



Energy

SECTOR



Ghana
On the go!



INTRODUCTION

The energy sector is the lifeline in the development of any nation. This belief informed the decision to undertake the construction of the first hydroelectric (Akosombo) dam in 1965, which continues to be an important investment in Ghana's economic history. Over the years with the increased demand by power users for greater security and reliability other sources of power – thermal, solar and lately windmills, as well as imports – have been added to the generation mix. The thrust of Government policy in the energy sector and Ghana's oil find in commercial quantities is to push for a significant increase in its energy resources to become a net exporter of both power and fuel. The production of Ghana's oil started in the year 2010.

SUB-SECTORS

The energy sector in Ghana contributes significantly to the economy. The sector can be classified into two main sub-sectors; the Petroleum and Power Sub-sectors

Petroleum Sub-Sector

Ghana's petroleum sector involves upstream and downstream activities. The upstream activities include the exploration, development, production, procurement and refining of crude oil and the downstream activities include production, distribution and marketing of petroleum products and premixing of petroleum products for industrial uses, including fishing.

Distribution of petroleum products in Ghana is dominated by multinational oil marketing companies. Following the deregulation policy of the government, the oil marketing companies have increased in numbers to include several local Ghanaian companies. The products are retailed through gas stations which are either owned by the Oil Marketing Companies (OMCs) or private individuals. There are one hundred and thirty-eight (138) accredited oil marketing companies in good standing for business in Ghana. The private sector, including the OMCs and others source and supply finished products through an open competitive tendering system.

Power Sub-Sector

The focus of the policy is on expanding energy production to meet the needs of consumers of electricity and ensuring the extension of electricity to all areas of the country; the development of the newly discovered oil and gas sector; and the identification and development of renewable energy sources to boost energy supply in Ghana. Also, there has been significant encouragement in the use of LPG as a substitute for wood fuel (charcoal), as part of the programme to preserve national forests and halt the advancement of desertification and climate change.

The power sub-sector involves the generation, transmission and distribution of electrical energy for industrial, commercial and domestic use in Ghana. The Power System of Ghana is run by

seven public institutions. These are the Ministry of Energy (MOE), Energy Commission (EC), Public Utility Regulatory Commission (PURC), Volta River Authority (VRA), Ghana Grid Company (GridCo), Electricity Company of Ghana Limited (ECG) and the Northern Electricity Department Company (NEDCo), a subsidiary of the VRA.

SECTOR COMPOSITION

Energy Sector Structure and Deregulation

Prior to the energy market reforms of the 1990s, Ghana's energy market was state owned, vertically integrated and highly regulated. The Volta River Authority (VRA) was responsible for generation and transmission. The state-owned Electricity Company of Ghana (ECG) and VRA subsidiary the Northern Electricity Department Company (NED) were responsible for distribution to customers in the southern and northern halves of the country respectively.

Deregulation and reforms of the policy framework radically restructured the power utility sector to facilitate greater efficiency and competition. The roles and responsibilities of existing utilities were changed and new entities and regulators introduced to ensure the smooth running of the new market structure. The changes resulted in:

- VRA focusing on power generation, retaining its Akosombo, Kpong, and Aboadze power generation assets.
- GRIDCo being spun out of the VRA to have the sole responsibility of independently and impartially operating the transmission network.
- NEDCo and ECG continuing to focus exclusively on distribution.
- The creation of the Public Utilities Regulation Commission (PURC) Act, 1997 (Act 538) which sets energy prices (rates and tariffs), monitors utility performance, promotes competition and focuses on balancing the interests of consumers and utilities.
- The formation of the Energy Commission (EC) Act, 1997 (Act 541) which awards utility operating licences and sets performance standards.

