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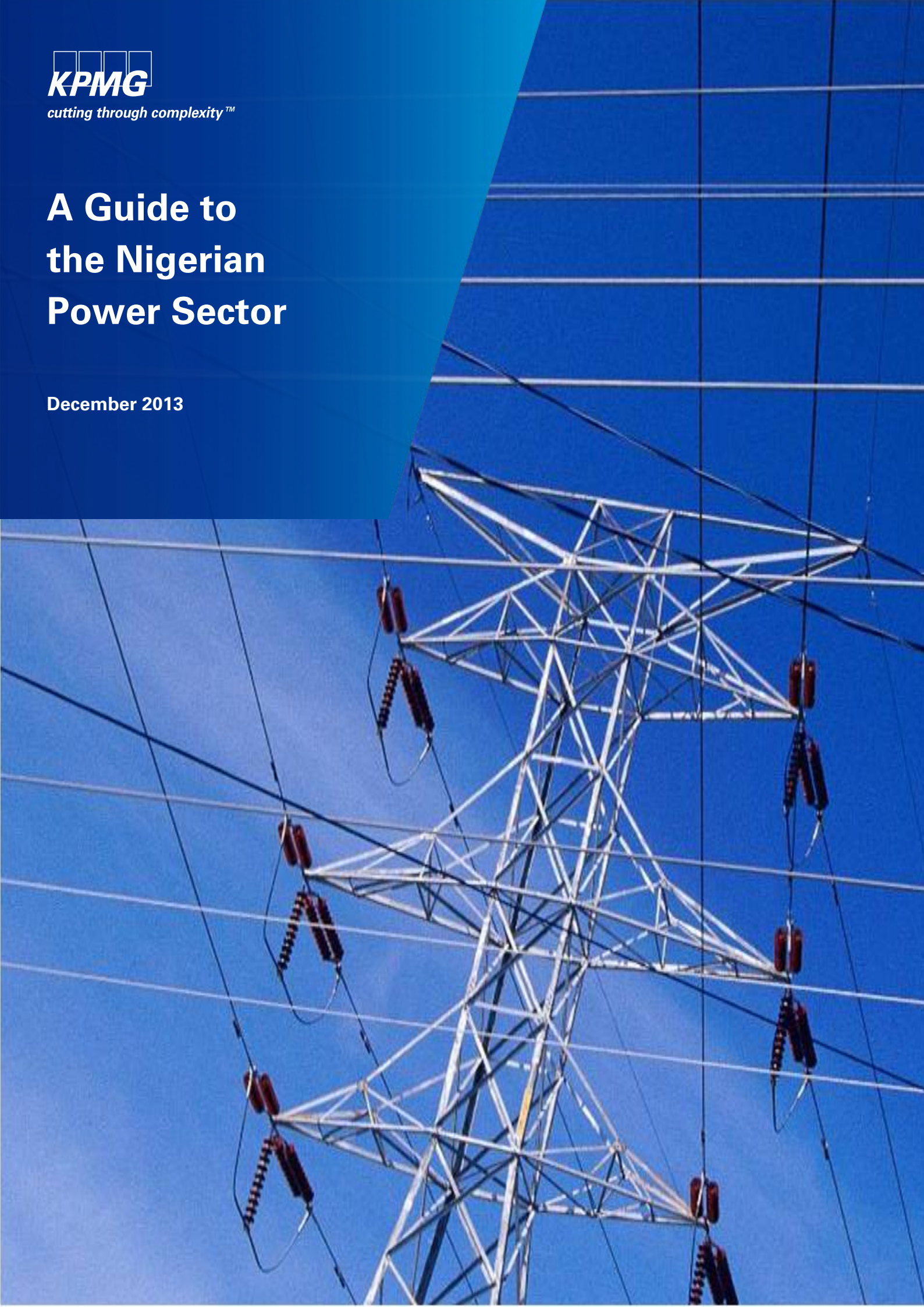
# A Guide to the Nigerian Power Sector

December 2013



# Contacts

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This guide provides a general overview of the Nigerian Power Sector and sets out the legal and regulatory framework applicable to the sector. It is also designed to provide information on the regulatory agencies and key institutions in the sector, broad practical guidance on the relevant legislation, fiscal provisions and applicable tax incentives, and some current industry issues prevailing as at date of publication.

It is not intended, however, to provide answers to particular issues and should not be regarded as a substitute for professional advice.

Further professional advice on specific matters may be obtained from the KPMG contacts provided in this guide.

KPMG Nigeria
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# Contents

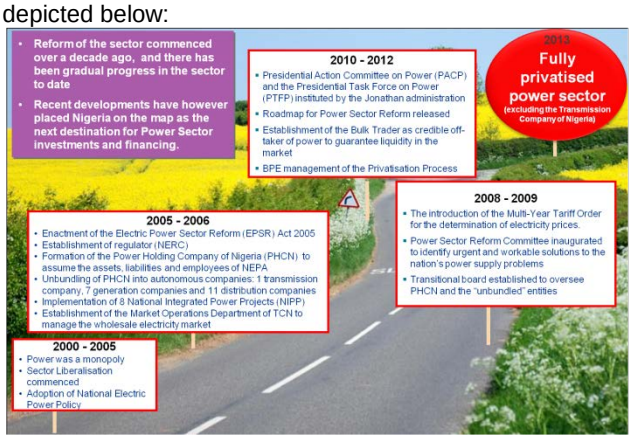
# 1 Overview of the Nigerian Power Sector

## 1.1 History

The first utility company, the Nigerian Electricity Supply Company, was established in Nigeria in 1929. However, electricity generation in Nigeria had started over 30 years before the establishment of the first utility back in 1896.

Despite the various efforts of the State-owned utility, (which operated as a monopoly) to manage the sector to provide electricity, it became clear by the late 1990s that the Nigerian electricity system was failing to meet Nigeria's power needs. Hence, the National Electric Power Policy of 2001 kicked off the power sector reform in Nigeria, leading to several other reforms over the last decade.

Since the advent of the democratic regime in Nigeria, there have been significant strides in the reform of the sector. The Evolution of the Nigerian Power Sector is as depicted below:

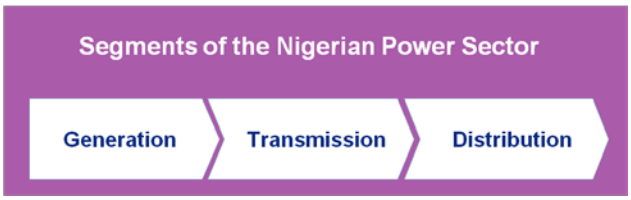



The Nigerian Power Sector Privatisation is reputed to be one of the **boldest privatisation initiatives** in the global power sector over the last decade, with transaction cost of about $3.0bn.

Over the past decade, the Federal Government has been able to complete the privatisation process. The Federal Government retains the ownership of the transmission assets (management under concession) with the generation and distribution sectors fully privatised. The subsequent segments shed more light on the various Power Sub-Sectors detailing current capacity, trends and key sector statistics to aid the understanding of the sector as a whole.

