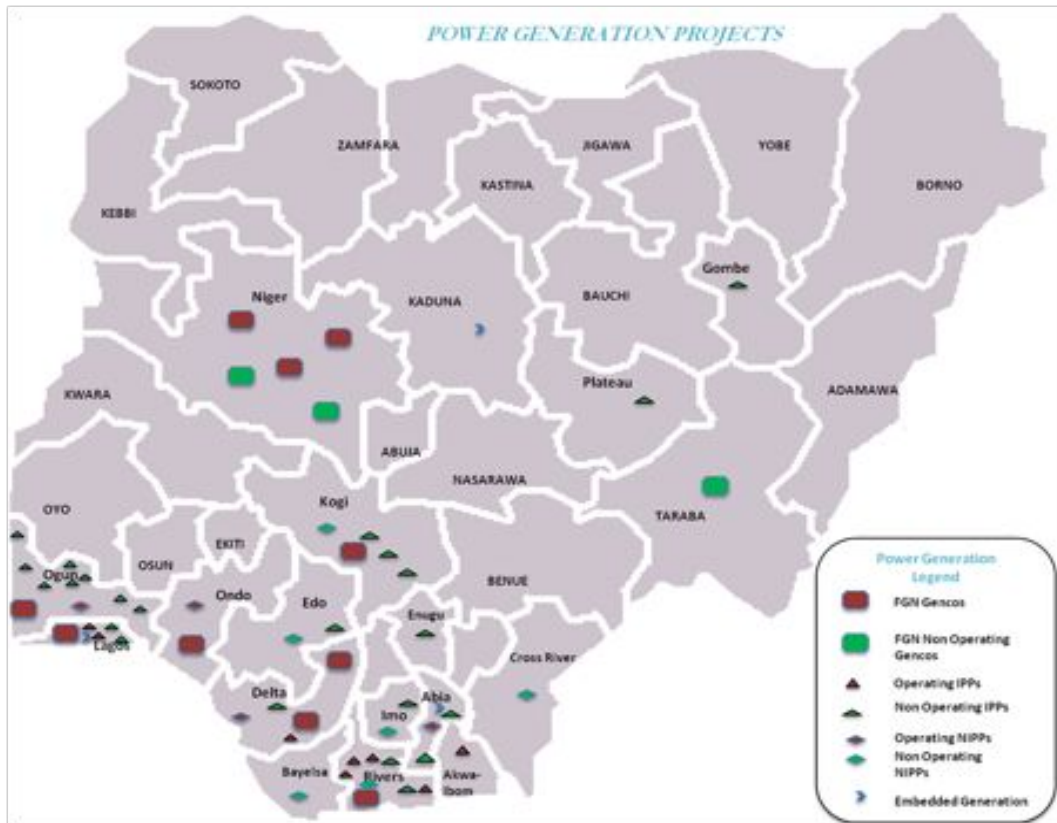


1. POWER SECTOR OUTLOOK



Inside this Guide

POWER SECTOR OUTLOOK	1
REGULATORY FRAMEWORK	2
POWER GENERATION OPTIONS IN NIGERIA	4
POWER SECTOR REFORM REPORT	6
POWER SECTOR OPPORTUNITIES	15

- Power Sector Road Map aspiration – 40,000 MW by 2020
- Current Daily Peak Delivery – 4300 MW (±) as at December 2012
- 32 Licensed On -Grid IPPs with a total installed capacity of 1899 MW – May 2012; total licensed capacity 12,324 MW
- 20 Licensed Off – Grid IPPs with total licensed capacity of 274.5 MW
- 3 Embedded Generation Licenses with a total licensed capacity of 374 MW – All Non-Operational
- 10 NIPP Projects with a total installed capacity of 750 MW – May 2012; total licensed capacity 4,180 MW
- 10 FGN Hydro and Thermal Stations with a total installed capacity of 6,504 MW – May 2012; total licensed capacity of 6,948 MW (Gurara inclusive)

2. REGULATORY FRAMEWORK

KEY REGULATORS

A. FEDERAL MINISTRY OF POWER

The Federal Ministry of Power has the overall responsibility of formulating electric power policy. The Ministry's powers are guided by the National Electric Power Policy 'NEPP' 2001, the Electric Power Sector Reform Act 2005 and the Roadmap for Power Sector Reform of August 2010. The NEPP is the national policy document for the power sector, the EPSR provides the legal framework, and the Roadmap is more of an implementation document for reforms in Nigeria's power sector. The Minister of Power as part of its powers may issue general policy directions to NERC on the power sector which NERC has an obligation to comply with except where such policy directions conflict with the EPSR Act and the constitution.

B. ENERGY COMMISSION OF NIGERIA

The Commission was established by the Energy Commission of Nigeria Act 1979 as amended by the Energy Commission of Nigeria (Amendment) Acts 32 of 1988 and 19 of 1989 and has the responsibility for conducting strategic planning and coordination of national policies in the field of energy in all respects as well as preparing periodic master plans for the balanced and coordinated development of energy in Nigeria.

NERC carries out the function of Licensing and regulating those involved in the generation, transmission, system operation, distribution, and trading of electricity among other functions.

