BCSEnergy Nigeria Limited
For a Better World

INFORMATION MEMORANDUM

2017

www.bcsenergy.com.ng
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<tr>
<td>ASA</td>
<td>Ancillary Services Agreement</td>
</tr>
<tr>
<td>BPE</td>
<td>Bureau of Public Enterprises</td>
</tr>
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<td>DGSO</td>
<td>Domestic Gas Supply Obligation</td>
</tr>
<tr>
<td>Disco</td>
<td>Distribution Company</td>
</tr>
<tr>
<td>EOI</td>
<td>Expression of Interest</td>
</tr>
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<td>EPSR</td>
<td>Electric Power Sector Reform</td>
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<td>FGN</td>
<td>Federal Government of Nigeria</td>
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<td>GACN</td>
<td>Gas Aggregation Company of Nigeria</td>
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<tr>
<td>GCA</td>
<td>Grid Connection Agreement</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>Gencos</td>
<td>Generation Company</td>
</tr>
<tr>
<td>GSAA</td>
<td>Gas Sale &amp; Aggregation Agreement</td>
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<tr>
<td>GTA</td>
<td>Gas Transportation Agreement</td>
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<tr>
<td>IOC</td>
<td>International Oil Company</td>
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<tr>
<td>IPP</td>
<td>Independent Power Producer</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Area</td>
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<tr>
<td>MO</td>
<td>Market Operator</td>
</tr>
<tr>
<td>MOF</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>MW</td>
<td>Mega Watt(s)</td>
</tr>
<tr>
<td>MYTO</td>
<td>Multi Year Tariff Order</td>
</tr>
<tr>
<td>NBET</td>
<td>Nigeria Bulk Electricity Trading Plc</td>
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<tr>
<td>NEPA</td>
<td>National Electric Power Authority</td>
</tr>
<tr>
<td>NERC</td>
<td>Nigeria Electricity Regulatory Commission</td>
</tr>
<tr>
<td>NESI</td>
<td>Nigerian Electricity Supply Industry</td>
</tr>
<tr>
<td>NGC</td>
<td>Nigerian Gas Company</td>
</tr>
<tr>
<td>NIPP</td>
<td>National Integrated Power Project</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operations and Maintenance</td>
</tr>
<tr>
<td>OCGT</td>
<td>Open-Cycle Gas Turbine</td>
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<td>PHCN</td>
<td>Power Holding Company of Nigeria</td>
</tr>
<tr>
<td>PPA</td>
<td>Power Purchase Agreement</td>
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<tr>
<td>SO</td>
<td>System Operator</td>
</tr>
<tr>
<td>SSA</td>
<td>Share Sale Agreement</td>
</tr>
<tr>
<td>STG</td>
<td>Steam Turbine Generator</td>
</tr>
<tr>
<td>TCN</td>
<td>Transmission Company of Nigeria</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar</td>
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EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

The Nigerian Electricity Supply Company, since establishment in 1929, and electricity generation over 30 years before, has been faced with different challenges and problems of providing sufficient power supply to its growing population.

Despite our economic stance as one of the largest economies in Africa, the Nigerian power sector has been inefficient over the years in every segment (generation, transmission and distribution). Currently only about 40% of the population is connected to the grid, with only 20% for rural households. Making it a difficult terrain for manufacturers and other business ventures to maintain sustainability in production. With an extremely low generation capacity of 5.96 gigawatts compared to its continental counterparts South Africa who generate 40.49 gigawatts. Nigeria faces an epileptic power supply around the country which heavily hinders economic growth.

However, to tackle the problems of insufficient power supply the federal government over the last decade have initiated a privatization process. Resulting to the Federal Government only retaining the ownership of the transmission assets with the generation and distribution sectors fully privatized. This bold initiative by the government sparked the interest of investors to look into the power sector in Nigeria and see what potentials for investment are available.

In addition, the FG, in partnership with State and Local Governments, embarked on a National Integrated Power Project (“NIPP”) scheme, which gave rise to the construction of over ten (10) new power generation assets under a project vehicle called the Niger Delta Power Holding Company (“NDPHC”). The government eventually divested 80% of its shares in these NIPP generation assets during the privatization process.

Recognizing that there is still significant gap in power generation, regardless of the new system, the power sector reforms further encourages Independent Power Producers (“IPP”) to invest in the power sector value chain.

BCS Energy Nigeria Limited ("BCS" or "The Company") has positioned itself to develop, deploy and operate a 1000MW Greenfield Power Generation Project ("The Project") as an IPP.

The plant proposes to use the General Electric (GE) Frame 9 50 cycle combustion turbines (or similar units), rated at approximately 125MW each at ISO Conditions. In order to allow for redundancies and for allowances for the derating of these turbines due to hotter weather conditions than at ISO conditions. BCS Proposes to install a total of nine (9) 125 MW GE Frame 9 turbines for a total of 1,125 MW at 80% Condition.

BCS Energy Nigeria Limited (BCS), a United States Corporation and its Nigerian subsidiary; BCS Energy Nigeria Limited are exploring the economic feasibility of installing 1,000MW of power generation in central Nigeria. The proposed power plant will be located near the village of Geregu just across the street from an existing 440 MW government owned combustion turbine plant. The plant will be composed of several simple-cycle combustion turbines designed to operate on natural gas supplied by the Nigerian Gas Company (NGC).

BCS Energy Nigeria Limited seeks a partnership with prospective investors to facilitate and solidify its grounds in the Nigerian Power sector. With headquarters in Houston, the heart of the Energy Capital of the world, with the company having ready access to and mutual collaborative ventures with global energy, engineering and trading companies.
The Independent Power Plan ("The Project") project encompasses the development of a 1000MW open cycle gas turbine (OCGT) at Geregu, Kogi State. It is projected that upon completion and commencement of operation by the end of 2019, the power plant will generate enough electricity to power over 50,000 homes and businesses in the region.

• As of date, we have accomplished the following:

• Started the process to obtain 1000MW power license from the NERC

• Gotten approvals from the Federal Ministry of Environment for ESIA and TCN for evacuation.

• Received a letter of commitment from Nigeria bulk Electricity Trading (NBET) to enter into a Power Purchase Agreement (PPA).

• A letter of commitment from the Gas Aggregation Company of Nigeria (GACN) for the issuance of Gas Purchase Order (GPO) has been received.

**Key Factors**

• BCS Energy Nigeria Limited has a strong and well-connected team of promoters and transaction advisors that is extremely effective globally and specifically in Nigeria.

• Hamilton and George as financial adviser is working on obtaining Power license and achieving financial close.

• Strong market exists for generated power in Nigeria from NBET to the other 11 distribution companies (DisCo’s) and independent power producers.
OVERVIEW OF
BCS ENERGY
NIGERIA LIMITED
OVERVIEW OF BCS ENERGY NIGERIA LIMITED

BRIEF PROFILE

BCS Energy Nigeria Limited is a renewable energy company dedicated to the global development of future energy needs. Clean energy projects are created from raw material sources through renewable energies and efficient harvesting of our world’s natural resources with low environmental impact. To retain its position as one of the leading promoters in its fields of expertise, BCS Energy Nigeria Limited facilitates its activities and products towards ground breaking innovations while adapting to changes in economic and political policies and environmental changes.

With adequate harnessing of available solutions, BCS Energy Nigeria Limited hopes to continuously promote long term strategic alliances and partnership in actively arranging and delivering the needed value to its clients’ end-use activities. It is indeed a strong conviction that the firmest pillar on which success is built in the energy industry is a well skilled financial backing and strategic dynamism possessed by the drivers of the venture.
OVERVIEW OF NIGERIA

The Nigerian economy is a mixed economy and emerging market with expanding manufacturing, financial, services, communications, technology and entertainment sectors. It is ranked as the 21st-largest economy in the world in terms of nominal GDP, and the 20th-largest in terms of purchasing power parity. It is the largest economy in Africa.

Nigeria being the most populous country in Africa has a population of over 182 million citizens with its Capital in Abuja. The country’s official language is English. As one of the largest economy in Africa, there are numerous notable investment opportunities in Nigeria which is vastly rich in Mineral resources. These mineral resources include: Oil, Gold, Bitumen, Coal, Lignite, Coal, Iron Ore, Uranium and many more.

Nigeria’s Gross Domestic Product (GDP) was worth $492.07 billion dollars in 2016. The GDP value of Nigeria represents 0.79 percent of the world economy. The Nigerian Industry has developed focusing on increasing indigenous participation in the industry. This is evident through the Nigerian government Initiative of Increasing Local Content and ensuring that indigenous companies have a greater part in developing oil and gas assets, agricultural produces, mining assets and many more.

ECONOMIC OUTLOOK

The service sector contributed 64.9 trillion naira (USD 213 billion), making up 65% of Gross Domestic Product. The Agricultural sector contributed 21.5 trillion Naira (USD 70 billion) to nominal gross domestic product at end of 2016, which consisted of 21% of gross domestic product.

While both oil and the non-oil sector contributed 5.5 trillion naira (USD 17 billion) and 9.75 trillion (USD 30.8 billion) naira respectively: Therefore making up 5% and 9.75% of nominal gross domestic product. Nominal gross domestic product increased by 7.45 trillion naira (USD 23.6 billion), reflective of an 8% increase. While the service sector increased by 6.14 trillion naira, which is a 10.4% growth in the service sector and contributing 84% of total growth to nominal gross domestic product.

While also the agricultural sector increased by 1.89 trillion, which is a 9.6% increase in the agricultural sector and 25.3% of total nominal growth of gross domestic product. While both oil and non-oil (manufacturing) loss 500 billion and 60 billion Naira. Nigeria’s economy is expected to grow by about 1% in 2017 and 2.5% in 2018, based on an expected increase in oil output, as well as the accelerated implementation of public and social investment projects by the Federal Government. The recent negative growth rate of the Nigerian economy has resulted in a renewed focus on economic diversification, promoting growth in the private sector, and driving job growth and ensuring ease of doing business in Nigeria.
ECONOMY
OVERVIEW OF KOGI STATE (Project Location)

Kogi, a state in the central region of Nigeria. It is popularly called the Confluence State because the confluence of River Niger and River Benue is at its capital, Lokoja. Agriculture is a main part of its economy, and the state also has coal, steel and other mineral industries. The main ethnic groups are Igala, Ebira, and Okun.

The state was created in 1991 from parts of Kwara State and Benue State. There are three main ethnic groups and languages in Kogi: Igala, Ebira, and Okun (a Yoruba Group) with other such as Bassa-Njé, a people of Nupe extraction in Lokoja and Bassa Local Government Area, Bassa-Komo of Bassa Local Government Area, Gwari, Kokanda, Oworro people (A Yoruba Group), Ogori, Magongo, Idoma and the Eggan community under Lokoja Local Government, Kogi State consists of twenty-one (21) local government areas.

Tourist attractions in Kogi State include the colonial relics (such as Lord Lugard House), the confluence of Rivers Niger and Benue, Ogidi (An African town with formations of Igneous Rock mountains and a traditional art & craft industry) and natural land features. Kogi State connects the Federal Capital Territory with 22 Southern States. Being in close proximity to the federal capital territory, Abuja International Airport serves as the national and international gateway for air travelers from and to the state. Good telecommunications services are available in the state. Agriculture is the mainstay of the economy. There are many Farm produce from the state notably coffee, cocoa, palm oil, cashews, groundnuts, maize, cassava, yam, rice and melon.

Mineral resources include coal, limestone, iron, petroleum and tin.

The state is home to the largest iron and steel industry in Nigeria known as Ajaokuta Steel Company Limited and one of the largest cement factories in Africa, the Obajana Cement Factory.
HISTORY OF THE NIGERIAN POWER SECTOR

The history of the Nigerian power sector dates back to the 19th century when the first generating plant was installed with a capacity of 20MW. The first utility company in Nigeria, The Nigerian Electricity Supply Company was established in 1929. Further developments led to the creation of the Electricity Corporation of Nigeria (ECN) in 1959 tasked with the responsibility of coordinating the distribution of electricity in the country. After independence, the Nigerian Dams Authority (NDA) was established with the responsibility of overseeing the construction and management of hydropower stations in the country. The NDA was mainly a power generating entity while the ECN was a distribution entity. In 1973, these two entities were merged which formed the now defunct National Electric Power Authority (NEPA).

Nigeria Electricity Demand

Electricity demand in Nigeria far outstrips supply. Nigeria trails far behind countries such as Egypt with around 27,000MW of installed generation capacity and South Africa with an installed generation capacity in excess of 40,000MW.