## 1.2 Sub-sectors

The Nigerian Power Sector is made up of 3 major sub-sectors as depicted below:




### 1.2.1 Generation

There are currently 23 grid-connected generating plants in operation in the Nigerian Electricity Supply Industry (NESI) with a total installed capacity of 10,396.0 MW and available capacity of 6,056 MW. Most generation is thermal based, with an installed capacity of 8,457.6 MW (81% of the total) and an available capacity of 4,996 MW (83% of the total). Hydropower from three major plants accounts for 1,938.4 MW of total installed capacity (and an available capacity of 1,060 MW).

i. Successor Generation Companies (Gencos): There are 6 successor Gencos in Nigeria. Their names and installed capacities are:

| S/N | Generation Company | Plant type | Capacity (MW) |
|---|---|---|---|
| 1 | Afam Power Plc (1-V) | Thermal | 987.2 |
| 2 | Egbin Power Plc | Thermal | 1,320 |
| 3 | Kainji/ Jebba Hydro Electric Plc | Hydro | 1,330 |
| 4 | Sapele Power Plc | Thermal | 1,020 |
| 5 | Shiroro Hydro Electric Plc | Hydro | 600 |
| 6 | Ughelli Power Plc | Thermal | 942 |

*Source: Nigerian Electricity Regulatory Commission*

ii. Independent Power Producers (IPPs) : IPPs are power plants owned and managed by the private sector. Although there are Independent Power Producers (IPPs) existing in Nigeria prior to the privatisation process, the Nigerian Electricity Regulatory Commission (NERC) has recently issued about 70 licenses to Independent Power Producers in order to improve the power situation in the country. The existing IPPs include Shell – Afam VI (642MW), Agip – Okpai (480MW) and AES Barges (270MW).

iii. National Integrated Power Projects: The National Integrated Power Project ('NIPP') is an integral part of Federal Government's

efforts to combat the power shortages in the country. It was conceived in 2004 as a fast-track public sector funded initiative to add significant new generation capacity to Nigeria's electricity supply system along with the electricity transmission and distribution and natural gas supply infrastructure required to deliver the additional capacity to consumers throughout the country. There are 10 National Integrated Power Projects (NIPPs), with combined capacity of 5,455 MW, scheduled for completion (for ongoing projects) and privatization in 2014. The NIPPs are:

| S/N | NIPPs | Capacity (MW) | Expected completion date as at September 2013 |
|---|---|---|---|
| 1 | Alaoji Generation Company Nigeria Limited | 1,131 | June 2014 |
| 2 | Benin Generation Company Limited | 508 | December 2013 |
| 3 | Calabar Generation Company Limited | 634 | June 2014 |
| 4 | Egbema Generation Company Limited | 381 | June 2014 |
| 5 | Gbarain Generation Company Limited | 254 | June 2014 |
| 6 | Geregu Generation Company Limited | 506 | May 2013 |
| 7 | Ogorode Generation Company Limited | 508 | All units commissioned |
| 8 | Olorunsogo Generation Company Limited | 754 | All units commissioned |
| 9 | Omoku Generation Company Limited | 265 | June 2014 |
| 10 | Omotosho Generation Company Limited | 513 | All units commissioned |

*Source: Niger Delta Power Holding Company Limited, Transaction Review Conference, Completion Status of NDPHC Generation Companies*

The Federal Government has set aside N50 billion in escrow accounts in 3 Nigerian Banks to serve as a buffer for losses that the GENCOS may suffer in the course of power transmission. Draw-downs are only possible where the stipulated conditions are met. The Nigerian Bulk Electricity Trading Plc (NBET) will manage the accounts.

### 1.2.2 Transmission

The Transmission Company of Nigeria (TCN) is a successor company of PHCN, following the unbundling of the sector, and is currently being managed by a Management Contractor, Manitoba Hydro International (Canada). Manitoba is responsible for revamping TCN to achieve technical and financial adequacy in addition to providing stable transmission of power without system failure. Currently, the transmission capacity of the Nigerian Electricity Transmission system is made up of about 5,523.8 km of 330 KV lines and 6,801.49 km of 132 KV lines.

The TCN is made up of two major departments: System Operator and Market Operator. The Market Operations (MO) is a department under TCN charged with the responsibility of administering the wholesale electricity market, promoting efficiency and where possible, competition. The system operator is focused on system planning, administration and grid discipline.

Furthermore, one of the major areas of focus of Manitoba Hydro International is to reorganise TCN and ensure that the Market Operator and the System Operator become autonomous.

The responsibilities of the System Operator include:

i. Implementing and enforcing Grid Code, and draft/implementation of operating procedures as may be required for the proper functioning of the System Operator Controlled Grid;
ii. System planning;
iii. Implementing and supervising open access to the System Operator Controlled Grid;
iv. Providing demand forecasts;
v. Planning operation and maintenance outages;
vi. Undertaking dispatch and generation scheduling;
vii. Scheduling energy allocated to each Load Participant in the event that available Generation is not sufficient to satisfy all Loads;
viii. Ensuring Reliability and availability of Ancillary Services;
ix. Undertaking real time operation and SCADA/EMS system;
x. Administering system constraints (congestion), emergencies and system partial or total recovery; and
xi. Coordinating regional Interconnectors.

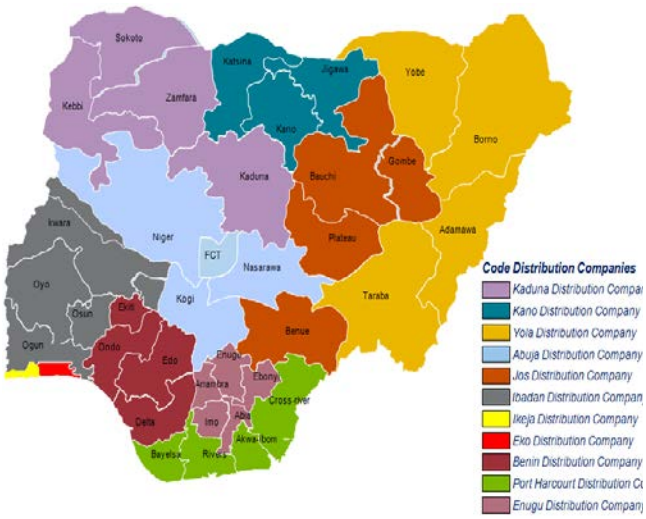
The responsibilities of the Market Operator include:

i. Market Administration
   a. Guarantee an efficient, transparent and non-discriminatory market administration service to all Participants;
   b. Facilitate the development of a sustainable competitive Market; and
   c. Adapt to regional Markets or regional electricity trading agreements.

ii. Implementation of the Market Rules
   a. Implementing the Market Rules, draft and implement any and all requisite Market Procedures;
   b. Review the efficiency and adequacy of Market Rules and Market Procedures and propose such amendments as may be required to ensure their efficacy and adequacy;
   c. Admit and register Participants;
   d. Organise and maintain a Participants' Register;
   e. Centralise the information required for market administration, organise and maintain the related data bases;
   f. Verify that each Connection Point, where a Participant injects or extracts energy, has proper commercial metering related to physical exchange - injection and consumption of energy, provision of Ancillary Services and other necessary commercial transactions and;
   g. Calculate and recover Ancillary Service and Must-Run Generation costs, when necessary;
   h. Centralise and process commercial metering data;
   i. Administer the Market settlement process and Market payment system;
   j. Calculate and settle payments in respect of ancillary services and other costs of operating the system and administering the Market;
   k. Calculate and settle payments in respect of transmission charges;
   l. During the Transitional Stage:
      - Receive contract information and maintain Contract Register;
      - Prepare the Generation Adequacy Report; and
      - Calculate Contracted Imbalance Quantities in aggregate, by contract and by Participant, using Metered Quantities adjusted as necessary for losses in each month;
   m. During the Medium Term Market:
      - Calculate Contracted Imbalance Quantities, Uninstructed Imbalance Quantities and Instructed Imbalance Quantities in aggregate and by Participant - adjusted as necessary for losses in each and every Dispatch Period;
      - Determine the System Marginal Price for each and every Dispatch Period; and
      - Issue Invoices and arrange recovery and payment of charges for Imbalance Energy and Ancillary Service and the System Operation and Market Administration Charge from, and to, the Participants.
   n. Manage Market billing including issuance of invoices, settlement and payment system in accordance to these Rules;
   o. Recover the Transmission Usage Charge from the Participants and remit it to Transmission Service Provider (TSP) and other Transmitter(s), if any; and
   p. Supervise Participants compliance with, and enforce the Market Rules and Grid Code.

