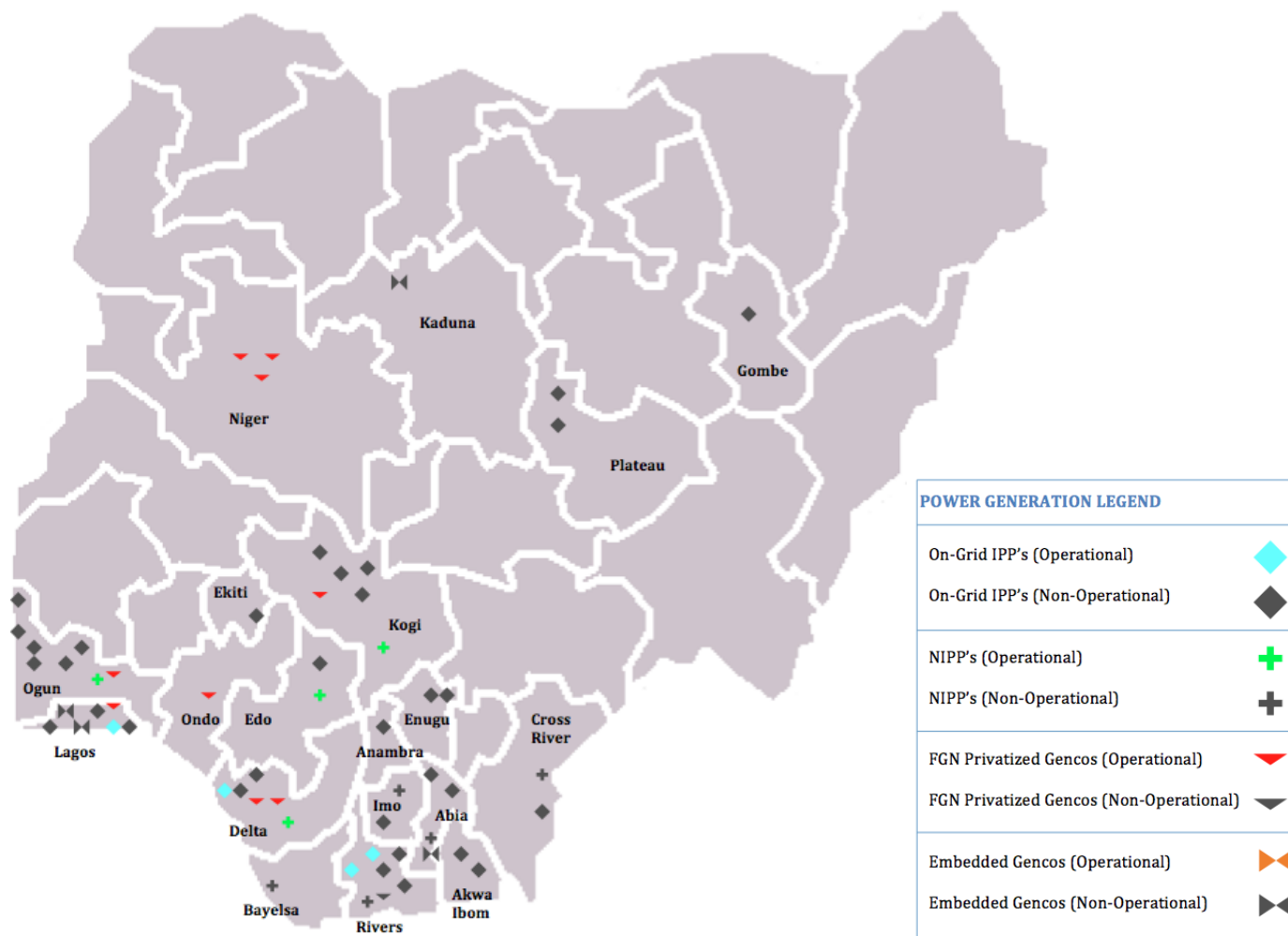


### 1. POWER SECTOR FACTS

#### POWER GENERATION PROJECTS



#### Power Sector Generation Road Map – 40,000 MW by 2020

- Current Daily Peak Delivery – 3,352.90 Mw as at December 13, 2013
- 36 Licensed On-Grid IPPs with a total licensed capacity of 13828 MW (inclusive of NESCO Plant in Jos & AES Plant in Apapa) and an available capacity of 1236MW
- 21 Licensed Off-Grid IPPs with a total licensed capacity of 313 MW
- 4 Embedded Generation Licenses with a total licensed capacity of 273 MW
- 10 NIPP On Grid Projects with a total licensed capacity of 5032 MW and an available capacity of 1785 MW
- 10 Privatized Gencos (inclusive of Geregu Phase 1, Olorunsogo Phase 1 and Omotosho Phase 1) with a total licensed capacity of 7283 MW and an available capacity of 2173 MW
- 15 Distribution Licenses (both On and Off Grid)

#### Inside this Guide

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### Update on PHCN Privatization Process

- 19 EXPRESSIONS OF INTERESTS WERE RECEIVED FOR KADUNA DISTRIBUTION COMPANY AND 30 FOR AFAM POWER PLC. BY THE BPE ON THE 31ST OF JANUARY 2013.
- 19 BIDDERS WERE ISSUED THE REQUEST FOR PROPOSAL FOR KADUNA DISTRIBUTION COMPANY AND 29 BIDDERS FOR AFAM POWER PLC. ON 4 FEBRUARY 2013.
- THE PREFERRED BIDDERS FOR THE 13 SUCCESSOR COMPANIES EXECUTED SHARE SALE AGREEMENTS FOR THE ACQUISITION OF SHARES IN 13 SUCCESSOR COMPANIES AND THE PREFERRED BIDDERS FOR THE 2 HYDRO GENCOS EXECUTED CONCESSION AGREEMENTS ALL ON 21ST FEBRUARY 2013.
- THE INCUMBENT MANAGEMENT OF ALL 15 SUCCESSOR COMPANIES EXECUTED POWER PURCHASE AGREEMENTS FOR THE GENCOS AND VESTING CONTRACTS FOR THE DISCOS RESPECTIVELY. FOR THE GENCOS AND DISCOS, THE PREFERRED BIDDERS ARE EXPECTED TO BE BOUND TO THE TERMS OF THE AGREEMENTS ONCE THEY BECOME EFFECTIVE.
- PAYMENT OF 25% OF THE PURCHASE PRICE WAS MADE BY ALL 13 PREFERRED BIDDERS FOR SHARES TO BE PURCHASED WHILE PAYMENT OF 25% OF THE COMMENCEMENT FEES WAS MADE BY THE PREFERRED BIDDERS FOR THE 2 HYDRO GENCOS ALL ON MARCH 21ST 2013.
- 11 BIDS WERE SUBMITTED IN RESPONSE TO REQUESTS FOR PROPOSALS FOR KADUNA ELECTRICITY DISTRIBUTION COMPANY AND 9 FOR AFAM POWER PLC. ON THE 16TH APRIL 2013.
- NORTH WEST POWER CONSORTIUM WAS DECLARED THE PREFERRED BIDDER FOR KADUNA ELECTRICITY DISTRIBUTION COMPANY HAVING OFFERED THE HIGHEST AGGREGATE TECHNICAL COMMERCIAL AND COLLECTIONS LOSS REDUCTION (ATC&C) FIGURE OF 29.26% AND TALEVERAS GROUP WAS DECLARED THE PREFERRED BIDDER FOR AFAM GENERATION COMPANY WITH A \$260,050,000 BID ON THE 31ST OF JULY 2013.
- PAYMENT OF THE OUTSTANDING 75% OF THE PURCHASE PRICE FOR 12 SUCCESSOR COMPANIES TOOK PLACE ON THE 21ST OF AUGUST 2013.
- INTERSTATE ELECTRICS LTD (ENUGU DISCO), NORTH SOUTH POWER LTD (SHIRORO HYDRO GENCO) AND CMEC/EURAFRIC ENERGY LTD (SAPELE POWER GENCO) FAILED TO MEET THE 21ST AUGUST 2013 DEADLINE. INTERSTATE AND NORTH SOUTH POWER SUBSEQUENTLY PAID THE OUTSTANDING 75% WHICH WAS APPROVED BY THE NCP ON 20TH SEPTEMBER 2013 BUT SUBJECT TO A LATE PAYMENT PENALTY
- CMEC/EURAFRIC HAS FAILED TO COMPLETE THE PAYMENT AFTER THE AUGUST 21ST DEADLINE. TILL DATE IT HAS PAID \$180 MILLION DOLLARS OUT OF THE \$201 MILLION IT BIDDED FOR. THE NCP AT THE 7TH NATIONAL COUNCIL ON PRIVATISATION HELD ON 31ST OCTOBER, GRANTED THE PREFERRED BIDDER A 3 MONTH EXTENSION TO COMPLETE THE PAYMENT.
- THE AGREEMENTS TRANSFERRING ALL PRE-COMPLETION LIABILITIES AND RECEIVABLES OF THE PHCN HAVE BEEN EXECUTED.
- THE NERC ISSUED NEW LICENSES FOR THE SUCCESSOR COMPANIES WITH A DURATION OF 10YEARS AND ON THE SAME DATE ISSUED AN EXTENSION OF THE TENURE FOR ANOTHER 5YEARS WHICH CUMULATIVELY IS A 15 YEAR LICENSE TERM.
- THE HANDOVER OF THE 15 SUCCESSOR COMPANIES TOOK PLACE ON 1ST NOVEMBER 2013 SIMULTANEOUSLY ACROSS NIGERIA.
- THE RULES FOR THE INTERIM PERIOD BETWEEN COMPLETION OF PRIVATIZATION AND THE START OF THE TRANSITIONAL ELECTRICITY MARKET WERE PASSED BY THE NERC ON 3RD DECEMBER 2013.