Nigeria’s electricity consumption on a per capital basis is among the lowest in the world. More than half of the population have no access to grid supply electricity relying on self-generation.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (Millions)</th>
<th>Installed Capacity (MW)</th>
<th>Energy Per Capita (KWH/M)</th>
<th>Installed Capacity per Capita (kW)</th>
<th>Estimated Peak Load per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>43.4</td>
<td>44,650</td>
<td>4,705</td>
<td>1,046</td>
<td>837</td>
</tr>
<tr>
<td>Brazil</td>
<td>179</td>
<td>44,650</td>
<td>2,189</td>
<td>480</td>
<td>384</td>
</tr>
<tr>
<td>India</td>
<td>1,066</td>
<td>124,000</td>
<td>520</td>
<td>114</td>
<td>91</td>
</tr>
<tr>
<td>Ghana</td>
<td>21</td>
<td>1,762</td>
<td>309</td>
<td>85</td>
<td>68</td>
</tr>
<tr>
<td>Nigeria</td>
<td>150</td>
<td>4,750</td>
<td>166</td>
<td>34</td>
<td>27</td>
</tr>
</tbody>
</table>
POWER GENERATION

There are 23 generating plants connected to the national grid with a total installed capacity of circa 10,300 MW and available capacity of circa 6,000 MW as at June 2016. Power generation is mostly thermal based (61% of installed capacity). Gas powered plants have a cumulative installed capacity of circa 8,400 MW and available capacity of circa 4,900 MW.

GAS SUPPLY

Internationally, Nigeria ranks as the 8th largest country in terms of gas reserves and the 13th largest gas producer accounting for around 20% of Africa's gas production. Till date, gas remains the prominent source of electricity generation in Nigeria.

Despite an abundance of gas resources, insufficient gas production and a poor distribution network have constituted bottlenecks to increased power supply in Nigeria. According to the Transmission Company of Nigeria, average daily power generation in August 2016 stood at 3,354 MW of which reported gas constraint to generation averaged 3,420 MW. If constraints to optimal gas supply are removed, Nigeria could easily double its current power generation given that available capacity still stands at around 6,000 MW. This would have a significant impact on the sector. The major issue with gas supply hasn't been availability but years of underinvestment in pipeline transport infrastructure to deliver gas to where it is needed in order to keep up with power generation.

Nigeria's Gas Production Vs Generation From 2015 Till Date

One of the major reasons why power plants have been starved of the much needed gas is due to gas flaring (i.e. burning of natural gas associated with crude oil when pumped from the ground). There have been conflicting reports on gas flaring in Nigeria. In 2011, having flared 620 BCF of natural gas, Nigeria was only second to Russia, a country that produces over 10 times as much gas as Nigeria. However, the NLNG has maintained that the country has made progress in reducing gas flaring currently estimated at less than 10% according to NNPC report.

Since the core business of oil companies especially IOCs is not gas production, the incentive to monetize natural gas is currently below the threshold that would discourage gas flaring. Like every rational economic decision, gas flaring thrives because the next best alternative is costly. Also, enforcement by regulators for flaring gas has been very weak.
Main Gas Infrastructure In Nigeria

Source: Oando Gas and Power
INDEPENDENT POWER PLANTS ( IPPs )

These are plants owned and managed by the private sector. Although these plants existed prior to the privatization, there have been an increased number in the last few years. Post privatization, the NERC has issued over 70 licenses for IPPs. The IPPs were conceived as a veritable means to monetize gas assets and to stop gas flaring by the International Oil Companies ( IOCs ) thereby boosting electricity. However, the lack of viability tied to gas production remains an impediment. Also, the weak contribution from the IPPs also attributable to uncertainties regarding payments from NBET ( bulk trader ) for electricity sold to the national grid.

THE NATIONAL INTEGRATED POWER ( NIPP )

This initiative started in 2004 as a project designed to add new generation capacity to existing electricity supply. A special purpose vehicle was set up Niger Delta Holding Company Limited by the three tiers of government to facilitate the implementation of the project.

INDEPENDENT POWER PLANTS ( IPPs )

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name</th>
<th>Location</th>
<th>Installed Capacity</th>
<th>Preferred Bidder</th>
<th>Acquisition Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alagi</td>
<td>Abia State</td>
<td>1071.4 MW</td>
<td>AITEO Consortium</td>
<td>USD 902.0m</td>
</tr>
<tr>
<td>2</td>
<td>Calabar</td>
<td>Calabar, Cross Rivers</td>
<td>634.5 MW</td>
<td>EMA Consortium</td>
<td>USD 625.0m</td>
</tr>
<tr>
<td>3</td>
<td>Egbeama</td>
<td>Near Owerri, Imo State</td>
<td>380.7 MW</td>
<td>Dozy Integrated Power Limited</td>
<td>USD 415.1m</td>
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<td>4</td>
<td>Gbanain</td>
<td>Near Yenagoa, Bayelsa state</td>
<td>253.8 MW</td>
<td>KDI Energy resources</td>
<td>USD 340.0m</td>
</tr>
<tr>
<td>5</td>
<td>Gerewu</td>
<td>Ajakuta, Kogi State</td>
<td>506.1 MW</td>
<td>Yellowstone Electrical Power</td>
<td>USD 613.1m</td>
</tr>
<tr>
<td>6</td>
<td>Ihovber</td>
<td>Benin State</td>
<td>507.6 MW</td>
<td>EMA Consortium</td>
<td>USD 580.0m</td>
</tr>
<tr>
<td>7</td>
<td>Olorunnegi</td>
<td>Olorunnegi</td>
<td>754 MW</td>
<td>EXL Consortium Limited</td>
<td>USD 750.2m</td>
</tr>
<tr>
<td>8</td>
<td>Omoku II</td>
<td>Near Port Harcourt Rivers state</td>
<td>264.7 MW</td>
<td>Sarayoko International Limited Consortium</td>
<td>USD 318.5m</td>
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<tr>
<td>9</td>
<td>Omotosho</td>
<td>Okitipupa, Ondo State</td>
<td>512.8 MW</td>
<td>Omotosho Electric Power Limited</td>
<td>USD 460.0m</td>
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<td>10</td>
<td>Sapele II</td>
<td>Sapele, Delta State</td>
<td>507.6 MW</td>
<td>Daniel Power</td>
<td>USD 531.8m</td>
</tr>
</tbody>
</table>
TRANSMISSION

The two other entities that were created from the defunct PHCN were the electricity bulk buyer Nigerian Bulk Electricity Trading Plc (NBET) and the Transmission Company of Nigeria (TCN). These are the only two companies in the electricity value chain that are still government owned.

NBET is jointly owned by the Bureau of Public Enterprise (BPE) which has an 80% stake and the Ministry of Finance (MoF) which owns the remaining 20%. TCN is wholly owned by the Federal Government of Nigeria.

NBET was incorporated in 2010 with a mandate to operate as a trading licensee holding a bulk purchase and resale license. It is solely responsible for buying and reselling electrical power from IPPs and Generation companies. NBET was not set up to exist in perpetuity. Rather it was set up to act as a broker between power producers and distribution companies until the market is mature enough to support commercial bi-lateral trading. NBET has a 9-man board of directors chaired by the Minister of Finance with other statutory members including the Minister of Power and the Director General of the BPE.

Duties of NBET includes:
- Sign power purchase agreements (PPAs) with generation companies. They also ensure that the PPAs are coherent with other agreements such as those covering gas supply, connection and transportation as well as the power plant’s EPC contract.
- Resell power via a vesting contract signed with distribution companies. This guarantees the discos a share of power supply and enforces revenue performance by discos.
- Negotiate and enter into new PPAs with Greenfield IPPs and state government owned power plants.
- Acts as the Federal government’s implementing institution for guarantees provided by the World Bank PRG in support of Gas Supply Agreements and PPAs. NBET assumes sovereign risks when guaranteeing payments to Generation companies.

Transitional Electricity Market (TEM) Trading Agreement

Transition Stage of Nigerian Electricity Sector

![Diagram of TEM Trading Agreement](image)

NBET is set up to be a revenue neutral institution. It serves as the middle man between GenCos, Discos and other eligible customers who buy directly from NBET. Payments are made into the market clearing accounts from the Discos and eligible customers for power supplied. These payments are then transferred to the GenCos and service providers.
The transmission of generated electricity is solely the responsibility of Transmission Company of Nigeria (TCN) which emerged from the unbundled PHCN.

Nigeria’s Electricity Transmission Network

The electricity transmission infrastructure has experienced lack of investment over the last 50 years. With less than half of the population connected to the national grid, it is estimated that about 20-30% of electricity generated is lost due to poor transmission alone. An estimated $1.5 billion per year investment is required to in order to make transmission more reliable and stable. The structure of TCN is composed of the following components:

- Transmission Service Provider (TSP): This constructs and develops the country’s transmission grid and maintains the infrastructure.
- Market Operator (MO): This is the administrator of Nigerian Electricity Supply Industry under the market rules. The MO also administers administrative charge payments to different service providers such as NBET, NERC.
- System Operator (SO): Coordinates the flow of electrical power in the entire system from GenCos to DisCos. It determines:
  - Which power station to supply the grid.
  - How much power each on grid GenCo supplies
  - Determines which transmission line or station is to be supplied with electricity
  - Enforces grid discipline in accordance with the grid code
The government decided to outsource the management of TCN to the private sector. In April 2012, Manitoba Hydro International won the contract (MHI) to manage and operate TCN. It was meant to have operational control in June of the same year, but bureaucratic issues led to a delay in handing over to MHI. MHI is a subsidiary of one of Canada’s leading energy utility companies, Manitoba Hydro, which is involved in electricity generation, distribution and gas distribution. MHI management contract was for $23.7 million over 3 years with a possible extension for a further 2 years. The company was not expected to inject any capital into TCN. Its contact was purely a management contract with the responsibility of managing all aspects of TCN with respect to system operations, market operations, TSP and training of local staff who would eventually take up the running of TCN.

In 2016, MHI returned the management of TCN to the government having failed to secure an extension of its contract.

**DISTRIBUTION**

Power distribution is currently managed by 11 DISCOs spread across the country. Geographically, each DISCO distributes electricity to between 3 to 5 states excluding Eko and Ikeja DISCO both serving Lagos. These DISCOs construct, operate and maintain distribution infrastructure such as installation, maintenance and reading of meters, billing, collection and other distribution services.
<table>
<thead>
<tr>
<th></th>
<th>Abuja</th>
<th>Benin</th>
<th>Eko</th>
<th>Enugu</th>
<th>Ibadan</th>
<th>Ikeja</th>
<th>Jos</th>
<th>Kaduna</th>
<th>Kano</th>
<th>Port Harcourt</th>
<th>Yola</th>
</tr>
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<tbody>
<tr>
<td><strong>Customer Population</strong></td>
<td>478,374</td>
<td>683,553</td>
<td>317,352</td>
<td>581,705</td>
<td>1,007,543</td>
<td>593,391</td>
<td>294,288</td>
<td>276,696</td>
<td>340,222</td>
<td>372,230</td>
<td>169,926</td>
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<tr>
<td><strong>Load Allocation</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Average For 2010</strong></td>
<td>277</td>
<td>297</td>
<td>226</td>
<td>258</td>
<td>273</td>
<td>348</td>
<td>119</td>
<td>175</td>
<td>111</td>
<td>148</td>
<td>48</td>
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<tr>
<td><strong>Number Of Substations</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Injection Substations(33/11kv)</td>
<td>129</td>
<td>196</td>
<td>40</td>
<td>103</td>
<td>174</td>
<td>80</td>
<td>75</td>
<td>96</td>
<td>40</td>
<td>105</td>
<td>85</td>
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<tr>
<td>Transformer Capacity (MVA)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Injection Substations(33/11kv)</td>
<td>1,160</td>
<td>1,266</td>
<td>1,138</td>
<td>958</td>
<td>1,297</td>
<td>1,556</td>
<td>614</td>
<td>862</td>
<td>757</td>
<td>835</td>
<td>245</td>
</tr>
<tr>
<td>Distribution Substations(33/0.415 kv &amp; 11/0.415kv)</td>
<td>2.081</td>
<td>1,622</td>
<td>2,434</td>
<td>2,592</td>
<td>2,770</td>
<td>2,456</td>
<td>894</td>
<td>1,491</td>
<td>1,518</td>
<td>1,915</td>
<td>267</td>
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<td>Feeder Length (km)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>33kv</td>
<td>5.022</td>
<td>6.287</td>
<td>N/A</td>
<td>6.596</td>
<td>7.973</td>
<td>721</td>
<td>5.398</td>
<td>8.269</td>
<td>8.393</td>
<td>4.726</td>
<td>869</td>
</tr>
<tr>
<td>11kv</td>
<td>6.104</td>
<td>6.849</td>
<td>N/A</td>
<td>3.465</td>
<td>5.453</td>
<td>2.256</td>
<td>1.091</td>
<td>2.706</td>
<td>1.891</td>
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<td>0.415kv</td>
<td>62.491</td>
<td>49.683</td>
<td>N/A</td>
<td>25.708</td>
<td>37.781</td>
<td>N/A</td>
<td>N/A</td>
<td>19.939</td>
<td>10.990</td>
<td>13.236</td>
<td>8,963</td>
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</table>

Source: Successor Distribution Companies. Presentations Given At The Uyo Power Summit. February 2012; except For Load Allocation, Market Operator Report 2010
The state-owned Power Company NEPA operated as a monopoly and consistently failed to meet the country’s power needs. It was evident that the current structure was not working and something urgent needed to be done. To address the power shortage and also improve efficiency, the National Electric Power Policy (NEPP) was formulated in 2001. The crux of the reform was to involve the private sector as the huge investment needed to improve capacity and efficiency was beyond the capabilities of the government. The NEPP was later enacted as the Electric Power Sector Reform Act (EPSRA) 2005 with an objective of establishing a long-term electricity market structure in which multiple operators provide services on a competitive basis to a wide range of consumers.