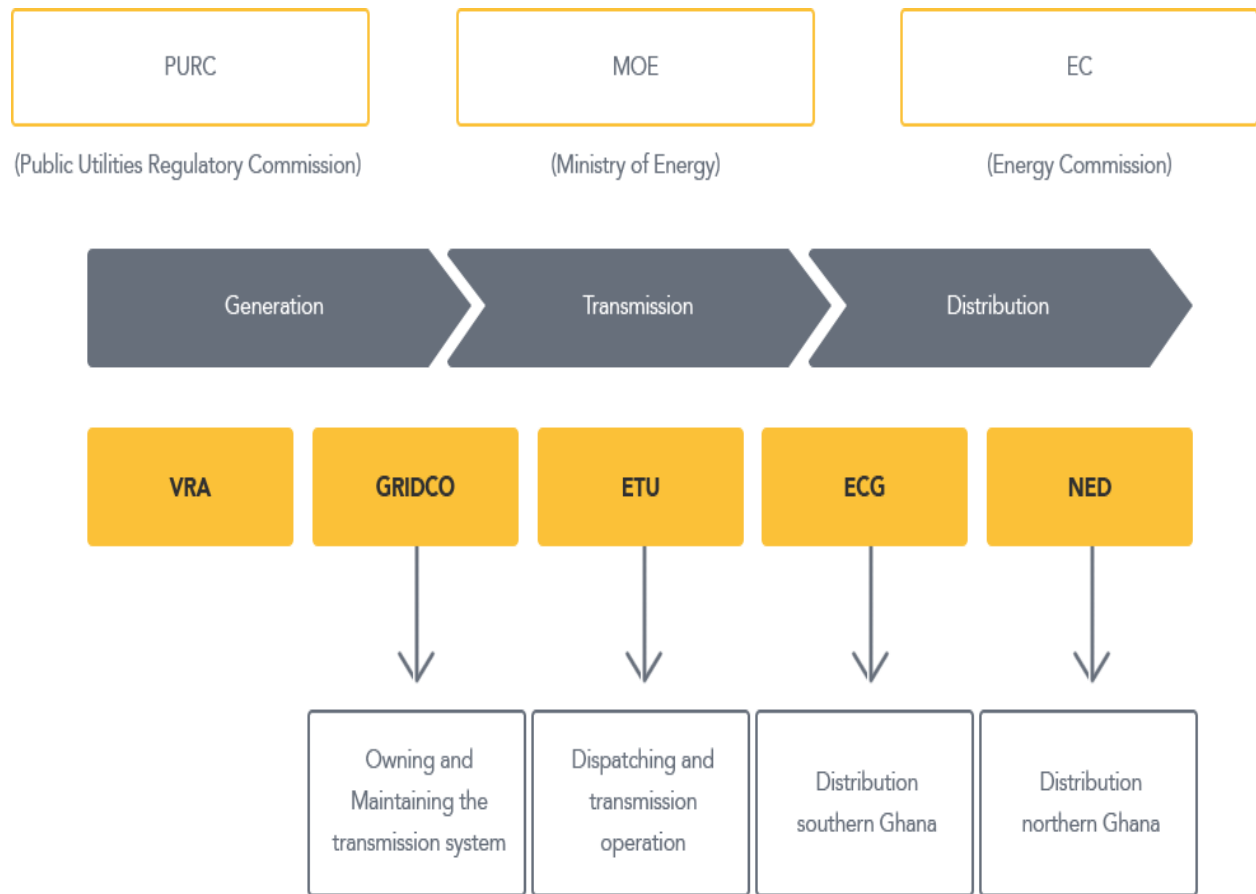
Electricity is the dominant modern energy form used in the industrial and service sectors accounting for 69% of modern energy used in the two sectors of the national economy. The Ghana electricity supply industry is unbundled with separate jurisdictions and entities regarding activities of electricity generation, transmission and distribution.

Electricity generation is undertaken by the state-owned Volta River Authority (VRA), which operates the Akosombo Hydro Power Station, Kpong Hydro Power Station and the Takoradi Thermal Power Plant (TAPCO) at Aboadze. VRA is also a minority joint partner with TAQA, a private sector company which owns and operates the Takoradi International Power Company

(TICO) thermal power plant also located at Aboadze. Bui Power Authority (BPA), another state-owned entity, is charged with the implementation of the Bui Hydroelectric Power Project. In addition, independent power producers have been licensed to build, own and operate power plants.

The structure of Ghana Energy’s market is shown in figure 1 below:

Figure 1: Ghana’s Energy Market



The market and regulators, Public Utility Regulatory Commission (PURC) and the Energy Commission (EC) welcome Independent Power Producers (IPPs) to compete with existing utilities, and this is enabled by open access to the independent transmission network.

GRIDCO (Transmission)

GRIDCo was established in accordance with the Energy Commission Act, 1997 (Act 541) and the Volta River Development (Amendment) Act, 2005 Act 692, which provides for the establishment and exclusive operation of the National Interconnected Transmission System by an independent Utility and the separation of the transmission functions of the Volta River Authority (VRA) from its other activities within the framework of the Power Sector Reforms.