### A. LABOUR DEVELOPMENTS

A major obstacle that threatened the completion of the privatization process this year was the settlement of labour liabilities.

In February 2013, the Labour Union and the Government reached a final agreement to pay off the severance packages and benefits to PHCN staff. The Government agreed to set aside N384 billion to settle these liabilities. In addition government has indicated that a major part of the proceeds realized from the sale of the power assets were committed to settling labour liabilities. PHCN staff subsequently went through a verification process to assess those eligible for payment and 47,913 employees have been verified and approved for payment.

As of November 2013, PHCN employees were all issued disengagement letters with some of them issued reengagement letter based on a 6-month contract. The owners of the privatized companies have 6 months to keep the re-engaged employees before deciding whether or not to offer them permanent employment.

In terms of payments made; approximately 42, 910 employees have been paid severance and pensions and approximately N350 billion has been paid out. For the outstanding payments; omissions and audit queries are currently being dealt with and payments are expected to have been completed by January 2014.



## B. STATUS OF PHCN

The PHCN was created on 5th of May 2005 as an initial holding company created for the sole purpose of assuming the assets and liabilities of NEPA. Its creation was necessitated by the need to promote private sector investments by first unbundling the single vertically integrated business in which the Generation, Distribution and Transmission Business would be separate businesses created by the EPSR Act as Successor

Companies. For the Generation and Distribution businesses they were to be separated according to their geographical locations/zones.

Once the privatization process commenced in December 2010, when the public were invited to submit expressions of interest, steps were taken to commence winding up the holding company which led to the government setting up a Liquidation Committee on 12th April 2011 to wind up the operations of the PHCN.

The Federal Government has said that the final liquidation of the PHCN will be achieved with its imminent declaration of the Transition Electricity Market. PHCN has functionally ceased to exist, following the privatization of its successor generation and distribution companies, the liquidation and winding up process will be concluded when Transitional Electricity Market (TEM) is declared based on the anticipated advice of the Nigerian Electricity Regulatory Commission.

## C. STATUS OF TCN

Transmission Company of Nigeria (TCN) is one of the 18 unbundled Business Units under the PHCN and its operations currently comprise of the key three functions of the Market Operator, System Operator and Transmission Service Provider. For national security and other inherent issues in electricity, transmission is a natural monopoly and as a result the TCN remained an asset of the Federal Government. In keeping with promoting private participation, a competent Management Contractor, Manitoba Hydro International of Canada was appointed and will be responsible for significant investments in the expansion, reliability and stability of the network infrastructure.

Significant milestones that the TCN has achieved in 2013 include:

- The Network Transmission Agreements with the Distribution Companies, namely, the Grid Connection Agreement, the Use of Transmission Network agreements were executed in February 2013. The Industry Agreements with the Generation Companies, namely, the Grid Connection Agreement the Ancillary Services Agreement were executed in February 2013. The Industry Agreements executed by the TCN and the Successor Companies are supposed to be inherited by the Preferred Bidders.
- After a setback in 2012, Manitoba Hydro International took over the management of TCN and was given its schedule of delegated authority in March 2013.
- The Federal Government inauguration of an 18 man supervisory board headed by Hamman Tukur (Chairman) and the executive management board for the Transmission Company of Nigeria in March, 2013 and August 23rd, 2013 respectively.



- The Ministry of Power recruited about 522 engineers to work in the Transmission Company of Nigeria (TCN) as part of the federal government's attempt to mitigate the shortage of technical workforce in the Nigeria's Electricity Supply Industry (NESI), following its reform of the country's power sector.

### Constraints of the TCN

A major constraint for the TCN is the lack of adequate funding. In spite of the steps in the right direction to improve the TCN highlighted above, a lot still needs to be done to strengthen Nigeria's weak electricity transmission sector. Investments need to be made to increase the grid's stability, reliability, efficiency, power quality improvement, power evacuation and grid expansion. The government has made certain commitments in this respect and recently announced that an additional funding of about \$1.4 billion has been secured recently from various sources for the Transmission Company of Nigeria (TCN).

## UPDATE ON PRIVATISED ASSETS

## Thermal Generation Companies

S/N	Asset	Investor	Acquisition Fee	Shares Acquired
1	Egbin Generation Company	NEDC/KEPCO & Sahara Energy Resource Nigeria	\$407million	70%
2	Geregu Power Plc.	Amperion Power Distribution Ltd	\$132million	51%
3	Ughelli Power Plc.	Transcorp/Woodrock	N47.1 billion	100%

*Out of the 14 successor companies scheduled for hand-over, a total of US\$2, 525,824,534 was realized as proceeds. Out of the amount, US\$1,256,000,000.00 came from the Distribution Companies (DISCOs) while the Generation Companies (GENCOs) raked in US\$1, 269,824,534.*

## Hydro Generation Companies (Concession)

S/N	Asset	Investor	Commencement Fee
1	Kanji Hydro Power Plc.	Mainstream Energy Solutions Ltd	\$257million
2	Shiroro Hydro Power Plc.	North-South Power Company	\$111.7million