In 2005, NEPA was renamed Power Holding Company of Nigeria (PHCN) which was unbundled into 11 Discos, 6 Gencos and TCN which objective on onward privatisation. A government regulated entity, Nigeria Electricity Regulatory Commission (NERC) was established also in 2005 while a road map for the power sector was drawn in 2010 and
subsequently revised in 2013. The unbundled companies from PHCN were privatised and assets handed down to the new owners/investors in November 2013.

The implementation of Nigeria’s power market reforms is expected to move from the pre-transition stage through three market stages. These stages are:
1. Transitional Stage: Characterised as competition in the market (competitive procurement of additional generating capacity)
2. Medium Term Stage: Characterised by full wholesale competition in the market (Product market competition)
3. Final Stage: Full wholesale competition and retail competition (end consumer offered choice in sourcing supply needs)

With private sector participation and increased Foreign Direct Investments (FDIs) in the sector, it is expected that Nigeria will attain a target of 40,000 Mw by 2020.

**Post Privatization Challenges**

In spite of several reforms aimed at ensuring an effective and efficient sector, the sector has continued to operate below its optimal level due to several challenges. Today more than half of the population do not have access to electricity from the grid and those connected face interrupted power supply. Systematic issues which factor all aspects of the value chain (gas supply, generation, transmission and distribution) forcing Nigerians to rely on generating their own electricity.

Most Nigerian businesses generate their own power supply to augment what is being received from the grid. Nigeria lags behind other developing nations in terms of electricity consumption. Based on the current demographics, electricity consumption should be 4 to 5 times higher than it is today. The rule of thumb requires that an industrial nation requires 1,000MW per million of population. Given this, Nigeria requires about 180,000MW for full power which is makes the government’s target of 10,000MW by 2020 a massive distance to reality.
Under the EPSRA, a license to build and operate a power generation plant in Nigeria requires the following pre-requisites among other conditions:

- Fuel Supply Agreement - Through the Gas Aggregation Company Nigeria Limited ("GACN") or Independent Gas Suppliers.
- Off-take Agreement (Power Purchase Agreement) - The Nigerian Bulk Electricity Trading Plc ("NBET") for supply and off-take.
- Approval from Transmission Company of Nigeria ("TCN") that proposed connection point is available (Connection Agreement)

**NIGERIAN POWER REGULATORY ENVIRONMENT**

![Diagram of the Nigerian Electricity Regulatory Commission](Image)

The EPSRA also established the Nigerian Electricity Regulatory Commission ("NERC") and empowered it to regulate activities of the electricity industry. The role of NERC includes: tariff setting and regulation, supervision of market rules, performance monitoring, overseeing the orderly transformation of the power sector to a more competitive environment and provision of licenses to market participants in areas of Generation, Transmission System Operation, Distribution and Trading of electricity.

The regulatory provisions introduced the Multi Year Tariff Order (MYTO), which is a 15-year tariff plan for the electricity industry, initiated in 2005 to dictate the following terms to potential investors in the power sector:

- Annual investment requirement to be made by potential investors.
- A documented operational expenditure plan.
- An estimated rate of return on equity.
- Classification of annual rates to be paid per Kwh by final consumers.

Minor constitutional reviews of the MYTO are done each year, taking into account changes in the assumptions adopted to drive the pricing model. However, a major review of this pricing scheme is carried out every five years.

In recent times, the NERC has issued 2 tariff plans: MYTO 1 (2008 - 2012) and MYTO 2 (2012 - 2017)
- **MYTO 1 (2008 - 2012)**: The MYTO 1 provided for continuous reduction in transmission and distribution/retail losses and therefore, the revenue earned by operators was made dependent on achieving these performance improvements.
- **MYTO 2 (2012 - 2017)**: Due to the challenges presented by the MYTO 1, NERC carried out a major review of the Tariff Order leading to the introduction of MYTO 2. The MYTO 2 is cost-reflective and provides financial motivations for key investments in the industry. The modifications made to MYTO 1 to arrive at MYTO 2 are as follows:
  - A price variation of +/-5% in gas prices, exchange rates and CPI
  - More flexibility in wholesale generation pricing and the consideration of essential variables during minor reviews of MYTO 2.
  - Inclusion of other fuel types for power generation such as coal, solar and wind has also been taken into consideration in the structure of MYTO 2.
  - Creation of fourteen new classes of customers from consumers who use premises exclusively as a residence- house, flat or multi-storeyed houses, to street lights.

**MYTO 2.1 (Amended)**: Following the implementation of the MYTO 2.1 (amended), the eleven distribution companies raised the concern that the traffic was no longer cost reflective. Some DISCOs followed their complaint with the filing notices of force majeure, claiming that the resultant effect of the amended MYTO 2.1 which removed collection losses component, would lead to a breach of their performance agreement, bankruptcy and market collapse. Stakeholder engagement is considered a vital aspect of any tariff review exercise. A public consultation procedure has been developed and all DISCOs are expected to consult all relevant stakeholders before submitting their tariff application to the commission.
Possible Electricity Hike?
There may be a possible hike in electricity tariffs in the remaining half of the year as the Federal Government continues to grapple with the various issues facing the sector especially funding. The details are contained in the Power Sector Recovery Plan (PSRP): a document formulated by the Office of the Vice President and the World Bank group. The working group for the implementation is being coordinated by the Senior Special Assistant (SSA) to the president on Power at the office of the Vice President Damiola Ogunbiyi and the Lead Energy Specialist at WBG Kyran O’ Sullivan. According to the law, the government seeks to recover the $7.6 billion fund by way of hiking the present electricity tariff outlined in the MYTO 2015.

The government came up with four options with regards to the implementation of the plan. First option is to freeze tariffs for all classes of customers by electricity customers until July 2019. Although the present government may have lifted it by June 2018, the government has still believes this decision will help it recover the N2.4bn ($7.9bn) it is sinking into the sector from now to 2021. Second option is to hike tariffs for all classes of customers by January 2018. This it said will fetch about N1.7bn (about $5.4bn) of the fund to be spent in the 5-year period. However, a balance of $2.2bn ($697.4bn) may not be recovered within the period. The third tariff hike option which is the most urgent is to increase tariffs in July 2017 (two months from now). This decision if taken will fetch the federal government about N1.3bn ($4.1bn) to support ones (customers in the lowest class) will see a hike by July 2019. Government believes taking the decision could raise N2.3tr ($5.9bn), leaving a balance of $1.7bn (N538.9bn). The PSRP team’s survey tests these options to determine the support from the public and the political backings. The research shows that Option 3 of hiking tariff in the next two months to generate N1.3tr will have zero political and public support, but with high support from the $7.6bn intervention funders (mostly AfDB and WBG). Option 1 to generate N2.4tr will have medium political and public support, with low support from the funders. Option 2 which will fetch N1.7tr FG support will have low support from politicians and public and a medium support from the funders; Option 4 (N1.91) tariff increase for industrial customers only will have medium political support and high support from the public and the funders (lenders). Government traced causes of the present liquidity crisis in the sector to consumers’ apathy to pay bills in post privatization, poor regulatory compliance, tariff exchange rate fluctuations, and vandalism among others. It said the result was epileptic power supply that causes the Nigerian economy to lose $29.3bn (N9.2bn) annually. The factors have also caused an electricity market shortfall of N470bn and a tariff shortfall of N458bn between 2015 and 2016. Government which still has a 40 per cent stake in the power sector utilities privatized on November 1, 2013, plans to spend $1.3bn (N473.5bn) annually from 2017 to 2021, estimated at $7.6bn in five years. To source for this fund, the exclusive report shows that there will be budget allocation of $3.5bn (N111bn), the sale of 10 plants under the National Integrated Power Projects (NIPPs) for $2.1bn ($667.7bn), and sourcing loans of $1bn (N317bn) from the African Development Bank (AfDB) and the World Bank during the period.
INDUSTRY OVERVIEW
KEY INDUSTRY PLAYERS & INSTITUTIONS

The key players in the Nigerian Power sector can be divided into the regulatory agencies and the power institutions.

REGULATORY AGENCIES

The key players include:

The Federal Ministry of Power

This is the Government administrative arm that deals with policy formulation and provides general direction to other agencies involved in the power sector. The key function of the Ministry is to develop and facilitate the implementation of policies for the provision of adequate and reliable power supply in the country. In carrying out its functions, it is guided by the provisions of the National Electric Power Policy; 2001, the EPSRA; 2005, the Roadmap for Power Sector Reform; 2010 as well as the Transformation Agenda on Power of the current administration.

The Minister for Power is the political head of the Ministry while the Permanent Secretary is the administrative head.

Nigerian Electricity Regulatory Commission

The Nigerian Electricity Regulatory Commission (NERC) was established by the EPSRA, 2005. It is an independent regulatory agency mandated to regulate and monitor the Nigerian power sector. The functions of the NERC include, but not limited to, the following:

i. Promote competition and private sector participation, when and where feasible,
ii. Establish or approve appropriate operating codes and safety, security, reliability and quality standards,
iii. License and regulate persons engaged in the generation, transmission, system operation, distribution and trading of electricity,
iv. Approve amendments to the market rules and monitor the operation of the electricity market.
The NERC is led by seven commissioners representing the 6 geo-political zones in the country in addition to one commissioner designated as Chairman and Chief Executive Officer.

THE ENERGY COMMISSION OF NIGERIA

The Energy Commission of Nigeria (ECN) was established in 1988 with the statutory mandate for strategic planning and coordination of national policies in the field of energy. It was established in line with the declaration of the Heads of The Economic Community of West African States in 1982 for the establishment of an Agency in each member state charged with the responsibility of coordinating and supervising all energy functions and activities.

The functions of the ECN include, but are not limited to, the following:

i. Serve as a centre for gathering and dissemination of information relating to national policy in the field of energy.
ii. Inquire into and advise the Government of the Federation or the State on adequate funding of the energy sector including research and development, production and distribution.
iii. Monitor the performance of the Energy sector in the execution of government policies on energy.
iv. Serve as a centre for providing solutions to inter-related technical problems that may arise in the implementation of any policy relating to the field of energy.

The ECN is headed by a Director General, who also serves as its Chief Executive.

RURAL ELECTRIFICATION AGENCY

The Rural Electrification Agency (REA) is a Federal Government Parastatal under the Federal Ministry of Power. It was established by the EPSRA, with the statutory functions of promoting, supporting and providing electricity access to rural and semi-urban areas of the country.

The Agency also administers the Rural Electrification Fund (REF). The purpose of the REF is to promote, support and provide rural electrification programmes through public and private sector participation in order to achieve more equitable regional access to electricity and promote expansion of the grid and development of off-grid electrification.

Eligible customers and licensees are required to contribute to the fund at rates to be determined by the NERC.

Presidential Task Force on Power

The Presidential Task Force on Power (PTFP) was established in 2010 to drive the implementation of the reform of Nigeria’s power sector.

The role of the PTFP is to co-ordinate the activities of the various agencies charged with ensuring the removal of legal and regulatory obstacles to private sector investment in the power industry. It also has the mandate to monitor the planning and execution of various short-term projects in generation, transmission, distribution and fuel-to-power that are critical to meeting the stated service delivery targets of the power sector roadmap. The PTFP is administered by a Board of Directors headed by a Chairman.
KEY INSTITUTIONS

The following are key institutions in the Nigerian Power sector:

**Niger Delta Power Holding Company Limited**

The Niger Delta Power Holding Company Limited (NDPHC) is a special purpose vehicle jointly owned by the three tiers of government (Federal, State and Local). It is charged with the responsibility for the implementation of the National Integrated Power Project (NIPP).