### 1.2.3 Distribution

There are 11 electricity distribution companies (discos) in Nigeria. The coverage areas of the 11 companies are indicated in the map below:




Key information about the 11 discos is presented in the table below:

| S/N | Disco | Percentage Load Allocation* |
|---|---|---|
| 1. | Abuja Distribution Company | 11.5% |
| 2. | Benin Distribution Company | 9% |
| 3. | Eko Distribution Company | 11% |
| 4. | Enugu Distribution Company | 9% |
| 5. | Ibadan Distribution Company | 13% |
| 6. | Ikeja Distribution Company | 15% |
| 7. | Jos Distribution Company | 5.5% |
| 8. | Kaduna Distribution Company | 8% |
| 9. | Kano Distribution Company | 8% |
| 10. | Port Harcourt Distribution Company | 6.5% |
| 11. | Yola Distribution Company | 11.5% |

**Source: Monthly Energy Balance Sheet, October 2013, Transmission Company of Nigeria (TCN)*

**Tariff Class Descriptions**: The customers across the various Discos are classified into 5 groups as indicated in the table below:

| S/N | Customer Classification | Description | Remarks |
|---|---|---|---|
| 1. | **Residential** | | A consumer who uses his premises exclusively as a residence - house, flat or multi-storeyed house where people reside. |
| | R1 | Life-Line (50kWh) | |
| | R2 | (1 and 3-phase) | |
| | R3 | LV Maximum Demand | |
| | R4 | HV Maximum Demand (11/33KV) | |
| 2. | **Commercial** | | A consumer who uses his premises for any purpose other than exclusively as a residence or as a factory for manufacturing goods. |
| | C1 | Single and 3-phase | |
| | C2 | LV Maximum Demand | |
| | C3 | HV Maximum Demand (11/33KV) | |
| 3. | **Industrial** | | A consumer who uses his premises for manufacturing goods including welding and ironmongery. |
| | D1 | Single and 3-phase | |
| | D2 | LV Maximum Demand | |
| | D3 | HV Maximum Demand (11/33KV) | |
| 4. | **Special** | | Customers such as agriculture (agro-allied enterprises involving processing are excluded), water boards, religious houses, Government and teaching hospitals, Government research institutes and educational establishments. |
| | A1 | Single and 3-phase | |
| | A2 | LV Maximum Demand | |
| | A3 | HV Maximum Demand (11/33KV) | |
| 5. | **Street Lighting** | | |
| | S1 | Single and 3-phase | |

*Source: Nigerian Electricity Regulatory Commission, Multi-Year Tariff Order*

## 1.3 Types of Licences

The players in the Nigerian electricity market are often referred to as market participants. In order to carry on business as a market participant, it is imperative that such entity(ies) obtain the appropriate licence from the Nigerian Electricity Regulatory Commission (NERC). Appendix I contains information on the licence application requirements. A summary of the applicable licences along the electricity value chain is provided below:

### 1.3.1 Electricity Generation Licence

A generation licence authorises the licensee to construct, own, operate and maintain a generation station for purposes of generation and supply of electricity in accordance with the Electric Power Sector Reform Act, 2005. Subject to this Act, the holder of a generation licence may sell power or ancillary services to any of the classes of persons specified in the licence. An electricity generation licence is needed for any power generation activity beyond 1MW.

### 1.3.2 Distribution Licence

A distribution licence authorises the licensee to construct, operate and maintain distribution systems and facilities, including, but not limited to, the following activities as may be specified in the licence:

- the connection of customers for the purpose of receiving a supply of electricity;
- the installation, maintenance and reading of meters, billing and collection; and
- such other distribution service

A distribution licensee may also have the obligation to provide electricity to its distribution customers, pursuant to the terms of a trading licence issued by the Commission to the distribution licensee.

### 1.3.3 Transmission Licence

A transmission licence authorises the licencee to carry on grid construction, operation, and maintenance of transmission system within Nigeria, or that connect Nigeria with a neighbouring jurisdiction limited to, the following activities as may be specified in the licence:

### 1.3.4 System Operation Licence

A system operation licence authorises the licensee to carry on system operation, including, but not to:

- generation scheduling, commitment and dispatch;
- transmission scheduling and generation outage co-ordination;
- transmission congestion management;
- international transmission co-ordination;
- procurement and scheduling of ancillary services and system planning for long term capacity;
- administration of the wholesale electricity market, including the activity of administration of settlement payments, in accordance with the market rules; and
- such other activities as may be required for reliable and efficient system operation

### 1.3.5 Trading Licence

A trading license authorizes the licencee to engage in the purchasing, selling, and trading of electricity. The Commission (NERC) determines the terms and conditions of trading licences as may be appropriate in the circumstances. The Commission may also issue temporary bulk purchase and resale licence, giving the licensee, the ability to purchase electrical power and ancillary services from independent power producers and successor generation companies for the purpose of re-sale to one or more other licensees, or to an eligible customer. A licensed trading entity in Nigeria is the NBET.

# 2 Legal and Regulatory Framework

## 2.1 Regulatory Agencies

The key regulatory agencies are:

### 2.1.1 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 Electric Power Sector Reforms (EPSR) Act, 2005, the Roadmap for Power Sector Reform, 2010 as well as the Transformation Agenda on Power of the Federal Government.

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

### 2.1.2 Nigerian Electricity Regulatory Commission

The Nigerian Electricity Regulatory Commission (NERC) was established by the EPSR Act, 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.

### 2.1.3 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.

### 2.1.4 Rural Electrification Agency

The Rural Electrification Agency (REA) is a Federal Government Parastatal under the Federal Ministry of Power. It was established by the EPSR Act 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.

### 2.1.5 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.

## 2.2 Key Institutions

The key institutions include:

### 2.2.1 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 EPSR Act develops.

Wholly-owned subsidiaries of NDPHC own each of the ten (10) power generation stations that have been developed under the NIPP.

The Managing Director is the Chief Executive officer of the NDPHC.

### 2.2.2 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 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 EPSR Act, is an electricity trading licensee that engages in the purchase of electrical power and ancillary services (from independent power producers and the 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 legal backing 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 it becomes economically viable for all parties.

The NBET is run by a Managing Director assisted by a nine- man Board of Directors.

### 2.2.3 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.

### 2.2.4 Nigeria 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.

### 2.2.5 Gas Aggregation Company Nigeria Limited

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.

### 2.2.6 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.

### 2.2.7 Nigeria Electricity Liability Management Company Limited

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 or 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, and

v. manage and supervise the management of contractual arrangements arising from the assumption of stranded liabilities of PHCN.

## *2.3 Industry Guidelines*

There are several guidelines in the industry to regulate operations. Each of these guidelines is a set of rules for the separate entities in the industry and for the value chain as a whole. Below is a laundry list of the guidelines of the industry.

### 2.3.1 Market Rules and Procedures

The market rules provide guidelines for the pre-transition, transition, medium and long term stages of the Nigerian Electricity Market. The objectives of the Market Rules are as follows:

- To establish and govern an efficient, competitive, transparent and reliable market for the sale and purchase of wholesale electricity and Ancillary Services in Nigeria
- To ensure that the Grid Code and the Market Rules work together to secure efficient co-ordination and adequate participation.