The grid transmission network connecting the main production to consumption centres has been modeled and categorized into five zones under the Ghana Grid Company (GridCo).

There are four voltage levels, in the power grid: 330kV, 225kV, 161kV & 69kV

The total length of the transmission line is 4315km, in which 330kV line (219km), 225kV line (73km), 161kV line (3,888km) and 69kV line (132km). There are 53 substations and about 100 transformers in the transmission grid of Ghana. It is expected in the power grid planning of Ghana that the 330kV backbone grid will form all over the country's grid by 2020. The 161kV voltage level will serve as the regional transmission voltage.

GRIDCo's main functions are to:

- Undertake economic dispatch and transmission of electricity from wholesale suppliers (generating companies) to bulk customers, which include the Electricity Company of Ghana (ECG), Northern Electricity Distribution Company (NEDCo) and the Mines;
- Provide fair and non-discriminatory transmission services to all power market participants;
- Acquire and manage assets, facilities and systems required to transmit electrical energy;
- Provide metering and billing services to bulk customers;
- Carry out transmission system planning and implement necessary investments to provide the capacity to reliably transmit electric energy; and manage the Wholesale Power Market.

AGENCIES IN THE ENERGY SECTOR

The National Interconnected Transmission System (NITS) for electricity is owned and operated by the Ghana Grid Company (GRIDCO). GRIDCO is a state-owned company. The distribution of electricity is done by the Electricity Company of Ghana (ECG), a state-owned company, and the Northern Electricity Development Company (NEDCo), a subsidiary of the Volta River Authority (VRA).

The Energy Commission (EC) and the Public Utilities and Regulatory Commission (PURC) regulate the electricity supply industry. The Energy Commission, in addition to being responsible for technical regulations in the power sector, also advises the Minister for Energy on matters relating to energy planning and policy. The PURC on the other hand is an

independent regulatory agency responsible for the economic regulation of the power sector with the mandate to approve rates for electricity sold by electricity distribution utilities.

The Ministry of Energy is responsible for formulating, monitoring and evaluating policies, programmes and projects in the energy sector. It is also the institution charged with the implementation of the National Electrification Scheme (NES) which seeks to extend the reach of electricity to all communities in the long term.

The current President Nana Addo Dankwa Akuffo-Addo announced a merger of the Ministries of Energy and Petroleum and Power to Ministry of Energy to bring about a sharper focus on the generation, supply and efficiency of power to match the growth the economy was experiencing.

CURRENT TRENDS

Power Distribution

There are 3 distribution companies currently operating in Ghana, with some 69 Substations scattered around the country

- Electricity Company of Ghana (ECG) - serves customers in the southern Ghana
- Northern Electricity Distribution Company - serves the northern part of the country
- En Clave Power – serves companies at the Tema free zone enclave

GENERATION

Figure 1: Generation Capacity

INSTALLED POWER	CAPACITY
Total installed power capacity	4,674MW
Hydro Generation	1,580MW
Thermal Generation	3,071.5MW
Renewable Energy(Navrongo Solar PV plant and BXC Solar)	22.5MW

Target of 5000MW in the medium term by 2020

The government's energy policy is embodied in the Strategic National Energy Plan 2006-2020. The policy aims to develop a sound energy market that would provide sufficient, viable and efficient energy services for Ghana's economic development through the formulation of a comprehensive plan that will identify the optimal path for the development, utilization and efficient management of energy resources available to the country.

The energy sector has been a vital component of Ghana’s industrial and socio-economic development. In this regard, the sector has been undergoing a number of developmental initiatives to improve overall operational efficiency and supply security.

Ghana has relied mainly on hydro-power plants for electricity generation. A few thermal plants are used to regulate the peak load. However, recently the net demand for electrical power has been considerably greater than the supply.