The Government conceived the NIPP in 2004 as a fast-track government-funded initiative to stabilize Nigeria’s electricity supply system while the private-sector led structure envisaged in the EPSRA develops. Wholly-owned subsidiaries of NDPHC own each of the over ten (10) power generation stations that have been developed under the NIPP.

**Nigerian Bulk Electricity Trading Plc**

The Nigerian Bulk Electricity Trading Plc (NBET) is a government-owned public liability company. The Bureau of Public Enterprises and the Federal Ministry of Finance Incorporated are its two shareholders with shareholding of 80% and 20%, respectively.

The NBET, established in line with the provisions of the EPSRA, is an electricity trading licensee that engages in the purchase of electrical power and ancillary services (from independent power producers and successor generation companies) and subsequent resale to distribution companies and eligible consumers. It is not envisaged to be the sole authorized or designated electricity buyer, as other entities, such as distribution companies that have attained commercial viability, will also be able to procure power directly from the generation companies.

The role of the NBET is, however, a key success factor during the transitional stage of the Nigerian power sector reforms. Its role in the reform process is to use its sovereign standing to drive private sector investment in generation activities by executing bankable Power Purchase Agreements (PPAs) with them. These PPAs may subsequently be novated to the distribution companies when they become economically sustainable.

**Operator of the Nigerian Electricity Market**

The Operator of the Nigerian Electricity Market (ONEM) is licensed to function as the Market Operator of the wholesale electricity market of the Nigerian electricity supply industry. It is responsible for the operation of the electricity market and settlement arrangements.

A key function of the ONEM is the administration of the metering system among generation, transmission and distribution companies.

**Nigerian System Operator**

The Nigeria System Operator (NSO) is licensed to provide system operation services to the Nigerian electricity supply industry. The NSO is primarily responsible for the planning, dispatch and operation of the transmission system. It is also responsible for the security and reliability of the electricity network grid.

**Gas Aggregation Company of Nigeria**

The Gas Aggregation Company Nigeria Limited (GACN) was incorporated in 2010 for the purpose of stimulating growth of natural gas utilization in the Nigerian domestic market. GACN was formed in line with statutory requirement of the Nigerian Domestic Gas Supply & Pricing Regulations, 2008 and is the vehicle for the implementation of the Nigerian Gas Master Plan (NGMP) commercial framework.
The NGMP requires the establishment of a Strategic Aggregator for the domestic gas market, whose responsibilities will include, among others:

i. Processing requests from gas buyers
ii. Managing allocation of gas to buyers
iii. Facilitating Gas Sale and Aggregation Agreement (GSAA) negotiations
iv. Managing escrow accounts on behalf of gas sellers
v. Managing dispute resolution process for stakeholders.

**National Power Training Institute of Nigeria**

The National Power Training Institute of Nigeria (NAPTIN) was established in 2009 to serve as a focal point for human resource development and workforce capacity building, and act as a research centre on matters relating to power in Nigeria.

A key objective of the Institute is to design, develop and deliver a wide variety of training courses that will enhance the skills and capacity of both technical and non-technical power utility personnel.

**Nigerian Electricity Liability Management Company**

The Nigeria Electricity Liability Management Company Limited (NELMCO) was established in 2006 as a company limited by guarantee, to assume and manage the non-core assets, all liabilities and other obligations that would not be taken over by the successor companies. This is to ensure that the successor companies are not encumbered by these liabilities at take-off.

The **NELMCO is mandated to:**

i. Assume and administer the stranded liabilities of PHCN pursuant to the provisions of EPSR Act,
ii. assume and manage pension liabilities of employees of PHCN,
iii. hold the non-core assets of PHCN, sell or dispose of deal in any manner for the purpose of financing the repayment of the pension liabilities of employees of PHCN,
iv. take over the settlement of stranded PHCN’s Power Purchase Agreement obligations and other legacy debts as may be determined by the National Council On Privatization within the Nigeria Electricity Supply Industry,
v. Manage and supervise the management of contractual arrangements arising from the assumption of stranded liabilities of PHCN.
PLANT LOCATION

The land on which the BCS Energy IPP is to be constructed covers about 18 hectares and situates in Geregu town along Lokoja-Geregu road that leads to the bridge across the river Niger as shown below. The river lies at about 2 kilometres, as the crow flies, from the site. Directly opposite the site is the second phase of the Federal Government owned gas fired plant at Geregu which is under construction by Siemens, while the existing 440MW phase generation station situates adjacent to the new one.

Google map showing parts of Kogi State with Geregu well captured.

The land use around the project site consists mostly of virgin forest and farm land. A few economic trees like palm tree and iroko plants dot the 18 hectares project site. Across the road is the phase II of the Geregu power station which is active with Siemens tractors and workers. A few meters down the road, at the same side with the phase II plant construction site is a plot of land already acquired by another IPP proponent. Of course, the Ajaokuta steel plant could be sighted from the project site and stands at about 5 kilometers as the crow flies. A small human settlement which seemed to be a market situates at a point five kilometers from the site towards Lokoja. Otherwise the nearest settlement is the staff quarters of Ajaokuta steel mill.
PROJECT RATIONALE AND DEVELOPMENT STRATEGY

The epileptic power supply in Nigeria has reached very high levels of decay. The lack of constant electricity has been a major disadvantage to sustainable economic growth and development. This is mainly because most economic activities rely on affordable and adequate electricity as a catalyst for operation. It is also a critical element in reducing the cost of doing business, increasing productivity and improving the quality of life and unarguably pivotal to the development of any nation. The availability of this energy, is a fundamental means to improve the social and economic well-being of a people and provide opportunities for industrialization, wealth creation and eventual purposeful employment.

This epileptic situation had continually thwarted the systemic year-on-year growth and development of the sector, which as at date has just completed a major phase of privatization process that has liberalized the Generation and Distribution segments of the industry. While Manitoba Hydro International (MHI) of Canada has returned the management of the company back to the Federal Government due to unresolved issues, MHI was awarded a contract to assume the management responsibility and control of the Transmission Company of Nigeria’s entire operations. The primary role of MHI in this relationship, is to operate TCN, under the 3 (three) functions of (i) Market Operator (MO), (ii) System Operator (SO), and (iii) Transmission Service Provider (TSP).

PROJECT CONSIDERATION

However, it is widely known that the liberalization of the power sector can only be feasible when it is implemented to respond to a capacity surplus and not shortage, as there is likely to be no significant impact on the sector after private entities take over [i.e. Even after the public utility system becomes liberalized, sustainability can only be attained when there is a capacity increase to meet demand otherwise, inadequacy will still exist, hence the load shedding]. From this position, there is a definite need for additional capacity,

By January 2012, over 95% of homes and businesses in Nigeria relied on self-generated electricity for more than 16hrs a day, as the most and reliable alternative to the public utility. The most common of these alternatives is the supply generated through privately owned and operated diesel or petrol fired engines, despite the prohibitive cost of fuel and the negative impact of the generators exhaust emissions on the environment.

In contributing to the drive towards developing a sustainable, clean and cost effective solution for this problem, BCS ENERGY, a company, with diverse interest spanning across several segments of the energy industry, decided to scale up its operations through embarking on the development of a very resourceful and efficient base-load energy utility supply structure, that is tailored to cater for the electricity required for evacuation by the national grid. This structure fully complies with the provisions of the Electric Power Sector Reform Act, which came into effect in 2005.

The opportunity to execute the vision above, has come merely as a result of the huge gap that needs to be closed in the demand for generated electricity in the country. In spite of the eventual handover of the privatized generating assets [both successor and new entrants], there has been no significant impact on the supply side. One of the reasons for this situation has been mainly due to the overpriced position of the privatized assets, considering the bullish nature of the competitive bidding process, which Government had used to divest 80% of its shareholding in the generating companies that own the assets.

The intention behind the entire privatization process was to address the serious capacity shortfall and support the private sector in leveraging the country’s abundant fossil and natural energy sources. By November 2013, the whole privatization process had finished and some of the new owners had already taken over.

In positioning to exploit this opportunity, BCS Energy Limited has decided to develop an on-grid, 1,000MW Gas fired Power Generation Plant, which will invariably contribute to the supply capacity targeted by the FGN.
DEVELOPMENT STRATEGY

PROJECT BENEFITS

The benefit of the proposed project to different interest groups can be highlighted as follows:

To Nigerian Citizens and General Populace

**Improved Access to Power**
The project will generate 1000MW of power with a portion of it distributed in the project vicinity while the balance is wheeled to the national grid. This will have the effect of improving the access to power by indigenes of the host community as well as the general public.

**Reduction in Overhead Costs**
Improved access to power leads to reduction in overhead costs. The bulk of overhead cost of most Nigerian companies and families is power cost via self-generation of power using diesel and petrol generators. The increase in power output means that money expended in self-generation of power can be channelled to other more productive avenues.

**Knowledge Transfer**
The bulk of employees for the generation company will come from Kogi State and its environs. The indigenes will benefit immensely from knowledge transfer by the foreign Technical Service Providers and in due course, fully take over the operation and maintenance of the plant. This leads to an obvious improvement in the State’s human capital and this comes with antecedent benefits as well.

New Business Opportunities
The establishment of the plant in the State will provide new business opportunities for indigenes of the State via the provision of ancillary services like grocery stores, restaurants, schools, banks etc., to the mid-class community that is expected to develop around the location of the plant.

To Kogi State

**Employment Generation**
In accordance with the Local Content act of Nigeria, the proposed project will see a reduction of unemployment rate within the state as the project will seek to create jobs for the indigenes of the state.

**Facilitate the Production of Output**
Kogi State is home to companies such as Ajaokuta Steel Company, Obajana Cement etc. The project will facilitate (and supplement where necessary) the provision of steady power supply to these manufacturing companies in the state in order to enhance the production of finished goods.

**Bridge the Infrastructure Deficit**
Public Private Partnership in this project will reduce the Government’s capital costs, helping to bridge the gap between the need for infrastructure and the state’s financial capacity.

**Improvement in Kogi State’s Attractiveness as an Investment Destination**
The project will further improve Kogi State’s attractiveness as an investment destination as other project promoters would be keen on replicating the expected success of the project.

PROJECT CONSORTIUM

The Project Consortium is a consortium of indigenous and foreign companies which are leading players in the energy sector, spanning oil and gas, power generation, distribution and management. The consortium currently comprises of three entities: BCS Energy Limited (Principal Project Promoters), Power China (EPC Contractor) and General Electric (O&M).

BCS Energy Limited is the principal promoter of the consortium, representing its core investors. Through its component shareholders, BCS Energy Limited possesses experience and expertise in diverse energy businesses including electricity generation.
The identified key project parties include:

**BCS Energy Nigeria Limited - Project Promoter**

BCS Energy Nigeria Limited is an energy company founded in June 2011 by a group of Nigerians from different backgrounds ranging from Engineering, Law, Finance and Business Administration. BCS Energy Nigeria Limited has a group of consultants with a combined experience of over 40 years in power generation.

The company’s vision is to become the biggest producer of both clean renewable energy and gas turbine power in Africa. In line with this vision, the company is currently developing a 1,000MW power generating plant at Ajao-Kuta, Kogi State.

**Hamilton & George Limited – Transaction Advisors**

Hamilton & George Limited ("H&G") is an investment banking company, established to solve traditional investment banking problems by leveraging cutting edge electronic solutions. The advisory element of the business has a healthy portfolio of transactions.

Each major business line will be supported by an intricate technological base that provides clients an alternative to standard service delivery outlets.

Below is a schematic that summarily describes the traditional service areas of Hamilton & George Limited.
- This involves assisting corporates in making financing and financial decisions. Project analysis, valuation, capital budgeting, and management, financial modeling, M&A advisory etc.

- Professional management of in-house proprietary funds and other assets (e.g. securities, real estate, commodities) to meet specified investment goals for the benefits of the client

- This involves provision of advisory services to governments with a view to boost IGR and achieve infrastructural development. This includes PPP Projects, divestments etc.

- Provision of a suite of advisory services ranging from business, financial and project advisory.
  - EPR, Strategy Formulation, corporate restructuring etc
  - Trade finance, structure finance, intermediation, capital sourcing etc.
  - Project conceptualization, project financing and project management

- Public Sector Advisory

- Corporate Advisory

- Proprietary Trading
Kogi State Government – Host Government

Kogi, a state in the central region of Nigeria, is popularly called the Confluence State because the confluence of River Niger and River Benue is at its capital, Lokoja. Agriculture is a main part of its economy, and the state also has coal, steel and other mineral industries. The main ethnic groups are Igala, Ebira, and Okun. The state was created in 1991 from parts of Kwara State and Benue State. There are three main ethnic groups and languages in Kogi: Igala, Ebira, and Okun (a Yoruba Group) with other such as Bassa-Ngea, a people of Nupe extraction in Lokoja and Bassa Local Government Area, Bassa-Kano of Bassa Local Government Area, Gwari, Kakanda, Owo people (A Yoruba Group), Ogori, Magongo, Idoma and the Eggon community under Lokoja Local Government. Kogi State consists of twenty-one (21) local government areas.