According to the Market Rules, the competitive market for electricity is expected to evolve through the stages described below:

#### 2.3.1.1 The Pre-Transition Stage

The key activities/ characteristics for the pre-transition stage of the Nigerian Electricity Market are as follows:

i. Physical Unbundling of PHCN
ii. Privatisation of PHCN

iii. Establishment of performance incentives for distribution and generation activities
iv. Test run of the Grid Code
v. Commence application of Draft Market Rules
vi. Develop Market Procedures

#### 2.3.1.2 Transitional Stage

The key activities/ characteristics for the transition stage of the Nigerian Electricity Market are as follows:

i. Electricity trading arrangements consummated through contracts.
ii. No centrally administered balancing mechanism for the Market.
iii. Development of a Market Procedure for the management of inadequate supply and shortage conditions.
iv. Constitution of the initial Market Surveillance Panel by NERC.

#### 2.3.1.3 Medium Term Stage

The key activities/ characteristics for the medium term stage of the Nigerian Electricity Market are as follows:

i. Balancing Market will be a spot market (daily trading at prevailing market price)
ii. Distributor may enter into bilateral contracts for purchase and or sale of energy
iii. Open entry to the market and, subject to technical and environmental obligations

#### 2.3.1.4 Interim Market Rules

Whilst it was originally envisaged that the Transitional Electricity Market would be declared before or at the time of the completion of the privatisation of the PHCN successor companies, several factors within the market made it clear that the transactional completion of most of the privatisations will take place in advance of the implementation of the Transitional Stage of the Electricity Market, hence, the need to introduce the Interim Market Rules to govern the commercial arrangements during the period between the Handover Date and the implementation of the Transitional Market.

Some salient points in the Interim Market Rules are as follows:

i. During this period, the successor companies and other generators will continue with the existing (pre-TEM) trading arrangements.
ii. The power generation output will not be covered by the Power Purchase Agreements (PPAs) contracts put in place for the successor company privatisations, and the distribution companies shall continue to be billed by the Market Operator for electricity from these sources
iii. The generating companies shall bill the Market Operator for available capacity and generated energy according to MYTO-2 and existing contracts.
iv. The MO will determine the allowable amount of funding required for the discos, gencos and service providers during the interim period based on MYTO-2 provisions adjusted as follows:
    - Gencos
        - Energy charge (100%)
        - Capacity charge (45%)
        - In the case of GENCOS that have effective PPAs during the Interim Period, NBET shall make up for any revenue delta (changes).
    - Discos
        - Fixed and variable costs (20%)
        - Admin cost (100%)
        - Return on capital (50%)
        - Depreciation (10%)
    - TSP – 70% of its market revenue
    - NERC - 70% of its market revenue
    - MO – 60% of its market revenue
    - SO – 60% of its market revenue
    - NBET – 20% of its market revenue

### 2.3.2 Multi Year Tariff Order (MYTO)

The Multi Year Tariff Order (MYTO) is the tariff vehicle designed for the Nigeria Electricity Market to provide a unified way to determine efficient total industry revenue requirement, and provide a 15-year view ahead for tariff in the sector. MYTO is used to set wholesale and retail prices in the Nigerian Electricity Market, and is based on the following principles and assumptions, namely:

- Cost recovery/financial viability
- Signals for investment
- Certainty and stability
- Efficient use of the network
- Allocation of risk
- Simplicity and cost-effectiveness
- Incentives for improving performance
- Transparency/fairness
- Flexibility/robustness
- Social and political objectives

#### 2.3.2.1 Generation Tariff Methodology

NERC has determined that the price of electricity to be paid to generators will be at the level required by an efficient new entrant to cover its life cycle costs (including its short run fuel and operating costs and its long run return on capital invested). The Long Run Marginal Cost (LRMC) Method is in use here.

LRMC involves calculating the full life cycle cost of the lowest-efficient-cost new entrant generator, taking into account current costs of plant and equipment, return on capital, operation and maintenance, fuel costs, etc.

LRMC is applied in two ways:

- Benchmark costing: Creates a proxy for the market price which an efficient generator is expected to operate below.
- Individual long run marginal cost for each generator: This sets prices for each generator according to its plant and site specific costs.

The classic LRMC applies to the successor Gencos. However, individual (site-specific) LRMC model requires each new entrant IPP that requires a tariff beyond the MYTO benchmark to apply to the NERC for approval. The IPP will open its procurement process, accounts and financial model to scrutiny by the NERC, which will then apply prudence and relevance tests to determine whether such plant and site-specific costs should be allowed in the tariff.

#### 2.3.2.2 Retail Tariff

Retail tariffs reflects the costs of the entire value chain for the Nigerian Electricity Market, beginning with natural gas (fuel for generation plant), on to wholesale generation, through to transmission, distribution, metering and billing and finally to the consumer. The components of cost that are taken into account in constructing the domestic retail tariff through these steps in the value chain are:

- Electricity supplied through Wholesale Contracts and PPAs for the supply of wholesale electricity injected into the transmission network.
- Transmission Use of System (TUOS) charge to TCN for each MWh delivered to the distributor/retailer's bulk supply point(s).
- Electricity distribution through the local distribution network owned and operated by the distributor/retailer.
- Marketing, metering, billing and revenue collection (retailing).
- Institutional charges
- FGN tariffs subsidy targeted at vulnerable tariff classes (R1 and R2).

Details of the classes of tariff and price set by MYTO are obtainable in the MYTO document for the entire value chain.

### 2.3.3 Grid Code

The Grid Code contains the day-to-day operating procedures and principles governing the development, maintenance and operation of an effective, well coordinated and economic Transmission System for the electricity sector in Nigeria.

The code is designed to:

i. Facilitate an efficient production and supply of electricity for all users of the Transmission System and TCN itself, without any act of discrimination between Users or class of Users.

ii. Facilitate competition in the generation and supply of electricity in the country.

The code seeks to instill grid discipline amongst users of the Transmission System over the following dimensions:

- Planning
- Connection conditions
- Operation code (Power system control, Frequency control and operating reserves, voltage control, black start, emergency operation and restoration, operational planning, information exchange, scheduling and dispatch, outage co-ordination, reliability measures, etc)

#### 2.3.3.1 Transmission System Performance

The grid code specifies the following parameters for transmission system performance characteristics:

- Nominal Frequency of 50 Hz,
- Operating band deviations of ± 0.5% from 50 Hz but deviation under System Stress of ± 2.5% from 50 Hz
- Busbar voltages shall be within the Voltage Control ranges specified in Table below:

| Voltage level | Minimum Voltage kV (pu) | Maximum Voltage kV (pu) |
|---|---|---|
| 330 kV | 313.5 (0.95) | 346.5 (1.05) |
| 132 kV | 118.8 (0.9) | 145.0 (1.098) |
| 33 kV | 31 (0.94) | 34.98 (1.06) |
| 16 kV | 15.2 (0.95) | 16.8 (1.05) |
| 11 kV | 10.45 (0.95) | 11.55 (1.05) |

- Under System Stress or following system faults, voltages can be expected to deviate outside the above limits by a further ± 5% (excluding transient and sub-transient disturbances)
- Unless otherwise agreed by the TSP, the Basic Insulation Value (BIV) for User Apparatus shall be as follows:

| Voltage level | BIV |
|---|---|
| 330 kV | 1300 kV |
| 132 kV | 650 kV |

- In general, the maximum total levels of harmonic distortion on the System under Normal Operation conditions, planned outages and fault outage conditions (unless during System Stress) shall not exceed the following values:
  - 330 kV a Total harmonic Distortion of 1.5% with no individual harmonic greater than 1%
  - 132 kV a Total Harmonic Distortion of 2% with no individual harmonic greater of 1.5%

