

GHANA MILLENNIUM CHALLENGE ACCOUNT PROGRAM

COMPACT II



Powering Ghana for Accelerated and Sustainable Economic Growth

**INCREASING PRIVATE SECTOR INVESTMENT
THROUGH POWER SECTOR REFORM**

CONCEPT PAPER

(PROJECT 1)

**SUBMITTED TO
THE MILLENNIUM CHALLENGE CORPORATION
WASHINGTON D.C.**

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1. PROJECT RATIONALE AND DESCRIPTION

1.1. Problem/Constraint Statement

Energy and energy security are potentially key drivers of economic growth. Shortcomings in the power sector have been identified by the Government of Ghana and its partner agencies in the US Government as binding constraints to Ghana's development.

It has been estimated that Ghana needs to make a total of \$4.7 billion¹ of investments to catch up and/or upgrade its current power infrastructure, of which \$200-280 million **per year** of investment in generation is needed to cater for load increases².

However investment in infrastructure alone will not produce the desired improvement in reliability of electricity supply, without measures to increase the operational efficiency of the operating entities in the power sector, in particular ECG, to increase the creditworthiness of these entities, and thereby attract private capital to the power sector.

Using Compact funds to address only the capital and equipment shortfalls of the public sector operators will provide limited opportunities for private sector development and participation in the power sector. However using the Compact funds to undertake the necessary reforms and interventions that would result in opening up the power sector and make it attractive to private capital and investments, will have longer term impact in providing investment opportunities for private capital and investors. Clearly the limited availability of public sector capital for infrastructure development necessitates the adoption of strategies that will attract private capital by leveraging public capital, and creating a conducive environment for private capital to flourish.

The Power Sector Problem Tree which was developed between January and March 2012 by the Core Team in consultation with Focal Persons from the power sector agencies, technical advisors, and MCC counterparts, identified as one of its Key Nodes that the ***'Governance and Regulatory Framework does not meet needs of all Stakeholders'***. Other consultations undertaken between April and July 2012, including those with potential investors, key consumers and the general public, also highlighted the need for an effective reform agenda.

¹ Presentation on 'Investment Opportunities in the Power Sector', Ghana Ministry of Energy, January 2012.

² Based on GRIDCo 10-year load forecasts 2011 – 2021 and Industry Estimates for Costs of Generation.

In particular, developers indicate that there is significant interest from private capital to finance generation projects in Ghana. It is also clear that this interest has not translated into projects materialising at an adequate rate.

To make a sustainable impact on reliability and adequacy of electricity supply in Ghana, Compact II must aim to identify and solve the problems that have discouraged private development of generation capacity, as well as addressing the concerns of the power sector agencies and utilities. Summarising the inputs from the various stakeholder groups and consultation processes, the key problems in the area of Governance and Regulation are:

- *Need for an Effective Sector-Specific Legal Framework for IPPs;*
- *Need for a Full Cost Recovery Tariff;*
- *Need for Increased Transparency of Tariff-Setting Process;*
- *Absence of Gas Pricing and Allocation Policies and Regulations;*
- *Distribution Companies not Considered Credit Worthy Off-Takers;*
- *Wholesale Pricing;*
- *Independence of the Regulatory Bodies;*
- *Shortfalls in Regulatory Capacities; and*
- *Insufficient Momentum behind the Sector Reform Process.*

Ghana is still experiencing a severe deficit in power generation. The key component to macro-economic growth is adequate and reliable power generation capacity. This is the key critical success factor in expanding the Ghanaian economy through industrialisation and infrastructure development. By correctly identifying the root causes of the inadequate investment in Ghana's power sector generation, and supporting Government's development of a credible and time-bound strategy to address them, Compact II can serve as the catalyst for a sustainable economic and social transformation.

1.2.Desired Long Term Sector Objectives

In 1995, the Government of Ghana (GoG) entered into a Loan Agreement with the International Development Association (IDA) of the World Bank to support the power sector of Ghana. One condition of the Loan Agreement was for GoG to put in place a policy framework that will allow private sector involvement in the power sector including an appropriate regulatory regime.

By 1996, GoG approved a Power Sector Reform Policy and Programme in line with the conditionality, to achieve the following objectives:

- Allow private sector investment and ownership in power generating facilities;
- Create a separate Transmission Utility to own and provide transmission service to players in the power sector;
- De-regulate distribution of power to allow for the creation of distribution concessions/zones;
- Create a contestable market for power; and
- Establish regulatory agencies to supervise the creation of a transparent regulatory environment.

Significant progress towards these objectives has been recorded since the mid-1990s, particularly in the unbundling of Transmission from Generation and the establishment of the two regulatory bodies. However Ghana still faces the overriding problem of insufficient generation capacity, with serious implications for the national GDP growth rate and the operating and financial performance of most companies.

The GSGDA Policy Framework of 2010 defines the medium-term policy objective as “to provide adequate and reliable power to meet the needs of Ghanaians and for export”. The strategies for achieving this objective include sustaining power generation capacity expansion, by encouraging public and private sector investments, through a number of strategies as follows:

- Provide conducive legal, fiscal, and regulatory environment to attract investments into the energy sector;

- Encourage the capital markets, including the Ghana Stock Exchange, to raise financing for investments in the energy sector;
- Expand capital & risk capacity of financial system to support energy-driven and oil and gas-based industries;
- Establish transparent and non-discriminatory practices in the implementation of rules and regulations; and
- Ensure efficient and transparent pricing regime for energy services.