Tourist attractions in Kogi State include the colonial relics (such as Lord Lugard House), the confluence of Rivers Niger and Benue, Ogidu (An African town with formations of Igneous Rock mountains and a traditional art & craft industry) and natural land features. Kogi State connects the Federal Capital Territory with 22 Southern States. Being in close proximity to the federal capital territory, Abuja International Airport serves as the national and international gateway for all travelers from and to the state. Good telecommunications services are available in the state. Agriculture is the mainstay of the economy. There are many farm produce from the state notably coffee, cocoa, palm oil, cashews, groundnuts, maize, cassava, yam, rice and melon. Mineral resources include coal, limestone, iron, petroleum and tin.

The state is home to the largest iron and steel industry in Nigeria known as Ajaokuta Steel Company Limited and one of the largest cement factories in Africa, the Obajana Cement Factory.

Power China – EPC

The Power Construction Corporation of China (POWERCINA) was founded in September 2011. The company provides comprehensive and full-range services from planning, investigation, designing, consulting, civil works construction to M&E installation and manufacturing services in the fields of hydropower, thermal power, new energy and infrastructure. Their business also extends into real estate, investment, finance, and O&M services.

POWERCINA boasts world-leading EPC services in the development of hydropower, water works, thermal power, new energy, and transmission and distribution projects, in addition to the achievements in the fields of infrastructure, equipment manufacturing, real estate and investment.

POWERCINA possesses state-of-the-art technology in dam engineering and construction, installation of turbine-generator units, foundation design, investigation and construction of extra-large underground caverns, investigation, engineering and treatment of high earth/rock slopes, dredging and hydraulic fill works, construction of runways in airports, design and construction of thermal and hydropower plants, design and installation of power grids, and related equipment and hydraulic machinery.


The EIA team consists of two reputable consulting firms, MOSODAK Associates, a Civil and Environmental, Engineering and Consulting firm and F.M CHIDEZ Nigeria Limited, a Power Engineering and EMC Consulting firm. They have acted as expert reviewers for the Federal Ministry of Environment and have varied experience ranging from geotechnical, power evacuation, soil studies and EIA of new plants and other industrial projects such as steel and galvanizing factories.

Operation & Maintenance- General Electric

GE Power is an American energy techniques company, owned by General Electric. GE Power is the largest energy techniques and selling Energy Company in the world.
SHAREHOLDING STRUCTURE
The proposed shareholding structure for the equity portion of the project is as follows:
BCS Energy Limited (30%), the nominated EPC Provider (30%), and other interested parties (40%).

- The personnel above are allocated in the way of “4 shifts with 3 for operation” according to their project experience on routine and simple circulation of the gas turbine power station, and then adjusted upon mutual negotiation in terms of the project demand.
- Above arrangement is a preliminary scheme and may be changed after mutual negotiation on the basis of project actual demands.

HR POLICIES
General Policy
The divisional Human Resources Officers are responsible for all recruiting activity and for approving all employment commitments including salary, position classification and any special conditions of employment. Employment may be contingent upon a post job after medical examination. The cost of the medical examination will be at the expense of the company. The medical report shall be maintained separate from the employee's file and shall be treated confidentially. Newly hired individuals (or those retired after termination of employment) are provisional until the successful completion of 180 calendar days of employment. Staff members who initiate a promotion or transfer are provisional until the successful completion of 180 calendar days in their new position.

Shift and Flexible Rostering Policy
Rostering refers to the accepted shift policy schedule at the power plant. This will be implemented by the plant management and will be a result of management-labour negotiations. The rostering will be structured to reflect an 8-hour-per-day schedule and 40-hour week while the plant is in operation. While the general rostering policy is negotiated between management and labour, the following are best practices that will be employed to maintain efficiency:
   i. Individuals will not be allowed to work more than 16 consecutive hours (excluding shift turnover time)
   ii. An individual will not be permitted to work more than 16 hours in any 24-hour period, more than 24 hours in any 48-hour period, or more than 72 hours in any 7-day period (all excluding shift turnover time)
   iii. A break of at least 8 hours will be allowed between work periods (including shift turnover time).
The shifts schedule will be modelled in the x shift pattern. The shifts will include:
- Shift 1: 8am-2pm
- Shift 2: 2pm-8pm
- Shift 3: 8pm-2am
- Shift 4: 2am-8am

**Work Hours Policy**

The power plant will comply with international best practices for similar power plants of this nature. While there exists no specific regulation covering working hours for power plant operators, there are regulations to the total working hours for operators. Taking all this into consideration and with the goal of keeping operator productivity at maximum capacity, the power plant will run an 8-hour a day working period for operators.

**Multi-skilling Policy**

The management of the power plant believe that to maintain the efficiency of operators and to reduce the likelihood of fatigue while working in a single function, the power plant will employ a multi-skilling policy. To this end, we will periodically relieve and reassign operators to other duties that are away from their primary duty in the power plant. This will allow for cross training of operators of the different departments if the plant. In addition, each operator will possess numerous skills that spread across the entire operations of the power plant.

**Overtime Policy**

The overtime policy will be designed by the power plant management. The use of overtime will be considered on an individual basis, not for the entire staff on a shift.

**Staff Training Policy & Knowledge Transfer**

The training of the entire staff will be carried out through strategic management planning. The training will be both local and international. There are 3 training phases in local on-site training and 15 days overseas training for Superintendents.

**TRAINING PLAN FOR NIGERIAN STAFF**

All necessary training will be provided to the plant personnel, especially the Nigerian staff to facilitate efficient and correct operation and maintenance of all equipment and systems. This will also facilitate local capacity development and local content utilization. The training will be provided both in a classroom as well as at plant site.

There will be two types of training:

i. Training for maintenance of the equipment.
ii. Training for operation of the equipment.

A comprehensive training program will be developed to ensure that the plant personnel acquire a good working knowledge of the design, operation, maintenance and repair of the equipment. The training will be conducted by experienced personnel, supported by modern training aids and will utilize the actual system equipment.

The training will include instructions in preventive maintenance, alignment and general trouble shooting techniques for failure isolation, including the use of all diagnostic equipment required. The training will provide the O&M personnel a detailed understanding of the following:

i. Overall system design and the way the hardware elements interact.
ii. Procedures for system start-up, change-over, restart etc.
iii. Theory of operation of all equipment.
iv. Interpretation of equipment failure and alarm messages.
v. Equipment module replacement.
vi. Equipment installation and interconnection.

The training schedule will take into consideration the need for properly trained personnel to be available, by the time the concerned equipment and systems are installed. The operators will be trained by the OEM specialists at their shop and at site to develop requisite expertise for operation of the advanced class GTs in line with OEM recommendation. The O&M staff would be in place during Construction / commissioning stage so that they will be associated with the OEM team during pre-commissioning stage of the units. A Training Department will be formed to look after the training of technical and commercial trainees, supervisory trainees, and trade apprentices etc. To replenish the requirements of trained personnel for the station, suitable training programmes will be formulated under the guidance of above department for imparting different types of training, as required. The personnel for operation and maintenance of the proposed units will be of the following categories:
New recruits without appreciable experience
ii) Personnel directly recruited for the station having experience in OCPP practices.

In case of new recruits who do not have appreciable exposure to power station practices, the training programme will include:
1. General theoretical training in OCPP operation and maintenance.
ii) Actual in-plant training in the operating OCPP.
iii) Simulator training.

The training programme for familiarisation with the new station will vary with the nature of duties as explained hereunder:

a. Maintenance Personnel:
   Some of the personnel with previous experience in maintenance of mechanical, electrical and control & instrumentation would be employed.

b. Operating Personnel:
   Key operating personnel would first go through the Lectures/Training Manuals provided by OEM. Routine drills for various operations would also be organised. Training at Vendors’ works, both within the country and abroad, would be organised. All operating personnel would be actively associated with all phases of the commissioning of the plant.

LOCAL CONTENT PLAN

The company is committed to the realization of the Federal Government of Nigeria’s objectives and to the development of the Nigerian content of its business as part of its contribution to the sustainable development of Nigeria.
The workforce will grow to be 95% Nigerians over time as a result of on-going and planned training programs for staff and engineers. The aim of the Company is to engage Nigerian engineers as core Operations & Maintenance personnel and to ensure that they possess the knowledge, skills and experience to perform their jobs to international standards. Necessary arrangement shall be made to develop them through training programs organized by the original equipment manufacturer representatives.

Policy Statement:
The Company will seek to maximize the use of Nigerian human resources, materials, equipment & services in its operations without compromising its Business Principles, Quality, Health, Safety and Environmental standards.

The company shall also seek to maximize the participation of Nigerian businesses and host communities in its operations, thereby contributing to the development of Nigeria’s industrial capabilities and competences, and supporting the national economy.

Objective:
The objective is to contribute to the economic development of Local Contractors, Host Communities and the entire Nigeria, through sustainable development growth in the Nigerian content of our business.
This shall be by encouraging and supporting the development of manpower, acquisition of technology by Nigerian businesses, Training programmes and maximizing opportunities for the participation of Nigerian businesses in the Company’s operations.

Strategy:
The strategies put in place to deliver these in all areas of our business are:
Maximize the development of Nigerian companies as sub-contractors through their participation directly and/or indirectly in contracting and procurement activities that are consistent with safety, environment or other relevant policies as well as with quality, commercial management and business principles.
Ensure our host communities’ contractors and suppliers receive the opportunity to tender for works of a type and complexity appropriate to their abilities and our requirements.
Promote the transfer of technology from international contractors to Nigerian contractors.
Encourage training courses that will create new in-country supply capability and develop Nigerian personnel.
Contractors shall train selected qualified community workers in specific crafts where trainees can acquire specified skill sets.
Plan, execute and measure Nigerian content through our contracting process.

Accountabilities
The Company’s management is accountable for delivering Nigerian Content in their business areas and compliance with Government policies on Nigerian Content.
The Operation & Maintenance management team with the support from the Company’s management are accountable to ensure that all major...
projects have clearly stated Nigerian Content development strategies and plans that are executed as part of the contract.

**Material, Equipment Sourcing & Services – Local Content**

As a strong supporter of Nigerian Content Government policies, the Company shall, wherever possible, utilize local materials and equipment in executing its contracts. In addition to purchasing complete manufactured equipment directly from the market place, the company encourages producing its own finished product by obtaining the basic materials in Nigeria and fabricating the final product in its facilities and workshops. This again promotes the use of Nigerian labour increasing Nigerian project man-hours and thereby reducing unemployment and creating economic growth in Nigeria. Particular procurements which may only be obtained offshore will be kept to a minimum. The company will develop further its mechanical/electrical Workshop Facilities and storage facilities and these will be used to fabricate as many parts for equipment and tools used for its operations to successfully complete the contract to specification. For equipment purchased abroad, the company will send personnel to suppliers manufacturing facilities so that they can acquire the knowledge and technical expertise to install, operate and maintain the equipment in Nigeria.

**Nigerian Subcontractors/Institutions**

As with directly employed labour and material/equipment purchases, the Company shall utilize local Subcontractors wherever possible to assist in execution of the work. This will encourage local contractors to develop and expand so they in turn will benefit and the economy will grow. Similarly, in carrying on its business, the company shall employ the services of Nigerian institutions such as Banks, Insurance Companies, Auditors, Solicitors, Transport Companies, etc.

**OPERATIONS AND MAINTENANCE (O&M) PHILOSOPHY**

The objectives of the Company’s power plant operation and maintenance would be to optimize the plant output and availability with safe, reliable and efficient mode of plant operation meeting all regulatory requirements.

**START-UP PLAN**

Since the plants operation and control would be achieved by a modern control and instrumentation system employing DCS, the plant O&M is proposed to be carried out by a limited number of experienced and motivated operating staff. To achieve high degree of efficiency in plant management and operation, proper training scheme consisting of both in-house training as well as at manufacturers’ works, will be developed within the lifetime of this power station.
Operation and Maintenance (O & M) Process

Upon commissioning, the company shall execute all the plant operations and routine maintenance covering the maintenance of any regular, preventive or minor nature that is performed during unit shut down or operation, to maintain the Units and other equipment in good working order on a day-to-day basis. They will also coordinate the maintenance of “Balance of Plant” equipment under the management of the company. However, a Long Term Service Agreement (LTSA) shall be assigned to General Electric (GE) the Original Equipment Manufacturer (OEM) or a GE designated licensee, to cover planned major equipment maintenance and the supply of Initial Spare Parts and Mandatory Spares.