#### 2.3.3.2 Connection Criteria

The grid code specifies the following technical criteria for plant and apparatus at the connection point to the grid:

- Plant and Apparatus shall be designed, manufactured and tested in accordance with the IEC or equivalent approved standard, and quality assurance requirement of ISO 9001 or equivalent
- Generating Units shall have, at least, following performance requirements:
  - Each Generating Unit must be capable of supplying rated power output (MW) at any point between the limits of o.85 power factor lagging and 0.95 power factor leading, at the Generating Unit terminals at rated voltage level in the Transmission Network.
  - Each Generating Unit must be capable of continuously supplying its registered output within the Power System frequency range
  - The Active Power output under steady state conditions of any Generating Unit directly connected to the Transmission Network should not be affected by voltage changes in the normal operating range. The Reactive Power output of a Generating Unit having a synchronous alternator must, under steady state conditions, be fully available within the voltage range ± 10% of nominal voltage at the Connection Point.
  - A Generating Unit having a synchronous alternator must be capable of startup, synchronize and pick up load: From cold, within 10 hours; From warm, within 6 hours; From hot, within 3 hours.
  - A steam-turbine or gas-turbine Generating Unit which has been synchronized must be capable of ramping up pursuant to a Dispatch instruction at a rate of at least 3% of GCR per minute. A steam-turbine or gas-turbine Generating Unit must be capable of de-loading at a rate of at least 3% of GCR per minute.

#### 2.3.4 Metering Code

To ensure financial viability of the electricity industry after the unbundling stated in, modern accurate meters systems with reliable communication facilities shall be deployed across the industry production and supply chain to measure and record energy production and utilization.

Unless something different is agreed among users, and authorised by the Market Operator, Ownership of Metering Systems shall conform to the following rules:

(a) Generation Stations directly connected to the Transmission Network
- Distributors Connected to the Transmission Network
- Main Metering System shall be owned by the TSP
- Check Metering, if Redundant Metering shall be owned by the TSP

(b) Distributors Connected to the Transmission Network
- Main Metering System shall be owned by the TSP
- Check Metering, if Redundant Metering shall be owned by the TSP
- Check Metering, for the purpose of verification, shall be owned by the relevant Disco

(c) Eligible Customers Connected to the Transmission Network
- Main Metering System shall be owned by the Eligible Customer:
- Check Metering shall be owned by the TSP

(d) International Interconnections
- Main Metering System shall be owned by TCN, unless something different has been

agreed in the relevant Interconnection Agreements
- Ownership of Check Metering Systems shall be governed by the relevant Interconnection Agreement.

(e) Interfaces among different Discos
- Main and Check Metering System shall be owned by the relevant Discos.

The relevant owner shall be responsible for installing and maintaining his own metering equipment at the Connection Point, unless the user agrees with the Market Operator otherwise. For installations, site inspections, technical audits and maintenance the Owner may utilize the services of any Metering Services Provider accredited by NERC. Regardless of ownership, the Market Operator shall be responsible for approving the initial design, and for the testing, commissioning and sealing of any Commercial Metering System in Nigeria.

The User who owns the substation where the metering equipment is located shall provide the Market Operator with:
(a) 24 hour unrestricted access to the facilities where the Metering System is located
(b) adequate space for installing communications devices; and
(c) reliable power supplies

Any remote communications to the metering equipment, Meters, Data Registers, and connection equipment will be the responsibility of the Market Operator. The Market Operator may agree, either with the System Operator or the TSP, as it considers suitable, on the operation and maintenance of the communication equipment, as well as the services associated with the remote reading.

## *2.4 Legislative and Fiscal Provisions*

The key legislation and taxes applicable to companies operating in this sector are summarized below:

### 2.4.1 Electric Power Sector Reform Act

The Electric Power Sector Reform Act, 2005 can aptly be described as the foundation of the restructured power sector in Nigeria. The Act, which evolved from the National Electric Power Policy adopted in 2001, established the basis under which private companies can now participate in the generation, transmission and distribution of electricity. The Act amongst others:

i. Provides for the creation of a holding company for the assets and liabilities of the then National Electricity Power Authority (NEPA).

ii. Provides for the unbundling of the Power Holding Company of Nigeria (PHCN) through the formation of several companies to take over the assets, liabilities, functions and staff of the PHCN.

iii. Establishes the Nigeria Electricity Regulatory Commission.

iv. Provides for the development of a competitive electricity market.

v. Provides the basis for determination of tariffs, customer rights and obligations and other related matters.

### 2.4.2 Nigerian Investment Promotion Commission Act

The Nigerian Investment Promotion Commission (NIPC) Act, 1995, established the NIPC as an investment promotion agency of the Federal Government. The agency is responsible for monitoring and registering foreign investments in Nigeria. Therefore, all companies with foreign shareholding must register with the agency. It is also responsible for liaison between investors and ministries, government departments, institutional lenders and other related institutions.

The Act also removed the ceiling on foreign investment in Nigerian companies. The only restrictions relate to enterprises on the "negative list", which are reserved exclusively for the Government.

The negative list includes enterprises engaged in:

i. the production of arms and ammunition;

ii. narcotics and psychothropic substances; and

iii. military, para-military, police, customs, immigration and prison service uniforms and accoutrements.

Newly incorporated companies with foreign shareholders are expected to pay a registration fee of **₦15,000** to the NIPC.

### 2.4.3 Companies Income Tax Act

The Companies Income Tax (CIT) Act, 2004, as amended, is the enabling legislation under which companies are assessed to tax in Nigeria (excluding companies engaged in petroleum operations).

The CIT Act provides that the profit of a company is liable to CIT at the rate of 30%. The tax is applicable on the total profits of the company, after adjusting for non tax-deductible items, unutilized losses from prior years and capital allowances (tax depreciation), if any. The CIT is payable to the Federal Inland Revenue Service (FIRS).

The CIT Act also stipulates that:

- where in any year of assessment, the ascertainment of total assessable profits from all sources of a company results in a loss, or
- where a company's ascertained total profits results in no tax payable, or
- where the tax payable is less than the minimum tax,

there shall be levied and paid by the company the minimum tax as prescribed under the CIT Act.

The exceptions to this rule are:

i. Where a company is in its first four years of commencement of business

ii. Where a company is engaged in agricultural trade or business

iii. Where 25% or more of the company's equity capital is imported and evidenced by a Certificate of Capital Importation (COCI).

Notwithstanding the above, non-resident companies prepare their tax returns on deemed profit basis, which assumes that only 20% of the turnover from their Nigerian operations is profit. The 30% tax rate is applied to the 20%; thus giving an effective tax rate of 6%.

Companies prepare and file their CIT returns on self assessment basis within 6 months from the end of their financial year. For newly incorporated companies, the CIT returns are due for filing within 6 months from the end of the financial year or 18 months from incorporation whichever comes first.

### 2.4.4 Tertiary Education Trust Fund Act

The Tertiary Education Trust Fund Act, 2009 which repealed the Education Tax Act, 2007 requires every company incorporated in Nigeria to pay a Tertiary Education Tax (TET) at 2% of its assessable profit[1].

TET is also computed and filed on self assessment basis and is due not later than 6 months from the end of the Company's financial year.

The TET is payable to the FIRS.

### 2.4.5 Value Added Tax Act

The Value Added Tax (VAT) Act, 2004 as amended, regulates the operation of VAT in Nigeria. VAT is charged at a flat rate of 5%, and is payable on supply of all goods and services, except those specifically exempted from VAT.

