposed AF will finance two new components: Component E, Revenue Collection Improvement; and Component F, Management and Planning Enhancement.

### **Component E: Revenue Collection Improvement (US\$55 million equivalent)**

*(a) Revenue protection program (RPP) (US\$32.5 million equivalent)*. Activities to be financed include: (i) installation/relocation of advanced metering infrastructure (AMI) at the premises of at least 80,000 customers with recorded monthly consumption above 600 kWh; (ii) creation of metering control centers as new organizational units within ECG; and (iii) incorporation of a state-of-the-art meter data management (MDM) software package and training of the operators of the metering control centers for systematic monitoring of consumption of the target customers. Meters prone to energy theft and/or direct unmetered connection to the grids will be relocated.

The RPP is focused on the systematic recording and monitoring of consumption of ECG's largest users to protect revenues from sales to large and medium customers. Around four percent of ECG's high value customers represent 60 percent of total energy (kWh) billed. They include the medium and high voltage customers and the largest low voltage customers. Sustainable protection of the revenues generated by these customers is the key focus of the RPP.

Recovery and protection of the revenues generated by large customers will be achieved by managing their consumption (metering, reading, and billing) through AMI. The AMI includes consumption metering systems and communications devices at each customer premises, including communication devices that make possible to periodically transmit their records to remote points where they are systematically analyzed, processed, and monitored by metering control centers. The metering control centers will be supported with MDM software designed to monitor, timely detect, and correct any eventual irregular condition in electricity use.

At present ECG has incorporated AMI to remotely record consumption of its large customers supplied in high and medium voltage. However, ECG has not implemented the meter control centers as permanent organizational units responsible for revenue protection. The existing MDM is outdated and needs to be replaced by a software package specifically designed to enable systematic monitoring of consumption for the purpose of revenue protection.

*(b) Bulk metering - medium voltage distribution networks (US\$22.5 million equivalent)*. The AF will support the deployment of bulk metering AMI infrastructure in the four regional medium voltage distribution networks operated by ECG. The meters will be installed in feeders, distribution transformers, and export-import metering at regional and district boundaries. Data provided by the AMI systems will be managed by the metering control centers.

ECG has started a bulk metering program in the Accra region, but the scope needs to be expanded to other critical areas of the distribution network. The AMI based bulk metering system will enable accurate metering and accounting of energy flows in four regional medium voltage distribution networks. This would enable the identification of high loss areas and targeting of specific loss

reduction programs. It will also enable accountability of regional and district managers for losses in their operational areas.

**Component F: Management and Planning Enhancement (US\$5 million equivalent)**

*(c) Incorporation of an Incidents Management System (IMS) (US\$ 1.9 million equivalent).* The AF will support an information technology application to support management and resolution of outages and incidents in electricity supply at all levels, but will in particular focus on low voltage distribution networks. Incidents at low voltage level cannot be detected through the supervisory control and data acquisition (SCADA) system for operation and supervision of high and medium voltage networks. The IMS will be accompanied by the establishment of a network assets and supply database, which include data on medium voltage networks and on each customer’s connection to the corresponding transformer station. The IMS will allow a centralized, reliable, and continuous management of customers’ claims. The system will be interconnected with the Commercial Management System (CMS), currently being implemented under the first AF.

*(d) Technical Assistance and Project Management Support (U\$3.1 million equivalent).* The AF will support: (i) project management activities, including purchase of vehicles and miscellaneous office equipment; and (ii) provision of technical assistance/consultancy services. Technical assistance activities include consultancy services for: (a) preparation of a 10-year Master Plan for the development of the distribution infrastructure; (b) cost assessment of unserved energy to ECG; (c) suppressed demand study; and (d) feasibility studies for possible upgrade of sub-transmission facilities currently operating at 11kV and 33kV to higher voltages to reduce technical losses.

<b>Current Component Name</b>	<b>Proposed Component Name</b>	<b>Current Cost (US\$M)</b>	<b>Proposed Cost (US\$M)</b>	<b>Action</b>
	Revenue collection Improvement	0.00	55.00	New
	Management & planning enhancement	0.00	5.00	New
Sector & Institutional Development	Sector & Institutional Development	14.00	14.00	
Electricity Distribution Improvement	Electricity Distribution Improvement	94.00	94.00	
Electricity Access & Renewable Energy	Electricity Access & Renewable Energy	101.00	101.00	
Expanded Capacity for Electricity Distribution Improvement	Expanded Capacity for Electricity Distribution Improvement	70.00	70.00	First AF
	<b>Total:</b>	279.00	339.00	
<b>Other Change(s)</b>				

<b>Implementing Agency Name</b>	<b>Type</b>	<b>Action</b>
Electricity Company of Ghana	Implementing Agency	No Change
VRA (TF090542)	Implementing Agency	No Change

**Change in Implementation Schedule**

**Explanation:**

The proposed additional financing includes an extension of the closing date by two years to July 31, 2017.