Operations System Planning:

a) Station Parameters:
Station installed capacity is 1125MW. Plant generation capacity will be 95% equivalent to 1063.25MW. Allowance for transmission losses, 5% and equivalent to 168.75MW. Allow for capacity degradation, 5% and equivalent to 7.5MW. Evacuated power to the grid will become 843.25MW

b) Operating Regime - Base Load
The station shall be operated as a base load station generating at maximum total net capacity of 168.75MW to the National grid. This shall be agreed with the TCN and NBET.

c) Station Availability and Deliverables Plan
Minimum Power Station availability shall be 80% in conformance with NERC regulations. Maintenance Plan

d) Planned Maintenance Activities shall include the following:
- Gas turbine preventive maintenance inspections (Standby and Running Inspections)
- Gas turbine combustion inspections
- Gas turbine Hot gas path inspections
- Gas turbine major overhauls
**Maintenance Features and Maintenance Inspections**

The GE heavy-duty gas turbine is designed to withstand severe duty and to be maintained on-site, with off-site repair required only on certain combustion components, hot gas path parts and rotor assemblies needing specialized shop service. The following features are designed into GE heavy-duty gas turbines to facilitate on-site maintenance:

- All casings, shells and frames are split on machine horizontal centerline. Upper halves may be lifted individually for access to internal parts.
- With upper-half compressor casings removed, all stationary vanes can be slid circumferentially out of the casings for inspection or replacement without rotor removal.
- With the upper-half of the turbine shell lifted, each of the first stage nozzle assembly can be removed for inspection, repair or replacement without rotor removal. On some units, upper-half, later-stage nozzle assemblies are lifted with the turbine shell, also allowing inspection and/or removal of the turbine buckets.
- All turbine buckets are moment-weighted and computer charted in sets for rotor spool assembly so that they may be replaced without the need to remove or rebalance the rotor assembly.
- All bearing housings and liners are split on the horizontal centerline so that they may be inspected and replaced when necessary. The lower half of the bearing liner can be removed without removing the rotor.
- All seals and shaft packings are separate from the main bearing housings and casing structures and may be readily removed and replaced.
- On most designs, fuel nozzles, combustion liners and flow sleeves can be removed for inspection, maintenance or replacement without lifting any casings. All major assemblies, including filters and coolers, are separate assemblies that are readily accessible for inspection or maintenance. They may also be individually replaced as necessary.
- Casings can be inspected during any outage or any shutdown when the unit enclosure is cool enough for safe entry. The exterior of the inlet, compressor case, compressor discharge case, turbine case, and exhaust frame can be inspected during any outage or period when the enclosure is accessible. The interior surfaces of these cases can be inspected to various degrees depending on the type of outage performed. All interior surfaces can be inspected during a major outage when the rotor has been removed.
- Exhaust diffusers can be inspected during any outage by entering the diffuser through the stock or Heat Recovery Steam Generator (HRSG) access doors. The flow path surfaces, flex seals, and other flow path hardware can be visually inspected with or without the use of a borescope. Diffusers can be weld-repaired without the need to remove the exhaust frame upper half.
- Inlets can be inspected during any outage or shutdown. Inspection aid provisions have been built into GE heavy-duty gas turbines to facilitate conducting several special inspection procedures. These special procedures provide for the visual inspection and clearance measurement of some of the critical internal components without removal of the casings. These procedures include gas path borescope inspection (BI), radial clearance measurements and turbine nozzle axial clearance measurements.

A GE gas turbine is a fully integrated design consisting of stationary and rotating mechanical, fluid, thermal, and electrical systems. The turbine’s performance, as well as the performance of each component within the turbine, is dependent upon the operating interrelationship between internal components and the total operating systems.

GE’s engineering process evaluates how new designs, design changes or repairs impact components and systems. This design, evaluation, testing, and approval assures the proper balance and interaction between all components and systems for safe, reliable, and economical operation.

Failure to evaluate the full system impact of a new, repaired, or modified part may have negative impacts on the operation and reliability of the entire system. The use of non-GE approved parts, repairs, and maintenance practices may represent a significant risk. Pursuant to the governing terms and conditions, warranties and performance guarantees are predicated upon proper storage, installation, operation, and maintenance, conforming to GE approved operating instruction manuals and repair/modification procedures.
a) Standby Inspections

Standby inspections are performed on all gas turbines but pertain particularly to gas turbines used in peaking and intermittent-duty service where starting reliability is of primary concern. This inspection includes routinely servicing the battery system, changing filters, checking oil and water levels, cleaning relays and checking device calibrations. Servicing can be performed in off-peak periods without interrupting the availability of the turbine. A periodic startup test run is an essential part of the standby inspection.

Operating and maintenance personnel shall be adequately trained to perform these periodic checks necessary during any standby inspection. Careful adherence to minor standby inspection maintenance will enable a significant effect on reducing overall maintenance costs and maintaining high turbine reliability. A good record shall be kept of all inspections made and of the maintenance work performed in order to ensure establishing a sound maintenance program.

b) Running Inspections

Running inspections consist of the general and continued observations made while a unit is operating. This starts by establishing baseline operating data during initial startup of a new unit and after any major disassembly work. This baseline then serves as a reference from which subsequent unit deterioration can be measured. Data shall be taken to establish normal equipment startup parameters as well as key steady state operating parameters. Data shall be taken at regular intervals and recorded to permit an evaluation of the turbine performance and maintenance requirements as a function of operating time. This operating inspection data includes: load versus exhaust temperature, vibration, fuel flow and pressure, bearing metal temperature, lube oil pressure, exhaust gas temperatures, exhaust temperature spread variation and startup time. This list is only a minimum and other parameters shall be used as necessary fuel nozzles and end caps which are recognized as being the first to require replacement and repair in a good maintenance.
program. Proper inspection, maintenance and repair of these items will contribute to a longer life of the downstream parts, such as turbine nozzles and buckets.

Recommended inspection interval anticipated is 12000 factored hours/450 actuated starts. This is, however, typical and provisional because it is subject to review and adjustment as actual operating and maintenance data are accumulated.

c) Hot Gas Path Inspection

The purpose of a hot gas path inspection is to examine those parts exposed to high temperatures from the hot gases discharged from the combustion process. The hot gas path inspection includes the full scope of the combustion inspection and, in addition, a detailed inspection of the turbine nozzles, stator shrouds and turbine buckets. To perform this inspection, the top half of the turbine shell shall be removed. Prior to shell removal, proper machine centreline support using mechanical jacks is necessary to assure proper alignment of rotor to stator, obtain accurate half-shell clearances and prevent twisting of the stator casings.

Recommended inspection interval anticipated is 24000 factored hours/900 factored starts. This is, however, typical and provisional because it is subject to review and adjustment as actual operating and maintenance data are accumulated.

d) Major Inspection

The purpose of the major inspection is to examine all of the internal rotating and stationary components from the inlet of the machine through the exhaust. A major inspection will be scheduled in accordance with the recommendations in the owner’s Operations and Maintenance Manual or as modified by the results of a previous borescope and hot gas path inspection.

The work scope involves inspection of all of the major flange-to-flange components of the gas turbine, which are subject to deterioration during normal turbine operation. This inspection includes previous elements of the combustion and hot gas path inspections in addition to laying open the complete flange-to-flange gas turbine to the horizontal joints.

Recommended inspection interval anticipated is 8000 factored hours/2400 factored starts. This is, however, typical and provisional because it is subject to review and adjustment as actual operating and maintenance data are accumulated.

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PLANNED MAINTENANCE SERVICES

a) Regular Services

The Operator shall provide personnel to carry out Regular routine maintenance Services. Each technician shall be issued with a toolbox. All tools shall be of good quality and maintained in a serviceable condition. The Operator shall provide and maintain sufficient tools and equipment as required to perform the Services. A fully equipped small tools and parts storage facility shall be provided at the power plant.

b) GE Frame 9 Turbine Filter changes

Only one filter change out shall be carried out at any one time and the scheduling of this work shall be to suit the requirements of the company’s operations. Sufficient work force shall be provided to complete the job within the stipulated time schedule. Removed filters shall be evacuated from the power plant in accordance with the waste management policies.

c) GE Frame 9 Turbine Weekly Operational Checks / Site Visit

On-Site inspection and operational checks for the three turbines will be conducted. Only one on-site inspection and operational check operation shall be carried out at any one time.

d) Corrective Breakdown and Refurbishment Work on the Power Station including all Auxiliaries.

This shall primarily be related to the corrective breakdown and refurbishment work on entire power plant and its components; this also includes power station auxiliaries as listed in the plant description, including service/instrument air compressors, emergency diesel generator sets, etc.

e) Preventive Maintenance Services

The company shall arrange to carry out preventive maintenance on the under listed power station Balance of plant equipment:

- Two (2) oil-free rotary screw type air compressors complete with instrument air receiver, service air receiver, pre-filter, air dryer, after filter, valves and associated instrumentation.
• Diesel oil (DO) system complete with DO unloading pumps, DO storage tank, DO forwarding pumps, Emergency Diesel Generator and all necessary instrumentation.
• Fuel gas system complete with ESD valve, knock-out drum, filter/scrubber, flow meter, pressure reducing units, gas chromatograph & WOBBE index meter, electric heaters and duplex coalescing fuel filters
• Station Fire protection and Detection system.
• Service and Potable water system complete with Well water supply pumps, raw water storage tanks, service water storage tanks, water transfer pumps and associated motor starters, control panel and instrumentation.
• Other services include battery maintenance, lifting equipment, station lighting.
ANNUAL SERVICE ACTIVITIES

The company shall coordinate preventive programmed annual inspection activities with the shutdown periods scheduled to mobilise the maintenance crew to complete the activities within the given schedule time. In view of the conditions in which the machines operate and in line with the OEM recommendations, the company has at present opted to carry out the overhauls on the plant as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Maintenance Type</th>
<th>Maintenance intervals (hours)</th>
<th>Shut down Duration (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE FRAME 9</td>
<td>Combustion Inspection (CI)</td>
<td>2000</td>
<td>6</td>
</tr>
<tr>
<td>Hot Gas Path Inspection (HGPI)</td>
<td>3000</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Major Inspection (MI)</td>
<td>3000</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Annual Borescope Inspection of all major equipment installed in this power plant and all above intervals between inspections are subject to alteration, dependent upon the operation requirements condition of components ascertained during the inspections and overhauls.

a) Performance Test
A performance Test shall be carried out as part of the Annual Service.
The company shall carry out a load test on the engine and confirm that the equipment performs to OEM overhauled units standards on:
- Performance (Power output, turbine operating temperature, exhaust temperature spread, efficiency, ambient temperature, IGV angles, etc.).
- Mechanical condition (vibration, noise, PCD, temperatures, leaks, etc.).
- Lubrication system integrity & oil consumption.

On completion of performance test the Contractor shall submit the annual service report as stipulated above.

b) Third Party services
The company shall as required facilitate additional call off activities or third party services which will include preventive and emergency repair or maintenance of major equipment and balance of Plant equipment.
The Operator shall engage the consulting services of specialist mechanical, electrical and control engineers who are fully qualified and competent in the operation, maintenance and repairs of the power plant. These specialist engineers shall have adequate experience from OEM or consulting companies related to operation maintenance and repairs of GE manufactured packages.
In case of operational emergencies, the company shall request for emergency third party call off services.
The Operation and Maintenance entity shall provide the following specialist tools and equipment:
- Rotor stands
- Lube Oil Transfer Pumps
- Phase angle Meters
- Dielectric Test Set
- Station Air supply
- Load banks as necessary to discharge DC battery banks
- Transformer oil treatment equipment as necessary.
RISKS AND MITIGANTS

RISK IDENTIFICATION AND MITIGATION FRAMEWORK

As it is with all other projects around the world, there are some uncertainties associated with the general economy and force majeure.

Macro-economic and fiscal policy changes, natural disasters, strikes, etc. form part of such uncertainties. But regardless of these, there will be enough room to accommodate very sophisticated insurance mechanisms that can help stakeholders mitigate all Credit, Political and Peril related risks that may threaten the project’s existence.

On the other hand, the project has a very high value creation potential for all its stakeholders and all the plant’s component brands selected for use in the project are from World class manufacturers that have proven track records that guarantee the long-term success of the project.

BCS Energy Nigeria Limited has therefore created a risk management framework it intends to deploy. The Consortium has successfully identified, assessed and allocated every risk in the contractual framework with an effective mitigation plan. The following are risks identified with their corresponding mitigation or risk management plan.