Ghana is current targeting to increase installed power generation capacity from about 2,000 MW at present, to 5,000 MW by 2015, and to achieve universal access by 2020. However from an economic development perspective, the installed generation target is inadequate to meet the nation’s ambitions, as the table below clearly demonstrates:

Global Comparisons (watts per capita)³

• USA	3,170	
• Europe	1,700	
• Malaysia	813	
• South Africa	900	
• Ghana	78	(equivalent to 2 light bulbs per capita)

Ghana requires a minimum of **500 watts per capita** to industrialize, equivalent to **12,500 MW**.

The objective of this project under Compact II is to ensure the realisation of the GSGDA medium-term power sector policy objective, by implementing reforms that respond to the needs of all stakeholders, particularly those of private sector investors and consumers. The reforms proposed under this project are closely linked to the reforms proposed under the ‘Financial Performance of Utilities’ project - reform of distribution is a precondition for reform of the entire power sector. Reaching a consensus on the entire reform package, and successfully implementing the reforms, are key to achieving energy sufficiency and security for rapid economic growth in Ghana.

³ Presentation by GTG Energy Services to Ghana Compact II Core Team, 2nd March 2012.

1.3 Expected Project Outcomes

The expected outcomes of the proposed project are:

1. *New Legal Framework for Developing IPPs Leads to Increased Investment in Power Generation;*
2. *Transparent and Equitable Open Access to Cheaper Gas Resources for Power Generation*
3. *Improved Tariff Model, including Full Cost Recovery and Effective Lifeline Provision, that Meets Requirements of All Sector Stakeholders;*
4. *Sector Appellate Body Created;*
5. *Established Bulk Electricity Trader/Wholesale Off-Taker that Provides Credit-worthy Alternative to Government Sovereign Guarantees and a One Stop Shop for Standardised Power Purchase Agreements;*
6. *Strengthened Sector Regulatory Capacity; and*
7. *Sector Corporate Governance Reformed and Strengthened.*

1.4 Description of Project Outputs and Specific Activities

1.4.1 New Legal Framework for Developing IPPs Leads to Increased Investment in Power Generation

Problem/Constraint

Although Ghana has a policy framework in place that is designed to attract private investment in power generation, actual performance has been poor.

Currently, the private sector has invested in only two operational power plants

- Takoradi International Company (TICO): 220 MW to be expanded to 330 MW. VRA has an involvement in this plant.
- Sunon Asogli Power Plant: 200 MW Plant to be expanded to 560 MW

Besides these plants, a number of other private sector-owned power plants are being constructed. These include Tema Osono Power Ltd's 126 MW thermal power plant, and CenPower Ltd's planned construction of 330 MW, also at Tema.

Examples of more successful IPP development initiatives abound in other developing economies. For instance, under their Electricity Act of 2003, India started the necessary legal foundations and reforms in the power sector that today, has transformed it from purely a public sector activity into a vibrant and commercially profitable industry with significant private sector participation.

India's 2003 Electricity Act encourages further power production from captive plants through its open access clause. By encouraging the growth of these captive power plants, politicians in India set up a dual-track economy, whereby state-run and market-run production exist side-by-side.

In neighbouring Ivory Coast, the state-owned utility, Energie Electrique de Côte d'Ivoire (EECI), had a monopoly until 1990 over electricity generation, transmission and distribution. By the end of 1990, due to poor performance and debts, EECI management was taken over

by Société d'Aménagement Urbain et Rural (SAUR) and Electricité de France (EDF) for a period of 15 years.

With the introduction of a private operator, the role of the EECI was reduced to oversee the technical operations of the CIE and implement the country's rural electrification program. In keeping with the overall reform, the government agreed the Ivory Coast's and Sub-Saharan Africa's first IPP project, a gas-fired turbine under the Compagnie Ivoirienne de Production d'Electricité (CIPREL). Two years after the plan was commissioned, the government contracted a second IPP: AZITO. By 2007, IPPs accounted for nearly two thirds of the total electricity production in the country.

While a more detailed study on the constraints to private investment in power generation in Ghana is awaited, it is clear that there is a need for a more responsive legal framework and implementation mechanism for IPPs that will spur greater and faster investment in the near future.

A study of IPPs in 8 Sub-Saharan African countries⁴ shows that although all 8 countries have introduced legislation to allow for private generation, few have actually developed and implemented a clear and coherent policy framework for procuring IPPs. In other words, experimenting with the idea of private power does not always lead to a sustained opening of the market for private investment.

Further steps that may be required to produce sustained private investment include moving away from the present hybrid power markets, and introducing competition in the market in terms of customer choice; clearer direction from the regulator (EC) on the requirements for setting up power supply projects from project inception; and regulatory governance that is transparent, fair and accountable, and regulatory decisions that are credible and predictable. While these issues are addressed in other projects under the Concept Paper, there is a need for concession laws that spell out the rules for private participation, in particular the rules for project bidding and tendering, and a description of the circumstances under which concessions can be modified or cancelled. Investors also often doubt the neutrality of the local judicial system, and press for international rules of arbitration. Incorporating these and

⁴ 'IPPs in Sub-Saharan Africa: Determinants of Success' by Anton Eberhard and Katharine Nawal Gratwick.

other required provisions in a clear standard legal framework for IPPs will give substantial comfort to prospective investors.

A further possible requirement, for the transfer of the management of the publicly-owned distribution companies (as has happened in Uganda), has not so far been addressed in this Concept Paper. This measure, if implemented, will provide an incentive for management to operate the utilities more efficiently, and to share the gains from efficiency between the companies and the consumers.

Expected Project Outcomes

Increased private investment in power generation as a result of a clear and acceptable legal framework for investment.