GENERATION INSTALLED CAPACITY

Figure 2: VRA Installed Generation Capacity

PLANT	INSTALLED CAPACITY (MW)	DEPENDABLE CAPACITY (MW)	TYPE OF PLANT	FUEL TYPE
Akosombo	1,020	900	Hydro	Water
Kpong	160	140	Hydro	Water
TAPCO-T1	330	300	Thermal	Gas/LCO
TICO-T2	330	320	Thermal	Gas/LCO
Mines Reserve Plant - MRP	80	0	Thermal	Gas
Tema Thermal 1 Plant- TT1PP	110	100	Thermal	Gas/LCO
Tema Thermal 2 Plant- TT2PP	49.5	45	Thermal	Gas
Tema Thermal 2 Plant Expansion - TT2PP-X	38	32	Thermal	Gas
Kpone Thermal Power Plant- KTPP	220	200	Thermal	Gas/DFO
VRA Navrongo Solar Plant	2.5		Solar	Sunlight
TOTAL CAPACITY	2,340	2,037		

*LCO – Light Crude oil / *DFO – Distillate Fuel oil / *HFO – Heavy Fuel Oil

INSTALLED CAPACITY OF INDEPENDENT POWER PRODUCERS (IPPs) AND OTHER PLANTS

Figure 3:

PLANT	INSTALLED CAPACITY (MW)	DEPENDABLE CAPACITY (MW)	TYPE OF PLANT	FUEL TYPE
Bui Hydro	400	340	Hydro	Water
Kar Power Barge 1	235	225	Thermal	HFO
Kar Power Barge 2	470	450	Thermal	HFO

Sunon Asogli Phase 1	200	180	Thermal	Gas
Sunon Asogli Phase 2 Stage 1	180	160	Thermal	LCO/Gas
Sunon Asogli Phase 2 Stage 2	180	160	Thermal	LCO/Gas
Cenit Power Plant	110	100	Thermal	LCO
Ameri Power Plant	250	230	Thermal	Gas
AKSA	289	270	Thermal	HFO
BXC Solar	20		Solar	Sunlight
TOTAL CAPACITY	2,334	2,115		

ALLIED SERVICES/RELATED SECTORS

The discovery of significant oil and gas accumulations in 2007 and the commencement of production of the jubilee field in November 2010 were the most significant events in Ghana's oil and Gas sector in the last 2000s. With the Jubilee, the floodgates appear to have opened to further investment/exploration activities. Ghana's oil and gas sector is rapidly transforming on every front investment (both core and ancillary), scale of operations, discoveries and reserves, policy, legislation and new institutions.

Seismic Data coverage has increased: 2D seismic data totaled about 70,000-line kilometers in 2011, while 3D seismic coverage is over 24,000sq.km. Over 160 wells have so far been drilled in Ghana's sedimentary basins.

Oil and gas companies that have explored onshore and offshore Ghana include Mobil, Shell, Volta Petroleum, Texaco, AgriPetco, Philips Petroleum, Amoco, PetroCanada, Arco, Agip, Nuevo Oil Company, Hunt Oil Company, Dana Petroleum, Santa Fe Energy Resources, Fusion, Devon Energy, Lukoil, Vanco Energy, Oranto Petroleum, Tap Oil, Ophir Energy, Afren Energy etc. IOCs that currently operate in Ghana include Kosmos Energy, Tullow, Anadarko, Sabre Oil and Gas Holdings, Hess Corporation, Vitol Upstream, Eni, AGM Petroleum Cola Natural Resources Limited, Medea Development Ltd holds, A-Z petroleum Products Ghana Limited, ECO Atlantic Oil and Gas Limited, etc.

GOVERNMENT'S POLICY DIRECTION

RENEWABLE ENERGY

The renewable energy sector is gradually growing to help increase power generation output. The government is committed to increasing the use of renewables to provide power in Ghana.

The Renewable Energy Act, 2011 (Act 832) was enacted to enable Ghana achieve a sustainable renewable energy mix and reduce our dependence on other sources of generation.

Government is committed to providing adequate, reliable and cost-effective electricity supply through timely power generation capacity additions and modernization of transmission and distribution infrastructure as well as ensuring universal access to electricity by 2020. The policy objective is to increase installed generation capacity from the current 4,674 MW to 5,000 MW by 2020.

❖ **Renewable Energy**

The main policy issues in the renewable energy sub-sector are:

- Low level of application of new renewables (small hydro, modern biomass, wind, solar, and bio-fuels) in the national energy mix
- Over dependence and inefficient utilization of wood fuel resources.

Renewable Energy Policy Goals

The policy goals of the renewable energy subsector are:

- Achieve 10% contribution of modern renewables (excluding large hydro and wood fuels) in the electricity generation mix by 2020.
- Reduce the demand on wood fuels from 72% to 50% by 2020.
- Promote development and use of other biomass technologies including biogas, biofuels, gasification and waste-to-energy.

