

UNIVERSITY OF CAPE COAST

STAKEHOLDERS' VIEW ON PROPOSED PRIVATIZATION OF
ELECTRICITY SUPPLY SECTOR OF GHANA ON CUSTOMERS IN THE
LOWER INCOME BRACKET

BY

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DECLARATION

Student's Declaration

I hereby declare that the dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:..... Date:.....

Name:.....

Supervisor's Declaration

We hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

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Name:.....

ABSTRACT

A reliable supply of electricity is fundamental to a well-function economy. However, the increasing national demand for every energy in Ghana is far more than the supply resulting in load shedding of power. There are issues with underpricing, subsidizing, overstaffing, and inadequate maintenance of equipment especially with the distribution function by Electricity Company of Ghana (ECG). These problems are attributed to the natural monopoly of the company, hence, the call by the Ghanaian public and stakeholders for government to privatize ECG and solve the crisis “dumsor”. In principle the study examined the current electricity policies and also the needs to be addressed or modernize these policies in order to help accelerate economic growth if there is a need for private ownership, A random sampling method was used to gathering primary data, by administering semi –structured questionnaires to 440 voluntary participants. The key findings was analyzed using 5 point Likert scale model with a bench (BM) of 3.5. The result was used to either accept or reject a test hypothesis for the research questions. The test concluded that, majority of Ghanaians strongly agreed to the privatization of ECG to help improve service delivery, accessibility, pricing subsidies, and high network losses, new technologies and solution which will ensure effective maintenance of their network infrastructural development and service delivery. However, the research recommended that Government must be decisive whether to go for full privatization or Private participation when planning to privatize the electricity sector. ECG privatization requires holistically analysis with stakeholders” Involvement and define whether partial of full privatization is the best appropriate option.

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DEDICATION

To my Parent in the memory of Mr. & Mrs. Veronica and Kow Akyempem

Dadzie who pass on in the cause of my studies

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CHAPTER ONE

INTRODUCTION

Background to the Study

In today's digital ecosystem, organizations operate in a world that is highly connected, with customers, suppliers and partners all able to collaborate together to achieve customer outcomes. Always on customers have expectations of up-to-the-minute information and advice placing more power in their hands. Increasingly, customer expectations are based on their experience of the ease of interaction with other organizations, they expect to be able to have an effective and efficient digital platform at their fingertips. Being able to get information and manage their account online is now a minimum expectation for most customers. Generation or 'digital natives' as they are sometimes referred to, naturally expect rich digital experience that is both mobile and social, and seamlessly integrates their interaction with companies with their digital lives. This group represents a highly important customer segment for utilities, as they are starting to reach the peak age of consumption and will be an important source of value for utilities. As Generation grows up 'with digital, it will be more important for utilities to match their digital expectation to traditional customer focus of the industry which has been on 'performance-based satisfaction. (Andoh, D 2015).

Customer strategies that responded satisfactorily to basic concerns of reliability, safety, pricing, information provision and resolution of problems were sufficient. Now, the combination of energy transformation and technological innovations has led to a more far-reaching set of challenges. Customer expectations, the ease of interactivity with companies are much

higher and companies have to navigate a much more dynamic and complex energy ecosystem. Companies need to have a clear strategy on how far they want to go in developing new products and services in this ecosystem and deliver to enhance customer relationship mechanisms to match. Reaching the next level in any customer service context requires an improved understanding of each type of consumer's needs and behavior and better ways often gaging them. (Clark,C, Harto,C, Sullivan J and Wang, M. (2015)

Companies are constantly refining and re-examining their customer segmentation insights. This focus on customer understanding will become even more important as energy transformation takes hold. In this dissertation a very high-level overview of the different types of customer situations that market change and energy transformation are creating. Customers range from those that are relatively passive and just want their energy supply to be in place and reliable to those that are active in thinking about and changing their energy arrangements. This passive-active spectrum is relevant to business and commercial customers as well as residential customers. We also highlight customers who aren't served at all by the centralized grid at the moment, or that are connected but suffer from an unreliable and inadequate service (the 'energy underserved/unserved'). Most of these will be in developing countries but the concept of the 'underserved' is also relevant to customers in localities where frequent storms or other weather events create grid disruption and cause customers to feel a degree of dissatisfaction with their grid supply. Energy transformation has consequences for customer transformation all the way long the spectrum of customer types. Customers at the passive end of the spectrum

are highly valuable to companies as they are less likely to defect or want to constantly seek the lowest tariff. (Coughan, M, Cronin P, & Ryan F (2007)

But there are limits to passivity and such customers will expect to know they are not being taken for granted. Energy transformation is a threat to retaining these customers as it could trigger more events that could disrupt this customer relationship. On the other hand, the more data-rich and automated potential that comes from energy transformation offers companies ways to reinforce the value proposition to them, for example by using data to provide reassurance of tariff value or automation to provide low involvement energy management services. Opportunities can be taken to progressively extend the customer relationship in ways that reassure rather than disturb the more passive type of customer. As we move along the spectrum from passive to active, we encounter a number of motivations for active involvement, including the restless customer who is searching for the lowest price and the best deal, the 'energy managers' who is seeking to take advantage of the potential of new, smarter technology, and the 'energy generator' who is seeking to become more self-sufficient in energy generation and/or storage. (David G .V 2005)

Lack of electricity creates not only inconvenience, but also economic loss because of reduced industrial production (Bruch, 2011). Electricity supply is usually considered with water and sewerage, telecommunication service as a utility industry 'and seen as part of the infrastructure of the economy since it is used in the homes, most recreational facilities, commercial establishment, and factories (Kessides, 2012). Air conditioning is a big user, so are lighting, water heating and refrigeration. The 'other' group which includes gadgets and

appliances is also a big draw, and has been growing sharply in recent years. Understanding how electricity is used, we use electricity virtually every minute of every day, yet few of us understand the major uses of electricity in our homes. (Kessides, 2012)

Before we dive into how electricity is used around the home it is worth putting household electricity use in perspective. Household electricity use generally makes up about a third of the total electricity consumption in most developed nations. Using data from the European Union we can give an example of how electricity demand is split among different sector. Among the twenty-seven countries that make up the European Union electricity is used primarily by industry 36percent, households 31percent and the commercial sector 30percent while transport 3percent is a small share. For this purpose the ‘commercial’ sector includes both private and public services while industry is mostly manufacturing. Although this breakdown varies from country to country the three-way split between industry, households and the commercial sector is a good rough guide for any developed country. Total generation is typically 5-10percent more than this total due to transmission and distribution losses. (Energy Information Administration, 2015)

So when we talk about household electricity use, it is worth remembering homes only account for about a third of total electricity use. By separating electricity use into different end uses we can see where the major demand for electricity is in homes. Air conditioning is a big user, so are lighting, water heating and refrigeration. The ‘other’ group which includes gadgets and appliances is also a big draw, and has been growing sharply in recent years. Understanding how electricity is used can help prioritize

opportunities to reduce it. While switching to low energy light bulbs or limiting air-con use will have greater potential. (Edjekumhene, I, S, Atta-Konadu, R., Brew Hammond, A 2009).

Whether your home uses 2,000 or 10,000 kWh a year there will be simple ways you can save electricity in your home. Understanding how we use electricity is a good starting point for taking control of our own use of Electricity utilities include publicly owned, investor owned, cooperatives and nationalized entities (Hartley & Kessides, 2012). Opinion on how the electricity supply should be organized, owned and regulated in both developed and developing countries have seen a change over the past two decades (Kessides, 2012). This is due to the political, technological and institutional prompted changes (Zhang, Parker & Kirkpatrick, 2014). Countries around the world have all begun to respond to the opportunities and challenges derived from institutional reforms in the electric power sector (Harley, 2012). However, the concepts behind the electricity sector reform in developed and developing countries have been different.

Traditionally, electric utilities in Africa have enjoyed a monopolistic hold over their national electricity industry. In most of these developing countries, the electricity industry is still government owned, vertically integrated and monopolizes (Hartley, 2012) generally the reforms have involved splitting into separate generating transmission and distribution sector. Studies have shown the undeniable under-performance in the delivery of electricity services especially in developing nation can be attributed to the delivery of electricity services especially in developing nations can be attributed to monopoly of that function (Karekeezi & Kimani, 2002).

In Ghana, majority of our source of electricity comes from hydro-electric dam and thermal plants, with a large number of them being managed by Volta River Authority (VRA) and Ghana Grid Company (GRIDCO) which are both government owned and a few of these power plants managed by some Independent Power Producers (IPPs) such as the Shenzhen Energy Group. VRA is responsible for the generation of electricity while GRIDCO is only responsible for its transmission.(Andoh, 2015) Power plants work just like generators, there are so many types of power plants, and some are; Thermal, Solar, wind, coal, power barges (Power ship) and others. In Ghana, we have only one huge Solar Plant in Navrongo in the Upper East Region, one Power badge named the Osagyefo Badge and a series of thermal plants scattered across mostly the western and Greater Accra regions; the being Asogli, Kpone, Aboadze thermal plants and others.

For some developing countries according to Josiah, Burton, Galhofer, and Haslem, J. (2010), privatization and regulation reform have been adopted as the solution to the electricity problems with the main aim such reforms will help increase system performance and reduce or eliminate the burden of price subsidies, low collection rate, high network losses, low service quality and poor service delivery (Jamash, 2004) This research will seeks to review the experience with electricity sector privatization and draw some lesson for the electricity supply sector of Ghana. Their research will also attempt to identify some challenges and analyze the past and present inefficiency of the Electricity Company of Ghana (ECG) and determine if privatization of the company will help address these problems and it cascading effect on both domestic and industrial customers

Statement of the Problem

Ghana's electricity supply market is growing faster, estimated 10-15% year on year demand growth than the average growth rate of most developing countries because of urbanization, industrial activities and increasing economic growth (Gyamfi, 2014). Electricity is regarded as the main source of energy in Ghana is an important element for commercial and economic growth for the evident reason that business use electricity for their daily operations .However , the increasing national demand for energy in Ghana is far more than supply resulting in load –shedding' of power (Acheapong & Ankrah, (2014).Issues with underpricing, subsidizing, overstaffing and inadequate maintenance of equipment have also contributed to the frequent and unplanned power outages (RCEER, 2004).

In Ghana electricity supply sector has followed mostly the traditional industry behavior; where only one dominated in the industry thus vertically integrated. or publicly owned utility. The entire electricity industry used to be operated monopolistically from generation through transmission and up to distribution until recent year when the government permitted other players into both generation and transmission. However, there is more to be desire with the distribution aspect of the industry. As a result of the monopolistic structure of the supply and distribution function both domestic and commercial customers experience a lot of challenges when it comes to service delivery from the sole provider, Electricity Company of Ghana (ECG).

In recent times, issues of frequent power outages popularly known as 'dumsor' in the local dialect across the entire country is something customer are battling with (Acheampong & Ankrah, 2014).This is evident with the

upsurge of distributions across the length and breadth of the country putting pressure on the government to address the power crises and also for the privatization of the supply sector Electricity company of Ghana (Laary, 2015) Electricity is produced by VRA and the various IPPs through the various dams and plants which have been stated above and then transmitted by GRIDCO.

The produced electricity is then sold by ECG and NEDCO. NEDCO caters mostly for the three northern regions, a major part of the Brong Ahafo Region and a few towns in the northern part of the Ashanti region. ECG which is the major seller of the electricity takes care of the sale to the rest of the regions in Ghana. Note: it is only the Volta Aluminum Company (VALCO) and a few others that VRA directly sells electricity to. One of the reasons for this “DUMSOR” crisis is that VRA, GRIDCO and IPPs cannot access the needed capital to maintain their machines or bring in new ones to increase the electricity. ECG is unable to collect all the money they should after selling the power to consumers. (Laary 2015) portion of sales that ECG is unable to collect from consumers is very huge and thus brings huge losses to the producers.

Consequently the power producers become “BROKE” and cannot set aside portions of their earnings to recapitalize their operations or expend – to maintain or bringing in/build new plants or dams. ECG mostly attributes these losses to its inability to collect monies owed by government agencies and institutions such as Parliament, Hospitals, majority of tertiary institutions and others, with VALCO being a major reason for VRA being “BROKE” – it is unwillingness to pay its debts, with government also not paying its share of VALCO’s electricity bill to VRA.