C. NIGERIAN ELECTRICITY REGULATORY COMMISSION

Under the EPSR Act, NERC has the mandate to independently regulate the power sector and has the authority to interpret and implement the NEPP as it applies to the industry. In regulating the power sector, NERC carries out the following functions:

- Promote competition and private sector participation
- Establish (and approve) appropriate operating codes and safety, reliability, and quality standards
- Establish consumer rights and obligations with respect to the provision and use of electricity services
- Licence and regulate those involved in the generation, transmission, system operation, distribution and trading of electricity

Codes, Standards and Manual issued by NERC

- | | |
|---|--|
| • NERC Regulations for Embedded Generation 2012 | • NERC's Connection and Disconnection Procedures for Electricity Services, 2007 |
| • NERC Regulations on Independent Electricity Distribution Networks 2012 | • Customer Service Standards of Performance for Distribution Companies 2007 |
| • NERC Generation Procurement Regulations, 2012 | • Meter Reading, Billing, Cash Collections and Credit Management for Electricity Supplies Regulations, 2007 |
| • NERC Application for Licenses (Generation, Transmission, System Operations, Distribution and Trading) Regulations 2010 | • NERC Customer Complaints Handling: Standards and Procedures 2006 |
| • NERC Licensing and Operating Fees Regulation, 2010 | • NERC Distribution Code |
| • NERC Reporting Compliance Regulations, 2009 | • NERC Grid Code |
| • Market Rules, 2009 | • NERC Metering Code |
| • Nigerian Electricity Health and Safety Standards Manual 2008 | • Metering Market Procedure |
| • NERC (Permits for Captive Permits for Captive Power Generation) Regulations, 2008 | |

The Codes, Standards and Manual issued by NERC can be downloaded [here](#) while the Regulations can be downloaded [here](#).

REGULATORY FRAMEWORK

- Approve amendments to the market rules
- Monitor the operation of the Nigerian electricity market

OTHER REGULATORS

A. FEDERAL MINISTRY OF WATER RESOURCES

The Minister of Water Resources is charged with responsibility for matters relating to water resources under the Water Resources Act 2004. A Water licence is required under the Act for the diversion, storage, pumping or use on a commercial scale of any water. Accordingly, a licence is required to undertake a hydro-electric project. The Licence (issued by the Minister of Water Resources) contains the terms for the use and control of water for any given hydro project.

B. NATIONAL INLAND WATERWAYS AUTHORITY

The National Inland Waterways Authority 'NIWA' is a Parastatal of the Federal Government of Nigeria under the supervision of the Federal Ministry of Transport. NIWA is responsible for the regulation of inland waterways navigation. NIWA also has the responsibility for planning, monitoring and advising the Federal Government on inland waters. A Permit/Licence must be issued by NIWA where utility lines would cross the inland waterways or for projects requiring water intake (Hydro projects).

C. RURAL ELECTRIFICATION AUTHORITY

The Rural Electrification Authority 'REA' is established under Section 88 of the EPSR Act. REA has the mandate to implement the Rural

Electrification Strategy and Plan for Nigeria under the supervision of the Minister of Power. The Rural Electrification Strategy and Plan covers the following:

- Expansion of the grid to rural areas;
- Development of isolated and mini-grid systems;
- Renewable power generation

REA also administers the Rural Electrification Fund it set up to promote, support and provide rural electrification programmes through public and private sector participation with a view to promoting expansion of the national grid and development of off-grid electrification among others.

D. TRANSMISSION COMPANY OF NIGERIA 'TCN'

TCN currently performs the role of the Transmission Service Provider 'TSP' (constructs and maintains the grid infrastructure), System Operator 'SO' and Market Operator 'MO'.

System Operator

The SO has the responsibility of

ensuring the reliability of the transmission grid lines (in terms of planning, dispatch and control of the grid) and ultimately maintaining technical stability in the electricity market. Notwithstanding the fusion of the TSP and SO in the TCN, TCN is still required under the EPSR Act to obtain a System Operation licence from NERC that authorises it to carry out systems operations in the electricity market. However, the EPSR Act contemplates that when the electricity market is fully developed, it may be prudent that the system operator evolves into an independent body separate from TCN.

Market Operator

The MO is responsible for implementing and administering the Market Rules and Procedures (including administration of the Commercial Metering System, Market Settlement System and administration of the Payment System, and commercial arrangement of the energy market). It is also envisaged that the MO will become autonomous and separate from the TCN as the market develops.



4. POWER GENERATION OPTIONS IN NIGERIA

S/N	OPTION	NERC REQUIREMENT	FEATURES	PROSPECTS	CHALLENGES
1.	Captive Generation	Permit	<ul style="list-style-type: none"> • Generation of electricity exceeding 1MW • Consumed by the generator and not sold to a third party • Off-grid i.e. power is not evacuated on the national grid • No Power Purchase Agreement 'PPA' required • No distribution infrastructure is required • Can serve domestic or industrial purposes 	<ul style="list-style-type: none"> • Ensures optimal use of power generated as there are no issues with technical and commercial losses • Industrial consumers can generate the power needed for their operations • Eliminates technical losses as the power produced is consumed directly by the generator • Least hurdles in terms of financing and regulatory risks. 	<ul style="list-style-type: none"> • A Permit holder who generates surplus power exceeding 1MW cannot supply excess power to an off-taker without first applying for a generation licence and in some instances a distribution licence. • The price of grid power is cheaper • Lack of special incentives to encourage captive generation.
2.	IPP On-Grid	Generation Licence	<ul style="list-style-type: none"> • Generation of electricity exceeding 1MW • Privately funded • On-grid i.e. power is evacuated on the national grid • Requires an off-taker which could be the transitional Bulk Trader (Nigeria Bulk Electricity Trading Company), an eligible customer declared as such by the Minister of Power, or an industrial customer 	<ul style="list-style-type: none"> • Suitable for large scale power projects • Adds new generation capacity to meet the rapidly increasing demand for electricity • The introduction of competitive bids following the introduction of the NERC Generation Procurement Regulations guarantees the off-take of power produced 	<ul style="list-style-type: none"> • Higher cost of financing • The IPP may require Partial Risk Guarantees 'PRGs' • Power generation on-grid is subject to capacity needs and system constraints. • Liquidity risks on the part of the Bulk Trader to buy contracted capacity • Constraints with accessing gas for thermal projects
3.	IPP Off-Grid	Generation Licence	<ul style="list-style-type: none"> • Generation of electricity exceeding 1MW • Privately funded • Off-grid i.e. power is not evacuated on the national grid • Requires an off-taker which typically is an industrial consumer 	<ul style="list-style-type: none"> • Reliable way of meeting the electricity needs of industrial consumers • Adds new generation capacity to meet the rapidly increasing demand for electricity 	<ul style="list-style-type: none"> • Additional costs as the IPP would need to invest in distribution infrastructure • IPP may also require a distribution licence • Constraints with accessing gas for gas fired plants.