## Distribution Companies

S/N	Asset	Investor	Acquisition Fee	Proposed Investment (Next 5 years)	Shares Acquired
1	Abuja Distribution Company	KANN Consortium Utility Company Ltd	\$164 million	\$183.03 million	60%
2	Benin Distribution Company	Vigeo Power Consortium	\$129 million	\$121million	60%
3	Eko Distribution Company	West Power & Gas Limited	\$135 million	\$225million	60%
4	Enugu Distribution Company	Interstate Electrics Ltd	\$106.4 million	\$136million	60%
5	Ibadan Distribution Company	Integrated Energy Distribution & Marketing Ltd	\$160 million	\$219million	60%
6	Ikeja Distribution Company	New Electricity Distribution Company (NEDC)/KEPCO Consortium	\$134.75 million	\$293million	60%
7	Jos Distribution Company	Aura Energy Ltd	\$82 million	\$113million	60%
8	Kano Distribution Company	Sahelian Power SPV Ltd	\$102 million	\$151million	60%
9	Port Harcourt Distribution Company	4Power Consortium	\$124 million	\$127million	60%
10	Yola Distribution Company	Integrated Energy Distribution Company	\$160 million	\$65million	60%



## UPDATE ON THE ENABLING LEGAL AND CONTRACTUAL STRUCTURE FOR THE PRIVATISATION PROCESS

### A. NIGERIAN ELECTRICITY LIABILITY MANAGEMENT LIMITED - NELMCO

NELMCO was set up by the National Council of Privatization as one of the “other transferees” companies envisaged under s.22(1) of the Electric Power Sector Reform Act (EPSRA) with the mandate to assume and manage legacy liabilities and stranded assets in the Nigeria Electricity Supply Industry (NESI) following the restructuring of the sector and the privatization of the PHCN Successor Companies. The liabilities being taken over by NELMCO are those which were incurred prior to the completion of the acquisition of the Successor Companies which will include the employment liabilities and excludes any liabilities with performance beyond the completion date. The assets to be taken over and managed are the non-core assets which include the existing land and properties of PHCN, current assets and all monies being owed to the Successor Companies, all which are to be used to settle the transferred liabilities.

NELMCO has entered into agreements with the incumbent management of the Successor Companies for the transfer of the Successor Companies’ pre-completion liabilities and pre-completion receivables to NELMCO. A transfer instrument signed by the incumbent Successor Companies’ Directors, transferring the assets, liabilities, employees, rights and obligations of the PHCN to NELMCO has been issued.

With respect to the pre-completion liabilities, to ensure that the Successor Companies are fully released and discharged from further obligations in connection with these liabilities, it is contemplated that, where necessary, new agreements will be entered into with the obligees (those who the Successor Companies have an outstanding obligation to) that will fully discharge the Successor Companies

from further obligations thereby ensuring the bidders take over the companies free from any liabilities.

With respect to the pre-completion receivables, it has been agreed that these pre-completion receivables can either be collected directly by NELMCO, the Successor Companies on behalf of NELMCO or by an independent consultant engaged by NELMCO. NELMCO has begun to engage independent consultants to collect the outstanding pre-completion receivables owed to the Successor Companies.

### B. INTERIM RULES

One of the objectives of the electricity sector reform is to create efficient market structures, within clear regulatory frameworks, that encourage competitive markets for electricity generation and sales which at the same time will be able to attract private investors and ensure economically sound development of the system.

The EPSRA provides for a phased and strategic implementation of the power sector reforms until optimal capacity generation and full competitive market is achieved. Implementation of the electricity market is through a gradual process of increasing competition designed as four market stages, namely, Pre-Transition, Transition, Medium Term and Long Term.

The Transition Market introduces competition into the market, during this phase, when all electricity trading will be through contracts. NBET plays a crucial role to play in this phase, acting as a catalyst, to facilitate the trading between the power producers and the distributors and addressing the concerns of credit worthiness on the part of the distribution companies.

The Transition Stage was initially set to

commence upon handover of the Successor Companies but due to certain condition precedents being yet to be fulfilled, the Minister of Power is yet to make this declaration. However in the short-term, the NERC has developed the Rules for the Interim Period between Completion of Privatization and the Start of the Transitional Electricity Market (Interim Rules). The Interim Rules came into effect on the 1st of November 2013 (Handover Date) and applies to energy produced & delivered, associated services and covers all electricity taken from the transmission system by the distribution companies from November 1, 2013 – February 28, 2014 (Interim Period). The Interim rules are also intended to cover all electricity taken from the transmission system by the distribution companies.

The Interim Rules shall govern the trading arrangements during the Interim Period when the privatized Successor Companies Power Purchase Agreements and Vesting Contracts with the Successor Companies and Nigerian Bulk Electricity Trading Plc. (NBET) will not be effective; manage the revenue shortfall in the industry by determining the revenue allowable to market participants and service providers; establish the payment arrangements and flow of funds from Discos through the Market Operator (M.O) to all beneficiaries and establish the sources of funds required to ameliorate the shortfall in revenues collected by the Discos during the Interim Period.

During the Interim Period, the Successor Companies and other generators will continue the existing Pre-Transition Electricity Market trading arrangements whereby PHCN Successor Discos shall receive invoices from and will make payments to the M.O for power received from the successor generation companies and other sources. The Discos will also be required to make payments to the MO for the regu-

latory charges as well as service providers' charges (Market Operator, System Operator, Transmission Service Provider and NBET).

Due to the fact that the Discos might be unable to make full payments for energy and capacity delivered, regulatory and service charges during the Interim Period, the Interim Rules provides for a minimum amount (Baseline Remittance) each Disco is expected to pay which the Market Operator will determine the allowable revenue due to each Market Participant.

The Market Operator shall utilize funds from various sources to ensure the allowable revenues due to the Market Participants (except the Discos) are met and these funds include remittances from the Discos, MYTO 2 Subsidy, loans made to the market (such as proceeds from the sale of Egbin Power Plc. and pre-interim funds due to NELMCO) and any other source of temporary funds provided by the Federal Government. Any of these funds other than the MYTO 2 used by the Market Operator to meet market obligations to the Gencos, NERC, NBET and service providers shall be repaid by the MO through funds obtained from the Discos remittances after the commencement of TEM.

### C. POWER PURCHASE AGREEMENT

The Power Purchase Agreement is a contract between the power generator and the purchaser of the power that sets out the risks, rights and obligations for sale and purchase of power and capacity.

The NBET entered into a PPA with the Gencos on 21st February 2013 for duration of 20 years. However, this PPA is yet to be effective as a condition precedent, which requires that NBET has executed full and effective Vesting Contracts with the distribution companies, is yet to be

fulfilled. Another condition precedent for the effectiveness of the PPA is for NCP to have issued a Transfer Order directing that all accruing unpaid liabilities of the NBET arising from the PPA shall automatically be transferred to NELMCO. It is not certain if this order has been passed, however there is a transfer instrument signed by the incumbent Successor Companies Directors, transferring the assets, liabilities, employees, rights and obligations of the PHCN to NELMCO.

***“...the Interim Rules provides for a minimum amount (Baseline Remittance) each Disco is expected to pay which the Market Operator will determine the allowable revenue due to each Market Participant.”***

### D. VESTING CONTRACT

The Vesting Contract is the contractual arrangement between NBET and the Distribution Companies for the sale and purchase of power. This contract sets out the risks, rights and obligations, the terms and conditions of the contractual arrangements between NBET (who purchases electricity at wholesale from the Gencos and IPP's for resale) and the Disco (who purchases power according to demand from the Bulk Trader and distributes to consumers within a specified territory in Nigeria).

The Vesting Contract between NBET and the Discos was executed on 21st February 2013 for a duration of 20 years but is yet to come into effect, which will be after the National Council on Privatization issues an order stipulating the effective date for the contract after all condition precedents have been fulfilled. These condition precedents include, the parties registering as Market Participants and receiving all necessary authorizations for the discharge of

their obligations under the contract, the Power Purchase Agreement between NBET and the Gencos are effective and the Disco has put in place satisfactory security cover. The framework for a Market Participation Agreement is in place and it is anticipated that this NCP order will be issued after the expiration of the Interim Rules. It is further envisaged that the Vesting Contract and the PPA shall come into full effect during the Transition Stage of the electricity market.