**Appraisal Summary**

**Economic and Financial Analysis**

**Explanation:**

A financial evaluation for the RPP and the bulk metering activity shows that the proposed additional project activities are financially viable with a combined Internal Rate of Return (IRR) of 21.9 percent. The financial viability was found robust in a sensitivity analysis for lower revenue recovery.

The financial evaluation was carried out to assess the viability of the proposed activities taking into account costs and benefits. The key benefit is the enhancement of ECG's revenue collection, which would commence 12 months after the start of implementation. The life-times of the project investments are assumed to be 15 years, and costs include investments costs and operations and maintenance costs. The costs and benefits were discounted using the weighted average cost of capital equivalent to the on-lending rate from the Government to ECG at 5.4 percent.

The evaluation was carried out separately for the RPP and the bulk metering activity with the data monitoring centers and project management costs spread proportionally across the two activities. In addition, an overall evaluation was undertaken. While the IMS activity would be expected to reduce both frequency and time of outages, it was not possible to accurately estimate a benefit stream. However, this activity would be expected to have major positive impacts on ECG's response time to outages.

The RPP would increase ECG's revenue earned from its large, medium, and low voltage customers with a monthly consumption of 600 kWh or more. These customers account for 60 percent of ECG's total revenue. The estimated number of customers in this consumption category is 80,100 comprising 60 high voltage, 386 medium voltage, and 79,654 low voltage customers. The results indicate that ECG would recover US\$2.4 million after the first year of operation of the RPP. Over the life of the project, total cash recovery is estimated at US\$125.9 million. The estimated pay-back period would be 6.3 years and the IRR is 21 percent due to the increased billing for large and medium customers that can be expected to result in increased revenues.

The bulk metering activity targets revenue from the entire ECG network, including revenue from customers covered by the RPP. The benefits are reflected in additional revenue for ECG, but exclude

the additional revenues from the RPP. In the first year of operation, ECG would be expected to recover US\$1.4 million. Over the life of the project about US\$74.6 million would be expected to be recovered. The payback period is estimated at 5.4 years with an IRR of 24.3 percent.

A sensitivity analysis assuming revenue recovered would be two percent less than in the base case found the economic viability to be robust. The table below provides a summary of the results of the economic evaluation and the sensitivity analysis.

### Summary Economic Results

Activity	Cash Recovered (US\$ million)	IRR (%)	Sensitivity Results	
				IRR (%)
<b>Revenue Protection Program</b>	125.8	21.0		14.0
<b>Bulk Metering</b>	74.6	24.3		13.6
<b>Overall</b>	200.4	21.9		13.9

### ECG Financial Performance and Projections

**ECG Financial Performance FY2009 - 2013.** Since 2010, when tariff increases resulted in a profit, ECG has faced a declining trend in profitability. This was largely due to rising costs combined with delayed tariff adjustments causing costs to increase faster than revenue. Despite a large tariff increase in October 2013, ECG losses increased by nearly 50 percent in 2013 due to poor revenue collection and cost increases. Operating and financing costs increased significantly due to high inflation and depreciation of the Ghana Cedi. ECG's financing costs have also been impacted by the high costs of substantial short term supplier and commercial credits. ECG's financing costs increased by more than 300 percent in the past five years.

Low collection rates have caused increasing receivables and have been a key factor in ECG's deteriorating financial performance. During the 2009-2013 period receivables (in Ghana Cedi) from private customers doubled, while sales increased by more than double. Receivables from public sector consumers increased by more than 460 percent during the same period. As of end of FY2013 receivables had accumulated to over GHS1 billion (US\$400 m). As a result, ECG has been unable to service its debt and payables to VRA, GRIDCo, and independent power producers (IPPs). The trends in receivables and payables are shown below.