S/N	OPTION	NERC REQUIREMENT	FEATURES	PROSPECTS	CHALLENGES
				<ul style="list-style-type: none"> Industrial consumers can have the option of choosing the most suitable suppliers for them Potential market for power supply to Housing Estates, Industrial Estates/ clusters, and Telecom Installations 	<ul style="list-style-type: none"> Dependent on securing off-takers
4.	Embedded Generation	Embedded Generation Licence	<ul style="list-style-type: none"> Generation of electricity exceeding 1MW Off grid i.e. power is not evacuated on the grid Power generated evacuated through the distribution system of a distribution company Distribution company off-takes the power Power can also be sold directly to eligible users declared as such by the Minister of Power 	<ul style="list-style-type: none"> Back-up or bonus to on-grid power projects Reduced technical and collection losses because of proximity to the distribution system More power supply, more cash flows and more customers for Distribution Companies Helps in deepening the electricity market and ensures more bankable deals Creates more options for industrial consumers Introduces competition in the market 	<ul style="list-style-type: none"> Embedded Generation projects may be less bankable because distribution licensees currently lack the liquidity to commit to a Power Purchase Agreement 'PPA' Connection to the distribution system of a Distribution Company is dependent on the maximum embedded generation capacity allowable by the distribution licensee Distribution licensee's power-purchasing ability is also constrained by the Market Rules as it is required to apply to NERC and fulfill conditions of the Market Rules relevant to procurement of more electric power above the amount allocated by the Bulk Trader.

1. BACKGROUND

The defunct National Electric Power Authority (NEPA) was originally a monopoly for power generation, transmission and distribution in Nigeria. Due to NEPA's poor operational and financial performance, the Federal Government amended the then prevailing laws (Electricity and NEPA Acts) to remove NEPA's monopoly and encourage private sector participation. As a consequence to the amendments being of limited scope, the FGN proceeded to undertake holistic policy, legal and regulatory reforms. The National Electric Power Policy 'NEPP', 2001, specifies the reform agenda, while the Electric Power Sector Reform Act 'EPSR Act' 2005 provides the legal basis for the unbundling of NEPA, the formation of 18 successor companies and the privatisation of the latter.

Power sector reforms were initiated under the President Olusegun Obasanjo's administration which was re-opened by President Umaru Musa Yar'Adua's administration. The process for the current privatisation process was initiated by the development of a Roadmap for Power Sector Reform prepared by the Federal Government under President Goodluck Jonathan's current Administration in August 2010. The need for the privatisation process of the Nigerian Power Sector stems from a variety of factors including:

- Inadequate power generation capacity
- Lack of capital for investment
- High technical and com-

mercial losses

- Insufficient and dilapidated generation, transmission and distribution facilities
- Increasing access to electricity
- Corruption in the sector

The Roadmap for Power Sector Reform targets the provision of 40,000MW of generating capacity by 2020, which will be financed through a large-scale commercialisation and privatisation of state owned power assets. The Government estimates in the Roadmap that investments in the power sector will require US\$3.5 billion per annum over the next eight years to realise this target.

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Shiroro Hydroelectric Power Station

Credit: <http://www.shirorohydroelectricplc.org>

2. POWER ASSETS TO BE PRIVATISED

The bodies responsible for privatisation in Nigeria are the National Council on Privatisation 'NCP' (headed by the Vice President of Nigeria- Architect Namadi Sambo) and the Bureau of Public Enterprises 'BPE'. While the NCP is the apex body charged with the overall responsibility of formulating and approving policies on privatisation and commercialisation, the BPE has the responsibility of implementing the Nigerian policy on privatization and commercialisation.

The privatisation strategy involves a core investor acquisition of 11 distribution companies, and core investor acquisition of 4 thermal generation plants and concession of 2 hydro. However, the Transmission Company of Nigeria 'TCN' will still remain government owned, though there are plans to concession its operations.

Distribution Assets to be Privatised

S/N	COMPANY	STATES/ COVERED	AREAS
1.	Abuja Electricity Distribution Company PLC	FCT, Niger, Kogi & Nasarawa	
2.	Benin Electricity Distribution Company PLC	Edo, Delta, Ondo & Ekiti	
3.	Enugu Electricity Distribution Company PLC	Enugu, Imo, Anambra, Abia & Ebonyi	
4.	Eko Electricity Distribution Company PLC	Part of Lagos State (Ikoyi, Victoria Island, Marina/Lagos Island, Lekki, Surulere, Mushin, Orile, Alaba) and Agbara in Ogun State	
5.	Ibadan Electricity Distribution Company PLC	Oyo, Ogun, Osun & Kwara	
6.	Ikeja Electricity Distribution Company PLC	Part of Lagos State (Ikeja, Shomolu, Alimosho, Ojodu, Ikorodu, Oshodi and Abule-Egba District	
7.	Jos Electricity Distribution Company PLC	Plateau, Benue, Bauchi & Gombe	
8.	Kaduna Electricity Distribution Company PLC	Kaduna, Kebbi, Sokoto & Zamfara	
9.	Kano Electricity Distribution Company PLC	Kano, Jigawa & Kastina	
10.	Port Harcourt Electricity Distribution Company PLC	Akwa-Ibom, Cross River, Rivers and Bayelsa	
11.	Yola Electricity Distribution Company PLC	Adamawa, Borno, Taraba & Yobe	

Hydro Assets to be Privatised

S/N	COMPANY	DESCRIPTION
1.	KAINJI POWER PLC (COMPRISING KAINJI POWER PLANTS AND JEBBA POWER PLANTS)	Located in Niger and Kwara States respectively in North-Central Nigeria and has a combined capacity of 1,300,W
2.	SHIRORO POWER PLC	Located at the Shiroro Gorge, Niger State in North-Central Nigeria with a total installed capacity of 600 MW.