Description of Project Outputs and Specific Activities

Support to PPP Unit of MOFEP to develop new mechanisms required to increase both IPP and PPP investments in Ghana power generation, and to ensure enactment of overall PPP Law and Regulations, and sector-specific PPP framework and regulations.

This will include encouraging coordinated planning, competitive procurement of capacity using an internationally accepted standardised format for the RFP, clear permit procedures, and use of an internationally accepted standardised format for PPAs.

Estimated Cost

Total \$3 million - \$1 million for technical assistance, \$2 million for implementation (FIGURES TO BE REVIEWED FOLLOWING PPIAF STUDY)

Benefits and Beneficiaries

Increased generation capacity – up to 660 MW⁵ committed additional capacity by end of Compact period

Existing Preparatory Work/Ongoing Investments

PPP Policy – 2011

Ongoing World Bank support to PPP Unit - \$30 million Phase I, \$225 million Phase II.

Electricity License Application Manual – Energy Commission, 2012

1.4.2 Transparent and Equitable Open Access to Cheaper Gas Resources for Power Generation

Problem/Constraint

Gas is Ghana's preferred fuel for power generation, for cost and environmental reasons. Assurance of a reliable supply of gas as the feedstock for power generation has been identified through the consultation process as the single most important constraint to increased private sector investment.

The GoG is implementing an ambitious infrastructure plan to develop natural gas indigenous resources and reduce the cost of energy significantly to all potential users, including those of the electricity sector. Thus, a gas industry is being expanded beyond the opportunity of simply gas importation from Nigeria. The Jubilee project – Early Phase Gas Infrastructure Project - is key to further develop the rest of the hydrocarbon off-shore fields and bring additional indigenous gas onshore.

According to GNPC and ENI information, Ghana has sufficient recoverable reserves to achieve a potential gas production from fields discovered to date of up to 1,200 MMSCFD, including TEN and META. This takes into consideration a significant supply of gas from

⁵ Based on GE Power Park Presentation to Ghana Core Team on October 11 2012. Assumes that at least 2 x 330MW Plants will be committed by the end of the Compact period.

non-associated gas reserves especially from the Sankofa & Gye Nyame fields. If one adds the assumed volume of gas that could be imported from Nigeria (even if volumes remain at current 60 MMSCFD), the total supply could meet the high demand scenario, except for the period 2014-2018.

Prospective IPPs require predictable and transparent policies, regulations and procedures for gas pricing and allocation, over the lifetime of their projects.

A detailed Advisory Paper on the Gas Sector Master Plan was prepared in 2010 by an international consulting firm, under USAID funding. Although this draft report was not accepted by Government of Ghana, the research done towards its preparation could serve as a key input to the technical assistance proposed under this activity.

At the sector level, the Strategic National Energy Plan (SNEP) provides a framework within which all planned energy investments and reforms can be undertaken. The SNEP, which presents a very comprehensive and evidence-based overview of the energy sector, was produced by the Energy Commission, which is responsible for periodically updating the plan to ensure its continued relevance in Ghana's changing energy environment.

Expected Project Outcomes

The Energy Commission establishes the necessary regulations and procedures to ensure a transparent and equitable open access to cheaper gas resources for power generation.

Description of Project Outputs and Specific Activities

Consultancy and capacity building to add regulations and procedures to Gas Sector Master Plan⁶

⁶ It has been suggested that by the time the Compact enters into force, these tasks may already have been carried out by the Energy Commission. However as at the end of July 2012, the Ministry of Energy advertised for consultants to prepare the Gas Sector Master Plan, which will include "a set of gas allocation policy options to inform government decision making on the maximisation of value added in the natural gas value chain".

Estimated Cost

Total \$3 million - \$1 million for technical assistance, \$2 million for implementation (FIGURES TO BE REVIEWED FOLLOWING PPIAF STUDY)

Benefits and Beneficiaries

Increased generation capacity – up to 900 MW committed additional capacity by end of Compact period

Existing Preparatory Work/Ongoing Investments

Strategic National Energy Plan (SNEP) 2006 – 2020 – Energy Commission. Provides an overarching framework for reforms and investments in the sector. Periodically updated by the EC.

Natural Gas Pricing Policy – World Bank, 2012

Nexant Gas Master Plan – USAID, 2011-2012

World Bank Gas Master Plan – ongoing??

Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012 – before Parliament

Natural Gas Licencing Manual – 2012 (Energy Commission in review)

Natural Gas Transmission Access Code – 2012 (First draft by Energy Commission in review)

1.4.3 Improved Tariff Model, including Full Cost Recovery and Effective Lifeline Provision, that Meets Requirements of All Sector Stakeholders; AND Sector Appellate Body Created

Problem/Constraint

In Ghana, reviews and the implementation of cost-reflective tariffs are anticipated as necessary for improving the financial performances of the utility companies and this has implications for all consumers of electricity including the rural and peri-urban poor. In terms of tariffs, different electricity tariffs are paid by industrial, residential and non-residential (schools, restaurants etc) electricity facility users. To make electricity affordable to needy people, government subsidizes the electricity bills of consumers whose electricity

consumption fall below 50 kilowatt hours per month, through its lifeline tariffs. Typical potential beneficiaries are residences in peri-urban and rural areas, which are usually in the form of compounds bringing together multiple households in a single unit (Energy Foundation, 2005). The lifeline as at September 2011 is 9.5 Ghp/kWh for consumption of 0-50kWh/month⁷. However, current billing procedures are such that families who live in compound houses, and belong to low income groups, are losing out on the benefits of lifeline tariffs for families whose electricity consumption fall below 50 kilowatt per month.⁸ There are speculations that in these compound houses, landlord levies and the basis of the levies vary each time and this is a possible source of conflict in such houses. Exceeding the 50 kilowatt minimum consumption of electricity disqualifies such households from enjoying lifeline tariffs and creates economic hardships for poor households. Needy households end up subsidizing the bills of middle income users, by paying high utility bills because the total consumption of electricity by multiple households who live in compound houses are read as one unit for all who reside in the compound house. In effect, many poor people, including women do not benefit from this lifeline tariff (PURC, 2008). Further studies must therefore be conducted to ascertain the real challenges that such households face.