Therefore, there has been an imminent need for domestic change in the electricity supply section to make it more viable, competitive and flexible in order to meet the unsatisfied need of customers. Most Ghanaians think that, the major decision requires government is fully privatize the company or engage in public –private partnership (partly privatized) as a means of addressing the current crises. For the cause the research seek to established whether Privatization is the best available option to the government

Objectives of the Study

The general objective of the study is to determine if privatization of electricity supply sector of Ghana is the best available reform option.

Specific Objectives

The specific objective includes;

1. To determine and analyze whether adopting privatization will help solve the problem of (dumso) in Ghana.
2. Investigate the extent to which the burden of price subsidies, low collection rate, and high network losses can be stopped or controlled.
3. To examine the effect to which privatization of electricity sector will have on service delivery to consumer in the lower income bracket.

Hypotheses

This research test the hypothesis that the introduction of privatization will lead to better competition and improved service delivery as well as impact on customers in the lower income bracket positively. The following hypothesis well is tested;

- Ho: Adopting privatization will help solve the problem of increase system performance and increase service delivery to consumers.
- Ho: The extent to which the burden of price subsidies, low collection rate and high network losses can be controlled or stopped during service delivery to customers.

Justification

The research in principle is meant to assess whether Privatization is the best option for the Ghana to tackle the rampant power outages (dumso) for customers resulting from inefficient management of the electricity supply sector and recommend whether privatization of the electricity supply sector is in the right direction to go, and if so what significant impact is privatization going to have on the ordinary Ghanaian in the lower income bracket i.e. Welders, Tailors, Barbers and saloon operators.

Significance of the Study

The research seeks to assess the relevance of privatization of the electricity supply sector. The study will help the power industry to make appropriate changes in their plans to providing power to ordinary Ghanaian. The study intent to provide government institution as well as policy makers a role map to rely on in providing sustainable power for its customers especially those in the lower income bracket. The findings seek to help the power industry forecast based on growth on the economy. The study seeks to help the power industry plan for network losses and low collection rate and price subsidies. And finally the study will contribute to knowledge.

Limitation of the Study

The study was not devoid of challenges and limitations. It followed the qualitative research approach by integrating primary and secondary research sources. An exploratory non-experimental survey was used with questionnaires, unstructured personal interviews and focus group discussions as research instruments. Despite their inherent disadvantages, they are deemed best for this study within the power industry. Moreover, the study was challenged and limited by lack of adequate recent and relevant materials within the power industry. Other limitations and challenges include initial difficulty in framing and testing questionnaires for best responses from respondents, late submission of completed questionnaires, time and financial constraints.

However greatest amount of care, vigilance and diligence was taken in conducting the study to mitigate the impact of the limitations. The disposition of large numbers of worker and other employees in other organization such as VRA, GRIDCo and GNGC in selected Areas and district specifically Sekondi- Takoradi that offer to great extent an opportunity to generalize the findings of the research.

Organization of the Study

This dissertation is organised under five chapters. Chapter one covers background to the study, statement of problem, research questions and hypotheses, significance of the study, scope, limitations, definition of terms and the organisation of the study. Chapter two contains the literature review on Stakeholders View on Proposed Privatization of Electricity supply sector of Ghana. Chapter three has details of the research methodology used. Chapter

four provides the data presentation and analysis of results, while chapter five contains summary, conclusion on the findings and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter seek to review literatures deemed relevant and relate to stakeholders view on electricity supply sector for countries and the effects on privatization as a component of electricity sector reform on service delivery and performance. In doing so, literature and database information on the subject come thorough discussed to improved performance in the electricity supply industry in the country and thereby contribute to a privatization program for Ghana. The use of electricity in communication and transportation to production play vital Role in the betterment of human life and an essential service in the economy to both commercial and domestic households (Steiner, 2001; Kessides, 2012).

General concept of Privatization

Definition of privatization - Privatization as the term has different meanings. It basically means the permanent transfer of ownership of a public enterprise to the private sector (Phaahlamohlaka, 2006). The Florida House of Representatives committee on Government conducted a review of the literature on privatization and offered the following spectrum of definitions:

- Engaging the private sector to provide service or facilitates that are usually regarded as public sector responsibilities
- Shifting from publicly to privately produced goods and services
- Transferring government function or assets, or shifting government management and service delivery, to the private sector.

- Attempting to alleviate the disincentives towards efficiency in the public organizations by subjecting them to the incentives of the private market
- Using the private sector in government management and delivery of public services

Privatization has also been characterized as sometimes leaving very little government involvement, and other time creating partnership between government and private service providers where government is still the dominant player. According to a report by the International Energy Agency (IEA) in 2013, the electricity sector accounted for 43percent.being primary consumption, Organization for Economic cooperation and Development (OECD) member countries. In 2010, power usage was growing faster than oil, natural gas and coal consumption. On the demand side, the emphasis that electricity supports the essential infrastructure, industrial and service activation of modern economies.

A reliable supply of electricity is therefore fundamental to a well-functioning economy. This proves that the electricity sector will continue to become increasingly important utility for the future. In the Unites States, for example, annual sales of electric power exceed \$300 billion and the electric power industry accounts for approximately 3.6percent of GDP and 5percent of gross capital stock (EIA, 2015) Similarly in the United Kingdom, the electricity generated in the first quarter of 2015 increased by 1.3percent from 93.7TWh a year earlier to 94.9TWh accounting for the steady increase in the final consumption of electricity which rose by 0.7% in 2015. from 82.9TWh in 2013 to 83.5TWh (Gov.UK, 2015).This very instances depicts that electricity

usage has significantly increased in terms of generation and final energy consumption and will continue to do so over the coming years due to its importance (Steiner, 2001; Hartley & Matinez-Chombo, 2002).

This trend of increase for electricity consumption is even same in non-OECD countries notably China, India, Russia, Brazil and South Africa where the electricity infrastructure needs to keep pace with growing demand. The rapid growth of electricity demand for these developing nations is evident in the of increase of millions of new refrigerators, lamps, television and other energy consuming products added on yearly basis. As a result of the growing demand, electricity policies seek to achieve a range of goals, from providing a reliable supply to ensuring competitiveness of economies (IEA, 2013; Strickland & Sturm, 1998).

Electricity Regulation

For the past years, the regulation environment of the electricity supply industry has begun to change (Ghafoor & Weiss, 1999). Quite a considerable number of both developed and developing countries have lead major reforms in the electricity supply sector which have changed significantly the sector's market structure and institutional framework (Kessides 2012). Countries have encouraged competition through the implementation of new regulation that seek to liberalize the industry, focusing reform actions on measures that do not have a natural monopoly component. According to (Hartley, 2012,) the dominance of such reforms in recent years in most countries can be attributed to fundamental changes that are affecting their utility industry with regards to urbanization and technological changes.

In particular, some OECD countries have passed legislation to introduce competition in electricity generation and distribution unbundling these function from the other subsidiary part of the business, providing mechanism for new entrants to access existing network and creating market where price is determined by supply and demand (Zhan, 2006).

For developed countries, the process of reform in the electricity supply sector seems to have been reasonable successful and well documented. However that cannot say for developing countries including Nigeria, Ghana and Kenya: the pathway to power reform has been more challenging (Jamash, 2004). Issues bothering on the low and slow and complex process for capacity building and establishment of adequate resource regulation institutions have slow the entry of private investors in the power sector (Kessides, 2012). Among countries that have initiated reforms, some have privatized segments of the industry, others focused on liberalizing the electricity supply industry, and other have still pursued both liberalization and privatization .The variation in country approaches in choosing a particular reform provide the basis to assess the benefit whether the introduction of such policy regulation lead to real improvement in the efficiency and electricity supply (Steiner, 2001).

Electricity Supply Industry

Functional Composition of the Electricity Supply sector

Is important to know one unique economic characteristics of electricity, it cannot be stored. Generation, transmission and distribution are the three main phases for the provision of electricity and the function of these different roles for each function are distinguished by both technology and economic factors; and regulatory reforms depend on this level of separation.

Generation is the production of electricity. It involves the transformation of another form of energy into electricity energy. Electricity production may use hydro power (falling water), nature gas, coal, renewable fuels, wind turbines, nuclear power and photovoltaic technologies. The various generation technologies are distinguished according to cost structure.

The main cost components of electricity generation are capital costs (delivered) fuel price, operating and maintenance costs. Costs are also influenced by the performance of the generating technology (capacity factor, thermal efficiency and operating life). Nuclear generation has high capital costs compared to hydro generation as a result of the construction lead time (interest charges) and decommissioning cost (cost of retiring a plant at the end of its design life). Hydro generation cost depends largely on geography and climate. Transmission refers to the transportation of electricity generated from power plants to local networks through high voltage, long distance power line to the load centers for distribution. However, transmission is not merely transportation, but it also involves the management of dispersed generator in a grid to maintain suitable voltage and frequency and to prevent system breakdown. Transmission is a natural monopoly since competition in transmission would lead to duplication of the existing network that would increase transmission costs.

Distribution function is the transportation of electricity at low –voltage. It is generally considered to be a natural monopoly just like transmission; competition would similarly entail duplication of the existing set of wires”. The distribution function also at times comprises supply. Supply of electricity involve the wholesale or retail. Supply is not considered to be a natural

monopoly, nor are there significant advantages to its integration with the other functions. However, each of these function contribute to the cost of providing electricity to final users.

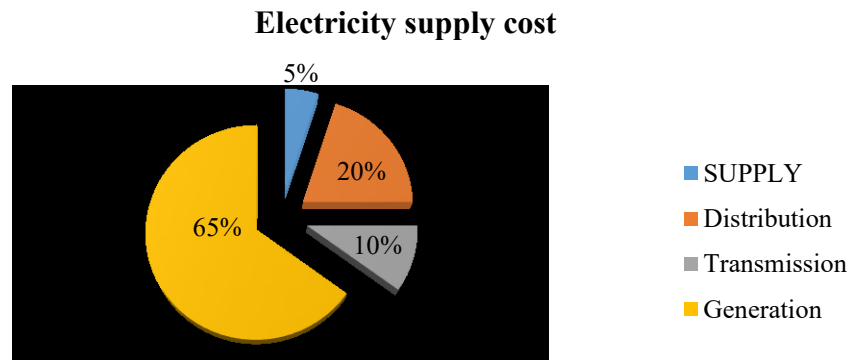


Figure 1 : Electricity supply cost

Electricity Sector Reform

The World Bank in 1992, formally changed its lending policy for electricity development from traditional project lending; that is, any country borrowing from the Bank on power projects would have to agree to change from a single nation electricity utility as a public monopoly ‘ and adopt ownership, structural and regulatory reforms . A template was developed base on the experience in Britain- Unbundle the segment of the industry (Generation, Transmission, and Distribution and supply); privatize the generation and supply in other to introduce competition; and regulate the monopoly of the transmission and distribution segments. The model was then ‘Sold’ to developing country and transition economies (Yi chong,2006) The view of these economist who came out with this model was to create an efficient system to regulation to enable publicly owned utilities to be transferred to private ownership’.

Against this background together with the World Bank lending policies; the standard reform model emerged from the organizational restructuring of the electricity industry. The reform model was developed based on these five specific lending principles were identified: Regulatory reform-creating a regulatory regime to replace direct management government ,Ownership reform through commercialization and corporatization to set the stage for privatization, Importation services- by privatizing distribution, Private investment- opening up the electricity sector of foreign investment, Commitment lending

The Standard Reform Model

Over the years there has been continuous debate and discussion on how the electricity supply industry should be owned, organized and regulated. Quite a large number of both mature industrial and developing nations since 1982 have adopted reform programs in transforming their electricity supply sector, this reform program in transforming their electricity supply sector. These reforms have included Privatization, horizontal and vertical unbundling, and the introduction of performance base regulatory mechanism implemented by independent regulatory agencies according to Kessides, 2006. The reform steps have included some of the following (Kessides, 2012);

Corporatization and commercialization to transform state-owned utilities into separate (from the ministry/government) legal entities and restore financial discipline.

Enactment of requisite legislation to provide a legal mandate for restructuring and recreation of (independent) regulatory agencies with agencies with adequate information capacity and statutory authority.

Vertical and horizontal restructuring to separate potentially competitive generation and retail activities from the natural monopoly segment of transmission and distribution and thus facilitate competitive entry and mitigate market power.

Establishment of regulatory rule to promote **efficient access to the transmission** network and provide signal for the efficient location of generation facilities

Privatization to restore financial discipline, Provide incentive for cost efficiency and insulate the operating entity from damaging political interference.