Thermal Assets to be Privatised

S/N	COMPANY	DESCRIPTION
1.	UGHELLI POWER PLC	Situated in Delta area in South-South region of Nigeria with a total installed capacity of 972 MW
2.	GEREGU POWER PLC	Situated in Kogi State in North Central Nigeria with a total installed capacity of 414 MW
3.	AFAM POWER PLC (COMPRISING OF AFAM I-V POWER STATIONS)	Located in Rivers State in South-South Nigeria with an installed capacity of 776 MW
4.	SAPELE POWER PLC	Located in Sapele, Delta State in South-South Nigeria with an installed

3. BID PROCESS

There was an initial submission of 330 Expressions of Interest 'EOI's (with a total of 929 bids for the assets), by the February 18th 2011 deadline, from prospective investors who showed an interest in bidding for the available assets. Following the first stage of screening by the BPE, 207 bidders were prequalified, consisting:

- 40 bidders for the HYDRO generation companies
- 87 bidders for the THERMAL generation companies
- 80 bidders for the DISTRIBUTION companies

However out of the 207 Bidders, only 152 bidders managed to pay by the deadline (17th July 2012), the amount required- \$20,000 to access the virtual and physical data rooms in order to undertake due diligence of the companies up for sale.

Five Preferred Bidders emerged for the Generation Companies and Ten Preferred Bidders emerged for the Distribution Companies following the evaluation of Technical and Financial Proposals and payment of Preferred Bidder's Bank Guarantee, which had to be made by Friday November 23rd, 2012. The preferred bidders would get back their bank guarantees upon payment of 25 per cent of the asset they are bidding for.

5. POWER SECTOR REFORM REPORT

Preferred Bidders are required under the Request for Proposals for generation and distribution to make a down payment of 25 per cent of the share purchase price within 15 business days after signing of the Sale and Purchase Agreement or the Shareholders' Agreement whichever is earlier, or at a mutually agreed earlier time. The remaining 75% would be paid within 6 months after signing of the Sale and Purchase Agreement or the Shareholders' Agreement, whichever is earlier or at a mutually agreed time to complete the transactions.

Notably, the privatisation of Kaduna Distribution Company Limited and Afam Power Plant suffered some setbacks and are being re-evaluated. In relation to Afam Power Plant, conflict of interest issues were raised involving the then Minister of Power (Professor Bart Nnaji) at the time of evaluation of the bids in connection with the generation company. A fresh evaluation team is currently evaluating bids for Afam Power Plant.

With respect to the Kaduna Electricity Distribution Company, the two firms that had originally submitted technical and financial bids failed to make the mark for technical qualification. As a result, BPE intends to invite fresh bids from all the pre-qualified bidders that paid the \$20,000 fee for the bid documents.

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Preferred Bidders for Generation Companies

S/N	NAME	PREFERRED BIDDER	VALUE OF GUARANTEE
1	Shiroro Hydro Power PLC	North-South Power Ltd	\$16,748,180.00
2	Kainji Hydro Power PLC	Mainstream Energy Solutions	\$35,680,500.00
3	Sapele Power PLC	CMEC/EURAFRIC Energy Ltd	\$30,150,000.00
4	Geregu Power PLC	Amperion Power Distribution Limited	\$19,800,000.15
5	Ughelli Power PLC	Transcorp/Woodrock/Sumbion/Medea/PSL/ Thomassen	\$45,000,000.00

Preferred Bidders for Distribution Companies

S/N	NAME	PREFERRED BIDDER	VALUE OF GUARANTEE
1.	Abuja Electricity Distribution Company PLC	Kann Consortium Utility Company Ltd	\$24,600,000.00
2.	Benin Electricity Distribution Company PLC	Vigeo Power Consortium	\$19,350,000.00
3.	Enugu Electricity Distribution Company PLC	Interstate Electrics Ltd	\$18,900,000.00
4.	Eko Electricity Distribution Company PLC	West Power and Gas	\$20,250,000.00
5.	Ibadan Electricity Distribution Company PLC	Integrated Energy Distribution and Marketing Ltd	\$25,350,000.00
6.	Ikeja Electricity Distribution Company PLC	NEDC/KEPCO Consortium	\$19,650,000.00
7.	Jos Electricity Distribution Company PLC	Aura Energy Ltd	\$12,300,000.00
8.	Kano Electricity Distribution Company PLC	Sahelian Power Ltd	\$20,550,000.00
9.	Port Harcourt Electricity Distribution Company PLC	4Power Consortium	\$18,636,306.00
10.	Yola Electricity Distribution Company PLC	Integrated Energy Distribution and Marketing Ltd	\$8,890,000.00

5.1 POWER SECTOR REFORM REPORT: ENABLING LEGAL AND CONTRACTUAL STRUCTURE FOR THE PRIVATISATION PROCESS

The following legal and contractual structure were set up to create an enabling environment for the privatisation process:

A. NIGERIAN ELECTRICITY LIABILITY MANAGEMENT LIMITED/GTE 'NELMCO'

NELMCO was incorporated in August, 2006 as a company limited by guarantee. Its shareholders are the Federal Ministry of Finance Incorporated and the Bureau of Public Enterprise, providing guarantees to the extent of 90% and 10% respectively.

The National Council on Privatisation (NCP) set up NELMCO to assume and manage the liabilities (including pension liabilities) inherited by PHCN, and also manage PHCN's non-core assets. The non-core assets are basically existing land and properties of PHCN, and current assets (revenue), which would be used in settling existing liabilities. NELMCO will cease to exist after it settles these liabilities.

By the original design, NELMCO's obligations also included the management of PHCN's obligations with respect to PPAs of existing IPPs, procurement of new capacity in the transitional phase 'vesting contracts', and generally the conduct of the business of a bulk electricity trader. However in 2011, the Federal Government excluded these obligations and created a separate entity called the Nigerian Bulk Electricity Trading Company to handle the PPAs and vesting contracts.