Tariffs set below cost-recovery rates have been identified as one of three key components of hidden costs that affect investments in infrastructure, and their sustainability. In order to achieve improvements in the adequacy and quality of power supply, tariffs must be set at levels that favour both the consumer and investors. Subsidies must be targeted at their intended beneficiaries, to avoid financial collapse of the utilities and to attract additional investment in capacity. The present lifeline tariff mechanism is assessed as not being well targeted in terms of the intended beneficiaries, and inefficient in its implementation.

A 2006 World Bank Working Paper has noted that utilities typically compensate for these hidden costs by reducing investment in maintaining the utility; they may also delay or forego essential maintenance and repairs or reduce the workforce, actions that trigger a downward spiral of significant deterioration in the value of assets, declining service quality, and increasing cost for each unit of service provided. When this happens, losses are increased substantially and abnormally high investment is required to carry out repairs, which is rarely cost effective.

⁷ Electricity Corporation of Ghana service charge sheet

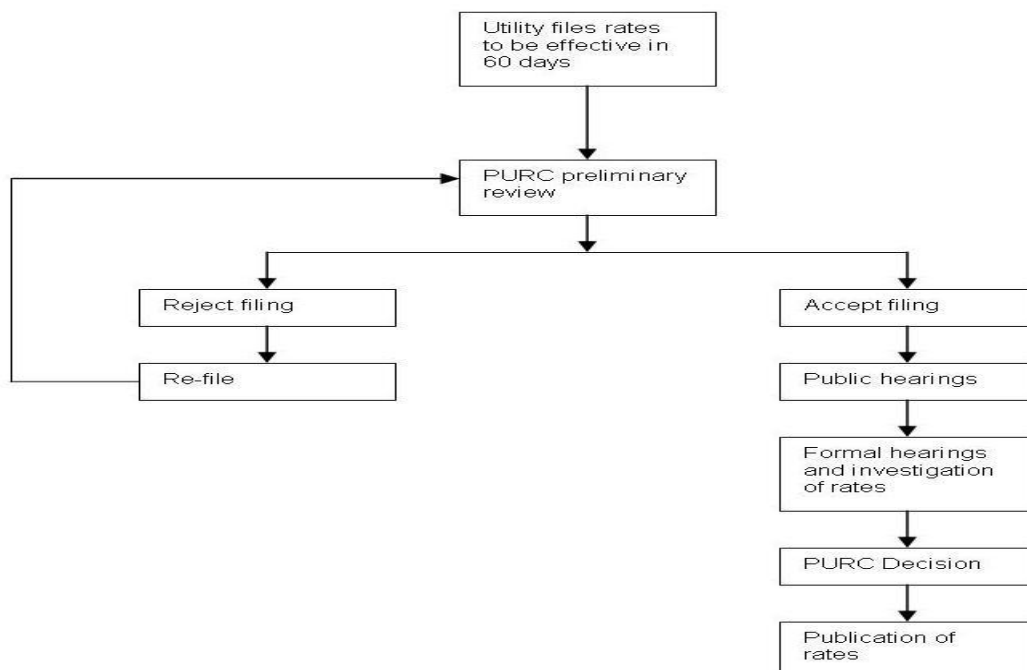
⁸ PURC, 2008

The example of Nigeria, which is widely recognised as having one of the most under-performing power sectors in Africa, is instructive. As part of measures to attract private investment into its power sector, Nigeria has recently introduced significant tariff increases of up to 88%. According to the Nigeria Electricity Regulatory Commission (NERC), the real cost of supplying electricity, with a return on investment factored in, is about 23 naira/kwh, compared with the pre-increase domestic tariff of 7.30 naira/kwh. At such tariff levels, efficient operations are impossible.

Tariffs ought to provide value for money to customers on one hand, and on the other hand ensure recovery of legitimate costs as well as allow for profits commensurate with risks for suppliers. Tariffs ought to cover ancillary services such as reactive power compensation as well as reserve margin. The tariff setting procedure needs to be genuinely independent, and made more transparent, and both the utilities and consumers should have the option of recourse to an equitable appeal structure in cases of dispute.

PURC has outlined the present tariff-setting process in the diagram below:

Fig 1. PURC’s Rate Setting Process



As described by PURC, the key actors are the utility, PURC itself, and the general public. No mention is made of Government's participation in the process. However concerns have been expressed by the utilities that the assumptions underlying the tariff-setting process are not published. Other stakeholders, in particular by prospective IPPs, have highlighted the "PURC Decision" step (as opposed to an automatic adjustment mechanism) as one that is neither transparent nor predictable, and opens the door for influence from the Government.

Concerns have also been expressed over the absence of an independent appeal body within the sector – at present, the decisions of the PURC and EC can only be challenged through the courts, a process which is neither timely nor certain to result in an equitable outcome. It is proposed that an independent appellate body be set up, backed by a Legislative Instrument so that its decisions will be enforceable in law.