Independent power producers (IPPS) to facilitate investment in generation even in the absence of comprehensive sectorial reform.

Designation of an **Independent system operator** to direct the safe, reliable, and economic operation of the interconnected electric system, determine the order of dispatch, and make arrangement for the expansion and enhancement of the transmission system

Unbundling of retail tariffs to separate price for competitive retail supply activities from the regulated network (transmission and distribution charges

Creation of **market and trading arrangements** for voluntary energy and ancillary service).

Electricity reform in transition and developing economies experience uneven, irregular and incomplete process which decreases the benefits they can derive from the standard reform model in its full form (Gratwick and Eberhard, 2008). However emerging international evidence in European countries, USA and part of Latin America suggests that, the standard reform

model if implemented correctly is a sound guide for successful electricity market reorganization (Kessides, 2012; World Bank 1993).

The reform does not involve merely industry structure changes, power pooling, a mixture of public and public enterprises etc. the power sector reform traditionally started with the original stage of corporation of SOEs followed by unbundling and then the introduction of competition and private sector participation especially in the distribution and sale of power.

Government Ownership (Natural Monopoly) - The industry is seen as an element of government “infrastructure and as such as solely owned and regulated by the Government who also has direct managerial control.

Corporatization and commercialization - This process occurs when government surrenders complete control of state-owned utilities in approval of autonomy and a concentrate on profitability. The utility is also subjected to corporate legislation and expected compete with other private industries on equal level for profit making. Normally at this stage, complete transfer of ownership is logically challenging for reason such as lack of private capital to buy the utility and other regulatory structures that support privatization, for example capital markets. Due to international finance leading to the possibility of using limited local finance leading to the possibility of using limited local support most of their operation

Unbundling - Majority of the world’s electricity utilities are vertically integrated in terms of structural characteristics. In the past, It was considered economical to have from generation transmission to distribution functions of the electricity industry, performed by one utility instead of having several corporations competing to perform the functions .However recent studies

reveals that is economically and competitive advantage to unbundle the electricity industry structure into separate firms, each performing one of the function that a vertically monopoly.

Privatization - Privatization is a system of governance that can overcome the weakness of state ownership and make industries responsible for profits. It is believed privatization once introduced into competitive enterprise with well-informed consumers consistently increase efficiency due to the presence of competitive this is process of transferring an enterprise or industry from the public sector to the private sector. The public sector is the part of the economic system that is run by government agencies. Privatization is the process of transferring an enterprise or industry from the public sector to the private sector. The public sector is the part of the economic system that is run by government agencies.

Privatization may involve either sale of government-held assets or removal of restrictions preventing private individuals and businesses from participating in a given industry. Privatization is an ongoing trend in many parts of the developed and developing world. Proponents of privatization maintain that the competition in the private sector fosters more efficient practices, which eventually yield better service and products, lower prices and less corruption. On the other hand, critics of privatization argue that some services -- such as health care, utilities, education and law enforcement -- should be in the public sector to enable greater control and ensure more equitable access.

The term has alternate meanings within business and finances. For example, when an individual or organization purchases all the stock in a

publicly-traded company that effectively makes it private, so that process is sometimes described as privatization. However, in contrast to the primary understanding of privatization, the company in question is in the private sector to begin with and remains there.

Regulatory Reform - In most developing countries the success of the electricity reform is dependent on the regulatory reform process. The regulatory mechanism once implemented are planned to support the import of competitive markets and allow companies in the industry get a return on their capital investments . Essentially the Government directly or indirectly controls the action of private enterprises in the economy. In designing the regulatory system, certain general guideline has been identified. They include: Provide incentives to the utilities to perform more efficiently, Efficient utilities should be allowed to earn on assets equipment to their cost of capital; Protect the interests of consumers; the regulatory mechanism should be scrutinize The regulatory mechanism should include induce utilities to perform efficiently; Disclosure of important information Usually appointment to the regulatory body is political and as such decisions pertaining to the tariff setting are designed by the government. Therefore to greatly minimize the perceived risk associate with power sector investment, Regulatory agency needs to be independent of government interference.

Motivation for Reform - The economic and technological features of the electricity supply industry have motivated the evolution of its regulation, ownership, and market structure (Steiner, 2001). Many countries recently have motivated by changing from the natural monopoly function to privatization of the electricity supply firms just like the case of CEGB in the UK. Tariff

pricing by the government was replaced by a wholesale power market which determine the active company supplying electricity to the grid at any point in time and then charge end- user according to consumption rate (Hartley, 2012). Countries such as Germany and US have also introduced wholesale electricity market in place of direct regulation as a means of maximizing profit and minimizing loses.

Market price for reform - Efficiency is the main objective of electricity reform and therefore market prices plays an important role in terms of changes in supply or demand conditions. Market prices better informs customers on the cost involved in meeting their demands and for them to adjust their demands to minimize the cost on the system. For instance when prices are high, consumers may be able to save money to interrupting demand for a short period, or even shift activity from peak to off peak periods. Likewise for producers, market prices indicate to them the marginal benefit for increasing supply. Any enterprise which is able to cover its cost at current price has the motivation to invest and enter the market. For instance, companies producing steam as a u-product of their industrial process would be able to use the generated steam to co-produce electricity and sell if there is a market prices and therefore a storage indication for both consumers and producers when choosing a particular reform to change their behavior to maximize their net benefit costs.

Technological sources of reform - Furthermore, technological development and performances has also influence the choice of regulatory ownership and market structure to be adopted for the electricity supply industry due to these new technologies and solution which have in turn favored private firms over

public enterprises (Hartley, 2012). Smaller scale technologies leave more room for private ownership whereas large-scale technologies with high fixed costs often lead to state financing, (Steiner, 2001).

Setbacks with public ownership - Another major motivation for reform of the electricity supply industry is that the public ownership of the power industry has generally proven to be quite inefficient (Hatley,2012). Various finding by the OECD, The World Bank and academic economists has shown the relative inefficiency of public compared to private companies. This suggests that, even an industry of privately owned firm that is far from perfectly competitive may be more efficient than a publicly owned monopoly with goal other than profit maximization. For the same reason, a publicly owned firm lacks the motivation to provide good customer service and also to reduce cost.

Privatization and its impacts -In many countries, large state-owned enterprise such as the power sector, airlines, telecommunication, railway and mining were transferred to private ownership; privatization of state-owned companies has become an essential policy for many countries. Most countries such as china, South Africa, United Kingdom al have implemented privatization as a policy with the main accelerated economic growth. The Government lures private and foreign investment as a means of enhancing private companies' participation

Methods of Privatization

Different countries applies or use any of the methods for implementing privatization depending on the countries needs which is in line with the government's policy of ensuring economic growth and development: sales of

shares, Asset sales, Joint venture and public partnership, leases, Management and employee buy-out and liquidation

Argument for and Against Privatization

According to Hartley (2012), it is not surprising that the subject of privatization has both vocal supporters and opponents. Supporters believe privatization should be implemented for cost savings. Privatization as a policy needs to be harness when a state owned enterprises do not even have the expertise to effectively accelerate economic growth. In general, these explanations refer to the credence that private sector organization has minimum bureaucracy and can make decision more rapidly to assign the necessary resources compared to government agencies where the greatest need occurs.

Opponents of privatization suggest that cost savings being the main reason for having a privatization policy, Is never a surety. Critics also claim that private firm usually focus their attention on profit margins and this sometimes affects service delivery to consumers. The opponent again suggest if cost saving is the goal then the government needs to strengthen existing institutional structure to be more effective and efficient in service delivery.

Arguments in favor of Privatization:

- Help dissolve unnecessary government service monopolies.
- Uses more innovative approaches and technology.
- Becomes necessary when government lack the expertise or personnel to carry out certain programs.
- Help government save money in management and delivery of public services

- Slow the growth of government or downsizes government.
- Provides high-quality service in some areas
- Allows for speedy implementation of certain programs
- Introduces competition between government employees and private producers

The argument against Privatization Include:

- Leads to corruption
- Does not save taxpayers “money
- Lowers state employee morale and contributes to fear of displacement.
- Destabilizes economically marginal communities.
- Causes policymakers and managers to lose control over privatized services.
- Diminishes accountability of government.
- Private gain and public good do not always correspond

Problems, Barriers and Constraints of Implementing Privatization

Privatization implementation has made significant progress in many countries of state-owned enterprises (SOEs) and advanced private sector participation in economic activities. In contrast, the pace and progress have often been slow especially in developing countries. The delay in privatization of SOEs and implementation of economic reforms can contribute to various factors such as political, bureaucratic, lack of competence, macroeconomic and institutional problems. These include the challenges encountered in undertaking changes rapidly under conditions of political ambivalence,

economic uncertainty, resistance by some workers and managers in state-owned enterprise to privatization and restructuring.

Alternative to Privatization - There are several alternative to privatization which includes subcontracting and public- private partnership (PPP) that most organization and union will prefer to privatization.

Context Specific: The Ghana Scenario - Ghana as a nation aims to grow its industrial sector in order to transform its economic wealth which in the process will lift many out of poverty through reliable supply of energy which is primarily electricity. Electricity supply is an essential input component for several sectors, including communication, commercial, manufacturing, construction, health, education and entertainment, (Adam et al, 2013).

However, Ghana's electricity supply sector is engulfed with a lot of challenges in recent times because of high demand growth of power leading to frequent power shortages commonly known as 'dumsor'; under pricing, subsidizing by government; Overstaffing and inadequate maintenance. According to Acheampong and Ankrah, 2014 report; the current power situation in Ghana is mainly attributed to the country's inability to the country's inability to provide the right motivation and a strong regulatory structure which together have fail to attract the required investment to help address some of the challenges such as increased demand.

Electricity Energy Organizations - The energy sector is basically controlled by the public sector with the ministry of energy playing a vital role. However there are organizations responsible for producing the electricity and its distribution to customers.

The Volta River Authority (VRA) - VRA is owned by the state and responsible for generation of electricity in Ghana. VRA operates both Hydro Thermal plants; the largest generation facility in Ghana. It produces electricity to mining companies and large industries as well as two electricity distribution companies- Electricity Company of Ghana (ECG) and Northern Electricity Department (NED).

The Electricity Company of Ghana (ECG) - ECG is a state-Owned organization which has the obligation for distributing electricity to customers in the southern sectors of Ghana, namely greater Accra, Central ,Asante, Eastern Regions and Volta Regions. ECG is also responsible for consumers metering, billing, line connection, customer services, etc.

The Northern Electrification Department (NED) - The NED is the subsidiary of VRA and responsible for power distribution in northern parts of the country namely, Upper East, Northern, Brong-Ahafo, and upper west Regions.

Ghana Grid Company (GRIDCo) - GRIDCo a recently established company is in charge for the transmission phase of the electric power which has separated from the generation which used to be a core function of VRA.

The Independent Power Producers (IPP) - Currently independent power producer in Ghana includes Takoradi International Company (TICO), Sunon Asogli Power Limited and Cenit Energy Limited which are already in operation.

Policy Mechanism and Institutions- The act of Parliament have established a number of regulatory bodies to create a conducive environment that will enable proper function of all firm in the energy sector and also advance and

capital investments of private entities. According to Adam et al. (2013), Relevant policy mechanism including regulation of electricity tariff, Permitting and setting industrial standards, stake holder participation and deregulation of petroleum pricing needs to be implemented effectively to help improve on the electricity problem facing the country.

Regulatory Agencies: These Institution are the Ministry of Energy, Energy Commission and Public Utilities and Regulation commission (PURC).

Ministry of Energy (MoE) - The MoE is responsible for formulating and implementing electricity policies for the country.

The Energy Commission - Independent agency that guide government on energy policy and strategy; and also involved in indicative planning of energy and expansion of electricity system by collecting and analyzing energy data, and licensing of both public and private firm that will operate in the electricity sector.

Public Utilities Regulatory Commission (PURC) -PURC was established in 1997as an independent body responsible for calculating and setting electricity tariffs and framing customer service regulations such as; educating customers about energy efficiency, electricity services and conservation and ensures the value of investments. According to the ISSER report, there is a close regulation between electricity policy and regulation and the development of industries for economic growth. Electricity reformed commenced in the mid-1990 upon the enactment of both the Electricity Corporation of Ghana Decree which introduced the industry structure and the Volta River Development ACT of 1961 even though there was some energy legislation in the Pre-independence era. These two 2 Act successfully made ECG and VRA both

state owned cooperation's self-regulatory monopolies with oversight responsibility by the ministry of energy.