B. NIGERIAN BULK ELECTRICITY TRADING COMPANY

The NBET otherwise known as the Bulk Trader is a trading licensee holding a bulk purchase and resale

licence. It was incorporated in July 2010 to drive private sector investments in the power industry by executing bankable PPAs with power developers and winning bidders in the privatization process. The NBET will be responsible in the transitional stage (the period following the unbundling of PHCN and incorporation of successor companies) for purchasing bulk power from generation companies 'Gencos' and IPPs, and reselling the power to the distribution companies 'Discos' and eligible customers according to demand based on a vesting contract it enters into with the Discos and eligible customers.

The Federal Government has secured a commitment from the World Bank to provide series of Partial Risk Guarantees to back PPAs entered into between NBET and Gencos subject to the World Bank's capacity limit for Nigeria and nomination of any Genco that is interested in participating in the PRG series to the World Bank by the Ministry of Finance.

The need for a PRG stems from growing concern that Discos lack credit worthiness to purchase power directly from the Gencos, and is aimed at providing credit/cash flow support to cover payment risks by the NBET as it enters into PPAs with successor Gencos. The PRG would backstop the failure by the NBET to repay the Bank issuing the Letter of Credit for the amounts drawn by the generation company/IPP, in the event of non-payment by the NBET under the PPA.

The board of the NBET was inaugurated on the 23rd of August 2011. However, the NBET is yet to sign any vesting contract with successor Discos fearing that money expended by it to purchase power from Gencos may

not be paid back to it by the Discos due to issues with their commercial viability. NBET is also still in the process of negotiating a standard PPA.

It is envisaged that as the electricity market develops, NBET will not be the sole authorized or designated buyer, as other entities, such as Discos that have attained commercial viability, will be able to procure power directly from Gencos and IPPs through bilateral contracts.

C. POWER PURCHASE AGREEMENT 'PPA'

The PPA is a contract between the power generator and purchaser of power that sets out the risks, rights and obligations for sale and purchase of power and capacity among others. It is the Agreement that guarantees the return of investment funds particularly for the power generation company and IPPs.

A key risk with entering into a PPA with the Bulk Trader is the Bulk Trader's liquidity which should be taken care of by the PRG. Furthermore, long term contracts are very important for the power generator.

D. VESTING CONTRACTS

The Vesting Contract contains the terms and conditions of the contractual arrangements between the NBET (who purchases electricity at wholesale from the power Gencos and IPPs for resale) and an electricity Disco (who purchases power according to demand from the Bulk Trader and distributes to consumers within a specified territory in Nigeria). The contract sets out the risks, rights and obligations for sale (by the NBET) and purchase of power (by Discos).

contract, one key objective for MHI will be to reorganize TCN such that the TSP (owner of the transmission assets) becomes a separate entity from the SO (currently responsible for operation of the network) and MO (currently handles market administration, settlement and payment of participants) allowing it to become a privatised commercial company in the future.

It is important to note that investing in transmission infrastructure is highly expensive and the government needs to consider how to raise finance in this respect beside the budgetary allocations.

The relevant Transmission Network Agreements required for use of the transmission network are:

Grid Connection Agreement: this is basically a site specific agreement for connection to the grid between the TCN and Generation/ Distribution Company/ on-grid IPP/ Industrial Customer, and governs connections to, operations and safety across the Transmission Network.

Use of Transmission Network System Agreement: this is a site specific agreement (effective on the execution of a Grid Connection Agreement) between the TCN and a Distribution Company. The essence of the agreement is to engage the services of TCN to convey the Electricity purchased by the Distribution Company from the Bulk Trader to the Distribution Company's Exit Points. The Agreement also governs transmission usage charges and payments.

Ancillary Services Agreement: this covers services rendered by power stations other than the production of electricity that ensure the operation of a stable, secure and reliable network and is executed between the TCN and Generation Company/on-grid IPP. Such services include the Black Start, frequency control, voltage control and provision of reactive power. The Services are rendered by the Power Generation Company on the basis of a Dispatch instruction by the SO.

...investing in transmission infrastructure is highly expensive and the government needs to consider how to raise finance in this respect beside the budgetary allocations.

F. ACCESS TO GAS

Nigeria has the 7th Largest Natural Gas reserves in the world and the largest reserve in Africa. As against the previous situation where gas utilisation within Nigeria was limited because of an unattractive fiscal, commercial, legal and regulatory environment for the investments necessary for the development of a viable domestic gas market, gas demand currently exceeds the supply available in the domestic market.

This improvement is due to the Gas Master Plan launched by the Federal Government in 2008, which has initiatives including a domestic gas supply obligation (requiring holders of gas assets to reserve specific quantity for sale in the domestic gas market), a gas pricing framework and a gas infrastructure blueprint. A key objective of the plan is to raise domestic gas supply to over 10 billion cf/d by the year 2020.



Gas Pipeline Project

Credit: Oando Plc <http://www.oandopl.com/media/images-and-graphics/images-oando-gas-power/>

Gas currently provides the biggest source for power plant fuel in Nigeria. Most power generation companies in Nigeria are thermal and dependent on natural gas.

Gas Infrastructure

A major challenge with accessing gas is that no proper infrastructure exists for gas transportation to power plants that are gas fired and the transportation pipelines are not interconnected. This is due to costs associated with providing infrastructure for gas transmission. The main pipeline for gas transmission is currently owned and operated by the Nigerian Gas Company 'NGC'. This comprises of the Escravos-Lagos Pipeline System 'ELPS' which is also referred to as the Western Network (and is the major source of supply to the West African Gas Pipeline System), and the Alakiri Oboibgo-Ikot Abasi pipeline (also referred to as the Eastern Network. The South to North transmission backbone which will take dry gas through the Akwa – Ibom /Calabar facility to Ajaokuta, Abuja, Kano and Katsina is part of the plans under the infrastructure blue print in the Gas Master Plan.