SOLAR

- ❖ Research has found that, driven by the growing affordability of LED colour TVs and other appliances (reflecting consumer aspirations for modern energy services), rural households in off-grid areas are willing to pay for quality solar energy services (World bank, 2016). Potential for solar energy production lies in the northern region and the northern parts of Brong-Ahafo and Volta Regions, where there are very high radiation levels received, with monthly average of between 4.4 and 6.5kWh/m²/day. Despite this abundance, solar power still contributes very little to energy production in Ghana.

WIND

Ghana has about 2,000MW of raw potential for wind energy. It is currently reliably projected that over 300 MW installed capacity of wind farm could be established at the coastal part to generate over 500 GWh to supplement the nation's energy supply

SECTORAL DEVELOPMENT**ELECTRICITY CONSUMPTION APPROVED BY THE PURC – 1ST JULY, 2017**

FIRST SCHEDULE	
Tariff Category	Effective
BGC VRA - (GHp/kWh)	21.08
Composite BGC (VRA and IPPs) - (GHp/kWh)	35.97
SECOND SCHEDULE	
Tariff Category	Effective
TSC - (GHp/kWh)	5.59
ASC- (GHp/kWh)	3.15
THIRD SCHEDULE	
Tariff Category	Effective
DSC - (GHp/kWh)	22.22
DWC -(GHp/kWh)	32.74
FOURTH SCHEDULE	
EUT Tariff Category	Effective
Residential	
0-50 (Exclusive) - (GHp/kWh)	33.56
51- 300 - (GHp/kWh)	67.33
301 - 600 - (GHp/kWh)	87.38
601+ - (GHp/kWh)	97.09
Service Charge - (GHp/month)	633.17
Non- Residential	
0-300 -(GHp/kWh)	96.79
301-600 -(GHp/kWh)	102.99
601+ - (GHp/kWh)	162.51
Service Charge - (GHp/month)	1055.29
Tariff Category	Effective
SLT-LV	
Max. Demand - (GHp/kVA/month)	5909.6

Energy Charge - (Ghp/kWh)	100.89
Service Charge - (GHP/month)	4221.15
SLT-MV	
Max. Demand - (GHP/kVA/month)	5065.37
Energy Charge - (Ghp/kWh)	78.09
Service Charge - (GHP/month)	5909.6
SLT-HV	
Max. Demand - (GHP/kVA/month)	5065.37
Energy Charge - (Ghp/kWh)	71.76
Service Charge - (GHP/month)	5909.6
SLT-HV MINES	
Max. Demand - (GHP/kVA/month)	5909.6
Energy Charge - (Ghp/kWh)	113.97
Service Charge - (GHP/month)	5909.6

Abbreviations -	Definitions
ASC	- Ancillary Service Charge
BGC	- Bulk Generation Charge
DSC	- Distribution Service Charge
DWC	- Distribution wheeling charge
Discos	- Distribution utilities
EUT	- End User Tariff
IPP	- Independent Power Producer
kVA	- kilovolt Ampere
kWh	- kilowatt -hour
SLT-LV	- Special load tariff – low voltage
SLT-MV	- Special load tariff – medium voltage
SLT-HV	- Special load tariff – high voltage
TSC	- Transmission service charge

INVESTMENT INCENTIVES/GUARANTEES/EXEMPTIONS

Legitimate benefits sector players enjoy by virtue of participation or registration with the GIPC or other sector agencies

Incentives to the sector may apply under the following provisions:

- There is customs duty exemption for plant, machinery and equipment imported for investment purposes
- Companies enjoy a corporate tax rate of 25%

Please consult our website, www.gipcghana.com for further information.

Guarantee against expropriation of private investments is provided under the investment law and buttressed by the Constitution of Ghana. Some of the guarantees are detailed below:

- i. Free transferability of capital, profits, dividends and payment in respect of foreign loans contracted.
- ii. Insurance against non-commercial risks – Ghana is a signatory to the World Bank’s Multilateral Investment Guarantee Agency (MIGA) Convention.
- iii. Double Taxation Agreements (DTAs) – to rationalize tax obligations of investors in order to prevent double taxation, DTAs have been signed and ratified with several countries.