ECG was mandated to buy electricity from VRA for the bulk distribution to prospective customers and therefore required to operate on a commercial basis. The function of the ECG and the composition of the government control the electricity industry. Both government monopoly utility had the power to fix their own tariffs and also issue regulation in the form of subsidiary legislation. The inadequacies of that arrangement lead to market failure due to inefficiency and political interferences. Currently, ECG and VRA have been changed from their statutory corporation status to company registered under the company code, 1963 (ACT179) under the provision of the related statutory corporations (Conversion of companies) ACT 1993(Act 461). This act signified government's strategy to encourage private participation and investment in both entities. Also Act 538 and 541 in the regulatory framework for the electricity industry which established the PURC and ECG respectively as part of the restructuring recommendation for the Government in 1997. The PURC's regulation mandate is to:

- Protect the interests of the consumers and providers of utility services
- Examine and approve rates
- Provide guideline on rates chargeable for electricity services;
- Promote fair competition;
- Monitor the standard of performance of utilities

There are guidelines being issued by PURC for setting tariffs in terms of generation, Transmission and distribution of electricity. In addition, the introduction of an Automatic Adjustment Formula allows revising quarterly

the tariffs to reflect changes in foreign exchange rates, price of crude oil, changes in the consumer price index and the hydro-thermal generation mix. Although all these regulatory agencies have tried to accomplish operational excellence, they continue to face numerous challenges including comprising a lack of human and financial resources for effective monitoring. This has made it difficult to fully implement the policies for the electricity sector and derived the best outcome. Often government objectives for SOE are several, unclear and ambiguous. Inefficiency, rampant power outages, high tariffs and overall poor performance are some of the main reasons cited for the government to embrace the concept of privatizing the electricity supply sector.

Structure of Ghana's Electricity Sector - Electricity generation, transmission and distribution in Ghana are basically by the public sector and vertically integrated and as such price increment must be approved by the government.

Supply structure - There are seven (7) major generation facilities in Ghana with a total installed and effective capacity of 2814 MW and 2492MW respectively (Acheampon and Ankrah, 2014). Ghana's primary source of electricity power is hydroelectricity with a current capacity of 1,072 GW located at Akosombo (912 MW) and Kpong (160 MW) and operated by VRA, totaling for about 60% of the national load. The installed capacity of the joint Akosombo/Kpong system is about 1,180 MW with a combined energy output around 4,800 we (Mbendi, 2015).

The Bui dam is Ghana's second largest Hydro power station with a fully operational generation capacity of 400 MW. Aside Hydro generation of electricity, Ghana also has thermal generation capacity plants which

transforms stored energy in fossil fuel such as natural gas and oil electricity. Currently there are (5) thermal facilities, two located at Aboadze (TICO and TAPCO) and three located in Tema (TTIPP, TT2PP and MRP) with a total installed capacity of 763 accounting for the remaining 40% of generation capacity. About 88% of the generation assets are owned by the state-owned company Volta River Authority (VRA) with the remaining 12% being owned by independent power producers (IPP).

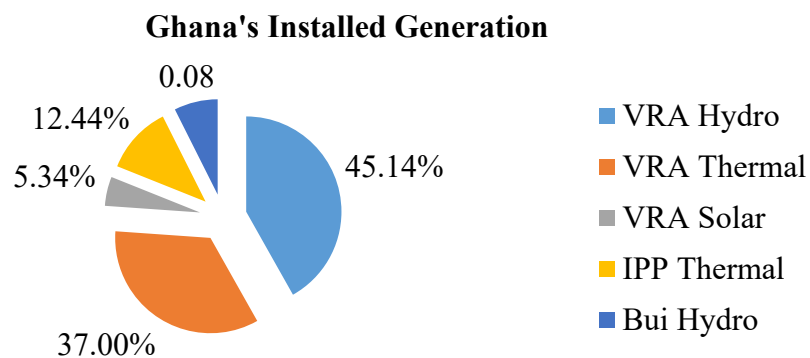


Figure 2 : Ghana’s installed generation sources

Source: Acheampong and Ankrah (2014)

About 88% of the generation asset is owned by the state-owned company Volta River Authority (VRA) with the remaining 12% being owned by independent power producers (IPP).

Growth and Demand

The growth in demand for electricity is much faster than the overall economic growth (4-5% per year) or than population growth (which is less than 2percent a year) because of continuing urbanization that allow newly urbanized segment of the population to expand their electricity consumption manifold. According to research by IMANI and ISSER, Urbanization in Ghana is expected to increase from around 55percent in 2012 and eventually

to 60percent by 2020 leading to significant increase in demand over the coming year. Ghana’s electricity supply market currently has an estimated 10 to 15percent year on year demand growth boosted by increasing domestic and industrial demand. IT is projected that the average demand growth over the next decade will be about 6percent per year. In 2012, electricity consumption in Ghana was estimated at over 7.095 billion kilowatts per hour (KWh, while production capacity was in the region of 6489 billion KWh (ISSER, 2005).

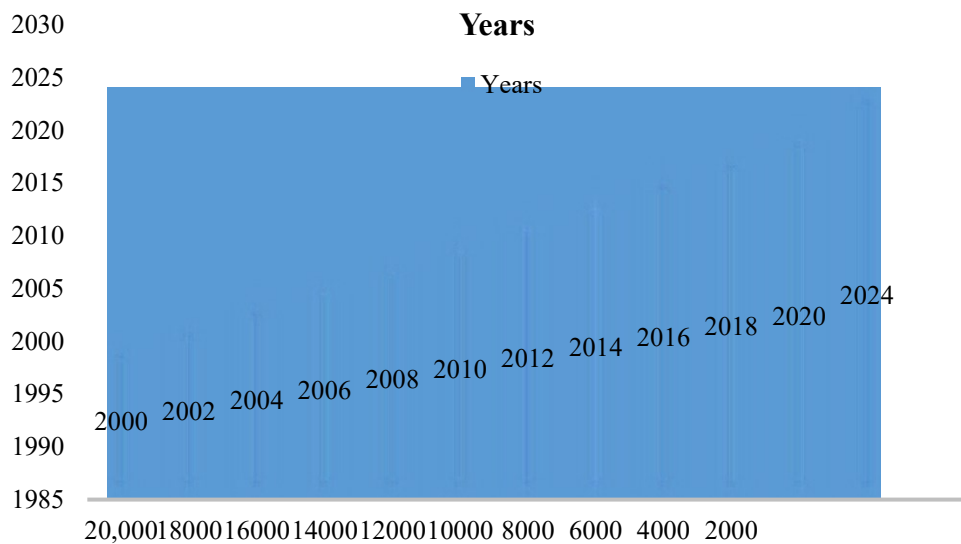


Figure 3: Ghana’s demand power forecast

Source: Acheampong and Ankrah (2014)

Current Challenges

The projected electricity growth demand has profound economic, environmental, financial and social consequences for the country. Interestingly, the growth in demand at a higher rate has led to power shortage causing a serious problem which has forced the rationing of power supply. For example in 2001 there was a demand –supply gap of 153.1GWh because while electricity consumption was 8021.1 GWh representing an increase of 7.1%,

electricity supply was 7859GWh representing an increase of 8.8% (Adam et al., 2013).

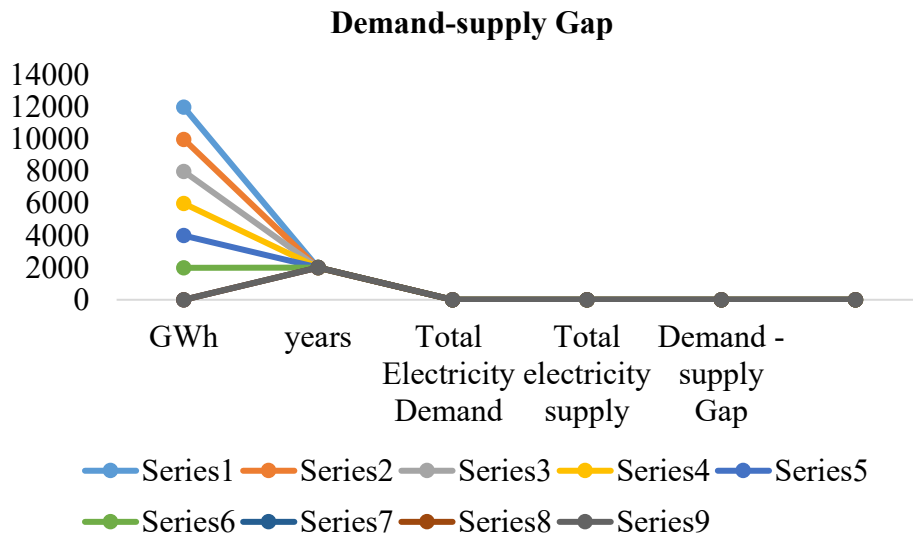


Figure 4 : Demand-supply gap

Evolution of Demand-Supply Gap in the Electricity Sector

This demand –supply gap has created the electricity crisis ‘Dumsor’ which is having an extremely bad effect on the country’s economy, industries and people in general (Larry, 2015). Inadequacies in power generation and supply constraints have also contributed to the problem, causing load –shedding by ECG since January 2014 to date (Acheampong & Ankrah, 2014).

Technical Performance - System losses in the power of Ghana at about 20-25percent in 2014 were relatively higher than in UK and the USA. According to the Energy commission report in 2015, the current ration of distribution losses to transmission is improper and needs to be rectified. Over the past year, the distribution losses is averagely 22percent indicating that almost 22percent of Ghana’s total generated remain unaccounted for. E.C.G traits this to technical and commercial losses that are mainly due to inadequate equipment, capacity and old and obsolete cables. Commercial losses have

been identified as due to metering problems. Illegal connections, billing and collection challenges (Acheampong & Ankrah, 2014).

Financial Performance

The current power crisis being faced by the country currently has tremendous effect on businesses, Health delivery and multinational mining and petroleum companies (Boasiako, 2015). According to a research by Andoh (2015). Ghana loses more than \$2million daily and 686 million annually due to the power crisis. On a monthly basis, the nation loses more than 57 million, which translates into an annual losses of two per cent 2percent of Gross Domestic product (GDP). This regulate unreliable power supply in Ghana has also aggravated the unemployment rate, untimely death of patient at hospital and lead to poor foreign investment in the country power sector. From the same study, it showed that 1250 small and medium scale enterprises (SMEs) surveyed across the 10 region of the country, only20percent had back up generating set to augment power supply to their businesses, a situation that could cripple businesses in the not- too-distant future. Recently over 100,000 profits were lost in 24 hours by the Ghana port and Harbors Authority (GPHA) due to continuous power outages at the Tema harbor. For the nation to curb this problem, the country requires over \$4 billion dollars in the next 10 years to permanently solve the crippling power crisis.

Capital Requirement -The under- pricing coupled with excessive system losses regarding transmission and distribution, produced a net profit which is not enough to finance a substantial part of future investment, and consequently electric power remained in short supply.

Effect of Frequent power outages -The frequent power outages and on-going load shedding experienced across the country has a high significant cost implication which can either be classified as direct or indirect cost for both domestic (household) and commercial (production) users. Direct costs are those which occur during or following an outages, while indirect cost are those which result because an outages is expected and people take mitigating actions (Kaseke, 2013).

Commercial (productive) sector costs

These include cost of lost output, Equipment damages and maintenance cost, Mitigation cost or cost of acquiring substitutes, Loss of labor productive time, Loss of study time in education institutions

Residential (Household) sector costs

These are loss of entertainment programmes, Cost of purchasing alternative fuel and health problem, Loss of food staffs, Cost of fire and damages to electricity equipment, Household inconvenience

Privatization of Electricity Power in Ghana

In the past, the electricity industry was seen to be a natural monopoly that therefore does not require private participation and competition because it was regarded as unnecessary and potentially inefficient. However from 1990s, both present and past Government have been called on by various entities and stakeholders on the need to privatize the electricity supply sector of the country and reduce government control. Ghana has accepted private participation in it electricity sector in the form of IPPs with the establishment of independent electricity regulators to help implement the various form of policy for enhancing economic growth for the poor. This reform process was

accelerated during 1997 and 1998 when the country experience power outages which was not due to the shortfalls in the hydroelectric capacity but of new investment in the power expansion.