OPERATIONAL RISK

Operational risk is the failure of the mechanism to deliver electrical power probably due to unreliable supply of natural gas. The Power industry in Nigeria is currently challenged by unreliable supply of Natural Gas, which is instrumental to the generation of electricity. This leads to system losses and gross under-utilization of capacity.

Mitigation Plan:

The Nigerian government is taking a lead role in guaranteeing a reliable supply of natural Gas by channelling substantial Government funding towards securing these resources to support private investment in power generation. Furthermore, the proposed power station is strategically located in close proximity to the source of gas.
LICENSING AND GOVERNMENT INTERVENTION RISKS

These include delays in securing Government/Regulatory permits, licenses and land allocation including Government interference in Sector Operations.

Mitigation Plan:

Federal Government of Nigeria is highly committed to the generation, transmission and distribution of electricity in Nigeria. The Federal Ministry of Power has been mandated to support all power sector investors in securing Government supports where required.

The Government of Nigeria’s power sector reform has delineated Government regulatory agencies and their responsibilities.

The land for the proposed project has been acquired and the title documents have been processed.

ECONOMIC RISK

The risk that the revenue generated from the Power Station Operations will not be sufficient to cover operating costs and to finance maturing debt obligations.

Mitigation Plan:

The Company’s proposal has been subjected to very rigorous due diligence and stringent evaluation criteria such as is required for bankability. Furthermore, the project will benefit from a Partial Risk Guarantee (PRG) cover from supranational organisations, against any failure of the off-taker to meet payment obligations. However, the Company has the experience and capability to implement strategies that will ensure financial projections are largely met and surpassed.

DEMAND RISK

The risk that the demand for electricity forecast by the firm during preliminary analysis may not meet the actual consumer demand. A high forecast but low actual demand can mean unnecessary cost for the firm in terms of generation losses.

Mitigation Plan:

Demand for power in Nigeria far out ways its supply. Hence, all power generated will be adequately evacuated to the national grid. A binding Power Purchase Agreement (PPA) will be executed with NBET which will take up the full output of the power plant.

PRICE RISK

This risk occurs when the generating body has little or no control over the price in which the power generated is sold. It affects the degree of control on the requisite inputs that go into the generation of power.

Mitigation Plan:

In Nigeria, the pricing of power is regulated by the Nigerian Electricity Regulatory Commission through the Multi Year Tariff Order (MYTO). The MYTO is used to set wholesale and retail prices. Contract prices are set for each generation period and the contract price is pre-determined by the template pricing stated in the MYTO.

The current project financial model has taken consideration of all variables captured in the MYTO.
**CURRENCY RISK**

The denomination of MYTO in US Dollars and Naira, as well as plans to access dollar denominated funding, present’s risks on foreign exchange fluctuations.

**Mitigation Plan:**
Due to the increased volatility in the exchange rate as a result of a fall in crude oil prices in the last 24 months, the Central Bank of Nigeria has formulated various policies in salvaging the situation including the devaluation of the local currency. Various windows have been created to cater for the foreign exchange needs of various users of foreign exchange. The recently created window for foreign investors and exporters has led to an appreciation and stability of the naira due to the increasing volume of transactions recorded. Both capacity and energy payments are broken into Naira and USD components in the PPA. Furthermore, the MYTO is reviewed annually to adjust for inflation, exchange rates and fuel price. This is also in addition to the fact that the company will engage the services of currency risk protection institutions to provide long term hedge mechanisms against this form of exposure.

**SECTORIAL / INDUSTRIAL RISKS**

Pursuant to the deregulation of the power sector, the Company would be faced with the risk of stiff competition as more IPPs are licensed to operate.

**Mitigation Plan:**
The huge deficit between Nigeria’s demand for electricity and the supply thereof, ensures that opportunities far outweigh combined industry capacity.

**OFF-TAKER PAYMENT & PRICING**

This is the risk that the power generated might not be sold and where sold, the risk that the off-takers might not be able to pay for the quantity supplied.

**Mitigation Plan:**
The power off-taker, the Nigerian Bulk Electricity Trading Company (NBET) will buy electricity produced by the power plant through an executed 20-year Power Purchase Agreement (PPA) and this will be covered under a multilateral Partial Risk Guarantee (PRG) scheme or a Non-Honouring Sovereign Guarantee coverage, provided that all technical, environmental and financial requirements of the project comply with the Issuer’s standard.

**POWER EVACUATION RISKS**

This is the risk that the power generated may not be evacuated to the national grid by the Transmission Company of Nigeria (TCN).

**Mitigation Plan:**
Power evacuation studies have been conducted on the proposed site and the results have been analysed for accommodation of the project’s output into transmission infrastructure operated by TCN. However, the PPA will typically guaranty payments for available plant capacities to the producer during times of grid loss and no evacuation.

**OPERATIONS & TECHNICAL RISKS**

This risk relates to the Company being faced with its plants/facilities becoming inefficient, with an increased probability of system losses occasioned by lack of skilled personnel to operate and maintain same.

**Mitigation Plan:**
The Project Consortium comprises of a Technical Service Provider (TSP) with which an Operations and Maintenance Agreement will be signed. In addition, there will also be a Long Term Service Agreement with the Original Equipment Manufacturer (OEM) and a Performance Guarantee (PG) from the O&M, covering an agreed production output from the plant. The technical advisory team to the project are individuals with tested and trusted long years of experience in the industry.

**CONSTRUCTION RISK**

This is the risk associated with design/project changes, budget/cost overruns, project process approvals, safety and site conditions etc. These variables have the ability to inflate the cost of the project, as well as disrupt the overall success of the project.

**Mitigation Plan:**
To mitigate against this risk, the Company has engaged a renowned Engineering Procurement & Construction (EPC) contractor. The EPC is a reputable company with international track record of success in this field. The EPC, to provide further comfort will issue a Completion Guarantee (CG) to the project and its lenders. This guarantee will be in form of a bond, assuming all risks associated with the dismantling, transportation and erection of the plant at the new site.
ENVIROMENTAL CONSIDERATIONS

The environmental protection of the team covers training and the guarantee of the campsite environment.
a) Environmental Protection Training. A training plan on environmental protection shall be carried out by the project department before construction and it shall be executed as per features of the surrounding, the content of construction and requirements of risk evaluation. The personnel shall be trained by the project department on environmental protection before construction. The training will include but not limited to the following:

1. The requirements of laws, policies, regulations and constructors concerning environmental protection implemented by the local government of the construction areas;
2. Implemented environmental protection rules, regulations and plans. To have a clear understanding of the factors affecting the environment;
3. An understanding of utility condition of lands and waters in the vicinity as well as the local culture, ethnic customs and protection areas;
4. Protection of the possible encountered wildlife and aquatic life;
5. Methods about waste reduction, collection and disposal; and

b) Campsite Environment Protection. The team will make sure that natural land or originally cultivated land shall be used as long as the needs are satisfied in order to reduce the impact on environment. Centralized storage equipment for daily trash, such as plastic bags and bottles, shall be set up and littering is prohibited to avoid white pollution. The campsite must be kept clean during the work, and pollution to surface waters and underground water shall be avoided when the waste is disposed.

c) Safeguard
Access and exit controls will be installed by the team for safeguard of all plant personnel and visitors. Guards shall be positioned at the entrance of the plan for twenty four hours (24hr), to control the access for entrance and visit. When all plant personnel and visitors related to the construction, enter the site, they shall hold access card and enter from the main gate. The entrance guards are allowed to check their belongings.
**PROJECT CONSIDERATION**

Proposed Transaction Structure

- **Equipment Seller/EPC Contractor**
  - Performance Guarantee/Advance Payment Guarantee/Completion Guarantee
  - EPC Contract Payment
  - Technical Services Agreement for Operations and Maintenance (O&M)

- **State Government**
  - Sale and Purchase Agreement
  - Construction Contract
  - Concessions i.e. tax holiday, land rebates, lobbying, etc.

- **Distribution Coys /NBET**
  - Power Purchase Agreement
  - O&M & Supplier Payment and other OPEX

- **Investors:**
  - BCS Energy
  - Local Partners
  - State Government
  - EPC Contractor
  - Others

- **Supplier (GACN, OEM- spares etc.)**
  - Gas Sale Agreement
  - Supply Agreement

- **BCS ENERGY LIMITED**
  - Cash Injection of 30% of Project Capital
  - Nomination to Board of Project Company
  - 3rd Party Guarantee:
    - PRG
    - PRI
    - Others

- **Escrow Acct.**
  - Surplus from Dividends
  - Loan Agreement
  - Debt Service Payment

- **Trustee Agreement**

- **Lenders [Development Finance Institutions, Local and Foreign Banks etc.]**
FINANCING PLAN

FINANCING PLAN OVERVIEW

The proposed project will be financed using a combination of debt and equity. A 70-30% debt equity split is to be adopted. The 30% equity finance is to be provided by the consortium members and this will be leveraged to provide the required debt funding.

The project finance funding will be sourced from a combination of local and off shore financiers.

The debt funding is to be collateralized by the assets of the plant and a 2 year moratorium is to be sought with a view to achieve full start up before payment of interest and principal commence. Source of repayment will be from the revenues derived from daily operations of the plant. In the minimum, the debt shall be for a tenor of 7 years.
FINANCIAL MODEL

INTRODUCTION

This chapter sets out the inputs and general parameters that form the basis of the financial appraisal of the consortium’s proposed business operation plan as well as the resulting financial forecasts, demonstrating the financial viability of the project as a whole. The financial model is designed to cover a 20 year period, however this business plan extracts a 7-year period from the model i.e. 2017 (Year -1) to 2025 (Year 7). The following discussion of the model focuses on a base case scenario.

Note: The financial model is currently indicative due to the fact that a Technical Services Agreement is yet to be executed with MJB International the Technical Service Provider and the Operating Expenditure inputs are subject to change. The current figures are however fairly representative of the expected OPEX for operating a similar power plant in Nigeria.
GENERAL ASSUMPTIONS

Macroeconomic Assumptions
The assumptions adopted in the financial model reflect the prevailing macro-economic conditions in Nigeria.

Taxation
The financial forecasts take into consideration the current corporate and education tax rates on the taxable and assessable profits respectively of companies operating in Nigeria. Based on Nigerian tax regulations, the applicable tax regime for the Company’s proposed business model will be 30% of taxable profits as corporate income tax and 2% of assessable profits as education tax. It is assumed that all set-up costs and other expenses are inclusive of value added tax at 5%.

Provisions have also been made for the payment of the statutory withholding tax; however the company will negotiate a 7 year moratorium on the payment of all statutory tax liabilities accruable over the 7 year period due to the FIRS/NIPPC’s Pioneer Status that would be obtained.

Reporting Currency
The Project’s functional currency shall be the US dollars and its financial projections have been prepared in the same currency. However, the Ms. Excel Financial Model can be alternated between Naira and US dollars.

Inflation
The average inflation is assumed to be 10.8%(according to the Nigerian Bureau of Statistics (NBS) 10 year average inflation rate) over the explicit forecast period.

PROJECT COST AND FUNDING ASSUMPTIONS
Presented below is a budget relating to the total project cost and funding of its operations.