### E. BASELINE LOSSES

The PHCN Successor Distribution Companies (Discos) are characterized by high levels of Technical, Commercial and Collection Losses which in the PHCN era had been between 40% - 50% of the power wheeled to them through the transmission system. Some of the key objectives of the privatization process, particularly for the Discos, were to reduce losses, increase connectivity and access to power through enhanced investments, provide reliable power supply and provide clear parameters for assessing operators.

In the privatization of the Discos, two parameters were used in determining the preferred bidder namely, the entity with the highest financial bid and the bidder with the best service efficiency program. The efficiency bid parameter in this case, is the reduction of the Aggregate, Technical, Commercial and Collection Losses (ATC&C).

ATC&C is defined as the Aggregate Technical, Commercial and Collections Loss of

a Disco. This is the difference between the amount of electricity received by the Disco and the amount received from customers. Bidders were to bid on the relative reduction in losses and a baseline loss ATC&C data was provided in respect of each Disco. Each bid was to contain a proposed 5 year loss reduction trajectory and was evaluated based on the lowest end level in losses for a particular Disco.

In addition to proposing to reduce the ATC&C loss levels of the Discos, the Bidders executed a Performance Agreement with the BPE and the Distribution Companies in which the Bidders, amongst other things, committed to ensuring the Discos achieved agreed minimum performance targets.

The ATC&C Loss Levels is one of the determining factors of the tariffs charged

under the Multi Year Tariff Order II (MYTO II). The level of losses that a bidder proposed to reduce is to be incorporated into the MYTO. At the point of bid submission, a Baseline ATC&C Loss Level was set to be used for bidding purposes and the bidders were to propose how they would reduce this baseline loss level and by what percentage.

Currently, the ATC&C Loss Level in the recently revised MYTO II (21.4%) is much lower than that the opening level taken by the Bidders at the bid submission stage which ranged from 35% - 40%. Findings of the core investors is that losses could be up to 50% and have alerted the NERC as to their findings and the possible effects on the viability of the Discos. In response, the NERC has approved for the Discos to validate their baseline losses which will be considered as part of a possible tariff review in the next few months.

It is also important to note however that in the Performance Agreement with the BPE, the core investors are permitted within one year to submit revisions it proposes of the Baseline ATC&C Loss Levels to accurately reflect the actual ATC&C Loss Levels of the Disco over the period in respect of which the Baseline ATC&C Loss Level was calculated.

***“...ATC&C Loss Level in the recently revised MYTO II (21.4%) is much lower than that the opening level taken by the Bidders at the bid submission stage which ranged from 35% - 40%...”***



*Feeder Station — Omotosho 2 Power Station, Ondo State*



#### A. BACKGROUND

The National Electric Power Policy, which was approved in April 2001, expressed the determination of the Federal Government of Nigeria to reform the electric power sector and to modernize and expand the Nigerian Electricity Supply Industry using private sector funding. The Electric Power Sector Reform Act was enacted in 2005 to provide the legal framework for the reform objectives of the Policy and provide a roadmap and timeframe for the implementation of the reform and privatization strategy.

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.

***"NIPP is an integral part of Federal Government's efforts to combat the power shortages in Nigeria, acting a fast-track public sector funded initiative to add significant new generation capacity, electricity transmission and distribution and natural gas supply infrastructure."***

In 2005, the Federal Government incorporated Niger Delta Power Holding Company Limited ('NDPHC') to serve as the legal vehicle to contract for, hold, manage and operate the assets developed and built under the NIPP using private sector best practices. Niger Delta Power Holding Company Limited ('NDPHC') is a special purpose company owned by three tiers of the government tasked with the responsibility for implementation of the National Integrated Power Project ('NIPP'). Each of the ten power generation assets that have been developed under the NIPP is owned by a wholly owned subsidiary of NDPHC. NDPHC is incorporated under the Companies and Allied matters Act as a private limited Liability company fully subscribed to by Federal, State and Local Governments with a mandate to manage the NIPP Power Plants.

NDPHC is run by a Managing Director and two Executive Directors, responsible for Engineering and Technical Services, and Finance and Administration respectively. The board of the company comprises representatives from the shareholders in the three tiers of government and is chaired by Arch. Namadi Sambo, Vice President of the Federal Republic of Nigeria.

#### B. BID PROCESS

The Bid Process was as follows:

- Under the NIPP Privatization process, the NDPHC in July 2013 invited Expressions of Interest (EOI's) for an 80% equity stake in each of the 10 NIPP Generation Companies to be privatized. There was an initial submission of EOI's on July 19<sup>th</sup> 2013 during which 386 EOI's were submitted and reviewed by NDPHC. The parties who registered their interest were issued with an Information

Memorandum providing further details of the transaction, the NIPP power generation assets, together with the Pre-Qualification Instructions and Criteria. Bidders were also asked to indicate which of the generation companies they were interested in and to provide documentary evidence on their competencies.

- Upon receipt of the EOI's, 82 of pre-qualified bidders were selected as being qualified to bid for various the power plants. The pre-qualified bidders were sent a Request for Proposal (RFP) and the draft Transaction and Industry Documents (Bid Documents) on August 19<sup>th</sup> 2013, upon the payment of a non-refundable bid fee of \$20,000 and having signed a Confidentiality Agreement. They were also given access to both physical data rooms at the various plant sites and virtual data rooms containing documents and reports relevant to each power plant in order to be able to undertake due diligence of the various power plants.
- A Transaction Review Conference was held on the 18<sup>th</sup> -19<sup>th</sup> of September 2013 to answer pre-qualified bidders questions on the assets, the bid process, the agreements, and to address any other outstanding issues. Prior to the submission of Bids, the bidders were permitted to send their amendments to the various Bid Documents to NDPHC for approval or rejection.
- There were two separate sections of the Bid which were evaluated; these include Technical Proposal and the Financial Proposal. Each Bidder was also required to submit a bid bond in the form of an on-demand payment bond payable US\$4,000,000 (four million dollars) for each Generation Company (Genco). Bidders were additionally required to have a minimum net-worth of at least \$100 mil-



lion (a hundred million dollars), depending on the size of the plant they bid for. The Bids for the NIPP Gencos' were submitted on the 8<sup>th</sup> of November 2013 and the public opening of Bids was on the 11<sup>th</sup> of November.

- The Preferred Bidders for each power plant are expected to be announced between mid-December

2013 and January 2014. The preferred Bidder is to within fifteen (15) Business Days of official notification by NDPHC/BPE provide a Preferred Bidder's Bank Guarantee in the amount equivalent to fifteen percent (15%) of the price offered by the Bidder for the purchase of the Shares, and this is to be valid for twenty-one (21) calendar days after the Proposal Validity Period.

- Within 15 Business days of signing the share sale agreement or at a mutually agreed time, the preferred Bidder is to pay a down payment of 25% of the purchase price, the remaining 75% is to be paid prior to completion or at a mutually agreed time. The handover of the NIPP assets is to be before June 2014.