Gas Pricing

Another key challenge that lies with gas pricing is securing bankable gas agreements. This is a major issue for generation companies. The Federal Government issued the National Gas Supply and Pricing Policy and National Gas Supply and Pricing Regulations in 2008. The gas pricing framework provides a pricing regime for different demand sectors and established the Aggregator to manage Domestic Gas Supply obligations and volumes. The Aggregator has

the responsibility under the National Domestic Gas Supply and Pricing Regulations, 2008 to coordinate wholesale gas supply from gas producers to eligible purchasers within Nigeria.

Contractual Framework

The key agreements to access gas are the Gas Sale and Aggregation Agreement 'GSAA' and the Gas Transport Agreement 'GTA'. The parties to the GSAA are the Sellers, Aggregator and Buyer (Generation Company and IPPs). The Agreement sets out the process for the sale and purchase of gas following a Gas Purchase Order instrument issued by the Aggregator to the Buyer authorising the Buyer to purchase Gas from the Sellers. The GTA covers the transportation of Gas in the pipeline from the Delivery Point by the transporter- the Nigerian Gas Company Limited 'NGC' on behalf of the Buyer and is executed between the Nigerian Gas Company Limited 'NGC' and the Generation Company or IPP.

G. ELECTRICITY LICENSING AND REGULATORY FRAMEWORK

The NERC's function under the Electric Power Sector Reform Act, 'EPSR' includes the licensing and regulation of persons engaged in the generation, transmission, system operation, distribution and trading of electricity. NERC's objective in exercising this function is to ensure that regulation is fair and balanced for licensees, consumers, investors and other stakeholders.

The EPSR Act provides that a license shall be valid for a period

up to, but not exceeding ten years and the NERC may extend the period of a license taking into account the nature of the undertaking and business, for an additional period not exceeding five years **at a time** if it determines that it is in the public interest to do so. Licenses are issued upon fulfillment of conditions and upon payment of all necessary license fees.

The duration of the licences is a major issue for lenders and potential investors investing in power generation and distribution assets considering the fact the length of the licence is a major issue for bankability.

Furthermore, it is not quite clear if new licences will be issued to investors after the completion of the privatisation process. Prior to the commencement of the privatization exercise, successor distribution companies for instance had already been issued licences starting from the 1st of January 2010 to the 31st of December 2019. It is doubtful that the remaining term of the licences (6 years from 2013 when the privatisation process should have been completed) will be sufficient comfort for investors who may need a longer period to recoup their investments and start making reasonable returns.

However, the NERC has issued letters of comfort dated 25 November 2011 to all investors in the privatization process, assuring the prospective investors of its willingness to grant an extension and/or renewal of the current licenses held by the successor companies of the Power Holding Company and their assigns upon application to the NERC in accordance with the law, regulations and the terms and conditions of the existing licenses.

H. TARIFF

One of the objectives of the Nigerian Electric Regulatory Commission is to facilitate the introduction and management of competitive, safe, reliable and fairly priced electricity in the country.

The Electric Power Sector Reform Act (EPSRA) subjects generation, transmission, distribution, trading, and system operation to tariff regulation and requires the NERC to adopt appropriate tariff methodology within the general principles established in the Act which allows full recovery of the efficient cost including reasonable rate of return; gives incentives to sustain improvement in efficiency and quality; sends efficient signals to customers on cost they impose on the system and phases out or reduces cross subsidies.

In furtherance of NERC's objectives and its effort to provide a viable and robust tariff policy for the Nigerian Electricity Supply Industry, the Commission in 2008 decided to introduce the Multi Year Tariff Order as the framework for determining the industry pricing structure.

MYTO is an instrument that will set tariffs in the sector based on certain principles and objectives. The main aim of MYTO is to ensure that the prices charged by the licensees are fair to consumers and are sufficient to allow the licensees/IPPs to finance their activities and to allow for reasonable earnings for efficient operation. Some of the principles and objectives include 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 and flexibility.

The MYTO establishes and lays out the process to be followed in meeting the statutory obligation in the Act. It provides a 15 year tariff path for the electricity industry with minor and major reviews every year and every five years respectively.

What is currently operational is the MYTO II, which was developed after MYTO I. The need for MYTO II is briefly discussed below.

MYTO I

The MYTO was first issued by the NERC in 2008 and two key principles, cost reflectivity and affordability, were taken into consideration in evolving the tariff regime. NERC adopted a holistic and scientific approach to correct pricing of electricity to ensure a fair and cost reflective tariff regime which will sustain the present operators while at the same time attract investment into the sector. The MYTO provides for continuous reduction in transmission and distribution/retail losses and therefore revenue earned by operators is made dependent on the achieving these performance improvements.

The idea behind MYTO was to protect consumers against excessive pricing and that a long term tariff path would eliminate pricing uncertainty, for both consumers and investors.

The MYTO provides a 15 year tariff plan and allows for annual minor reviews and five yearly major reviews so as to keep the

tariffs more in line with current realities. The major review involves a complete overhaul of all the assumptions in the MYTO model and the minor review only takes consideration three variables namely, rate of inflation, gas prices and foreign exchange rates.

After coming into effect, certain obstacles arose making MYTO not as effective. These include gas pricing and exchange rates which were not attractive to investors, and also the use of alternative sources of fuel to generate electricity was not anticipated and provided for in MYTO I.

These challenges led to a major review of the MYTO earlier than anticipated and the introduction of the MYTO II.

MYTO II

The newly introduced MYTO II is for the period of 1st June 2012 – 31st May 2017 and is intended to be more cost reflective and provide financial motivations for instantly needed incremental investments in the industry which would in turn lead to a significant and continuous improvement in the quality of energy and quality of service enjoyed by the consumer.

A wider scope for review than originally obtained is in existence under the MYTO II regime. The retail tariff schedule will be reviewed bi-annually and variations effected on any or all of the following; the generation wholesale contract price, the inflation rate, exchange rate, daily generation capacity and accompanying capital and operating expenditure where they vary significantly from that used in the calculation of the tariff.