GLOBAL IDEAS/PLAYERS/TRENDS

Historically, the power sector was characterized by mature technology and a stable legal framework that guaranteed the profitability of the business: companies were managed according to the excellence of their technical criteria.

However, due to the sector’s social and economic impact, companies are under strong pressure to improve their efficiency to achieve not only greater cost competitiveness, but also an outstanding level of environmental performance.

This situation differs from one region to another, because of the different market growth levels:

- Mature markets, characterized by slow growth, typically experience a high level of competitiveness between players (as is the case in many European Union countries and the United States).
- Developing markets, such as South America, Asia or Africa, tend to have higher rates of growth coupled with a lower level of competitiveness. These circumstances tend to create more opportunities for doing business (and/or investments) in new markets and providing new services.

Additionally, power companies are under pressure to demonstrate responsible practices, innovation, flexibility, sustainability, resilience and tolerance.

To expand, improve their profitability, gain a competitive advantage and maintain their commitment to high levels of environmental performance, companies will have to make changes to their strategy and operational models, related to at least the following areas of focus:

As power companies seek to position for the future, they will need to resolve issues around:

- Energy demand
- Penetration of renewable energies

- The degree of commitment to CO₂ emissions reduction
- The different cost of fuels and generation mix infrastructure
- Coal: an effective (cheap) solution?
- The increase in shale gas production
- Nuclear power upgrading or decommissioning
- Pressures to reduce power prices
- Ancient grid infrastructure and the need to adapt

GHANA'S COMPETITIVE ADVANTAGE

Key unique selling points Ghana possesses and an analysis of international ranking models on Ghana in a past year and their outlook of the business environments

Ghana is a competitive investment destination:

- **Peace and Stability:** With over 25 years of uninterrupted democracy and seven successful general elections, Ghana guarantees personal security for its residents and foreigners alike. This represents predictability and the opportunity for businesses to clearly forecast for the future. It has strong and continuously improving democratic institutions that are vital parts of the business-friendly infrastructure.
- **Natural Resources:** Ghana is endowed with abundant natural resources which continue to attract the attention of global business magnates into all sectors of the Ghanaian economy; e.g. oil and gas, timber, cocoa, rich minerals such as gold, diamond, bauxite, aluminium and manganese.
- **Market size and growth prospects**
 - Ghana has a population of about 28 million with a growing youth, serving as readily available labour and market. As at April, 2018 inflation rate of 9.6%
 - Access to ECOWAS Market: Ghana is easily accessible to the markets of all the member states of the Economic Community of West Africa (ECOWAS) with its population of approximately 300 million people
 - Access to International Markets: Ghana has easy access to the USA and European Union Markets. The flight time to almost all European Union countries is about 6 hours and 9 hours to the USA.
- **Good Physical Infrastructure**
 - Ghana possesses well developed seaports, airports and road networks capable of meeting the needs of business in the 21st century. Rail network is being developed to make it easy to get to the ports from the inlands.
 - Excellent telecommunication facilities with more private service providers offering telephone, internet and other telecommunication services.
 - Readily available basic utilities such as water and electricity at relatively cheap rates.

- **Available Sources of Funding:** Ghana has a large number of developing financial institutions available to raise long-term capital at competitive rates. These institutions include banks, insurance and venture capital companies and a stock exchange market (Ghana Stock Exchange). There are 31 universal banks, 140 rural community banks and 70 non-financial institutions.
- **High Safety Standard:** There are high standards of health and safety measures in the country.
- **Available Land:** Ghana has a wide expanse of land around the country that can be acquired with little difficulty through appropriate agencies and owners.

Rankings

Rankings	Report
No. 1 destination in Sub-Saharan Africa, 2016	A.T. Kearney Global Services Location Index (GSLI), 2016
4 th best place to invest in Africa City of Accra is the number 1 African Economic Growth hotspot	RMB, Global Markets Research 2017
8th out of 54 countries in Africa and 6th out of 54 countries for Safety and Rule of Law 11th out of 54 countries for Human Development	Ibrahim Index of African Governance (IIAG) 2017