### C. ASSETS TO BE PRIVATIZED

POWER PLANT	LOCATION	DESCRIPTION	NUMBER OF BIDDERS
Alaoji Generation Company Nigeria Limited - Alaoji Power Plant.	Aba in Abia state	It has a design capacity of 1,131 MW. The Alaoji Power Plant is a combined cycle gas turbine plant.	3
Benin Generation Company Limited - Ihovbor Power Plant	near Benin City in Edo state	It has a design capacity of 508 MW. The Ihovbor Power Plant is an open cycle gas turbine power plant built to accommodate future conversion to combined cycle gas turbine configuration.	4
Calabar Generation Company Limited - Calabar Power Plant	near Calabar City in Cross River state	It has a design capacity of 634 MW. The Calabar Power Plant is an open cycle gas turbine plant built to accommodate conversion to combined cycle gas turbine configuration in the future.	6
Egbema Generation Company - Egbema Power Plant	near Owerri in Imo state	It has a design capacity of 381 MW. The Egbema Power Plant is an open cycle gas turbine power plant built to accommodate three additional gas turbine generators and future conversion to combined cycle gas turbine configuration.	4
Gbarain Generation Company Limited - Gbarain Power Plant	near Yenegoa in Bayelsa state of Nigeria	It has a design capacity of 254 MW. The Gbarain Power Plant is an open cycle gas turbine power plant built to accommodate future conversion to combined cycle gas turbine configuration.	7
Geregu Generation Company Limited - the Geregu II Power Plant	Ajaokuta in Kogi state	It has a design capacity of 506 MW. The Geregu II Power Plant is an open cycle gas turbine power plant built to accommodate future conversion to combined cycle gas turbine configuration.	8
Ogorode Generation Company Limited - Sapele II Power Plant	near Sapele in Delta state	It has a design capacity of 508 MW. The Sapele II Power Plant is an open cycle gas turbine power plant.	8
Olorunsogo Generation Company Limited - Olorunsogo II Power Plant	Olorunsogo in Ogun state.	It has a design capacity of 754 MW. The Olorunsogo II Power Plant is a combined cycle gas turbine plant.	5
Omoku Generation Company Limited - Omoku II Power Plant	near Port Harcourt in Rivers state of Nigeria.	It has a design capacity of 265 MW. The Omoku II Power Plant is built to accommodate two additional gas turbine generators and future conversion to combined cycle gas turbine configuration.	8
Omotosho Generation Company Limited - Omotosho II Power Plant	Okitipupa in Ondo state of Nigeria and	It has a design capacity of 513 MW. The Omotosho II Power Plant is an open cycle gas turbine power plant built to accommodate future conversion to combined cycle gas turbine configuration.	13

## 4. POWER SECTOR OUTLOOK

2013 was a momentous period for the Nigerian Power Sector particularly with the PHCN privatization closings and the NIPP Privatizations starting off. A consistent feature however in the face of the many hurdles and challenges was the commitment and responsiveness shown by the Government, Industry Stakeholders and the Regulator. The Nigerian Banking Sector should also be commended for rising to the occasion and supporting the bidders with acquisition financing. The Banks are reported to have \$2 billion USD currently invested in the Nigerian Power Sector.

The following is our outlook for the Power Sector for 2014.

### A. THE NIGERIAN BULK ELECTRICITY TRADING PLC (NBET) FINANCIAL CREDIBILITY AND CAPACITY TO BE TESTED

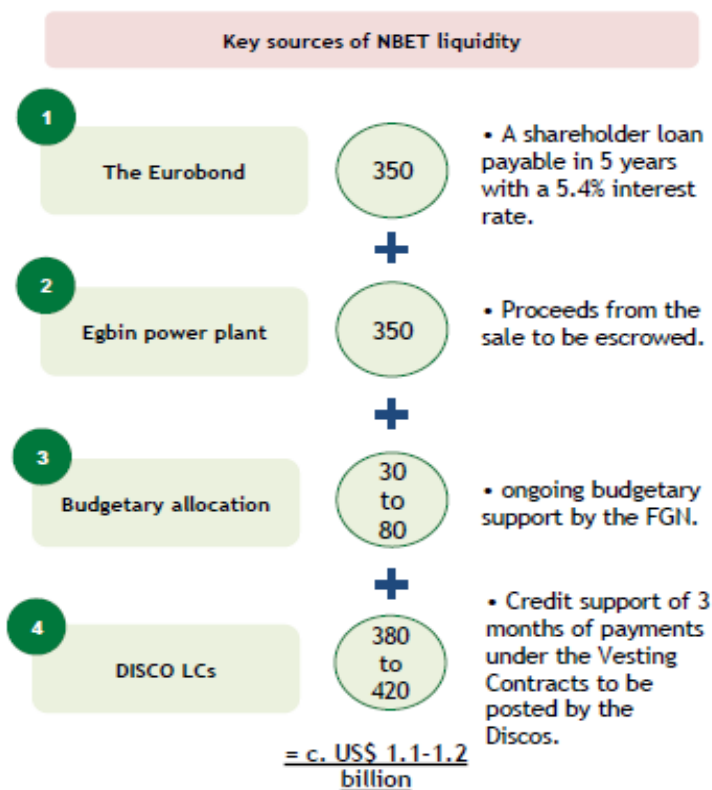
We hope to see NBET properly assume its position as Bulk Trader when the Power Purchase Agreements (PPAs) with the Independent Power Producers (IPPs), privatized PHCN Generating Companies (Gencos) and the Vesting Contracts with the privatized PHCN Distribution Companies (Discos) become effective when the Transition Electricity Market (TEM) is declared. NBET will take on its very crucial role as a guaranteed offtaker to the Gencos, legacy IPPs and privately financed IPPs and would in turn sell guaranteed power to the Discos.

In terms of its financial credibility, NBET is reported to have between 1-1.2 billion USD in its kitty which is worth 9 months of capacity payments to the existing Gencos and IPPs. It is however unclear if the funds available will be sufficient cover for new entrant IPPs including the NIPPs but it is hoped that when the NIPPs come on stream, Discos would have become viable (which is determinant on a number

of factors) such that they can provide financial guarantees for their power allocations as provided in the Vesting Contracts.

### Controversy on Egbin Power Plant Proceeds

Part of the funding set aside to guarantee the capacity payments are the proceeds of the sale of the Egbin Power Plant which is currently a controversial issue as there appears to be an inconsistency between the provisions of the Public Enterprises (Privatization and Commercialization) Act, 1999 (the BP Act) and the Constitution of the Federal Republic of Nigeria 1999 (as amended) (the Constitution). The BP Act states that payment of all proceeds received from the privatization of public enterprises before and after the commencement of the Act to be paid into



Source: Presentation by Femi Akinrebiyo, Infrastructure Department – International Finance Corporation  
 Nigeria's Power Sector: Viability, Funding Sources & Liquidity (October 8<sup>th</sup>, 2013)

the Privatization Proceeds Account domiciled with Central Bank of Nigeria and such funds shall be utilized for such purposes as may be determined by the Government of the Federation. The Constitution on the other hand requires that the Federation maintains a 'Federation Account' in which all revenues collected by the Government of the Federation is to be paid into and allocated to all three tiers of government (Federal, State and Local Government). 'Revenue' is defined in the Constitution as any income or return accruing to or derived by the Government of the Federation from any source and includes returns in respect of property held by the Government of the Federation and returns by way of interest on loans and dividends in respect of shares or interest held by the Government of the Federation in any company or statutory body. It is therefore apparent that the proceeds from the privatization of Egbin Power

Plant would fall under the definition of 'Revenue'. In terms of the inconsistency between both laws; The Constitution provides that if any other law is inconsistent with the provisions of the Constitution, this Constitution shall prevail, and that other laws shall, to the extent of the inconsistency, be void.

It is therefore hopefully expected that this issue will be resolved practically amongst the various stakeholders.