Currently, investment has been attracted into system maintenance and expansion through private participation in the form of management contracts. Privatization is undertaken so as to accommodate both economic political factors in the areas of ownership, control, production and finance (Phaahlamohlaka, 2006). Most people are with the view that, private management is inherently more effective and efficient than state management. Ghana has adopted in terms of electric power a partial privatization policy, where the generation has been opened to the private sector but transmission and distribution still remain under government control. With generation, there are introduction of IPPs such as Asogli and TICO which produce power and sell to the state transmission sector, GRIDCo.

The question worth thinking through as a state in whether the current type of privatization is creating the needed competition or there is the need for the government to also private especially the distribution sector for effective resource allocation, providing access to modern technology, creating the needed capital for new investment, avoiding undue political interference and improve managerial efficiency.

Privatization and politics

The problem of political interference with public institutions cannot be underestimated of eliminated particularly in the case of infrastructure. It is normally argued that the government intervention in ECG is mainly due to financial reasons. Political interference affects pricing and investment

decisions (Ghafoor & Weiss, 1999). For example, the government subsidizes the utility tariff to lower the financial burden on the poor even though the cost of generation on production of power is high due to the use of crude oil and foreign exchange rates. Ghana like many developing nations, subsidizing charges together with the increase growing demand has caused future investment to be thrown out of gear

Privatization although may reduce political intervention in terms of managerial decision making to some extent, but it might not lead to improvements without appropriate institutional or regulatory reforms. If the public power sector can become financially independent, this will reduce intervention and the idea of resorting to private ownership.

Privatization and Development

The risk with privatization is that, Private investors mostly set up plants of short gestation duration like combined cycle plant and gas turbine so as to make quick returns. Most of these private investors are more of rapid profit- oriented than long term development. This behavior might cause adverse effect on long-term planning and lack of diversity. Also, these plants have a higher capital cost per unit of output, their establishment will depend more on the use of imported fuels (fossil fuels) which poses extra burden for the country.

Privatization and Labour

Issues bothering on labor policy and employment are closely related to privatization. This is because it is argued that privatization may lead to shedding of the labor force to raise productivity of the sector. For instance, recently staff of ECG embarked on demonstration to express their grievance

and kick against the idea of government plans to privatize the company since that is going to cut down on the number of workers. However such an action need to identify areas where labor is either abundant or in shortage. The proper identification and analyzing of the event will enable better planning for proper utilization of labour force. For example, Technological advancement at generation level may lead to more extension of the transmission and which may create the need for more labour

Assessing the Impact of Privatization on Poor People

In assessing the impact that privatization of the electricity supply sector has on the poor people in Ghana, is important to consider factor such as access, price, reliability and quality of supply and economic development.

Access

Accessibility to electricity determines the extent to which electricity sector reforms will affect the poor in the society. Privatization has the potential to affect the level of access to electricity in diverse ways. Enhancing the efficiency and financial soundness of the electricity utilities through privatization is able to free up government resources needed to expand success and also attract more private investors to ease the financial burdens.

For Ghana, electricity accessibility has more than doubled in the decades. The self-Help Electrification Programmed (SHEP) by the government has increased access over500% especially in the small communities. This means that, poverty has limits the use of electricity in poor households leading to continuous use of other sources of fuel like kerosene, charcoal and wood although been connected to the network.

Price

The two strongest drivers for private participation in Ghana's electricity supply is the need to improve the performance and also to attract new sources of financial investment. These drivers are very much associated to the price level of power. Due to the political interference usually power prices and tariffs are set far below the recovery cost which causes poor utility performance leading to poor performance (Clark et al, 2005). Private participation impact on price levels primarily, setting price that reflect cost of production of electricity is an important requirement for attracting private sector capital and ensuring efficiency gains

In Ghana, the PURC normally set tariffs been the independent regulatory agency. Currently there are government subsidies for consumers which do not reflect the cost of production for 1KWh of power. Some of the tariff initiated adopted in Ghana to regulate price include;

Trends in cost – Introduction of thermal generation and imported fuel (with depreciating local cost increases costs.

Adjustment to cross subsidies – Lifeline payment for consumers less than 50KWh/month.

Special Poverty tariff measures—Lifeline tariffs available. Government pledge to reduce life rate through subsidies.

There are both direct and indirect impacts on the poor from price or tariff increase:

1. Effects of the price of electricity on the general economy which may indirectly affect job creation and wage levels.

2. Direct effect on household disposable income and energy-consumption trends arising from changes in electricity price to the consumers.
3. Tariff may reduce government subsidies on electricity and such resources can be channeled to other sectors of the economy such as health and education

Quality and Reliability of supply -Consumers continue to experience frequent voltage dips and power outages making the reliability of supply and quality of service a problem. Research had shown most consumer and poor household are voiceless and do not have the means to switch to other source of electricity supply like generators and only have to depend on ECG supply as and when is restored rather than complain about the issue (Clark, C,2005).

Electricity supply quality and reliability has the potential of improving the lives of poor people, minimizing the level of inconvenience in their daily lives and increasing customer's willingness to depend on electricity as primary source of power. Social service infrastructure such as Hospital, Clinic and school have benefited tremendously from the supply of electricity over the years. This is because; it improves better health service delivery and educational performance. A recent study shows student academic performance positively correlated with accessibility of electricity at school and at home (Clark. & Harto, C. 2005). The current power outages has affected health delivery in hospitals and across the country since electricity is required for performance procedures at nights, powering specialized laboratory equipment ,instrument, sterilization and refrigerators.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter presents the methodology used for the study. The study focuses on stakeholder view on propose privatization of electricity sector in Ghana. The study is to provide knowledge and serve as a reference material. This chapter details out methods used to collect primary and secondary data for the study. It is organized in parts: research design, study area, population, sample and sampling procedures, data collection instruments, data collection procedures, and data processing and analysis, Ethical consideration.

Research Philosophy

Holden and Lynch (2004) contend that research should not be methodologically led; rather that methodological choice should be consequential to the researcher's philosophical stance and the social science phenomenon to be investigated. The research design should be influenced by the research philosophy of the researcher. Several philosophical approaches are possible in the science of research; however, this study adopted the objectivism (positivism) approach. A central tenet of positivism is that researchers can take a 'scientific' perspective when observing social behavior, with an objective analysis possible (Travers, 2001). More importantly however are its epistemological assumptions; positivism assumes that knowledge is generated deductively from a theory or hypothesis. Formulation of hypotheses developed from the researcher's conceptualization of a particular phenomenon.

Research based on a positivist philosophy tends to be based on deductive theorizing, where a number of propositions are generated for testing, with empirical verification then sought (Babbie, 2007). According to Ghauri and Gronhaug (2005), the deductive approach is characterized by drawing conclusions through a pattern of logical reasoning; hypotheses are built from existing knowledge and literature and then subjected to empirical scrutiny to draw conclusions.

Research Design

The study adopted a qualitative survey with an exploratory non-probability sampling approach to identify and examine stakeholders view on propose privatization of electricity supply sector of Ghana. The approach is adopted to help understand the concept of privatization. Most often, an exploratory non-experimental research lays foundation for future research. The exploratory research approach is also known to be an advantageous method to determine if an observation might be explained by any existing theory (Creswel, 2012; Creswel, 2014). The non-probability sampling technique also allows samples to be gathered in a process that does not give all the individuals in the population equal chances of being selected. In contrast with probability sampling, the non-probability sample is not a product of a randomized selection processes (Dawson, 2002). Subsequently, subjects in the sample are selected on the basis of their accessibility and by purposive personal judgment of the researcher. The approach was necessitated as it was not feasible to draw a random probability-based sample of over 4,400 population of VRA ECG and GNCC due to time and cost considerations. Consequently, the approach to this study has an element of subjective

judgement. However greatest amount of care, vigilance and diligence was taken in conducting the study to mitigate the impact of the limitations inherent in the adopted approach. Questionnaires, unstructured personal interviews and focus group discussions (FGD) were the research instruments employed in this study. The questionnaires and unstructured personal interviews delivered on one-on-one basis were primarily used to access relevant information to the study from all ranks of respondents and key/top position holders/leadership of these organization respectively. The FGD was employed where it was found possible to get participants in groups. Each of the tools employed was purposely to identify and understand the principle of privatization. The design was qualitative to allow for descriptive and inferential analysis. The non-probability sampling of respondents used ensured that those employees found at their workplaces were the ones used for the study. According to Saunders, Lewis and Thornhill (2012) the approach would be important to help attain systematic data on different respondents at the same time. Despite the inherent disadvantages of the employed tools of the research design used, they are deemed best for the study. Study Area

The study was mainly conducted in Sekondi-Takoradi Area due to disposition of all the companies' availability and. Proximity and convenience also contributed to the choice of these research regions. Additionally, the assumption that the larger numbers of employees from all the in these regions could offer an opportunity for generalize view to the findings of the research also influenced the choice of the study regions. Most of the customers in the lower income bracket such as Welders, Taylor, and Saloon Operators were also ready to give their view

Study Population

The study was conducted among all the ranks of civilian employees. These include senior and junior management grades of employees, senior Staff. The categories chosen constitute the organization and the main working environment. The population are involved in the accomplishment of goals, roles and responsibilities. The leadership, decision making, operations and general performance of worker also encompass the respondents.

The study population was 500 respondent out of over 4400 from all the ranks within Sekondi-Takoradi Metropolis. The researcher consulted the Personnel Administration Department, of all the companies to obtain clearance and necessary assistance. A Letter of Clearance and Assistance was given by VRA, GNCC, GRIDCo to permit the workers to assist and partake in the study.

Sample Size and Sampling Technique

A sample size is part of the population and was chosen as its representation for the study. Thus data or results from the sample size can be used as a reflection or to make inferences about the whole population. Determining sample size is very important as samples that are too large may waste time, resources and money; while samples that are too small may lead to inaccurate results (Alvesson & Sköldberg, 2009; Bacchetti, 2010; Carlsen & Glenton, 2011; Kadam & Bhalerao, 2010; Sathian, Sreedharan, Baboo, Sharan, Abhilash & Rajesh, 2010; Suresh & Chandrashekara, 2012). The sample size for this study was determined using a sample size calculator. This approach considered a population size of 4400 with 5percentage margin of error (confidence interval), at a confidence level of 95 percent (z-score of

1.96). A 50 % estimated response rate at expected response variance/standard deviation (SD) of 0.5 was also factored. The calculator formula is given as:

Necessary sample size (n)	=	$\frac{(z\text{-score})^2 \times (SD) \times (1-SD)}{(\text{Margin of error})^2}$
n	=	$(1.96)^2 \times 0.5 \times (1-0.5) / (0.05)^2$
n	=	384.16 approximately 385 people

The sampling technique employed is the non-probability sampling. The non-probability approach implies that the probability of inclusion of any element from the sampling frame cannot be determined (Saunders, Lewis & Thornhill, 2012). Thus, the likelihood of selecting any element from the sample frame is unknown. This approach was considered most convenient and suitable on the grounds that the ECG has large number of employees that cannot be readily accessed. This approach although has its inherent disadvantages, it is generally more economical in terms of effort, time and money.

Studying the whole of population within the time frame and resources available was practically impossible, as the whole population was never available at any given time and location. For this reason, the researcher used the judgemental, convenience, consecutive and quota sampling techniques of non-probability sampling. Although the necessary sample size by calculation was 385 respondents, a sample size of 500 respondents out of the population were chosen to participate. This is to help achieve the required sample size based on the expected response rate and the fact that the actual population of

workforce feel reluctant to answer question due to security reasons. It was also noted that the population/respondents could be deployed at short notice and most may not be readily available. The researcher used a sample of 450 respondents from two main sample in Sekondi-Takoradi.

With the convenience sampling used, the samples are selected because they are accessible to the researcher. Subjects/respondents are chosen simply because they are easy to Accessed. This technique is considered easiest, cheapest and least time consuming. The consecutive sampling seeks to include all accessible subjects as part of the sample. This non-probability sampling technique is considered as the best of all non-probability samples because it includes all subjects that are available; thus makes the sample a better representation of the entire population. The quota sampling is a non-probability sampling technique wherein the researcher ensures equal or proportionate representation of subjects depending on which trait is considered as basis of the quota. In this instance, a quota of 650 respondents was employed as representation of the population mainly in Sekondi-Takoradi Metropolis, diversity in range of their ages, gender, education, ethnicity, religion and socioeconomic status. The judgmental sampling was purposive as subjects are chosen to be part of the sample with a specific purpose of employees experience and ability to identify the organisation to determine the possible influence. It is deemed that most of the subjects are in Sekondi-Takoradi Metropolis. In the selected areas, there exist a stronger interaction in these different organization. This is the reason why they are purposively chosen as subjects.