A taxable person who supplies VATable goods or services is required to include the VAT on its invoice, and collect the tax thereof (Output VAT). Similarly, a taxable person is required to pay to the supplier, the tax on VATable goods and services purchased or supplied to him (input VAT). The net VAT payable to the FIRS is the excess of output VAT over (allowable) input VAT. Input VAT would only qualify as allowable if it relates to VAT paid for goods purchased or imported for resale or goods which form stock in trade used in the manufacturing of new products. VAT on services, overhead and administration should be expensed while that incurred on fixed assets will be capitalized along with the cost of the asset.

Where a taxable person does not have any input VAT which qualifies as allowable, its entire output VAT would be payable to the FIRS not later than 21 days in the month following that in which the VATable transaction took place.

[1] Assessable profit is determined after adjusting for non tax deductible expenses and non taxable income but before taking into consideration any loss brought forward or capital allowances.

### 2.4.6 Withholding Tax

WHT is a form of advance payment of income tax. The basis for deduction and remittance of WHT is contained in the provisions of the CIT Act, Personal Income Tax Act, Petroleum Profits Tax Act and the WHT Regulations.

Dividends, interest, rent, royalty and other qualifying payments to shareholders, vendors and lenders are liable to WHT deduction at the appropriate rate. The rates vary between 5% and 10%, depending on the nature of the transaction and whether the beneficiary of the payment is a natural person, partnership or a limited liability company.

WHT deducted at source from non-resident companies in respect of interest, rent, dividend and royalty constitutes the final tax liability due from the companies. A lower rate of 7.5% would apply to beneficiaries who are resident in a country that has double tax treaty (DTT) with Nigeria.

Nigeria currently has DTTs with United Kingdom, Netherlands, Belgium, Pakistan, Romania, Philippines, Czech Republic, Canada, South Africa, China and France. The DTTs with South Korea, Spain, Sweden and Russia are yet to be completely ratified.

Every company is expected to prepare and file a return showing details of relevant qualifying transaction which it undertook in the relevant month, as well as the amount deducted for each transaction amongst others. The WHT returns are submitted to the relevant tax authority within 21 days in the month following that in which the transaction took place.

### 2.4.7 Personal Income Tax Act

The legal basis for the imposition of personal income tax (PIT) is the Personal Income Tax Act (PITA), 2004 as amended by the Personal Income Tax (Amendment) Act (PITAM), 2011.

The PIT is operated through the Pay-As-You-Earn (PAYE) tax system which is a system whereby employers of labour are deemed to be agents of the relevant tax authority for the purpose of deducting and remitting taxes due from the salaries of their employees.

PIT is applicable on the gross income of a taxable person after adjusting for non-taxable income and statutory tax relief/allowance. The taxable income is then assessed to tax using the graduated rates below:

| Taxable income (NGN) | Rate of tax (%) |
|---|---|
| First 300,000 | 7 |
| Next 300,000 | 11 |
| Next 500,000 | 15 |
| Next 500,000 | 19 |
| Next 1,600,000 | 21 |
| Above 3,200,000 | 24 |

PIT, which is payable to the States Board of Internal Revenue where the employee is resident, is due within 10 days in the month following that in which the payment was made to the employee.

### 2.4.8 Capital Gains Tax Act

The Capital Gains Tax (CGT) Act, 2004 as amended regulates payment of CGT in Nigeria. The rate of tax is currently 10% and is levied on capital gains accruing on disposal of chargeable assets, irrespective of whether the asset is situated in Nigeria or not. Capital gains accruing outside Nigeria to a non-resident company or individual are subject to CGT only on the amount received or brought into Nigeria.

### 2.4.9 Industrial Development (Income Tax Relief) Act

The Industrial Development (Income Tax Relief) Act (IDA), 2004 was enacted to promote and incentivize industries or products (pioneer industries and products) considered pivotal to the development of the country and its economy.

The IDA provides for such industries and products to be granted pioneer status which would exempt them from payment of income tax for a period of up to five (5) years.

The Nigerian Investment Promotion Commission (NIPC) is the government agency responsible for the administration of the IDA.

### 2.4.10 Customs, Excise Tariff, etc (Consolidation) Act

The Customs, Excise Tariff, etc (Consolidation) Act, 1995 (CETA) provides for the imposition of ad valorem customs and excise duties payable on goods imported and manufactured in Nigeria based on a harmonized system of custom tariff.

The CETA incorporates a Tariff Schedule which specifies the applicable rates of import duties and levies payable on importation of goods into Nigeria. Duty rates ranging between 5 and 20 percents are typically applicable to machinery, equipment or spare parts imported for use in the value chain of the power sector.

## 2.5 Applicable Incentives

The key incentives available to companies engaged in activities in the power sector are summarized below

### 2.5.1 Under the Companies Income Tax Act

The CITA provides tax incentives for companies engaged in gas utilization. Companies investing in power plant which utilizes gas would benefit from the incentives, which include either:

i. A three (3) year income tax holiday, with possible renewal for additional two (2) years.

ii. Accelerated capital allowances after the tax-free period in the form of annual allowance 90 percent with 10 percent retention for investment in plant and machinery.

iii. An additional investment allowance (uplift on the cost of the asset) of 15 per cent which does not reduce the value of the asset.

iv. Tax-free dividends during the tax free period where the investment for the business was made in foreign currency.

Or

i. An additional investment allowance of 35% (uplift on the cost of the asset) which shall not reduce the value of the asset.

It will therefore be necessary to perform an economic simulation to determine which of the two options will be beneficial to such a company.

The interest payable on any loan obtained for a gas project with the prior approval of the Minister of Finance is tax deductible.

### 2.5.2 Under the Industrial Development (Income Tax Relief) Act

The following incentives are available to companies which qualify and are granted pioneer status:

i. A tax holiday period of three years commencing on the production day with a possible extension up to a maximum of an additional two years. In practice, the NIPC will grant a straight 5-year tax holiday.

ii. Dividends paid out of pioneer profits shall be tax-exempt when distributed to the Company's shareholders.

iii. Capital expenditure on qualifying assets incurred during the tax relief period is treated as having been incurred on the first day following the tax relief period.

iv. The loss incurred during the tax relief period is also deemed to be incurred on the first day following the expiration of the tax relief period and can be carried forward to offset profits after the tax –exempt period.

Given the importance of power and the efforts being put in place by Government to enhance power generation, the Minister for Commerce and Industry (now Trade and Investment) on behalf of the President, issued the Industrial Development (Additional List of Pioneer Industries) Notice No. S. I. 11, 2008. This notice included the Utility Services industry as a pioneer industry and specifies "independent power generation utilizing gas, coal and renewable energy sources" as a pioneer "product".

While the above does not expressly extend the pioneer status cover to companies engaged in the transmission and distribution of power, there is considerable willingness on the part of Government to extend the incentives to these companies upon application.

### 2.5.3 Under the Value Added Tax Act

Parts I and II of the First Schedule to the Act contain the lists of goods and services that are exempt from the application of VAT. *"Plant, machinery and equipment purchased for utilisation of gas in downstream petroleum operations*" is listed as being VAT-exempt.

The VAT Act does not clearly describe the activities that qualify as gas utilisation in downstream petroleum operations. A definition, however, can be imported from the CIT Act,

which defines "Gas Utilization" as *"the marketing and distribution of natural gas for commercial purpose and includes power plant, liquefied natural gas, gas to liquid plant, gas transmission and distribution pipelines".*

Consequently, it can be argued that power plant imported into the country should not suffer VAT at the port of entry.

### 2.5.4 Under the Customs, Excise Tariff, etc (Consolidation) Act

The CETA exempts from custom duties, any machinery, equipment or spare part imported into Nigeria by an industrial establishment engaged in the exploration, processing or power generation through the utilization of Nigerian gas, for its operation.