### NBET Capacity

In terms of capacity, we will witness the operations of the Bulk Trader go live also as NBET will take on its obligations as stipulated in the PPAs and Vesting Contracts when they become effective during the Transition Electricity Market (TEM) which is envisaged to take off in March 2014. Such obligations include:

#### Obligations of NBET under the PPA

- Accepting and paying for dependable capacity made available by the Gencos;
- NBET would be entitled to payment of liquidated damages where the relevant Genco fails to meet up with and supply the agreed contract capacity;
- NBET has the right to consent to the appointment by the Genco's of an independent engineer who would witness and certify scheduled maintenance tests on the Genco's Plant;
- NBET in conjunction with the Genco is required to seal the metering system (this is to ensure compliance of the Genco with metering safety requirements). Furthermore, NBET has the right to be present at any meter test or inspection.

#### Obligation of NBET under the Vesting Contracts

- Making available to the Discos, Dependable Capacity and associated gross energy output;
- Using best endeavors to secure generation capacity sufficient to provide the Disco share dependable capacity.

### B. ELECTRICITY MARKET VIABILITY AND LIQUIDITY TO BE TESTED

The Distribution Companies (Discos) are a crucial part of the Power Sector value chain and the viability and sustainability of the entire electricity market is considerably dependent on the ability of the Discos to collect cash sufficient to pay their power bills, lender payments, meet operational expenses and salaries and also make a decent return on capital.

The Discos so far (pre-privatization) have been incapable of paying their power bills and operating as viable businesses and have been subsidized by government to make them whole. Realizing that there would not be an overnight miracle for the Discos post privatization, the NERC has issued interim rules to guide the players in the electricity market, which include the privatized Discos and Gencos, the Bulk Trader, Market Operator, System Operator, the Transmission Service Provider and the NERC and to ensure the Market's viability until the announcement of the TEM.

Essentially, the tenure of the interim rules (envisaged to be between the 1st of November 2013 and 28th of February 2014 and terminates on 1st March 2014) will be a live test run of how the electricity market will operate during the TEM. Con-

sideration is however made for possible revenue shortfalls and arrangements are in place to supplement any shortfalls. It is expected that the subsidy said to be available to the electricity market until 2014 will be provided by government to meet such shortfalls. The success therefore of the interim period and interim rules will greatly determine the viability and liquidity of the market going forward in the year 2014 and beyond.

Also in terms of the market's viability it is expected that, in addition to government support available during the Interim Period, the Discos would also begin work on reducing their Commercial and Collection losses.

### C. TARIFF INCREASE – TO BE OR NOT TO BE

Following on from the issue of market viability and liquidity, it is also expected that the NERC will adjust tariffs, taking into consideration any revisions of the MYTO II assumptions validated by the Discos and these include baseline for the Aggregate Technical, Commercial and Collection (ATC&C) Losses, customer numbers, energy delivered to the Discos and any other aspects of the tariff deemed appropriate by the NERC. It is hoped that an adjustment of the tariffs would further enhance the Discos viability and in turn the sustainability of the electricity market. NERC will obviously have a tough call to make here, particularly if the validated assumptions would result in another hike in the retail tariff price just over a year after the last major review of the MYTO in June 2012.

## D. INCREASED POWER SUPPLY

It is hoped that there would be more power generated in 2014, with some of the NIPPs coming on stream hopefully from June 2014. A determinant factor however would be gas and transmission constraints, some of which are already being taken care of also under the auspices of the NIPP.

## E. MAYBE THE PRG?

It is hoped that we will see World Bank Partial Risk Guarantee closed on a couple of projects in 2014. A strong contender already in negotiations with the World Bank is the Azura IPP. There is also reportedly a PRG available to support gas supply to power plants. The World Bank has about 600 million USD available for a PRG to support gas supply to Power Plants or the recently privatized Gencos and perhaps Discos, it has been mentioned that there might be a PRG available to some of the Core Investors who meet World Bank requirements. There should be some clarity hopefully on this issue in 2014.

***“We hope to see NERC evolve into a stronger and more assertive Regulator with a stronger framework. This is already evident from NERC’s recent Orders on the approval of new licensees, its Fit and Proper Guidelines and Know Your Licensee Framework and the role it currently plays in ensuring that the Interim Rules are adhered to by Market Participants. We are likely to see NERC begin to penalize licensees for flouting its regulations.”***

## F. TRANSITION ELECTRICITY MARKET

It is envisaged that the Nigerian Electricity Supply Industry (NESI) will finally enter into the TEM, having gone through the Pre-Transitional phase. The announcement of the TEM in accordance with the Electric Power Sector Reform (EPSR) Act is expected to be by the Minister of Power, as advised by the Transition Steering Group, led by the NERC which is responsible for ensuring that all the Condition Precedents to the TEM are met.

## Features of the TEM will include:

- All electricity trading arrangements during the Transition Stage will be consummated through contracts, and there will be no centrally administered balancing mechanism for the Transition Stage Market.
- The Multiple Buyer Model proposed in the Roadmap to the Power Sector Reforms will take effect. This model provides for, not only the Bulk Trader procuring power from the Successor Generation Companies and the Independent Power Producers, but to the extent that they are able to, the distribution companies and eligible customers will be allowed to procure power bilaterally alongside the Bulk Trader.
- The Market Operator shall develop a Market Procedure for the management of inadequate supply and shortage conditions during the Transitional Stage. This Market Procedure will allocate generation shortages proportionally among loads and will be tested and improved during the Transitional Stages, and shall become part of the Grid Code at the start of the Medium Term Market.



- The initial Market Surveillance Panel will be constituted. The Panel shall amongst other things be responsible for monitoring the behavior of Participants and report acts of abuse or possible abuse of market power to the NERC.

## G. NERC STICK TO GET BIGGER

We hope to see NERC evolve into a stronger and more assertive Regulator with a stronger framework. This is already evident from NERC’s recent Orders on the approval of new licensees, its Fit and Proper Guidelines and Know Your Licensee Framework and the role it currently plays in ensuring that the Interim Rules are adhered to by Market Participants. We are likely to see NERC begin to penalize licensees for flouting its regulations.

However to properly take on its role in 2014, NERC would need to increase its capacity on all fronts in order to serve its licensees and consumers effectively.



### A. GAS SUPPLY AND INFRASTRUCTURE

A major link to be strengthened in the power sector value chain is the need for gas supply and infrastructure. Some of the privatized PHCN Thermal plants which are already suffering gas constraints and are unable to generate power at their available capacities (Egbin, Geregu and Olorunsogo 1) may even be at the risk of being without gas within the next few years. There is therefore a dire need for investment in Gas Supply and Gas Infrastructure. Presently, the International Oil Companies and other local gas suppliers are currently not incentivized by the current gas pricing. There will therefore be a need for a deregulation of the sector to generate substantial investment. The Federal Government on its part is reported to have allocated 450 million USD out of the 1 billion USD Eurobond recently raised in July 2013 for gas infrastructure. The sum of 8 billion USD has also been earmarked by the government for full execution of the Gas Master plan. Opportunities exist for gas gathering, construction and operation of gas processing facilities as well as

gas pipelines. These opportunities will be available to oil exploring and processing companies with interests in gas fields, gas suppliers, equipment manufacturers and suppliers, EPC and Construction contractors and financial institutions (including advisors).