Data Collection Instruments

The research instruments employed by the study were mainly self-administered questionnaire and unstructured interview. Focus group discussion is employed as an auxiliary tool. The inclusion of FGD was motivated by the enthusiasm of respondents to provide relevant information than the questionnaire requested. As this was observed during the testing of questionnaires, it became obvious to get respondents involve in a group discussion.

Questionnaires

The structured or formulated questionnaires also referred to as self-administered questionnaire was the main tool employed for the data collection. The use of this tool was motivated by the high literacy rate of the targeted respondents, distance and avoidance of sampling problems. The field study included SMEs in Sekondi-Takoradi Metropolis. The distance involved suggested that the respondents be reached by questionnaire. Besides, respondents that are employees of VRA, ECG, GRIDCo, GNCC mostly have varied duty schedules and therefore not collectively present at any given location or time. It was also considered that the most appropriate measure in that the literacy and educational levels of the target population are relatively high that the respondents could complete the questionnaires by themselves without any help from any person other than the researcher or supervisor. For these and other reasons, it was deemed prudent to employ the self-administered questionnaires as the major tool for the study.

The questionnaire designed consisted of Three sections classified into parts A, B, C . The part A elicited demographic characteristics relevant to the

study including age, gender, education qualification, years of service and respondents status. Part B consists of Electricity supply sector Reform Data. The sets of statements in this part aimed at assessing respondents' opinion or perception on the general approaches to privatization, part C consists of impact of electricity supply sector reforms. . . This is intended to ascertain the level of agreement of respondents in testing the hypothesis. It is worth noting that structuring of the questionnaire and its sections was personal effort under the recommendable and efficient supervision of my supervisor and research methodology lecturer. Knowledge from several literatures and studies tremendously contributed to the questionnaire structuring. The participants in the pilot testing were also very helpful in ensuring the questionnaire achieve its intended purposes.

The choice of structured questionnaires as the major tool for the study was motivated by the invaluable advantages associated with it. These include allowance of large number of sample to be used to ensure adequate representation of the population (Cohen, Manion & Morrison, 2000; Dornyei, 2007; Ong'anya & Ododa, 2009; Siniscalco & Auriat, 2005). It was also to permit participants to respond easily without a need to consult others. The method is also economical in terms of cost, time and distance. Furthermore it ensures least fear of embarrassing respondent by questioning since they can complete the questionnaire without consultation at their own leisure; offering ample time also for reflection before answering.

This approach however has some draw backs. Some draw backs encountered include the desire to answer questions the way respondents think are acceptable rather than showing reflection of their own feelings. As

pointed out by Smith and Albaum (2010), there was also the possibility of respondents possessing an inbuilt tendency of never responding or not knowing the answer to the questions. One other disadvantage so obvious was the tendency to answer question that best fit interest rather than the objectives of the study. Nonetheless, this tool was of much help and facilitated easy collection of data in the field.

Personal Interview

The personal interview technique was employed to obtain some detailed relevant views/information foreseen to be possibly obtained only from occupants of key positions/appointments. It assumed unstructured type of interview. This is to provide an open situation to offer a greater flexibility for the interviewee to elaborate on various relevant issues regarding the study (Berg, 2007; Alshenqeeti, 2014). In this regard information was recorded in hand writing during the face-to-face contact interview. Interviewees were comfortably put at ease and introduced to the objectives of the study. They were also assured that the data were needed solely for academic purpose and would be kept confidentially.

The respondents that participated in the interview were high ranking/key appointment holders of these organization. Very relevant information which could not have otherwise been accessed was unearthed by this tool. Occasionally, questions were put forth to them for elaboration, clarification and to direct the discussion. Questions administered for the interview were simple, self-explanatory and understandable. Interviewees were also given the chance to sum up and clarify points they have made. Being unstructured there was no interviewer control over the sequence of the

questions. This allowed respondents to produce very rich information for the research. Other materials relevant to the study were also handed over by interviewees to the researcher. This method of data collection however has an inherent problem of data analysis and reliability with high risk of bias, and challenge of not recruiting the right calibre of persons with the best relevant knowledge /information (Abawi, 2013; Creswel, 2012; Creswel, 2014). Also data collection was time consuming particularly during the interview.

Focused Group Discussion

This qualitative method of research uses group dynamics and the flow of discussion to probe deeply into beliefs and concepts people have concerning a particular subject (Rubinstein, 2010; Uwe, 2014; Yin, 2014). This method was dictated by the field situation during pilot testing of the structured questionnaire. It was observed that respondents wanted to provide detailed relevant information than what the questions and space provided by the questionnaire permitted. Upon consultation with my supervisor the method was adopted to generate discussion to probe deeper into the research area and to crosscheck the individual's opinions with the other opinions gathered through the questionnaires and the interviews. That is to have a discussion among a group of participants as opposed to in depth interview with each participant. Discussion involving this method was held at office premises of GAF in the study areas. The groups comprised mainly 4 to 10 voluntary participants. Recruitment of participants was however done randomly. The purpose of the research was introduced to them after which the topics/themes for discussion were also introduced. The group was requested to give their opinions supported by facts and reasons relevant to the study.

Pretesting and Validation

To ensure the validity of the questionnaire, it was pretested with 20 participants from ECG after the supervisor had reviewed and approved the questions. The same questions that were pretested were reframed with reflection on privatization. Twelve senior officer in ECG office in Takoradi district responded to the questionnaires. Their view and suggestions enhanced a review and addition of the type of privatization questionnaire. Four printed copies of the updated questionnaires were also submitted to the General office of ECG to test population responds.

Data Collection

Data for this dissertation was collected using a structured self-complete research questionnaire, personal interview and focus group discussion. The field situation was such that most of the questionnaires were distributed to the target population for later collection. All the questionnaires were retrieved completed within 28 working days of continuous follow-ups except 12 due to absence of those respondents as a result of duty out of town. During this period, the personal interviews and FGD were also carried out. Finding the required persons was not big problem but earning their willingness to answer the questionnaire delivered was tough in most cases but it was more effective compared to mailing to respondents. Also it improved the control over staff that actually completed the questionnaire.

Data Handling

The data collected was deemed very vital element in the research work since it constitute the basis for the entire analysis and findings. It was therefore

handled with ultimate care and diligence. The aspect of data handling covers editing, preparation of coding scheme and the coding.

Editing

Considering the importance, the immediate task after the field work was to edit the responses. This exercise was designed to identify errors committed by respondents and omissions in the answering of the questions. Five close friends and relatives with first degrees assisted me to edit the responses. Each of the 750 questionnaires was critically examined. Accuracy of responses, errors and uncompleted responses were assessed. Some errors identified included contradictions which were logically rectified. The objective for doing that was to obtain the desired accuracy, consistency and reliability in the responses.

Preparation of Coding Scheme and Coding

A meaningful coding scheme was prepared from the editing. The responses were classified into groupings and factor analysis was used to reduce errors and unnecessary repetitions and contradictions. Similar and related responses were therefore grouped and assigned numbers for coding/processing with Microsoft excel.

At this stage the grouped responses were processing into tabular and graphical representations using their assigned codes/numbers to differentiate and analyse the responses. Responses were transferred unto the coding scheme and data processed for analysis. The entire process of data handling was done manually with electronic support.

Data Processing and Analysis

After the data was collected, it was coded and entered into Microsoft excel software programs with the help of friends and computer program expert. Correctness of data entry was checked. The scale based variables were checked for internal consistence after which the scores were aggregated to obtain mean scores for each respondent per scale variable measure. The data was then analysed descriptively. According to Amin (2005) descriptive statistics provides us with the techniques of numerically and graphically presenting information that gives an overall picture of the data collected.

Field Challenges

The fieldwork in general was initially very frustrating as it took about 2 weeks before approval or clearance was given to conduct the study with the sample of the selected areas. Some respondents approached were also reluctant and uncooperative. Being unable to specifically distinguish between classified information and non-classified and the consequences of classified information leaking through them to the public domain, others declined to participate in the survey. The effect of bureaucracy and secrecy with worker unwillingness to disclose some information deemed classified also challenged the data collection. Most were observed to be meticulous about the information provided. However, some were noted to be very cooperative and willing to give detail information and clarification to responses as well as providing relevant materials of information for some responses. Twelve out of the 500 Questionnaires administered could not be retrieved due to the frequent travels and assignments/duties of workers. The letter of introduction from the university and were very helpful and contributed immensely to the collection

of data. The research was very favourable on the field and the methodologies employed to a large extent helped to enhance success in the field.

Ethical Consideration

The researcher gave due consideration to the legal framework governing the conduct of academic research. All respondent were assured that any information provided would be used for the purpose of this study only. Their anonymity was assured and any information that would identify any respondent in the study such as the names of the firm, names of position held and location of the firm was not included in the study. Participation in the research was voluntary and anything that would infringe on the rights of the participants was avoided. On the other hand, inferential statistics in this study involved the use of logistic regression to determine the effect of demand-side factors on access to external finance. Data analysis techniques were used in the study.

Chapter Summary

The study was mainly confined to all ranks of employed within Sekondi-Takoradi Metropolis .some power users also participated in the study which followed the qualitative research approach by integrating primary and secondary research sources. An exploratory non-experimental survey was used with questionnaires, unstructured personal interviews and FGD as research instruments. Despite their inherent disadvantages, they are deemed best for this study. Also, the study was challenged and limited by lack of adequate recent and relevant materials. Other limitations and challenges include initial difficulty in framing and testing questionnaires for best responses from

respondents, late submission of completed questionnaires, time and financial constraints. However the amount of care, vigilance and diligence taken in conducting the study mitigated the impact of the limitations. The disposition of large numbers worker in different organization in the selected regions also offer an opportunity to generalize the findings of the research.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The chapter provides the results of the data gathered in connection with the specific objectives of the study. The results of the study were presented in five segments. The first segment discusses the background information of respondents. The second and third segments present the results on privatization impact on system performance and increase service delivery to consumers and the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers. The final segment examines the effect to which privatization of electricity sector will have on customers in the lower income bracket.

Background Information of Respondents

This section describes the background information of respondents. The aim was to show the background information of the respondents as a preliminary discussion to the study. The background information of the respondents to some extent show how well respondents qualify to respond to the issues of study. Some of the issues discussed under the section were sex, age, highest academic qualification, marital status and occupation. Fergusson and Mulwafu (2004) indicated that the background information of people influence their understanding and level of participation on issues. From the study, majority (55.9%) of the respondents are males, while (44.1%) are females as illustrated in Table 2.

From Table 2, most (43.6%) of the respondents fell within the age ranges 32-38 years. This was followed by (26.1%) of the respondents whose

age fell within the ranges 25-31 years. Approximately five percent of the respondents' ages fell within 18-24 years. This shows that most of the respondents were within the active working age. A cross tabulation of respondents age and sex shows that (24.5%) of the male respondents are within the age range 32-38 years. Approximately (12%) of the female respondents are within the age range 25-31 years.

Most 47 percent of the respondents do hold Bachelor's Degree certificate as depicted in Table 2, whereas 34.5 percent have had high school education. Approximately, eleven percent of the respondents hold Masters Degree certificate. The remaining 7.5 percent hold other certificates. Further analysis between respondents' highest educational level and age range reveals that 18.6 percent of the respondents whose age fell within 32-38 years hold a Bachelor's Degree certificate. Approximately four percent of the respondents whose age range fall within 25-31 years hold senior high school certificate.

Majority 61.6 percent of the respondents are married while 38.4 percent of the respondents are single. A cross tabulation between respondents marital status and sex indicates that 35 percent of the male respondents are married. But 17.5 percent of the female respondents are single. In relation to the occupational status of the respondents, the data revealed that about 70percent of the respondents are employees, 17.7 percent are self-employed while 12.3 percent are unemployed.