To further demonstrate that the development of the power sector is a major priority for the government, the Federal Government of Nigeria 2012 Budget proposals included additional incentives for the power sector[2] as follows:

i. Zero duty on the importation of equipment and machinery

ii. Grant of further concessions or waivers on sectoral basis (including the power sector), focusing on expanding domestic production for local consumption, boosting exports, development of value chains and boosting employment.

[2] The additional incentives proposed in the 2012 Budget are yet to be published in the Government's official Gazette.

# 3 Doing business in Nigeria

There are different investment vehicles that could be used for carrying on business in Nigeria. These include partnerships, unincorporated joint ventures and limited and unlimited liability companies. However, the authorized mode of investment by foreigners in Nigeria is through limited liability companies.

Under section 54 of the Companies and Allied Matters Act (CAMA), the law that regulates the formation and operation of companies in Nigeria, no foreign company may carry on business in Nigeria unless it incorporates a local subsidiary in the country. However, the Federal Executive Council is empowered by section 56 to grant exemption from this mandatory requirement to foreign companies in the following categories:

- Foreign companies invited by or with approval of the Federal Government to execute special projects
- Foreign companies which are in Nigeria for the execution of specific loan projects on behalf of donor countries or international organizations
- Foreign government-owned companies engaged solely in export promotion activities; and
- Engineering consultants and technical experts engaged in specialist projects under contracts with any of the Governments of the Federation or any of their agencies or under contracts with any person where such contracts have been approved by the Federal Government.

## *3.1 Requirements for Incorporation of a Company*

The foreign company would have to conduct a name search at the Corporate Affairs Commission (CAC) to ensure that the preferred name has not been issued to an existing company, or is not a prohibited name. The following documents are required to incorporate a company in Nigeria:

- Memorandum of Association
- Articles of Association
- Statement of Share Capital
- Declaration of Compliance with CAMA
- Notice of situation of the Registered Office of the company; and
- Return of Allotment of Shares and Particulars of First Directors.

Stamp duty is payable at 0.75% on the authorized share capital of a company in addition to filing fees payable to the CAC. Where the company intends to apply and obtain expatriate quota (EQ) approval, it may need to ensure that it has a share capital of at least $300,000 in order to substantiate its EQ application.

Once the registration process is completed, the Registrar General of the CAC will issue a Certificate of Incorporation to a company certifying that the conditions for incorporation have been fulfilled. Thereafter, the company would be required to register with the FIRS for tax purposes, and other regulatory agencies.

# 4. Current Industry Issues

## 4.1 Gas Infrastructure & Pricing Framework

Although Nigeria is known for its crude oil production, the country is believed in energy circles to be "a gas province with only a little pool of oil". Nigeria's natural gas reserves is put at more than 5 trillion cubic meters, which makes it the country with the 9th largest gas reserves in the world and the largest in Africa. However, in terms of production for market, Nigeria only produced 42 billion cubic meters in 2012, the 25th largest in the world[3]. The Nigerian National Petroleum Corporation estimates that over 40% of the gas produced in Nigeria do not end up in the market but are flared. This is because a lot of the major oil and gas producers have been reluctant to invest in gas production and processing facilities. One key reason is that the gas industry has been highly regulated. Producers of gas, under the current regime, are given domestic supply quotas with a fixed price. Therefore, most producers have complained that, considering the prohibitive cost of investment required, they may not be able to recoup their investment unless the price regulation is lifted and off takers of the gas made to pay commercial rates.

As long as this issue remains unresolved, the major oil and gas companies may not change their policy and begin massive investment in gas production, processing and supply infrastructure for power generation. Also, the current Petroleum Industry Bill (PIB) before the National Assembly contains provisions that may be considered inimical to the growth of gas production. If the PIB is passed 'as is' the incentives that are currently available to companies which invest in gas production may no longer apply. This may further discourage the production of gas with its attendant impact on the power sector since the country relies heavily on gas-fired plant. There is also the issue of gas transportation constraint as a result of the vandalisation of gas pipelines.

It is therefore clear that a lot still needs to be done to address the issues of gas production, supply and transportation if the reform of the power sector is to succeed.

[3] According to the information obtained from the website of the Organisation of Petroleum Exporting Companies,

## 4.2 Skilled Manpower Challenges

One of the key gains expected from the reforms in the Nigeria power sector is the employment opportunities that would be created in the sector as well as other areas of the economy. However, this "gain" may not materialize considering the paucity of adequately skilled manpower in the power sector. Over the years, the erstwhile holding company did not make sufficient investment in the training of adequate manpower. Consequently, the investors may be taking over an over bloated workforce with little technical competence and professionalism. This would create a huge challenge as the skills gap would need to be bridged before any meaningful impact can be felt in the sector.

The Government, with the establishment of NAPTIN, has sought to put in place a plan to address this issue. NAPTIN, via its graduate skills development training programme, is currently partnering with key industry operators to improve the manpower deficiency in the sector. The goal is to ensure the availability of manpower equipped with the requisite skills and practical know-how required for engagement in the different fields and professions of generation, transmission and distribution sectors of the sector.

However, in the short term, there may be need to source qualified hands from abroad.

## 4.3 Verification of Pre-takeover Position

Unlike a typical acquisition, the buyers of the assets of the erstwhile holding company have had very little access to information as well as physical access to the acquired companies. They have had to rely substantially on information provided by the BPE in determining their bid and subsequent purchase price of the assets. Consequently, they may discover upon takeover that certain assets which were taken into consideration in determining the bid price do not exist or are not in a usable condition. There may therefore be several discussions with the BPE upon takeover to determine what (if any) steps can be taken by the buyers.

The above issue would also apply to the Aggregate Technical and Commercial (AT & C) losses. The Government through the BPE has established the baseline losses for each of the Discos. The BPE has gone ahead, on the basis of the established opening losses, to set a 5-year target for each of the Discos. It is therefore important for the Discos to immediately, after takeover, establish the correct opening loss (where applicable) and engage the BPE

with a view to ensuring that the necessary updates are made to the 5-year target.

At the moment, it may be difficult to determine how open the BPE would be to these discussions.

## 4.4 Transfer of Current Liabilities

The initial understanding of most investors in the sector was that all historical liabilities would be transferred to NELMCO. While that has not changed completely, the BPE has slightly modified that position. The current position, which is also reflected in the various sales agreements, is that current liabilities from ongoing contracts would be retained by the companies upon takeover and not be transferred to NELMCO. Considering that the new companies did not have any input into the contracting process, and may not be able to verify the work previously done to which the liabilities relate, it may be unfair to expect the companies to take over such liabilities.

## 4.5 Transmission and Distribution Infrastructure

The transmission system is potentially the weakest link in the entire chain of the Nigeria electricity network. Inadequate transmission infrastructure has been consistently highlighted as being responsible for stranded capacity that is characteristic of the electricity grid. Consequently, significant investment is required to improve the transmission system if it is to keep pace with the expected growth in the generation capacity and consumers' expectations of improved power supply.

The appointment of a management and technical contractor for the Transmission Company of Nigeria (TCN) seems a step in the right direction but it is very important that they are given the required support by Government to rapidly improve its infrastructure.

There is also the need for considerable expansion of the distribution network to accommodate the demand for power from consumers. The current AT & C losses are well above acceptable limits and adequate investment must be made to improve the level of efficiencies in the distribution system. Furthermore, issues such as supply of meters to consumers to enable proper metering and billing system would need to be addressed in order to prevent revenue leakages for the Discos.

## 4.6 Refinancing of Accumulated Interest Cost

The acquisition of the assets of the PHCN successor companies was largely aided by finance obtained from both local and foreign financial institutions. The repeated alteration of the bid timetable for the takeover of the successor companies evidently extended the takeover date (which the investors might not have contemplated while establishing revenue generation projections and negotiating the terms of these loans).