Project Cost
Table: Project Cost Estimates

<table>
<thead>
<tr>
<th>S/N</th>
<th>Description</th>
<th>Amount (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>125MW GE Frame 9 Combustion Turbine (Installed, including fuel handling system, cooling system-Material)</td>
<td>492,000,000</td>
</tr>
<tr>
<td>2</td>
<td>125MW GE Frame 9 Combustion Turbine (Installed, including fuel handling system, cooling system-Labour)</td>
<td>217,000,000</td>
</tr>
<tr>
<td>3</td>
<td>Shipping Cost of Turbines and major Equipment</td>
<td>22,000,000</td>
</tr>
<tr>
<td>4</td>
<td>All concrete slabs for turbines, switch gear, fuel system (Material &amp; Labour)</td>
<td>6,000,000</td>
</tr>
<tr>
<td>5</td>
<td>Major Electrical Work including (9)-125 MW transformers, switch gear, power poles (Material &amp; Labour)</td>
<td>36,000,000</td>
</tr>
<tr>
<td>6</td>
<td>Power plant control system (PLC based)</td>
<td>15,000,000</td>
</tr>
<tr>
<td>7</td>
<td>Cleaning and grubbing</td>
<td>1,000,000</td>
</tr>
<tr>
<td>8</td>
<td>Excavation and backfill (Material &amp; Labour)</td>
<td>7,000,000</td>
</tr>
<tr>
<td>9</td>
<td>Engineering, startup and commissioning (Labour)</td>
<td>2,000,000</td>
</tr>
<tr>
<td>10</td>
<td>Plant buildings (Materials &amp; Labour)</td>
<td>2,000,000</td>
</tr>
<tr>
<td>11</td>
<td>Land (25 years Lease)</td>
<td>90,000</td>
</tr>
<tr>
<td>12</td>
<td>Vehicles</td>
<td>350,000</td>
</tr>
<tr>
<td>13</td>
<td>Furniture &amp; Fitting</td>
<td>250,000</td>
</tr>
<tr>
<td>14</td>
<td>Overheads</td>
<td>20,000,000</td>
</tr>
<tr>
<td>15</td>
<td>4 months Gas Supply Reserve @56 per mcf</td>
<td>98,573,066</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>919,265,066</td>
</tr>
</tbody>
</table>

FINANCING PLAN

<table>
<thead>
<tr>
<th>Source</th>
<th>Debt</th>
<th>Equity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/ A</td>
<td>64,854,266.10</td>
<td>300,000</td>
<td>65,154,266.10</td>
</tr>
<tr>
<td>N/ A</td>
<td>258,573,066.10</td>
<td>300,000</td>
<td>258,873,066.10</td>
</tr>
<tr>
<td>N/ A</td>
<td>259,456,066</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Main Infrastructure
The main infrastructures for the project are the fixed assets which comprises of Property, Plant and Equipment (PPE) as well as the project assets. Some of these assets are listed below:

- Buildings
- Plant and Machinery: Gas Turbine, Generators, Compressors, etc

The infrastructure requirement is across the cost heads identified above.
Debt Schedule

The breakdown of this facility and the pay down schedule are given below:

Table 5.4: BCS ENERGY’s Revenue and Cost Assumptions

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance B/F</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
<tr>
<td>Additions</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
<tr>
<td>Capitalized Interest</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
<tr>
<td>Principal Payment</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
<tr>
<td>Balance C/F</td>
<td>N1,000,000</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
<td>150,112,308</td>
</tr>
<tr>
<td>Interest</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
<tr>
<td>Interest Paid</td>
<td>N1,000,000</td>
<td>643,486,546</td>
<td>694,964,300</td>
<td>750,961,541</td>
<td>600,449,333</td>
<td>450,336,925</td>
<td>300,224,616</td>
</tr>
</tbody>
</table>

Source: BCS Energy Nigeria Limited’s Financial Model

Funding Assumptions

The financial projections assume that the plant’s business operations will be financed solely from equity and debt capital investments.

REVENUE AND COST ASSUMPTIONS

The income streams to be accrued by the power plant will include revenues generated from operating the plant, as stipulated in the MYTO 2 document. These revenues will be derived from the following:

- Energy (VOM) charge;
- Capacity charge;
- Fuel Price; and
- Fixed operations & management (FOM) charge.
Operating Expenses Assumptions

Operating expenses cover the following: transportation, living expenses, salaries, other staff costs, distribution and marketing expenses, bank charges etc. Operating expenses projections for the forecast period is expected to grow at an average rate of inflation of 10.8% per annum. Operating 10.7% expenses is shown in Tables 5.4.1

Table 5.4.1: Operating Expenses

Source: BCS Energy Nigeria Limited’s Financial Model

Depreciation

The fixed assets of the project consist primarily of the Main Plant and Balance of plant Components as well as other fixed assets of the organisation. These assets will be depreciated using the reducing balance method, under the assumption that a 5% annual depreciation will be charged. Table 5.4.2 presents the depreciation rates and charges for the forecast period.

Table 5.4.2: Depreciation

Source: BCS Energy Nigeria Limited’s Financial Model
Operating Results

This section sets out a summary of the financial projections arising from the inputs and assumptions in the financial model.

Profit and Loss Accounts – Key Indices

The financial projections show Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA) of Year 1, and in Years 2, 3, 4 - 7 respectively. The following table shows a summary of the operating results for a 7-Year forecast period.

FINANCING PLAN
PROJECTED INCOME STATEMENT
Table : Income Statement Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
<th>Column 7</th>
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<th>Column 9</th>
<th>Column 10</th>
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<th>Column 12</th>
<th>Column 13</th>
<th>Column 14</th>
<th>Column 15</th>
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</tbody>
</table>

Source: BCS Energy Nigeria Limited's Financial Model
FINANCING PLAN

PROJECTED CASH FLOW ANALYSIS
The financial projections show a healthy cash flow over the forecast period. The cash flow projections for the forecast period are presented below.

Table 5.6: Cash flow Projections

<table>
<thead>
<tr>
<th>Period</th>
<th>Cash Inflow</th>
<th>Cash Outflow</th>
<th>Net Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>$100</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>Week 2</td>
<td>$150</td>
<td>$100</td>
<td>$50</td>
</tr>
<tr>
<td>Week 3</td>
<td>$200</td>
<td>$150</td>
<td>$50</td>
</tr>
<tr>
<td>Week 4</td>
<td>$250</td>
<td>$200</td>
<td>$50</td>
</tr>
</tbody>
</table>

Source: BCS Energy Nigeria Limited's Financial Model
FINANCING PLAN

FINANCING RATIO ANALYSIS
The financial ratios computed to reflect the viability and profitability of the BCS Energy Generation plant can be evaluated in the table below:

Table: Financial Ratio Analysis

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Sales Gross Margin Rate</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Net profit Margin</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Return on Assets</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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</tr>
<tr>
<td>Return on Equity</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td>ROA Leverage</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td>Equity Ratio</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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</tr>
<tr>
<td>Debt ratio</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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<tr>
<td>Debt Equity Ratio</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

LIQUIDITY RATIOS

Current Ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Receivables turnover days | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Payable turnover days | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Cash conversion cycle | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Total debt to total assets ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Revenue per employee | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  | $A  |

PROFITABILITY RATIOS

Gross margin | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Net profit Margin | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Return on Assets | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Return on Equity | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| ROA Leverage | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Equity Ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Debt ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Debt Equity Ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |

LEVERAGE RATIOS

Leverage | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Equity Ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Debt ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Debt Equity Ratio | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |

Source: BCS Energy Limited’s Financial Model
ENQUIRIES

All enquiries in respect of this document should be directed to:

BCS Energy Nigeria Limited

BCS Energy Nigeria Limited, Suites B14-B20, Baya Plaza, Ameh Ebute Street, Wuye, Abuja

Tel: +2348091111532
Website: www.bcsenergy.com.ng

Hamilton & George Limited

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+234 909 592 5791, +234 805 666 8531
info@hamiltonandgeorge.com

Contacts:

Director, Lami Adekola

lami@hamiltonandgeorge.com

+2348056668531
<table>
<thead>
<tr>
<th>Milestone</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Equipment Manufacturers</td>
<td>The power plant will make use of the GE Frame 9 Combustion Turbines</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Social Impact Assessment (ESIA)</td>
<td>Approvals have been obtained from the Federal Ministry of Environment for the Environmental Impact Assessment</td>
<td>Completed</td>
</tr>
<tr>
<td>Gas Sale Aggregation Agreement</td>
<td>A letter of commitment from the Gas Aggregation Company of Nigeria (GACN) for the issuance of Gas Purchase Order (GPO) has been received</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Technical Service Agreement</td>
<td>Conversations are ongoing with Power China and General Electric to serve as EPC Contractor and O&amp;M Contractor respectively for the plant.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Generation Licence</td>
<td>Started the process to obtain 1000MW power license from the NERC</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Power Purchase Agreement</td>
<td>Received a letter of commitment from Nigeria bulk Electricity Trading (NBET) to enter into a Power Purchase Agreement (PPA).</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>The project land has been fully acquired and survey plan issued. The land is located at Geregu, Kogi State.</td>
<td>Completed</td>
</tr>
<tr>
<td>Connection Agreement</td>
<td>The Evacuation studies by the Transmission Company of Nigeria is completed. The proposed connection point from the plant is capable of carry the load.</td>
<td>Completed</td>
</tr>
</tbody>
</table>
August 15, 2016

The Managing Director
BSC Energy Nigeria Limited
Suites 31 – 33 Mangal Plaza
Area 11, Garki
FCT Abuja

To,

POWER PURCHASE AGREEMENT - LETTER OF INTENT

We understand that you are currently in discussions with the Nigerian Electricity Regulatory Commission (NERC) to secure a generation licence for your gas fired power plant located in Geregu, Abakpa, Kogi State. Upon your request, we are providing this letter of intent in support of your licence application.

NBET is responsible for the bulk purchase of electric power from power generating companies including Independent Power Projects (IPPs) and its onward sale to electricity distribution companies. To this end, NBET is willing to enter into long term Power Purchase Agreements (PPAs) with duly licensed IPPs that are able to meet the legal, regulatory, financial, technical and operational requirements of the relevant Nigerian authorities. The PPAs would be based on term and conditions, including tariffs, approved by NERC.

We have received the due diligence package regarding your 1000MW gas fired power plant to be located in Geregu, Abakpa, Kogi State. We confirm our commitment to enter into a Power Purchase Agreement (PPA) with your company upon completion and satisfactory review of the NBET’s due diligence process.

We wish you success in all your project development efforts and look forward to a stable, long-term relationship with you.

Best Regards,

Mister Bateke
Ag. Managing Director

---

July 11, 2016

The Managing Director,
BSC Energy Nigeria LTD.
Suites 31-33 Mangal Plaza,
Area 11 Garki,
Abuja

Attention: Mr. Yemi Ohubamli

Dear Sir,

REQUEST FOR 132.24 MMSCFD OF NATURAL GAS TO BSC ENERGY LTD for 1000MW POWER PROJECT – DUE DILIGENCE RESPONSE

We hereby acknowledge receipt of your due diligence submission on the above subject matter for 132.24 MMSCFD of Natural Gas for your Power Project.

GACN has commenced review of your documents for your proposed 1000MW (2x500MW) Power Project. We observed that your NERC generation license and Power Purchase Agreement status with NBET are still outstanding. Please note that this is part of the documentation required prior to issuing a Gas Purchase Order (GPO).

We look forward to your early submissions of the outstanding documentation to enable us conclude your due diligence.

Please find attached our Gas Purchase Process.

Yours faithfully,

For: GAS AGGREGATION COMPANY NIGERIA LIMITED

Engr. Morgan Okwoche
Managing Director/CEO
## REASONS TO INVEST IN BCS ENERGY IPP PROJECT

### S/N | Rationale | Justification
--- | --- | ---
1 | Demand/Supply Gap | The demand-supply gap for power in the largest economy in Africa is huge. This in turn would ensure that there will always be demand for any power generated. South Africa with a population of 40 million have an installed capacity of 40,000MW while Nigeria with a population of 180 million will require 180,000MW of electricity. The United Nations estimates that Nigeria’s population will reach 250 million within the next 20 years and therefore the total grid capacity must also rise to meet demand.
2 | Tariffs | An investor would benefit from a Multi-Year Tariff Order (MYTO) which is designed to be cost reflective and ensure that the players along the value chain recover operating costs and can also invest in capital expenditures. However, the current structure is yet to be cost reflective. efforts are being made to ensure the industry’s tariff is cost reflective. This is typically reviewed every six months to take into consideration changes in macro-economic variables.
3 | Metering | There has been renewed calls by the regulator NERC in ensuring that Distribution companies meter all their customers to ensure efficiency in revenue collection. This will in turn be beneficial to power generation companies since flow of funds is usually from the distribution companies up the value chain.
4 | Promoter | The project’s promoters are experts and have a parent company in the US that specializes in executing power projects across Africa and the rest of the world.
5 | Tax Holiday | Pioneer status is available to companies involved in power generation using gas, coal or renewable energy. This means that the company will be allowed up to 7 years tax holiday. This will afford the company accelerated capital allowance, tax deductible interest on loans which ensure the company have increased cash flows for interest and dividend payments.
6 | Location | The location of the power plant which is situated in Geregu, Kogi State is very ideal. Its close to the existing 440MW Geregu Power Plant with all the necessary infrastructure required for the operation of the plant in place.
7 | Security of Finance | Credit enhancements and support include guarantees, warranties and other covenants for the project sponsor, affiliate and third parties. The strength of the guarantee ensures that the transaction secures the optimal debt structure and demonstrates commitment to the sponsor.
Next Steps

Potential Investors who wish to take this investment opportunity further should take the following steps:

**Equity Investors**
- An Expression of Interest Letter is sent to the Transaction Advisers
- A Non-Disclosure Agreement is signed between BCS Energy Limited and Prospective Investor
- Due Diligence / Information Sharing
- Investment negotiation
- Execution of SSPA
- Financial Close.

**Debt Investors**
- Review financial model and other documents
- Letter of Intent.
- Agree on terms of the loan with promoter
- Financial Close
Contact Us

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Email: lami@hamiltonandgeorge.com

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