Table 1 : Background Information of Respondents

Background Information	Frequency	Percentage (%)
Sex		
Male	246	55.9
Female	194	44.1
Age Range (years)		
18-24	21	4.8
25-31	115	26.1
32-38	192	43.6
39-45	108	24.5
46-52	2	0.5
53 and Above	2	0.5
Highest Edu. Level		
High School	152	34.5
Bachelors	207	47.0
Masters	48	10.9
Others	33	7.5
Marital Status		
Single	169	38.4
Married	271	61.6
Occupation		
Unemployed	54	12.3
Self-employed	78	17.7
Employee	308	70.0

Source: Field data, Dadzie (2016), $N=440$

Electricity Supply Sector Reforms

It can be observed from Table 1 that 62.3 percent of the respondents expressed the view that they agree for the government to allow for private ownership of Ghana's electricity sector. However, the remaining 37.7 percent said no. This finding is consistent with the view of Heatley (2012), he stresses that the ordinary Ghanaians are not satisfied with the service delivery being provided by the power sector hence the need for government to privatize which could help government save money in management and delivery of public services.

Table 2 : Responses on Private Ownership of Ghana's Electricity Supply Sector

	Frequency	Percentage
Yes	274	62.3
No	166	37.7
Total	440	100.0

Source: Field data, Dadzie (2016)

Table 2 captures respondent's view on which of the state-owned electrical utilities they suggest should be privatized. Majority (64.5%) of the respondents expressed the view that the Electricity Company of Ghana should be privatized. This was followed by 19.1 percent who affirmed that GRIDCo should be privatized. The remaining 16 percent were in favour of VRA privatization. With the current power crisis of load shedding and unplanned and frequent power outages across the country, most Ghanaian blame the ECG for not working efficiently and therefore call on the government to solve the problem by privatizing ECG, hence the high number of respondents (Andoh, 2015).

Table 3 : Views on which State-owned Utilities should be Privatized

	Frequency	Percentage
ECG (Distribution)	284	64.5
GRIDCo (Transmission)	84	19.1
VRA (Generation)	72	16.4
Total	440	100.0

Source: Field data, Dadzie (2016)

The views of respondents relative to the reasons that requires privatization of the state electrical utility is illustrated in Table 3. From the table most 49.1 percent of the respondents suggested that poor service delivery on the part of the state electrical utility is a major reason for the privatization. About 19.8 percent of the respondents opined that poor attitude of workers is another reason cited for the privatization. Only six percent viewed political interference as a cause of worry, hence the privatization. The finding is consistent with Phaaahlamohla, (2006) report which state that monopolized state owned electricity are normally less effective and efficient due to reason such as poor network maintenance, poor attitude of workers, political interference and poor service delivery.

Table 4: Reasons that requires Privatization of State Electrical Utility

Reasons	Frequency	Percentage
Poor service delivery	216	49.1
Poor attitude of workers	95	21.6
Poor maintenance work	87	19.8
Political interference	26	5.9
Others	12	2.7
Environmental factors	4	.9
Total	440	100.0

Source: Field data, Dadzie (2016)

Influence of Adopting Privatization on Service Delivery Expectation to Consumers

The first research objective sought to determine the influence of adopting privatization on service delivery expectation of consumers. To determine the extent to which privatization impact service delivery to consumers, the standard simple regression was found to be more appropriate. The results indicate how well the adopting privatization predict system performance and service delivery. It also indicates how much unique variance in the independent variables (privatization adoption) it explains the dependent variable (performance and service delivery) as reflected in Table 4.

Table 5 : Regression analysis on Privatization Adoption and Service Delivery Expectation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.331 ^a	.109	.107	.486063

Source: Field data, Dadzie (2016)

- a. Predictors: (Constant), privatization adoption
- b. Dependent variable: service delivery expectation

From Table 5, the simple regression Analysis (model summary) indicates that the independent variable met the entry requirement to be included in the equation. The R (.331) shows a weak positive correlation between the predictive variable (privatization adoption) and the dependent variable (service delivery expectation). The R-square value indicates that about 10.9% of the variance in service delivery expectation is explained by the privatization adoption. This implies that 89.1 percent of service delivery expectation is explained by other variables apart from the privatization adoption.

Table 6: Effect of Privatization adoption on Service Delivery Expectation

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.721	1	12.721	53.846	.000(a)
Residual	103.481	438	.236		
Total	116.202	439			

Source: Field data, Dadzie (2016) p-value > 0.001

Table 6 shows results of the effect of the privatization adoption on service delivery expectation. From the Table, a p-value of 0.001 implies that the privatization adoption has significant effect on service delivery expectation, and thus there is a linear relationship between privatization adoption and service delivery expectation. This shows that the null hypothesis is rejected at an alpha value of 0.05. In other words, there is a significant effect of the privatization adoption on service delivery expectation. The result also

shows that 10.9 percent contribution of privatization adoption to service delivery expectation was significant.

This prevailing problem being faced by ECG has necessitated the masses suggesting the government to allow the concept of privatization and sell ECG (Ghana Web, 2015). Sizeable number of studies has examined that state ownership only does not enhance economic gains and therefore suggest privatization for competition for within the industry which is associated with lower prices, lower cost and higher productive efficiency (Zhang ., 2004). Furthermore, Table 7 shows the contribution of privatization adoption (independent variables) to service delivery expectation. The β values indicate the relative influence of the independent variable on service delivery expectation.

Table 7 : Privatization Adoption Prediction on Service Delivery Expectation

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta (β)	t	Sig.
(Constant)	3.552	.070		50.892	.000
Privatization adoption	-.351	.048	-.331	-7.338	.000

Source: Field data, Dadzie (2016)

a. Dependent Variable: Service Delivery Expectation

The β value indicates that privatization adoption has relative influence on service delivery expectation ($\beta = -0.351$, p-value < 0.001), expressed in percentage form as 35.1 percentage A p-value of 0.000 associated with privatization adoption shows that its contribution to service delivery

expectation is significant. This is because the p-value of 0.000 is less than the acceptable margin error of 0.05. This finding is consistent with the views of Abdi (2005), he stated that efficient delivery of electricity is dependent on the ability of electric utilities to deliver affordable, reliable and widely available service at acceptable levels of technical and financial performance.

Implication of this finding is that the SOEs cannot be said to be efficient in delivery of electric power. Factors such as poor utility management and performance, over-aged equipment, and technology, lack of network maintenance, lack of competition and poor attitude of staff can be attributed to the inefficient service delivery of these SOEs. Also the monopolistic behavior of such industry has played a vital role in their inefficiency and poor financial performance.

Extent of Price Subsidies, Low Collection Rate, and High Network Losses on Service Delivery to Consumer

The second research objective sought to investigate the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers. To determine the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers, the standard multiple regression was found to be more appropriate. This involves all of the independent variables being entered into the equation at once. The results indicate how well price subsidies, low collection rate, and high network losses predict service delivery. It also indicates how much unique variance in the independent variables (price subsidies, low collection rate, and high network losses) explain the dependent variable (service delivery).

Table 8 : Regression analysis of Network Loss, subsidies, High Tariffs, Low Collection Rate on Service Delivery Expectation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.164(a)	.027	.016	.540019

Source: Field data, Dadzie (2016)

Predictors: (Constant), network loss, subsidies, high tariffs, low collection rate

Dependent variable: service delivery expectation

From Table 8, the multiple regression Analysis (model summary) indicates that the independent variables met the entry requirement to be included in the equation. The R (.164) shows a weak positive correlation between the predictive variable (price subsidies, low collection rate, and high network losses) and the dependent variable (service delivery). The R-square value indicates that about three percent of the variance in service delivery expectation is explained by the price subsidies, low collection rate, and high network losses. This implies that 97 percent of service delivery is explained by other variables apart from the price subsidies, low collection rate, and high network losses.

Table 9 : Effect of Price Subsidies, low Collection Rate, and High Network Losses on Service delivery Expectation

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	2.821	4	.705	2.418	.048(a)
Residual	102.650	352	.292		
Total	105.471	356			

Source: Field data, Dadzie (2016)

p-value > 0.001

Table 9 shows results of the effect of the price subsidies, low collection rate, and high network losses on service delivery expectation. From

the Table, a p-value of 0.048 implies that the price subsidies, low collection rate, and high network losses have significant effect on service delivery expectation. This shows that the null hypothesis is rejected at an alpha value of 0.05, and thus there is a linear relationship between price subsidies, low collection rate, and high network losses and service delivery expectation. The result also shows that three percent contribution of price subsidies, low collection rate, and high network losses to service delivery expectation was significant. Furthermore, Table 10 shows the contribution of price subsidies, low collection rate, and high network losses (independent variables) to service delivery expectation. The β values indicate the relative influence of each independent variable on service delivery expectation.

Table 10 : Price Subsidies, Low Collection Rate, and High Network Losses Prediction on Service Delivery Expectation

Model	Unstandardized		Standardized		t	Sig.
	B	Std. Error	Beta (β)			
(Constant)	3.136	.151			20.775	.000
High Tariffs	-.046	.020	-.122		-2.282	.023
Price subsidies	-.014	.020	-.036		-.669	.504
Low Collection Rate	.034	.021	.089		1.621	.106
Network Loss	.020	.027	.040		.734	.463

Source: Field data, Dadzie (2016)

a. Dependent Variable: Service Delivery Expectation

The β value indicates that high tariffs has a relative influence on service delivery expectation ($\beta = -.06$, p-value = 0.023), expressed in

percentage form as 4.6%. A p-value of 0.023 associated with high tariffs shows that its contribution to service delivery expectation is significant. This is because the p-value of 0.023 is less than the acceptable margin error of 0.05. This implies that a unit increase in high tariffs leads to decrease in service delivery expectation by the respondents.

The finding supports Gratwick and Eberhard (2008) suggestion that privatization might increase price tariffs since investors have short –term to recoup financial investments capitals none of these studies was able to deny the fact that privatization improve efficiency of the electricity supply industry due to the competition it generates for which this research results also attest same. Price subsidies, low collection rate and network loss do not have any significant influence on service delivery expectation as illustrated in Table 11.

Table 11 highlights some challenges faced by domestic and commercial customers regarding frequent power outages (dumsor). From the table approximately, 48.2 percent of the respondents stressed that high electricity tariffs are some of the challenges they face as a result of frequent power outages. This was followed by (32%) of the respondents who cited damage to equipment as a challenge. Business productivity (13.6%) and delay in customer service to users (6.1%) were both identified as some challenges associated with frequent power outages (dumsor).

Table 11 : Challenges faced by Domestic and Commercial Customers regarding Frequent Power Outages (Dumsor)

Challenges	Frequency	Percentage
High electricity tariffs	212	48.2
Damage to equipment	141	32.0
Affected business productivity	60	13.6
Delay in customer service to users	27	6.1
Total	440	100.0

Source: Field data, Dadzie (2016)

It can be observed from Table 11 that majority (69.3%) of the respondents suggested that the government should adopt full privatization as electricity supply reform for ECG. Twenty seven percent opined that public private partnership monopolistic (government owned). Only three percent suggested other reforms.

Table 12 : Suggestions for Electricity Supply Reform for ECG

Response	Frequency	Percentage
Full privatization	305	69.3
Public private partnership monopolistic	119	27.0
Others	16	3.6
Total	440	100.0

Source: Field data, Dadzie (2016)

Approximately 48.43 percent of the respondents expressed the view that privatization of ECG will enhance efficiency as observed in Table 12. About (19.7%) of the respondents alluded to availability to customers as a reason for privatizing the Electricity Company of Ghana. Seventeen percent said privatization of ECG will lead to enhanced affordability. About eight

percent suggested that privatization of ECG will lead to improved network maintenance.

Table 13: Benefits of Privatization of ECG

Response	Frequency	Percentage
Enhance efficiency	213	48.4
Availability to customers	87	19.7
Enhance affordability	76	17.3
Improved network maintenance	33	7.5
Improved technology	31	7.1
Total	440	100.0

Source: Field data, Dadzie (2016)

Table 13 captures respondents view on the set-backs if ECG is privatize. From the table about 43.9 percent asserted that high prices is one of the set-backs to be suffered if ECG is privatize. This was followed by unemployment which attracted (38.9%). Three percent of the respondents identified loss of state revenue as a set-back.

Table 14 : Views on set-backs if ECG is Privatize

Response	Frequency	Percentage
High Prices	193	43.9
Unemployment	171	38.9
Low Price	61	13.9
Loss of State Revenue	13	3.0
Available supply	2	0.5
Total	440	100.0

Source: Field data, Dadzie (2016)

Effect to which Privatization of Electricity Sector will have on Business Performance

Research objective three sought to examine the effect of electricity privatization on business performance. To achieve this objective, the standard simple regression was found to be more appropriate. The results indicate how well the adopting privatization predict business performance. It also indicates how much unique variance in the independent variables (privatization adoption) explains the dependent variable (business performance) as shown in Table 14.