A material variation by virtue of

the regime is defined as a price variation of plus or minus five percent in the above mentioned elements. Other changes in the MYTO II include more flexibility in wholesale generation and other fuel sources such as coal have been taken into consideration. In addition MYTO II creates new classes of consumers in addition to what obtained formerly. The review of the MYTO I essentially takes into consideration a broader range of factors than MYTO I and has the potential to attract a broader variety of investors.

Federal Government Tariff Subsidy

The Federal Government in the bid to forestall the effect of a rate shock on more vulnerable customers following the introduction of cost reflective tariffs under MYTO II is providing support in the form of tariff subsidy for R1 and R2 customers (rural and poor urban customers) over the first 2 years of introducing MYTO II (ending in June 2014).

The subsidy will be paid to distribution companies to make up the shortfall between actual and cost-reflective tariffs over this period, while the tariff gradually becomes more viable, and would be paid by the Federal Government per unit of energy billed to these two categories of customers.

However, the framework for payment of subsidy to Distribution companies for R1 and R2 customers is still an issue and needs to be worked out.

I. LABOUR

The Federal Government recognises that the failure to fully resolve PHCN labour issues may be a clog in the privatisation wheel. However, a decision on how to compensate PHCN workers that will be affected by the privatisation process was a major challenge especially in the light of protests and agitations from the PHCN labour unions.

Initially, the governments insisted on the application of the new Contributory Pension Scheme (CPS); a move that would have resulted in workers losing the gratuity that had been accrued- against utilizing the PHCN in-house pension scheme, which would maintain gratuity.

The Federal Government reached an agreement with the workers' representatives (dated 11th of December, 2011) on the payment of their severance packages, pension, and gratuity; a sum which will require over N400 billion for the 50,000 regularised staff and 4000 un-regularized staff. The heads of agreement to be implemented by the FGN in final resolution of claims made by the labour unions include:

Total accrued pensions (as at June 30, 2007) will be paid in accordance with the defined benefits scheme stipulated in the PHCN 2010 Conditions of Service.

- **Total accrued gratuity** (as at June 30, 2012) will be paid in accordance with the defined

benefit scheme stipulated in PHCN 2010 Conditions of Service.

- **15% Pension Contributions** will be paid from July 1, 2007 to June 30, 2012 in accordance with the provisions of the Pension Reform Act 2004.

- **Severance** is to be paid as 20% of Total Accrued Benefits (which is the sum of the Accrued Pensions, Accrued Gratuity and the 15% Pension Contribution.

- **A Repatriation Allowance** is to be paid at 5% of the annual pensionable emolument.

- **Long service award** is to be paid in accordance with the provisions of PHCN 2010 Conditions of Service.

- **Payment of a 13th month salary** is to be made in accordance with the provisions of PHCN 2010 Conditions of Service.

- **3 months salary in lieu of notice** will be paid to all active employees of PHCN that have served for more than 10 years and 1 month salary in lieu of notice for employees that have a period of less than 10 years in service.

While a milestone has been achieved, there is still the issue of equity share in the power assets being privatised. A 10% equity share is to be reserved for workers. The government had argued that it should be 10% of its equity holding it while the labour unions have insisted that it should pay 10 per cent of the total equity share. This is an issue that is to be resolved by the NCP.

6. POWER SECTOR OPPORTUNITIES

Although the power privatisation process is well underway, the realisation of Nigeria's 40,000MW power generation aspiration still offers international investors who are interested in the power sector a number of opportunities. Furthermore, considering the high interest in the privatisation process, investors that did not win any of the generation and distribution assets can also explore these opportunities. They are discussed below.

A. INVESTMENTS IN WINNING CONSORTIUMS

Preferred Bidders for the acquisition of power generation and distribution assets are still seeking partners to boost their financial strength for payment of the share purchase price necessary to complete the acquisition of target assets. Debt financing will also be required to finance the acquisition and rehabilitation of their target assets.

B. POST ACQUISITION TECHNOLOGY AND ENGINEERING

After the completion of negotiations, a lot of investment will be required for the rehabilitation of assets, metering of unmetered customers and remote metering among others. There is also the need to build human capacity. This will present opportunities to equipment suppliers, construction contractors, Information and Communication Technology 'ICT', maintenance and technical service companies.

C. GAS INFRASTRUCTURE

The huge deficit in available infrastructure for gas transportation to

the power sector requires investments by the private sector. Gas-fired power plants are likely to represent the cheapest (and hence most competitive) form of power generation for at least the next 10 to 15 years. It is estimated that there is a need for the construction of 2,000 km of pipelines within the next five years. The Federal Government is committed to encouraging investments in the power sector and the vast majority of all new power plants would be financed and built by the private sector.

Investors can explore opportunities in the gas sector including gas gathering and setting up processing facilities; the construction of gas pipeline transmission system under the gas infrastructure blueprint (1200km South--North Line, 700km Western System with 200km offshore extension; 200km Interconnector System); investors can own and operate gas infrastructure; there is also an opportunity to invest in the exploration for natural gas, especially in the unexplored basins.

D. EMBEDDED GENERATION

The Nigerian Electricity Regulatory Commission 'NERC' earlier in the year released Regulations on Embedded Generation as part of efforts to improve power generation and ultimately provide increased access to electricity across Nigeria.

Embedded generation is defined in the Regulations as "the generation of electricity that is directly connected to and evacuated through a distribution system which is connected to a transmission network operated by

a System Operations Licensee". This basically means that embedded generation is off-grid as it is evacuated on the distribution system of the distribution company as against the national grid.

Note that there is a difference between an Embedded Generator to a Distribution Company and an Embedded Generator to an Independent Electricity Distribution Network.

Embedded Generation offers a lot of opportunities:

- A distribution company or an eligible customer can off-take the power generated without the IPP applying for a connection to the grid, as the embedded generator uses the distribution system of the distribution company to evacuate power and obviates the need for a distribution licence and payment of transmission costs.
- States and Local Governments are also able to achieve power supply aspirations within their borders without constitutional constraints

A major constraint to the use of embedded generation has been the issue of the liquidity of distribution companies to off-take power.