In India, an Appellate Tribunal for Electricity has been established by Central Government for those who are not satisfied with the Central Electricity Regulatory Commission order or with a state's decision. The Tribunal has the authority to overrule or amend that order, just like the Income-Tax tribunal or the Central Administrative Tribunal. The tribunal has to be approached within 45 days of the aggrieved person getting the order.

In a recent decision (April 2012), the Tribunal upheld the order of Maharashtra Electricity Regulatory Commission (MERC) allowing Tata Power to lay down its own network in south Mumbai and supply power to consumers in the area. The Brihanmumbai Electric Supply and Transport (BEST), which is run by Mumbai Municipal Corporation, had challenged the MERC decision to allow the private player to supply power in south Mumbai, and to develop its distribution system. Hitherto, BEST had enjoyed a monopoly in the island city. The tribunal rejected BEST's case, saying that it was against the spirit of the concerned law which seeks to promote competition in electricity sector.

Expected Project Outcomes

An improved tariff model and processes that meet requirements of all sector stakeholders in terms of both cost recovery and an effective and efficient lifeline mechanism.

An appeal mechanism that provides assurance of equity in sector regulatory decision-making.

Description of Project Outputs and Specific Activities

- Consultancy to review and recommend an improved tariff model and processes.
- Capacity building and technical assistance to support implementation of the consultancy's recommendations.
- A non-governmental independent monitor/appellate body established by law

Estimated Cost

Total \$2 million for technical assistance and equipment (FIGURES TO BE REVISED FOLLOWING FURTHER STUDY)

Benefits and Beneficiaries

Improved financial viability of the Distribution companies

Existing Preparatory Work/Ongoing Investments

PURC Submission to Compact II Core Team

GEDAP Project 2008 -2012

1.4.4 Established Bulk Electricity Trader/Wholesale Offtaker that Provides Creditworthiness and a One Stop Shop for Standardised Power Purchase Agreements

Problem/Constraint

Lack of confidence that the distribution companies are able to pay their bills on a timely basis has been a major deterrent factor for potential IPPs. The establishment of a credible interim bulk electricity trader or wholesale offtaker is one of the most important elements in attracting private capital and rationalising the power generation sub-sector.

As part of obtaining funding for generation projects, developers need to demonstrate their ability to generate adequate revenue from proposed projects. This requires the developer to sign a PPA with a buyer or offtaker with a financial rating that is satisfactory to the financing institution. The financial credibility of ECG has been of concern to prospective IPPs, who currently prefer that GOG issues a sovereign guarantee. Unfortunately GOG’s ability to issue guarantees is now severely constrained, and an alternative mechanism is urgently required to ensure that the needed investments are made by private capital.

As shown in the table below, there are four basic ways to structure a grid-based electricity market (although there are many possible variations on each).

	Model 1	Model 2	Model 3	Model 4
Characteristic	Vertically Integrated Monopoly	Principal Buyer	Multiple Buyer	Full Retail Competition
Definition	Monopoly at all levels	Competition in generation	Competition in generation (with imbalances settled at a contract or spot market rates)	Competition in generation and choice for final consumers
Competing Generators?	NO	YES	YES	YES
Choice for Discos?	NO	NO	YES	YES
Choice for consumers?	NO	NO	NO	YES

In most developing economies which have attempted to commercialise their State owned electricity industries by introducing competition in generation, the natural expectation is that the industry will transition to a principal buyer model (Model 2), until such time as the industry has developed the settlement, accounting, managerial and governance systems required for the more sophisticated multiple buyer model (Model 3).

Adoption of Model 2 requires the establishment of a transitional entity that will serve as an intermediary between the IPPs and the ECG or other distribution companies, until the distribution companies have established their individual creditworthiness.

One such example is Nigeria, which as part of its current reform initiative has established the Nigerian Bulk Electricity Trading Company PLC (NBET). NBET’s obligations under the Power Purchase Agreement (PPA) are supported by a payment support package that ensures that any liability contingent upon default by a distribution company will be immediately

made good. The establishment of the bulk trader, and backing it with a credible payment support package, taken together with a Multi-Year Tariff Order (MYTO) that allows the full pass-through of allowable costs, therefore removes the single biggest risk element – lack of credit-worthiness at distribution level – that has militated against the growth of the Nigerian power market.

Whatever form of credit support enhancement is decided upon for Ghana, it must be understood that it will only create a contingent liability, which in turn will only become an actual liability for the Government if:

- a) The power plant is actually financed and built by the IPP developer;
- b) The power plant's generating units are actually working and available;
- c) The power plant has secured itself the requisite feedstock; and
- d) A distribution company, and in turn, the bulk purchaser are unable to honour a portion of their payment obligations to the relevant IPP.

The creation of the new transitional entity must go hand-in-hand with fundamental reforms of financial management in the distribution companies, to avoid the risk of merely transferring existing weaknesses in the financial credibility of the distribution companies to the new entity.

Expected Project Outcomes

A mechanism with the mandate of serving as a bulwark against the potential payment default by distribution companies, until they become financially strong enough to directly enter into power purchase agreements on a bilateral basis.

Description of Project Outputs and Specific Activities

Under this scenario, a government owned bulk buyer carries out contract management and bulk trading (on behalf of the distribution companies) until such time as the industry has developed the settlement, accounting, managerial and governance systems required for successful bilateral contracting.

The establishment of the bulk trader will not impose a “single buyer” model upon the industry because the distribution companies, to the extent that they are able to, will be allowed to procure power bilaterally alongside the bulk trader.