### ECG Receivables and Payables (2009 – 2013)

	2009	2010	2011	2012	2013
<b>Receivables (days of sales)</b>	170	202	155	150	200
<b>Payables (days of purchases)</b>	134	122	122	156	293

**ECG Financial Projections FY2014-2018.** Despite the 2013 tariff increases, ECG is expected to continue to show a loss in 2014. Loss revenue resulting from inadequate generation and commercial losses are key factors in ECG's poor financial performance. However, ECG's cash position is expected to improve as a result of the planned revenue protection program and the GoG agreement with MCC to settle all public sector consumer arrears and to maintain receivables to below two months of sales. In the medium term, ECG's financial situation and ability to service its obligations will depend on bringing additional generation capacity in service to increase ECG's sales.

**The financial analysis projects that the combined impact of the loss reduction, reduced public sector receivables, and increased sales would enable ECG to service its debt obligations to GoG from 2016 onwards, and meet its payment obligations to VRA, GRIDCo, and IPPs.** The financial projections conservatively assume that while some additional capacity will be commissioned in the near term, the power sector will remain in a suppressed demand environment over most of the forecast period. It is assumed that tariffs will continue to be increased with inflation per sector regulations. It is further assumed that the investments under the MCC Compact would be implemented and disbursed on a timely basis starting from 2016 over a five-year period. ECG is expected to maintain its current self-financing at US\$50 million annually. A conservative estimate of two percent total loss reduction annually resulting from the proposed second AF activities is used. By 2016 ECG should be able to reach an acceptable current ratio exceeding 1.2. The projected ECG financial performance ratios are shown below.

**ECG Financial Projections (2014 – 2018)**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Current Financial Performance Ratio</b>	0.7	0.8	1.3	2.0	2.4
<b>Debt Service Ratio</b>	11.6	6.6	6.7	35.0	26.6

**Technical Analysis**

Explanation:

The technical aspects of the activities under the second AF are relatively straightforward, and have been successfully implemented in other utilities in the Africa region. The RPP under the second AF will enable the systematic recording and monitoring of consumption of ECG's largest users to protect revenues from sales to large and medium customers. The bulk metering activity will complement the RPP in reducing commercial losses. These two activities will be tendered in one bidding process with two packages. The IMS is an IT application that will support ECG in the management and resolution of outages on the network. The IMS will be bid out in a separate bidding process. The activities are relatively simple to implement barring any unforeseen delays, and the technical specifications will follow international standards. ECG will leverage the World Bank's experience from other countries implementing similar programs.

**Social Analysis**

Explanation:

The proposed activities do not involve any construction or civil works with social impacts.

**World Bank Grievance Redress.** Communities and individuals who believe that they are adversely affected directly by an active (i.e., not closed) Bank-supported operation (IBRD/IDA) may submit complaints to the responsible country authorities, appropriate local/national grievance redress mechanisms, or the WB’s Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns.

- Affected communities and individuals may submit their complaint to the WB’s independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond.

- For information on how to submit complaints to the World Bank’s corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>  
For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org)

### **Environmental Analysis**

Explanation:

The proposed activities do not involve any construction or civil works with environmental impacts.

### **Risk**

Explanation:

The risk rating of the proposed AF has been assessed as “Substantial”. The rationale for this rating is based on the following: (a) political sensitivities relating to private sector participation in ECG (per MCC Compact) and its internal governance weaknesses may delay financial close, distracting ECG from implementing activities under this AF; (b) macroeconomic issues such as high inflation and currency depreciation add to ECG’s costs, while compensatory tariff adjustments are often delayed particularly under existing circumstances of significant load shedding; (c) the cash flow mechanism to manage ECG’s revenue to the energy value chain may be delayed; (d) clearance of public sector payment arrears to ECG has yet to begin and could be further delayed; and (e) complex stakeholder relationships in Ghana linked to the forthcoming ‘privatization’ of ECG that could also cause implementation delays.

Climate and disaster related risks under the second AF are expected to be negligible, since the second AF will not finance works that could be affected by adverse climatic conditions.

The financial management risk is assessed as “Moderate”. There are no changes in financial management arrangements. The existing financial management arrangements have been reviewed periodically during supervision of the ongoing project and found satisfactory. The existing funds flow arrangements will continue be used for the proposed AF and will be maintained unchanged for the remaining life of the project. ECG has a project accounting unit within the project directorate which is headed by a qualified accountant and supported by qualified staff. The unit has experience with managing IDA financed projects and staff are familiar with IDA disbursement requirements and procedures. The accounting policies and procedures are documented in a manual. ECG uses a computerized system to maintain its accounting and transaction information. The unit has produced acceptable quarterly financial reports. There are no overdue audit reports. ECG has a well-

functioning internal audit unit which is responsible for oversight of the accounting unit of the project  
directorate.