Currently 3 licences have been issued by NERC for embedded generation to Geometric Power Limited (140MW) in Aba, Abia State; Ikorodu Industrial Power Limited (150MW) Ikorodu Lagos State; and Kaduna Power Supply Limited (84MW) in Kaduna State.

E. INDEPENDENT ELECTRICITY DISTRIBUTION NETWORKS

The Independent Electricity Distribution Networks Regulations 'IEDN' was released by the Nigerian Electricity Regulatory Commission earlier in the year to facilitate the operation of independent power distribution networks by private sector investors other than the successor distribution companies, and permits communities, local and state governments to invest in electricity distribution networks in areas without access to the grid or distribution network, and areas poorly serviced.

An IEDN is defined in the Regulations to mean a distribution network not directly connected to a transmission system operated by the System Operator. An IEDN may be structured as an isolated off-grid rural IEDN, isolated off-grid urban IEDN, or embedded IEDN. In the case of an isolated off-grid or urban IEDN, the areas covered by the IEDN will be areas not connected to a distribution network that is connected to the grid. Conversely, the embedded IEDN is an IEDN connected to a distribution network that is connected to the transmission system operated by the system operation licensee. An IEDN may also be required by the NERC to have an embedded generator in its network or in the alternative enter into service agreement with the distribution company supplying the IEDN electric power.

AN IEDN licence for a geographical area within the sphere of coverage of a distribution company will only be issued where the applicant satisfactorily undertakes that the

facility of the existing distribution licensee will not be used in its business; that there will be no parallel overhead lines to the existing facility; where it has a minimum distribution capacity of 5,000kW; and has the ability to provide generation capacity for the IEDN.

An IEDN is an efficient way of providing access to electricity for areas that are not connected to the national grid, reduces the high cost of investing in distribution infrastructure for connection to the grid, and minimizes transmission losses.

F. RENEWABLE ENERGY PROJECTS

The place of renewable energy in Nigeria's power generation mix is increasing taking centre-stage and offers opportunities for investors. The major supporting framework for renewable electricity generation in Nigeria are the National Electric Power Policy (2001), the National Energy Policy (2003), the Electric Power Sector Reform Act (2005), the Renewable Energy Master Plan the Renewable Electricity Policy Guidelines (2006), the Renewable Electricity Action Program (2006), and the Rural Electrification Policy. The overall thrust of the policies and legislation is to ensure the optimal utilisation of the nation's energy resources for sustainable development.

As part of the Renewable Electricity Action Program

...the Federal Government of Nigeria seeks to expand the market for renewable electricity to at least five percent of total electricity generating capacity...

(developed by the Ministry of Power), the Federal Government of Nigeria seeks to expand the market for renewable electricity to at least five percent of total electricity generating capacity and a minimum of 5TWh (735 MW generating capacity) of electric power production, excluding large hydropower by 2016. The government aims to achieve this target by incentivizing renewable energy investments, establishing stable and long-term favourable pricing mechanisms (including feed-in-tariffs) and ensuring access to the grid, and promoting private sector participation (including equity investments) among others.

Some potential for renewable energy development are discussed below.

HYDRO

There are opportunities for small and large hydro projects. Small hydropower is defined in the Renewable Energy Master Plan as all hydroelectricity schemes below 30 MW. It is estimated that Nigeria's outstanding total exploitable hydro potential stands at 12,220 MW apart from the 1930MW installed capacity for Kainji, Jebba and Shiroro power plants, already developed. However, the power currently generated from the three Hydro plants is capped at 1300 MW given the available year round water flow and issues with poor overhauling of the generating units.

The most attractive areas would be the southern, Plateau and Southeastern regions of the country, where rainfall is highest and of long duration and local topography provides appropriate drops and necessary hydraulic heads. However, small hydropower can be developed in

virtually all parts of the country.

The Federal Government is committed to exploiting Nigeria's hydro potentials. An MOU was recently signed (7th of November 2012) for the construction of two hydroelectric dams- Mambila in Jos (3050MW) and Zungeru in Niger State (700MW). The Mambila project is to be handled by Sinohydro Corporation (a Chinese state owned corporation) and involves a build, operate and transfer concession for 9 years which would be wholly financed by the concessionaire, while the Federal Ministry of Finance would provide 25% equity (about \$309 Million) for the Zungeru project, with the remaining 75% being provided by China's Export-Import Bank.

BIOMASS

Nigeria's biomass resources consist of wood, forage grasses and shrubs, animal wastes arising from forestry, agricultural, municipal and industrial activities as well as aquatic biomass, and the biomass energy resources have been estimated to be 144 million tonnes/year. This is beside the huge potential for production of agricultural biomass in Nigeria.

WIND

Wind energy utilization in Nigeria is quite insignificant. Nigeria falls into the poor/moderate wind regime. In the coastal areas and in the large areas offshore from Lagos State through Ondo, Delta, Rivers and Bayelsa States to Akwa Ibom State, potentials exist for harvesting strong wind energy throughout the year. Inland, the wind is



strongest in the hilly regions of the North. Terrains that are mountainous, especially in the middle belt and the northern fringes of the country, where prime wind conditions may exist are considerably sparsely populated, and good potentials for wind energy development exist in these areas.

Nigeria's first ever wind propelled power project located in Kastina State is due for commissioning and is expected to contribute 10 megawatts to the national grid.

Nigeria Power Guide is a publication of Detail Commercial Solicitors, a commercial law firm based in Lagos, Nigeria. DETAIL has an active power sector practice: advising clients on power asset privatisations; regulatory compliance; Independent Power Producer start up and licensing & financing; gas supply and purchase agreements.

Detail Commercial Solicitors
DCS Place, 8 DCS Street
Off Remi Olowude Way
Lekki Phase 1
Lagos
Nigeria

Email: powerguide@detailsolicitors.com
Tel: +234-1-277-1400-5