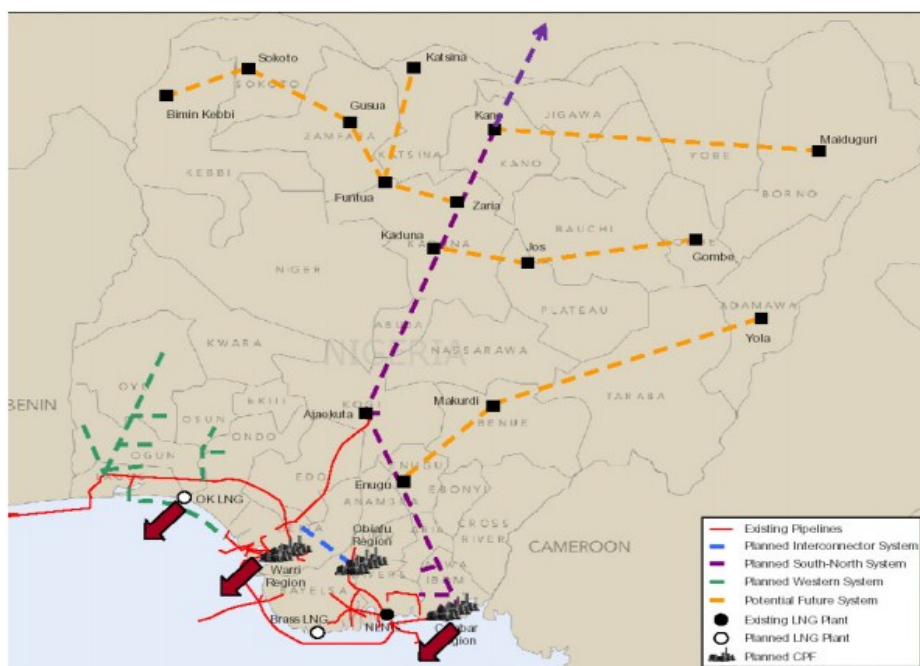
### B. TRANSMISSION INFRASTRUCTURE

Another major weak link that requires strengthening in the value chain is our transmission infrastructure. This is particularly crucial because without a more robust transmission network, additional on-grid power will be stranded and cannot be evacuated via the grid. It has been reported that the grid is only capable of evacuating an excess of 4,000 MW of power. Required investment for reinforcement of the grid is estimated to be between 2.6 and 5 billion USD. There is however some financial support being expected to fund the reinforcement amounting to 3.4-3.7 billion USD from proceeds of the NIPP sales, China Exim Bank, IBRD

(under consideration) and other Development Finance Institutions such as the Islamic Development Bank and AFDB. Opportunities exist here for equipment manufacturers and suppliers, EPC and Construction contractors with competencies for Power Projects and financial institutions (including advisors).

### C. CAPITAL EXPENDITURE(CAPEX) FOR REHABILITATION OF RECENTLY PRIVATIZED ASSETS

It is estimated that the recently privatized Gencos will require an estimate of 25 billion USD in the form of Capex and over the next 7 years in order to meet their performance targets as they will need to rehabilitate or even overhaul their power plants. The Discos on the other hand will require approximately 1.64 billion USD to invest heavily in revamping their distribution network infrastructure (including metering to customers). The World Bank is currently in advanced discussions on playing a lead role in raising 1 billion USD for funding Capex for the Discos. Opportunities exist here for Financial Institutions, we expect that the International Banks and DFIs would play a major role here and that as a consequence of their entry there would be a number of refinancing deals on some of the acquisition facilities for the privatized PHCN assets. There would also be opportunities for equipment suppliers, EPC Contractors, construction contractors, providers of software and Enterprise Resource Planning (ERP) solutions, consultants and technical manpower and skills specific to the power sector, legal and financial advisers with an understanding of the power sector and power project financing.



Gas Infrastructure Blueprint layout

<http://www.igu.org/html/wgc2009/papers/docs/wgcFinal00764.pdf>

#### D. EQUITY INVESTMENT IN NIPP PROJECTS AND PRIVATIZED PHCN ASSETS

There will be opportunity for equity investment in the ongoing NIPP Privatization in the year 2014 and we also expect to see some share moves in the privatized PHCN companies, subject to the approval of the Bureau of Public Enterprises (BPE). This will be for investors who had either missed the opportunity to invest in the PHCN privatization or those who had a low risk appetite and took a back seat approach and are waiting to see how the sector would perform. The viability of the market structure and the bankability of the enabling contractual and regulatory structure would however be a major determinant for serious discerning investors.

#### E. EMBEDDED GENERATION AND INDEPENDENT ELECTRICITY DISTRIBUTION

To ease the burden on the transmission grid and facilitate consumers access to reliable electricity faster, Embedded Generation is an option to be considered as an investment opportunity as well, particularly for large consumers of electricity such as residential or industrial clusters within a distribution network. Embedded

Generation is defined as the generation of electricity that is directly connected to and evacuated through a distribution system connected to a transmission network operated by a System Operator Licensee. Simply this means that Embedded Generation is the generation and evacuation of power off the transmission grid though it is evacuated via the network of a distribution company. It is expected that in the next one year with the Discos becoming more efficient, there will be requests for proposals for power developers who can provide embedded power to be evacuated by the Discos (who would typically be the primary offtaker to customers who are willing and able to pay for such power. It is also an opportunity for State and Local Governments to begin to procure power for their domestic needs.

NERC has also created the enabling framework for the development and operation of Independent Electricity Distribution Networks by private sector investors other than the privatized Discos particularly in areas without access to grid supplied power or distribution infrastructure to evacuate grid supplied power or areas poorly serviced by the Discos. Investment considerations would however be the contractual structure, consumer's ability to be a reliable off taker and possible reactions by the Discos to perceived threats

to their market share.

#### F. RENEWABLE ENERGY

Potential for investment in renewable energy (solar, hydro, biomass and wind) still exists for small clusters and communities particularly as government has shown its support for renewable energy from its policies (*The National Electric Power Policy (2001)*, *the National Energy Policy (2003)*, *the Electric Power 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) and the creation of a feed-in tariff for renewables in the MYTO II. A few licenses have also been granted for solar and wind projects; The solar project is a 5MW off grid project located in Kuru Jos and the wind project is a 100MW on grid project also located in Maraban Pushit, Mangu Plateau State. There are however mitigating factors that still need to be considered in the growth of our renewable energy space some of which are the cost of renewable energy projects and the sufficiency of the feed in tariff, consumers' ability to pay, ability of government to subsidize the cost of rural electrification projects and existing technology.

For Hydro projects particularly, Nigeria's outstanding total exploitable hydro potential stands as 12,220MW. Hydro projects are particularly required in the North where there is low access to gas. Government support will however be required because of the nature of Hydro Projects.

***The viability of the market structure and the bankability of the enabling contractual and regulatory structure would however be a major determinant for serious discerning investors.***



## 6. NIGERIA POWER SECTOR AT A GLANCE — REGULATORY FRAMEWORK

### KEY REGULATORS

#### A. THE FEDERAL MINISTRY OF POWER

The Federal Ministry of Power is the policy making arm of the Federal Government with the responsibility for the provision of power in the country. The Ministry in discharging this mandate is guided by the provisions of the National Electric Power Policy (NEPP) of 2001, the Electric Power Sector Reform (EPSR) Act of 2005, and the Roadmap for Power Sector Reform of August 2010. The Minister of Power as part of his powers may issue general policy directions to Nigerian Electricity Regulatory Commission (NERC) on the power sector which NERC has an obligation to comply with except where such policy directions conflict with the Electric Power Sector Reform (EPSR) Act and the Constitution.

#### B. ENERGY COMMISSION OF NIGERIA

The Energy Commission of Nigeria was established by Act No. 62 of 1979, as amended by Act No.32 of 1988 and Act No. 19 of 1989, with the statutory mandate for the strategic planning and co-ordination of National Policies in the field of energy in all its ramifications.

By its mandate, the Energy Commission of Nigeria is the apex government organ empowered to carry out overall energy sector planning & policy implementation, promote the diversification of the energy resources through the development and optimal utilization of all, including the introduction of new and alternative Energy resources like solar, wind, biomass and nuclear energy.