Apart from establishing the new entity, some form of credit support enhancement will be required. Potential options include:

- a. A Government-backed Letter of Credit (LC), to provide liquidity to the bulk purchaser;
- b. A Rolling Guarantee of the obligations of the bulk purchaser, issued by a multilateral institution or domestic and/or international banks, with a counter-guarantee issued by the Government;
- c. A World Bank Partial Risk Guarantee backed by a Government indemnity;
- d. A Government treasury bond issue; or
- e. A combination of two or more of these options.

Estimated Cost

An estimated \$50 million is required for the following:

- Enact the Act setting up the company⁹
- Set up and capitalise the wholesale offtaker company
- Financial engineering for issuance of commercial paper and securitised instruments
- Leverage the provision of guarantees to private sector investors in the power sector

Benefits and Beneficiaries

Inflow of increased volume of private sector investment in power generation through the development of a competitive electricity market, leading to improved business productivity and profitability.

Improvement in the service levels experienced by all electricity consumers.

Existing Preparatory Work/Ongoing Investments

Electricity Licence Manual (2012) – Energy Commission

⁹ If required. Alternatively, it could be established as a limited liability company.

1.4.5 Strengthened Regulatory Capacity

Problem/Constraint

The delivery of a high quality, reliable electricity supply that is capable of meeting Ghana's current and future demand is essential to any economic development programme. The reform agenda and regulatory overhaul that will ensure private sector participation in the energy sector is one of the keys to energizing Ghana's economy. Such reforms have become a pre-requisite for attracting serious investment that is required for future development.

Prior to 1997, the Government of Ghana, and the State-owned electricity utility organizations combined operational responsibilities with policy and regulatory issues. In the mid 1990's, Ghana's electricity sector began a restructuring process to overcome the limitations of this traditional setup.

Ghana has embarked upon reform of its power sector driven by the need for new investment in the sector, optimized power utility performance, and increased security of supply. However, these reforms have focused on implementing isolated reform elements - instead of focusing and striving to build a solid, coherent and sustainable reform agenda. Difficulties in sustaining reforms, and the lack of appropriate legal and regulatory mechanisms have led to low levels of investment and inefficient sector performance in Ghana.

The current regulatory framework for the electricity industry is provided by Acts 538 and 541, which established the Public Utilities and Regulatory Commission (PURC) and the Energy Commission (EC) respectively.

While there are different models for power sector reform (each with its own advantages and disadvantages) a number of broad international best practices can be distilled to form the building blocks of a robust and sustainable power sector. There is therefore the need to take account of Ghana's national institutional environment, and the overall investment climate.

Reform policies cannot be effectively implemented unless the rule of law is respected in order to guarantee adequate appeal mechanisms (appellate body) as well as respect for property rights, and recognition of arbitral awards. It is our proposal that any Compact II funds could be used to fund the proposed reform agenda – a reformed agenda based on

international best practices and core principles of accountability, transparency, predictability , efficiency and competition.

Expected Project Outcomes

- Harmonisation of laws establishing the regulatory agencies.
- Increased human and technical capacities for carrying out regulatory mandates, including tariff setting and power quality monitoring.

Description of Project Outputs and Specific Activities

The PURC is mandated with the mission of development and delivery of the highest quality of utility services to all consumers and potential customers, while building a credible regulatory regime that will respond adequately to stakeholders' concern and also ensure fairness, transparency, reliability and equity in the provision of utility services in the country with the ultimate aim of becoming a model institution that ensures the delivery of the highest quality of services to all consumers at fair prices.

The aim is expected to be achieved through inter-alia the following functions:

- Examine and Approve Rates chargeable for Provision of Utility Services
- Monitor standards of performance for provision of services
- Initiate and Conduct Investigations into Standards of Quality of Services given to Consumers
- Conduct Studies Relating to the Economy and Efficiency of Public Utilities.

Under the Compact, PURC will implement activities aimed at increasing its capacity to effectively carry out these functions, including:

Projects

- Obtain ICT Facility/Infrastructure for real Time Monitoring of Utilities.

- Embark on Aggressive Public Education

Studies

- Conduct a study on multiple dwellings houses (compound houses) to ascertain their energy Consumption pattern.
- Carry out a study to re-classify customers (Non-residential & SLT customers)
- Carry out Prepayment metering study
- Carry out Regulatory Financial Audit of the Power Utilities.
- Carry out cost of unserved energy (electricity supply) study.
- Development of Quality of Service Index
- Development of Ancillary Services Pricing Methodology
- Conduct study to review existing legislations in the Energy Sector
- Development of comprehensive Tariff Policy

Capacity Building

Build capacity of staff, through training and exposure to best practices in other jurisdictions

The Energy Commission seeks Compact support to focus on providing the regulators with the ability to independently monitor the quality of power supply. This activity will enable the regulators to more effectively enforce compliance by the utilities. This should also contribute significantly to improving the quality and reliability of supply of power, by focussing regulatory action on the areas of non-compliance.

Through this activity the Energy Commission will develop the capability to independently and simultaneously monitor the quality of electricity service within the supply areas of up to

5 primary substations, where these primary substations are selected by the Energy Commission to either

- a) Confirm or verify quality of service reports received from the public or from a utility;
or
- b) Determine the impact of an investment or intervention made by an electricity company to improve the service quality in the area.

In addition, the activity will enable independent measurement of power quality to be undertaken at various sites in the distribution network in the country by Regulatory Agencies.

The key outcome of this project is that the regulators will have credible and comprehensive data on the quality of service delivered to electricity consumers. This data will provide objective information for regulatory action and lead to regulators being more effective in the delivery of their mandate.