GHANA'S UNIQUE ATTRACTION

Secondary benefits and general appeal Ghana has to offer every investor

- **Investment Guarantees:** Guarantees against expropriation of private investments provided under law are buttressed by the Ghanaian Constitution. These include:
 - Free transferability of capital, profits and dividends
 - Insurance against non-commercial risks – Ghana is a signatory to the World Bank's Multilateral Investment Guarantee Agency (MIGA) Convention
 - Double Taxation Agreements (DTAs) with some countries to rationalize tax obligations of investors.
- **Excellent Labour Force**
 - Ghana has some of the best teachers, lecturers and researchers in the African continent, who have excelled not only in Ghana but in the African continent and other parts of the world
 - Large human resource base of both skilled and unskilled labor which can be sourced at competitive rates

- **Openness to regional and international trade:** Ghana has signed agreements with various countries and bodies that encourage free trade among the bodies such as AGOA, European Liberalization Agreement, and ECOWAS Trade Liberalization Agreement.
- **Key governmental policies & initiatives driving growth & transformation of the economy**
 - 'Planting for Food and Jobs' Campaign and 'One village, One dam' policy
 - The 'One district, One factory' policy
 - Creation of integrated, cost effective and seamless transportation systems
 - Formalization of the economy and facilitation of efficient delivery of public and private services through the National Identification Scheme
 - Improved tax system
 - ✓ Abolishing 1 percent Special Import Levy
 - ✓ Abolishing 17.5 percent VAT/NHIL on financial services
 - ✓ Abolishing 17.5 percent VAT/NHIL on selected imported medicines
 - ✓ Abolishing 5 percent VAT/NHIL on Real Estate sales
 - ✓ Abolishing Excise duty on petroleum
 - ✓ Reducing Special petroleum tax rate from 17.5 percent to 15 percent
 - ✓ Implement tax credits and other incentives for businesses that hire young graduates

INVESTMENT OPPORTUNITIES

As part of the strategies to achieve the objectives in the National Energy Strategic Plan, the Government, through the Ministry of Energy, is encouraging public-private sector partnership by securing private sector investment partnerships for re-capitalization of the energy supply system.

Investment opportunities therefore exist for the development of a viable local industry for the production of components and systems locally, to meet future spare-parts requirements of future investments thereby making savings and ensuring sustainability.

Investment opportunities in the sector include:

1. Energy service companies to provide energy services in these areas:
 - Energy Audits & Energy Management Strategies
 - Power Factor Correction
 - Electrical Load Management
 - Boiler Efficiency/Heat Recovery
 - Monitoring and Targeting Energy Management
 - Tariff Analysis
 - Refrigeration and Air Conditioning Systems

- Compressed Air Systems
 - Kilns and Furnaces
 - Fuel Substitution
2. Energy Manufacturing Companies to supply energy-monitoring equipment to better meet the increased requests for power monitoring and tariff analysis from industry in the country.
 3. Companies to provide an alternative decentralized sustainable energy system that can easily be deployed in remote and deprived communities into the overall national energy mix.
 4. Companies to provide solar vaccine refrigerators for the preservation of vaccines for child immunization programmes in remote and off-grid parts of the country.
 5. Provision of solar energy systems to schools in off-grid communities.
 6. New, higher quality and cost competitive energy services to the poor, for cooking, transport, water heating and other home appliances.

INVESTMENT OPPORTUNITIES IN THE DEMAND SECTOR

- Penetration of rural electrification by decentralized renewable energy complementation
 - Penetration of solar energy in hotels, restaurants and institutional kitchens using solar water heaters
 - Increased LPG penetration
 - Improved efficiency cook-stove penetration
 - Penetration of biogas for cooking in hotels, restaurants and institutional kitchens
 - Increase the penetration of modern energy into agriculture for increased agricultural production, to help achieve the nation's food supply security objectives
 - Substitution of diesel with bio-diesel in agricultural mechanization
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- Drying of exportable farm produce such as pepper with solar dryers
 - Displacing the use of diesel for irrigation with grid electricity and mechanical wind pumps
 - Large-scale commercial poultry farmers to meet at least 10 percent of their electricity needs from biogas, using the droppings from the birds

POTENTIAL SOURCES OF FUNDING

A look at local and foreign financial and non-financial avenues available for funding of businesses and projects

Viable companies and projects can easily attract financing both on the local and international financial markets. The main sources of funding are: -

- 31 Banks *as at 2018*
- The Ghana Stock Exchange
- International development finance institutions based in Ghana, such as the International Finance Corporation (IFC), ECOWAS Bank for Investment and Development (EBID) and the African Development Bank (AfDB)

We look forward to discussing Ghana's potential with you.

The Chief Executive Officer

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