Table 15 : Regression Analysis on Privatization Adoption and Business Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.450(a)	.203	.201	1.325

Source: Field data, Dadzie (2016)

- c. Predictors: (Constant), privatization adoption
- d. Dependent variable: business performance

From Table 15, the simple regression Analysis (model summary) indicates that the independent variable met the entry requirement to be included in the equation. The R (.331) shows a weak positive correlation between the predictive variable (privatization adoption) and the dependent variable (business performance). The R-square value indicates that about 20.3% of the variance in business performance is explained by the privatization adoption. This implies that 79.9% of business performance is explained by other variables apart from the privatization adoption.

Table 16 : Effect of Privatization adoption on Service delivery Expectation

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	158.480	1	158.480	90.296	.000(a)
Residual	623.066	355	1.755		
Total	781.546	356			

Source: Field data, Dadzie (2016) p-value > 0.001

Table 16 shows results of the effect of the privatization adoption on service delivery expectation. From the Table, a p-value of 0.00 implies that the privatization adoption have significant effect on service delivery expectation, and thus there is a linear relationship between privatization adoption and business performance. This shows that the null hypothesis is rejected at an alpha value of 0.05. In other words, there is a significant effect of the privatization adoption on service delivery expectation.

The result also shows that 20.3% contribution of privatization adoption to business performance was significant. Furthermore, Table 17 shows the contribution of privatization adoption (independent variables) to business performance. The β values indicate the relative influence of the independent variable on business performance.

Table 17 : Privatization Adoption Prediction on Business Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	-.100	.362		-.275	.783
Business performance	1.026	.108	.450	9.502	.000

Source: Field data, Dadzie (2016)

a. Dependent Variable: business performance

The β value indicates that privatization adoption has relative influence on business performance ($\beta= 1.026$, $p\text{-value} < 0.001$), expressed in percentage form as 102.6%. A p -value of 0.000 associated with privatization adoption shows that its contribution to business performance is significant. This is because the p -value of 0.000 is less than the acceptable margin error of 0.05. The finding agrees with Adam *et al.* (2013) assertion that in Ghana, the persistent “dumsor” crisis has led to an increase in the cost of doing business creating high cost of doing business creating high cost of living condition for the poor people. This has affected existing business and prevented the setting up of new industries. It has actually collapsed most existing jobs and caused a decrease in the production level and workforce of success of business.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this final chapter is to present the summary, conclusions and recommendations of the study. The summary presents a brief overview of the study which encompasses the research objectives, methodology and findings while the conclusions captures the overall outcomes regarding the findings of the study. The recommendations also present specific remedies to be implemented. The chapter also presents the direction for future research.

Summary

This section presents the summary of the findings in view of the objectives of the study. The general purpose of the study was to determine if privatization of electricity supply sector of Ghana is the best available reform option. It specifically purport to analyze whether adopting privatization will help solve the problem of increase service delivery to consumers. The study further investigated the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers. It finally examined the effect to which privatization of electricity sector has on business performance.

Simple random sampling method was used to sample a total of 440 respondents. Data obtained from respondents were coded and analyzed with Statistical Product and Service Solutions (SPSS) version 21. Descriptive statistics such as means, standard deviations, frequencies, cross tabulation and

percentages were used to describe the data. Tables were constructed for items with mean rating and standard deviation for each response, calculated to support the analysis and aid further discussion.

Inferential statistics employed were the simple and multiple regression tool to determine the extent to which privatization impact on service delivery to consumers. Furthermore, the multiple regression was employed to examine the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers. Questionnaires were employed in the collection of data to address the research objectives. The data were personally collected by the researcher after explaining the purpose and assuring respondents of confidentiality.

Key Findings

The following are the summary of the key findings of the study. In addressing the first research objective which sought to explore the influence of adopting privatization on service delivery expectation. The following key findings emerged.

1. Majority (62.3%) of the respondents support the view that government should allow for private ownership of Ghana's electricity sector. The respondents further affirmed that the Electricity Company of Ghana should be privatized.
2. The respondents cited poor service delivery, poor attitude of workers and poor maintenance work on the part of the company as the very reasons why the country requires privatization of state electrical utility.
3. The study documents a shows a weak positive correlation between privatization adoption and service delivery expectation. The R-square

value indicates that about (10.9%) of the variance in service delivery expectation is explained by the privatization adoption.

4. Privatization adoption has relative significant influence on service delivery expectation ($\beta = -.351$, $p\text{-value} < 0.001$). A $p\text{-value}$ of 0.001 associated with privatization adoption shows that its contribution to service delivery expectation is significant.

The second research objective sought to determine the extent to which the burden of price subsidies, low collection rate, and high network losses affect service delivery to consumers. The following are the key findings that emerged.

1. There is a weak positive association (.164) between price subsidies, low collection rate, and high network losses and service delivery. About three percent of the variance in service delivery expectation is explained by the price subsidies, low collection rate, and high network losses as shown by the R-square (3%).
2. The study established that high tariffs has a relative significant influence on service delivery expectation ($\beta = -.06$, $p\text{-value} = 0.023$). Price subsidies, low collection rate and network loss do not have any significant influence on service delivery expectation.
3. The respondents cited high electricity tariffs, damage to equipment and low business productivity are some of the challenges faced by domestic and commercial customers relative to frequent power outages (dumsor).

4. Most respondents suggested privatisation of ECG will enhance efficiency, enhance affordability, improved network maintenance and improved technology.

In answering the third research objective, which sought to examine the effect of electricity privatization on service delivery to customers. The following key finding were discovered.

1. The study documents a weak positive correlation (.331) between the privatization adoption and the service delivery to customers. The study found that about (20.3%) of the variance in business performance is explained by the privatization adoption.
2. The study found that privatization adoption has relative significant influence on service delivery to customers ($\beta = 1.026$, $p\text{-value} < 0.001$). The $p\text{-value}$ of 0.001 associated with privatization adoption shows that its contribution positively to service delivery to customers significant.

Conclusions

In light of the above enumerated key findings that emerged, the following conclusion are drawn.

1. The respondents view that government should allow for private ownership of Ghana's electricity sector and that the Electricity Company of Ghana should be privatized. This finding implies that majority of the customers are not comfortable with the power outages and would have opted out for another source of power if readily available.
2. It emerged that poor service delivery, poor attitude of workers and poor maintenance work on the part of the company as the very reasons

the respondents cited that the country requires privatization of state electrical utility. This means that most customers perceive these negative attributes of the company hinders efficient power delivery, hence the call for its privatization.

3. Privatization adoption has a relative significant influence on service delivery expectation. This implies that, as service delivery expectation of customers increase there is a lower call for ECG privatization. Price subsidies, low collection rate and network loss do not significantly affect service delivery expectation.
4. The study found that privatization adoption has a relative significant influence on business performance. The finding implies that customer's hold a strong believe that businesses will perform well if the power sector is privatized and given the needed attention.

Recommendations

In view of the findings made and conclusions drawn from the study the following recommendation have been made to enable government review its current electricity policy and attempt to implement privatization of the power supply sector assessing the impact it will have on the customers.

1. Government should realize that privatization is a process on its own and should be implemented gradually. The government needs to expand privatization from one sector to the next and learn from the experiences each sector comes with the policy implementation
2. The distribution sector requires particular attention. Electricity Company of Ghana (ECG) currently enjoys a monopoly which has led to service delivery inefficiency and lack of competition

therefore discouraging foreign investment in our country. To address this problem, the government should holistically analyze their challenges with shareholders involvement and then define whether partial or full privatization is the best appropriate.

3. Currently the electricity-generating capacity is increasingly inadequate due to the yearly demand growth and dependent on only hydro and thermal power generation. To solve this problem, is important the government add alternative sources of energy such as solar, renewable or nuclear energy by broadening the privatization of the generation sector.
4. It is clear by law that the PURC is mandated to set actual tariff levels. However, it is important for the regulatory authority to institutionalized adequate communication process that will minimize the public perception of them paying more the amount of power consumed.
5. The Idea that job losses and unemployment will result from privatization is a misconception which needs to be addressed. Awareness creation should be enhanced to clarify the relationship between privatization seek to address inefficiency which usually leads to job losses.
6. Political interference in the electricity industry needs to reduce to ensure efforts through private participation and operation is not thwarted. The government must support the capital investment made by these foreigners by ensuring free markets and open competition.

Suggestion for Further Studies

It is recommended that a further studies should be carried out to establish the effect of service quality and consumer loyalty on customer satisfaction among domestic and commercial public utility users.

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APPENDIX A QUESTIONNAIRE

Dear Participant,

My name is Alex Ato Dadzie ,a master's student at University of cape coast (UCC) from school of business pursuing master's in Business Administration (MBA) General Management and undertaking a Dissertation work entitled "**Impact of Propose privatization of the Electricity supply sector of Ghana: on the lower income bracket**". The aim of the study is to determine if privatization of the electricity supply sector of Ghana is the best available reform option and its economic impact.

As part of the project, am requesting your assistance to kindly spend about 10-15 minutes of your time to complete the attached Questionnaire. The questionnaire will enable me gather information needed to achieve the study objectives. This exercise is voluntary and any information provided is solely for the study and will be treated with utmost **confidential**. The data once analyzed will be used for concluding the research in my project. All findings will **anonymised** and will be impossible to identified individual data.

Thank you very much for your help!

Participant Consent Form

I understand that by returning the questionnaire, I am giving my informed consent as a participating volunteer in this research. I realize that I have the right to refuse to participate and a right to withdraw from participation at any time during the study. NOTE: Questions and concern regarding the study can be firstly addressed to the researcher or supervisor.

2. Which of the following state-owned electrical utilities do you suggest to be privatized?

- VRA (Generation) [] GRID Co (Transmission) []
 ECG (Distribution) []

3. What are some of the reason that requires privatization of the chosen state electrical utility?

- Poor maintenance work [] Poor service delivery []
 Poor attitude of worker [] Political interference []
 Environmental factors [] Others (Specify).....

4. To what extent do the under listed challenges faced by customers (domestic and commercial) result of Frequent power outages (dumsor) where 1 = slightly agree and 5 strongly agree

	1	2	3	4	5
High Tariffs					
Damage to equipment					
Affected business productivity					
Delay in customer service to users					

5. As customer, I suggest the government should adopt the following electricity supply reform for ECG

- Full privatization []
 Public private partnership monopolistic (Government owned) []
 Other (Specify).....

6 To what extent do you think privatization of ECG would help address the following where 1 = slightly agree and 5 strongly agree

	1	2	3	4	5
Enhance efficiency					
Enhance Affordability					
Availability to customers					
Improve network maintenance					
Improved technology Increase employment					

7. What are some of the set-backs if ECG is privatize

.....

.....

.....

Part 3: Impact of Electricity supply sector Reforms (Service delivery)

Place an X in the box that most closely describes your performance. Key words: NA (Not Agree), SA (slightly agree), MA (Moderately Agree) HA (Highly agree) SA (strongly agree)

	Statement	NA	SA	MA	HA	SA
1.	The public (government) electricity energy Organizations VRA, GRIDCo, and ECG, are efficient in terms of service delivery.					
2	The Government needs to divert from the natural monopoly of the electricity supply sector and allow for private participation.					
3	Electricity company of Ghana (ECG) is effective and efficient in terms of customer’s delivery expectation					
4.	Access to electricity power has increased in Ghana especially the rural areas					

5.	Load shedding of power has drastically been increased in my areas.					
6.	Frequent power outages “dumsor” has affected household income and energy-consumption trends.					
7.	I have an alternative source of electricity supply (generator) during power outages.					
8.	Privatization will increase price tariffs since investors have short-term to recoup financial investment capitals.					
9.	Customers are underprice (paying less) compared to electricity cost of production of 1kwh.					
10.	Customers are now charged or billed on accurate consumption as read from the meter and not discretionary or flat billing.					
11.	Information on tariff increase are readily and politely explained by marketers to all customers as appropriate					
12.	There is prompt response to faults and customers complaint by ECG.					
13.	There is high quality and reliability of power supply in most households					
14.	Changes in electricity supply have impacted Fuel usage and small business expenditure.					
15.	Utility system fit poor household’s income patterns and other needs.					
16.	The power crisis has affected and influenced employment and expansion.					
17.	Privatization of electricity supply will improve access to health/education facilities.					

18.	Privatization of the electricity supply has the potential of improving the lives of poor, minimizing the level of inconvenience in their daily lives.					
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Thank You