The data on quality of service levels will be made public, together with the actions and projects the utilities have committed to as a means of improving the quality of service. This will provide consumers with information on projected improvements in service quality, and once these projections are realised and confirmed as such by the regulators, the level of confidence of consumers in the regulatory system would show a consequent increase. This level of confidence will translate into a generally higher level of business confidence.

Estimated Cost

Total \$6.42 million – PURC \$0.5 million for Public Education; \$0.85 million for ICT; \$2.94 million for Studies; \$1.0 million for Capacity Building; EC \$1.13 million for Power Quality Measurement.

Benefits and Beneficiaries

Among the benefits and beneficiaries of the Public Education, ICT, Studies and Capacity Building activities to be undertaken by PURC are the following:

- Change in the negative perception of consumers against the utilities
- Increase in consumer responsibility regarding electricity usage and payment of electricity bills

- Increase in consumer confidence
- Increase in awareness of PURC
- Engagement of women in quality of service issue especially at Consumer Service Committee level
- Improvement in PURC's ability to monitor remotely events such as voltage profiles, frequency, etc, on the power system. From the reliability and power quality analyses, PURC will be able to monitor compliance with set standards.
- Ensure consumer confidence and improve quality of service delivery.

It is believed that all consumers would benefit from the EC's activities, and the nature of the activity is such that it is gender-neutral in its impact. In terms of social impact, it can be argued that the less advantaged in urban areas suffer more from poor quality of electricity as they tend to live in areas that would tend to have the highest population density, and hence the lowest quality of power. They are also the least able to mitigate the impact of poor quality of electricity.

1.4.6 Strengthened Sector Corporate Governance

Problem/Constraint

The energy sector is male dominated. The Ministry of Energy staff situation as at January 2009 revealed a gender division of labour that is common to the energy professional area in many developing countries – women constituted 30 percent of the staff positions. In terms of management positions within the Ministry, only 2 (specific positions not stated) out of a total of 15 management positions (13 percent) were occupied by women. On the average, women constitute only 24 percent of the total staff in many energy-related organizations. The male-female ratio in management positions shows that on average only 14 percent of the management positions were held by women (Gender Assessment of the Ghana Energy Sector, 2010). This means that both the Ministry of Energy and the other energy-related organizations have not reached the AA quota of 40 percent female staffing that has been set by Government. The reform of the Regulatory bodies should take into account this Government of Ghana's Affirmative Action of 40% female representation on Statutory

Boards, Commissions and Committees. Since women also use energy to a great extent, their presence will help develop gender-sensitive policies for the electricity sector. The women identified need not be electrical engineers; but persons with adequate and relevant qualification from multi-disciplinary backgrounds

The governance of Ghana's power sector reform process has been vested in the two main regulatory bodies - PURC and EC. Acts 548 and 541 together have established a new dispensation, under which the GOG's central role in formulating policy and implementing strategy for power sector development is to be handled at "arms length" from the day-to-day regulation of the power sector operators.

Under Section 4 of Act 538, the PURC is an independent body and is not subject to the direction or control of any authority in the performance of its functions. For administrative purposes, however, the PURC is under the office of the President. The institutional representation of industry, labour and domestic consumers on the PURC is only symbolic but of significance in representing the interest of these groups.

The Energy Commission has also been set up as an "independent" body with the mandate of granting licenses and setting standards of performance and rules of practice for transmission, wholesale supply, distribution, and sale of electricity and natural gas among others. The Minister of Energy may give to the Commission such direction of general character as appears to him to be required in the public interest relating to the discharge of its functions. The EC has a membership of 8 consisting of a chairman, a representative of the National Development Planning Commission (NDPC), an Executive Secretary and four other persons with knowledge in matters relevant to the functions of the Commission. The President in consultation with the Council of State appoints members of EC.

These provisions raise some questions regarding the extent to which these two institutions are genuinely independent of the Executive. Shortfalls in the regulators' capacities to effectively monitor the operational performance of the utilities are also widely recognised. There is the need to improve the supervision of the utility companies by the regulatory agencies, to ensure that tariff increases are accompanied by real improvements in service quality.

Of equal concern are questions that have arisen in recent times concerning the governance of the Electricity Company of Ghana (ECG), the country's major distribution utility. ECG asserts in its 2009 Annual Report that "ECG upholds good corporate governance as a medium for the sustainability of its operations, and accountability to its stakeholders".

However there is a widespread perception among Ghanaians that these fine intentions are not reflected in ECG's conduct of its daily operations, or in its top-level governance. Indeed the profiles of the Board members contained in the same report give an indication of an undue level of political influence on the institution. The 9 Board members at that time included a former Member of Parliament of the ruling party, as Chairman; a former Regional Propaganda Secretary of the ruling party; a current Regional Secretary of the ruling party; and a current Deputy Minister and MP of the ruling party.

Perhaps of even greater concern is the research undertaken in 2011 by an investigative journalist at the request of the Office of the President, which revealed among others:

- Widespread practice of demanding unofficial payments to facilitate the acquisition and installation of prepaid meters;
- Rampant stealing by ECG staff of supposedly faulty meters, which are then repaired and resold to consumers;
- Widespread meter tampering by ECG, to assist customers to pay for far less electricity than they consume;
- Massive indebtedness of some customers, especially those in the Special Load Tariff (SLT) category, apparently with the connivance of revenue collecting staff of ECG; and
- Long delays by banks and other financial institutions appointed to collect revenues on behalf of ECG, in transferring funds collected to ECG and crediting customers' accounts.

All of these suggest that there are serious problems of corporate governance and supervisory capacity within the power sector, both at the level of the regulatory agencies and at the level of the utilities' Boards and management.