There may, therefore, be a need for the investors to renegotiate the terms of their current financing arrangements with a view to ensuring that it aligns with current realities. This would also help to manage the overall debt exposure as well as actual cash flows.

## 4.7 IPP Framework and Licensing Issues

Recently, some State Governments have obtained electricity generation licences and constructed Independent Power Plant (IPP). Although the licence obtained was for the purpose of generating power for the sole use of the Government and its agencies, in some instances, the excess capacity generated is being supplied directly to end consumers within the vicinity of the IPP project. This may therefore create issues for the Discos operating in those areas.

It is therefore important for the NERC, the relevant States Government and the Discos to discuss and agree modalities for addressing this issue. Otherwise, this may impact the ability of the Disco to obtain full value for its investments in those areas. A way of resolving the issue may be for the excess capacity to be transferred to the National grid and sold to the Discos, which may then sell it on to the end consumers.

## 4.8 Value Added Tax Issues

### 4.8.1 Does Input VAT on Gas Qualify as Allowable?

The VAT Act provides that a taxable person is required to pay to the supplier, the tax on VATable goods and services purchased or supplied to him (input VAT). Therefore, suppliers of natural gas would be required to charge VAT on sales to the GENCOs utilizing gas to fire their power plants. The GENCOs on the other hand, are also required to charge (output) VAT on the supply of electricity to their customers (i.e. the NBET, DISCOs or eligible direct users).

The net VAT payable to the FIRS is the excess of output VAT over (allowable) input VAT. Input VAT would only qualify as allowable if it relates to VAT paid for goods purchased or imported for resale or goods which form stock in trade used in the manufacturing of new products.

The above raises the question as to whether gas qualify as *"goods which form stock in trade used in the manufacturing of new product (*electricity). The answer to this question would confirm if the input VAT paid by a GENCO, on the purchase of gas, would qualify as an allowable deduction from output VAT charged on the sale of electricity.

It may be necessary to obtain clarification on this issue from the FIRS as this would have a huge impact on the cash flow of the GENCOs.

### 4.8.2 Basis of VAT Remittance: Cash vs. Accrual

Companies are required to remit the net VAT payable (i.e. the excess of output VAT over (allowable) input VAT), to the FIRS not later than 21 days in the month following that in which the VATable transactions took place. This seems to suggest that remittances should be made on accrual basis. However, the operative words in the definition of input and output VAT by the VAT Act are *"VAT paid"* and *"VAT collected",* respectively. These words may suggest that the net VAT to be remitted should be the output VAT collected less the input VAT paid; which implies remittance on cash basis.

The resolution of the above debate is vital especially for the distribution companies, which may have a time lag between when the services are provided, income recognised, bills issued and payment received from the customers. This time lag may spread across more than one month. The question then would be when does a distribution company recognize a VAT liability and at which point in the transaction flow chain is the company expected to remit VAT to the FIRS.

It may be extremely important for cash flow forecast and management that the necessary clarification is obtained from the FIRS. Also in providing such a clarification, the FIRS may also need to consider the pioneer nature of the industry and the need to continue to encourage investment and growth in the sector.

## APPENDIX 1 – LICENCE APPLICATION REQUIREMENTS (GENERATION, TRANSMISSION, SYSTEM OPERATION, DISTRIBUTION AND TRADING)

### PART I – GENERAL REQUIREMENTS

#### A. LEGAL

1. Certificate of Registration, Certificate of Incorporation, Memorandum and Articles of Association, Deed of Partnership, Deed of Trust (as applicable)
2. Certified Audited Financial Statements and Accounts for the last or latest three years (if applicable)
3. Tax Clearance Certificate for the last or latest three years (if applicable)
4. Environmental Impact Assessment Report and approval
5. Agreements (e.g PPA, FSA etc.), if applicable
6. Certificate of Occupancy for project site (if any)
7. Evidence of consents or permits from other relevant Authorities and Agencies relating to the project

#### B. FINANCIAL

1. Tariff methodology and calculation
2. Short term cash flow projection
3. Medium term cash flow projection
4. Funding arrangements
5. Investment plans
6. Asset base
7. Risk Management Strategy
8. Management experience and depth

#### C. TECHNICAL

1. Details of experience in and knowledge of the electricity industry
2. Summary of skills and experience of the Directors and top management

### PART II - SPECIFIC REQUIREMENTS

#### A. TECHNICAL DATA REQUIREMENTS FOR A NEW POWER STATION

##### 1. Site Information of Power Station

i. Furnish location map to scale showing roads, railway lines, transmission lines, rivers, and reservoirs if any.

ii. For Hydro, map should show proposed dam, reservoir area, water conductor system, fore bay, powerhouse etc.

iii. For Hydro station, provide information on area of villages, forestland, agricultural land etc. Submerged.

iv. Fuel supply arrangement (contractual, gas and oil pipelines-where available)

v. Furnish information on means of Coal transport from mines or means of coal carriage jf coal is to be brought from distance.

vi. In case of other fuels, furnish details of sources of fuel and their transport.

vii. Water Sources (furnish information on availability of water for operation of the Power Station).

viii. Environmental (State whether forests, wetlands, mining areas are affected).

ix. On the site map show area required for the following:

- Fuel delivery point,
- fuel storage space,
- water pipe line,
- liquid waste disposal area,-
- ash disposal area (in case of coal plant)

##### 2. Power Station Information

i. Total Capacity (MW)

ii. Number of Generating Units

iii. Size of Generating Units (MW)

iv. Fuel Type

v. Annual Generation

vi. Running Regime

vii. Station load

viii. Station Load Factor

ix. Ancillary Services to be provided by station

x. Single line diagram of station including connection at Transmission Substation

xi. Commissioning Date

xii. State whether development will be carried out in phases and if so, furnish details.

xiii. Information on waste handling and management

## 3. Generating Unit Information

i. Generator Type

ii. Rating (MVA)

iii. Terminal Voltage (KV)

iv. Rated Power Factor

v. V. Unit efficiency

vi. Reactive Power capability (MVAr) in the range 0.95 leading and 0.85 lagging.

vii. Short Circuit Ratio

viii. Direct axis transient reactance (% on MVA rating).

ix. Direct axis sub-transient reactance (% on MVA rating).

x. Auxiliary Power requirement.

xi. Generator Transformer/Station Transformer

- Rated Capacity (MVA)
- Voltage Ratio (HV/LV)
- Tap change range (+% to -%)
- Percentage Impedance (Positive Sequence at Full load).

xii. Turbine (Thermal Power Plant)

- Boiler and Major accessories (for steam turbines)
- State Type
- capacity (minimum and rated)
- Steam pressure
- Steam temperatures (superheat and reheat)
- Heat Rates (minimum, maximum, incremental)
- Efficiency at rated capacity
- Gas turbine pressure ratio
- Gas temperatures (gas turbine)

## B. TECHNICAL DATA REQUIREMENTS FOR CAPTIVE/OFF GRID GENERATION

i. Total Capacity (MW) per site

ii. Number of Generating Units per site

iii. Size of Generating Units (MW and MVA)

iv. Fuel Type

v. Terminal Voltage

vi. Rated Power Factor

vii. Reactive Power Capability

viii. Noise Level (State distance from power plant)

ix. Environmental Impact Assessment (for plants greater than 10MW). If EIA is not applicable, give detailed information on effluents and discharges and how they will be managed

x. State if generator will be connected directly or indirectly to Distribution or Transmission Network.

xi. Provide information on protective measures against infeed current (if applicable)