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### Annex 1: Revised Project Result Framework

<b>Project Name:</b>	GEDAP Second Additional Financing (P147878)	<b>Project Stage:</b>	Additional Financing	Status:	Final
<b>Team Leader(s):</b>	Sunil W. Mathrani	Requesting Unit:	AFCW1	Created by:	Ayishetu Terewina on 24-Nov-2014
Product Line:	IBRD/IDA	Responsible Unit:	GEEDR	Modified by:	Ayishetu Terewina on 02-Apr-2015
Country:	Ghana	Approval FY: 2015			
Region:	AFRICA	Lending Instrument:	Investment Project Financing		
Parent Project ID:	P074191	Parent Project Name:	Ghana: Energy Development and Access Project (P074191)		

#### Project Development Objectives

Original Project Development Objective - Parent:

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.

Proposed Project Development Objective - Additional Financing (AF):

#### Results

Core sector indicators are considered: Yes

Results reporting level: Project Level

#### Project Development Objective Indicators

Status	Indicator Name	Core	Unit of Measure		Baseline	Actual(Current)	End Target
Revised	Direct project beneficiaries		Number	Value	1300000	1300000	1950000



		<input checked="" type="checkbox"/>		Date	31-Dec-2014	31-Dec-2014	31-Jul-2017
				Comment	This figure refers to the the total number of ECG customers.		Higher target figure
Revised	Female beneficiaries	<input checked="" type="checkbox"/>	Percentage Sub Type Supplemental	Value	51.00	51.00	51.00
Marked for Deletion	National household electrification rate	<input type="checkbox"/>	Text	Value	54%	c.70%	59% in year 5
				Date	01-Apr-2007	31-Dec-2013	01-Apr-2012
				Comment	WAS 2006 VALUE BASED UPON 8 PERS/H.HO LD		This AF is not funding new connections
Revised	ECG Performance Verification Index	<input type="checkbox"/>	Text	Value	68.90%	87.1%	90%
				Date	01-Apr-2007	31-Dec-2014	31-Jul-2017
				Comment	PVI is defined in PAD for original credit		End target updated to reflect add'l time to reach it
<b>Intermediate Results Indicators</b>							
Status	Indicator Name	Core	Unit of Measure		Baseline	Actual(Current)	End Target
Revised	Average annual hours of unplanned power outages	<input type="checkbox"/>	Hours	Value	200.00	130.00	90.00
				Date	01-Apr-2007	31-Dec-2014	31-Jul-2017

	per consumer in ECG system			Comment			End target date updated
Revised	Annual ratio of ECG revenues over its costs	<input type="checkbox"/>	Text	Value	0.95	0.99	>1
				Date	31-Dec-2011	31-Dec-2013	31-Jul-2017
				Comment			End target updated
Revised	Electricity losses per year in the project area	<input checked="" type="checkbox"/>	Percentage	Value	26.00	24.10	20.00
				Date	01-Apr-2007	01-Dec-2014	31-Jul-2017
				Comment	Project area = entire ECG operational area. Definition of losses given in the PP for the 1st AF.		End target updated
Revised	Total net injected generation	<input checked="" type="checkbox"/>	Megawatt hour(MWh) Sub Type Supplemental	Value	8370000	8370000	11570000
Revised	Electricity losses per year in the project area- Technical	<input checked="" type="checkbox"/>	Percentage Sub Type Supplemental	Value	10.20	10.20	10.20
Revised	Electricity losses per year in the project area- Non-Technical	<input checked="" type="checkbox"/>	Percentage Sub Type Supplemental	Value	13.90	13.90	9.80
New		<input type="checkbox"/>	Number	Value	3592.00	3592.00	5851.00
				Date	31-Dec-2014	31-Dec-2014	31-Jul-2017

	Billed revenue (GWh) in the targeted consumer segments (above 600 units/month)			Comment	Most recent available data		
Revised	ECG annual accounts receivable (excluding government agencies and departments and the Ghana Water Company Ltd) equivalent to number of days of annual sales	<input type="checkbox"/>	Text	Value	150 days	156 days	90 days
				Date	01-Apr-2007	31-Dec-2014	31-Jul-2017
				Comment		Decline due to ECG not writing off unrecoverable debts	End target date updated