For any meaningful impact to be made through Compact II intervention, there is the need to mitigate conflicts of interest and roles between stakeholders in the energy sector of Ghana - roles must be clearly identified and defined between NEDCO, GRIDCO, ECG, PURC, Energy Commission, and Energy Foundation.

The problems of corporate governance that have so severely impacted the power sector can be solved by strengthening the policies, laws, customs that may negatively impact on the economic efficiency of each entity in the sector. There is also the need to avoid political patronage, and enforce the decisions of the regulators.

Expected Project Outcomes

- Will lead to greater accountability and transparency in the energy sector.
- Restore public trust and confidence in the sector, which is important and necessary for the sustainability and future prospects of the sector.

Description of Project Outputs and Specific Activities

- Undertake review of governance standards in the sector, with particular emphasis on rules governing the appointment of Board members and employees' conditions of service.
- Ensure strict compliance with existing and revised corporate governance guidelines, and application of sanctions for misconduct, whether by Board members, management or employees.
- Periodically review the composition of the Board, in the light of changing challenges and needs of the sector.
- Determine whether it may be appropriate to add or remove individuals on the Boards of the agencies in the sector, considering issues of judgement, age, skills, background and experience.
- Capacity building and equipment for regulators (PURC and Energy Commission).
- Power quality measurement equipment and capacity to ensure performance-based regulation and improved quality of service delivery.

Estimated Cost

Total \$5 million - \$1 million for technical assistance, \$2 million for implementation of corporate governance improvement initiatives, \$2 million for capacity building to improve supervision and reliability of service (Figures to be reviewed following PPIAF Study).

Benefits and Beneficiaries

- Good corporate governance is beneficial to all stakeholders, and must be guided by the principles of sustainable business. The interests of all stakeholders must be taken into consideration, including Government, Employees, Customers, Suppliers, Creditors, Labour, and the wider Community.
- Improved quality of service delivery
- Improved capacity of staff in regulatory agencies and appellate body

Existing Preparatory Work/Ongoing Investments

- On-going Reforms in the Energy Sector – Ministry of Energy and related agencies.
- Ernst & Young Report on Financial Restructuring

2. Project Context and Development Plans

See Section 1.2. above.

3. Inventory of Existing Preparatory Work

Sub-sections 3.1 to 3.9 and 3.11 to 3.12 are to be agreed upon following PPIAF consultancy.

3.1. Gender Analysis of Private Sector Participation in Power Generation

It is important to note the constraints and challenges in ensuring social and gender integration in the energy sector and also the good practices in the productive use of electricity and how these impact on the socio-economic lives of the poor particularly poor rural women. Energy is a prime ingredient in all productive, subsistence and leisure activities. The quantity and

quality of available energy determines the efficiency and effectiveness of activities, as well as the quality of life of the users. Both male and female members of society are equal stakeholders in benefiting from energy use. But women and men do not benefit equally from access to energy. The same energy service may indeed impact on men and women differently, with different social or economic outcomes. Whilst national development plans often give some focus and attention to energy, little attention is paid to the linkage between gender and energy particularly in the area of implementation. Ghana is no different from other countries in this respect.

Ghana has an energy policy and one of the goals outlined in the policy is to integrate gender in the Energy Sector. The Gender Assessment of the Energy Sector Report (2010) highlights major challenges of the gender integration process as follows:

- Lack of energy sector sex disaggregated data which makes it difficult to estimate the number of women and men who have access to energy services
- Inadequate stakeholder consultation in program and policy development.
- Lack of personnel and gender experts within the energy sector due to lack of training in gender and non-commitment of financial resources.
- No budget for gender integration activities.
- Limited involvement of women in the planning and management of energy services at national, regional and district levels.
- Limited capacity of women in management positions in the Energy Sector

3.1.1 Social and Gender Studies

A national debate on private sector involvement and cost reflective tariffs will be organised prior to Compact II implementation. There will be a study on lifeline tariffs to identify the real challenges associated with this policy from a gender perspective. Issues of gender, safety nets vis-a-vis government affordability will be considered.

3.1.2 Gender Analyses

Within the institutional reforms that have been proposed to create an Appellate Body to deal with electricity issues, it is recommended that the members of the Body should include women (40%) and men with requisite qualifications. This will not only ensure fairness and social justice, but also a way of improving women's representation in the energy sector.

Membership of the Energy Commission should reflect a gender equity representation.

3.1.3 Social and Gender Risks and Opportunities

There is a shortfall in the power required for economic growth in Ghana. The involvement of private sector in power generation is desirable and important because it will help to provide efficient and reliable electricity. This is an opportunity for Ghana. Another opportunity will be that young female students pursuing engineering related courses in the Universities or Polytechnics will to be part of the pilot schemes in the selected communities to generate interest. As much as possible, every avenue and opportunity will be explored to increase the female ratio in the energy sector.

There is a risk to society by the private sector enterprises interested in generating electricity in the sense that they will require rules and regulations that ensure them full cost recovery. This will have implications for the poor and vulnerable groups especially women.

4. Project Benefits and Beneficiaries

Included in Section 1.4 above. Other inputs are to be agreed upon following PPIAF consultancy.

5. Environmental, Social and Gender Risks and Opportunities

To be agreed upon following PPIAF consultancy.

6. Project Sustainability

To be agreed upon following PPIAF consultancy.

7. Project Results and M&E Methodology/Plan

To be agreed upon following PPIAF consultancy.

8. Implementation Arrangements

To be agreed upon following PPIAF consultancy.

9. Annexes

Not Applicable.