#### C. NIGERIAN ELECTRICITY REGULATORY COMMISSION

NERC is established by Section 31 of the EPSR Act of 2005. NERC is the independent regulatory agency mandated by Government to monitor and regulate the electricity industry in Nigeria. The Commission has the mandate of promoting and ensuring efficient market structures and an investor-friendly industry to meet Nigeria's need for safe, adequate, reliable and affordable electricity. The role and functions of the Commission are outlined below:

- Provide a formal independent regulatory framework for the electricity industry;
- Ensure sustainable growth, development and stability of the sector;
- Boost investor confidence while pro-

### Key legislations and regulations guiding the Nigerian Power Sector

<ul style="list-style-type: none"> <li>• The 1999 Constitution of the Federal Republic of Nigeria</li> <li>• The Electric Power Sector Reform Act 2005</li> <li>• NERC Regulations for Embedded Generation 2012</li> <li>• NERC Regulations on Independent Electricity Distribution Networks 2012</li> <li>• NERC Generation Procurement Regulations 2012</li> <li>• NERC Application for licenses (Generation, Transmission, system Operations, Distribution and Trading) Regulations 2010</li> <li>• NERC Reporting Compliance Regulations 2009</li> <li>• Market Rules 2009</li> <li>• Nigerian Electricity Health and Safety Standards Manual 2008</li> <li>• NERC (permit for captive Permit for Captive Power Generation) Regulation, 2008</li> <li>• NERC Guidelines &amp; Assessment Criteria for Fit and Proper Persons for Corporate &amp; Individual participation in Regulated Electricity Undertakings 2012</li> <li>• NERC's Connection and Disconnection Procedures for Electricity Services, 2007</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Customer Service Standards of performance for Distribution Companies 2007</li> <li>• Meter Reading, Billing, Cash Collections and Credit Management for Electricity Supplies Regulations 2007</li> <li>• NERC Customer Complaints Handling: Standards and Procedures 2006</li> <li>• NERC Distribution Code</li> <li>• NERC Grid Code</li> <li>• NERC Metering Code</li> <li>• Metering Market Procedure</li> <li>• Metering Code Volume 2</li> <li>• Grid Code for Public Consultation (the Grid Code is currently being reviewed)</li> <li>• Connection Methodology</li> <li>• Estimated Billing Methodology 2012</li> <li>• NERC Business Rules</li> <li>• NERC Guidelines for Obtaining Clearance Certificate for the Importation of Generating Sets and Related Matters 2011</li> <li>• NERC Guidelines for Certification of Metering Service Providers and Related Matters 2013</li> </ul>
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The Codes, Standards and Manuals; Guidelines and Regulations issued by NERC can downloaded [here](#), [here](#) and [here](#) respectively.



- Protecting the interests of consumers;
- Promote competition within the industry;
- Set and enforce quality standards;
- Enforce consumer service obligations;
- Provide all necessary regulatory functions for the electricity industry;
- Create, promote and preserve efficient industry and market structures and ensure optimal utilization of electricity resources;
- Maximize access to electricity services, by promoting and facilitating consumer connections to distribution systems in both rural and urban areas;
- Ensure that an adequate supply of electricity is available to consumers;
- Regulation of prices paid for electricity;
- Ensure that regulation is fair and balanced for licensees, consumers; investors, and other stakeholders;
- License and regulate persons engaged in the generation, transmission, system operation, distribution, and trading of electricity;
- Approve amendments to the Market Rules;
- Monitor the operation of the electricity market;
- To create, promote, and preserve efficient industry and market structures, and to ensure the optimal utilization of resources for the provision of electricity services;
- To maximize access to electricity services, by promoting and facilitating consumer connections to distribution systems in both rural and urban areas;
- To ensure that an adequate supply of electricity is available to consumers;

- To ensure that the prices charged by licenses are sufficient to allow the licenses to finance their activities and to allow for responsible earnings for efficient operation;
- To ensure safety, security, reliability, and quality of service in the production and delivery of electricity to consumers.

### OTHER REGULATORS

#### A. FEDERAL MINISTRY OF WATER RESOURCES

Section 9 of the Water Resources Decree (now Act) of 1993 mandates that any diversion, storage, pumping or use on a commercial scale of any water stated in the schedules shall be carried only in accordance with a license approved by the Minister of Water Resources. A water license would thus be required to undertake a hydro power project.

In line with the policy directive of government to increase energy supply to meet the nation's energy demands, Federal Ministry of Water Resources is collaborating

with the Federal Ministry of Power on the aspect of handling the area of power generation component, while the Ministry handles the aspect of civil works in all the dam projects with hydropower potentials. Small hydropower schemes have been integrated into some dam projects across the country in order to increase the energy supply of the nation.

#### 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/license must be issued by NIWA where utility lines would cross the inland waterways or for projects requiring water intake (hydro power projects).



*Kainji Dam Nigeria*



### C. RURAL ELECTRIFICATION AUTHORITY

The Rural Electrification Authority is established under section 88 of the EPSR Act. The Rural Electrification Authority has the mandate to implement the rural electrification strategy and plan for Nigeria under the supervision of the Ministry 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; and
- Renewable power generations.

The Rural Electrification Authority also administers the rural electrification fund it sets 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. As part of effort to deliver on its mandate of delivering electricity to off-grid communities in Nigeria, the Rural Electrification Agency was reported to have entered into partnership with Israel with a view to tapping from the country's (Israel) expertise in alternative energy .

### D. HYDRO ELECTRIC POWER PRODUCING AREAS DEVELOPMENT COMMISSION (HYPPADEC) ACT 2010

The Hydro Electric Power Producing Areas Development Commission (HYPPADEC) Act of 2010 establishes the Hydroelectric Power Producing Area Development Commission to manage the impact of ecological issues due to the operations of dams and hydro electric power activities in power producing areas. The

HYPADDEC primarily seeks to ameliorate the plight of people in host communities where dams and other energy infrastructure are sited. HYPPADEC is required to maintain a fund and a hydro power generation company is required to pay 30% of its revenue into the fund. It should be noted that the Act does not indicate if the 30% to be paid into the fund would be based on their monthly revenue or yearly revenue and if the calculation of the total revenue is based on the gross or net profit.

The Hydro Electric Power Producing Areas Development Commission (Amendment) Bill of 2012 which was passed by the National Assembly in February 2012 however seeks to amend the Act and expand the membership of communities affected by the activities of Hydro electric power producers and also replace the aspect of payment of 30% revenue of the power company with "10% revenue derived from concessions of the hydro plants and royalties paid to the federal government". There is dispute as to whether this relates to 10% of the concession fees or 10% of the concessionaire's revenue. The President is yet to assent to the bill which leaves some uncertainty as to what percentage of the Concessionaire's revenue is to be paid to HYPPADEC which could prevent NSP from preparing an adequate budget and forecast.

### E. TRANSMISSION COMPANY OF NIGERIA

The Transmission Company of Nigeria (TCN) was incorporated in November 2005. TCN emerged from the defunct National Electric Power Authority (NEPA) as a product of the merger of the Transmission and Operations sectors on April 1, 2004. TCN is one of the 18 companies unbundled from PHCN.

Being one of the 18 unbundled Business Units under PHCN, the company was issued a transmission License on 1st July, 2006. TCN licensed activities include: electricity transmission, system operation and electricity trading which is ring fenced. TCN is responsible for evacuating generated electric power from Generating Companies and wheeling it to Distribution Companies.

The TCN was handed over to Manitoba Hydro International of Canada on a three-year management contract. TCN operates as Transmission Services Provider (TSP), a System Operator (SO) and a Market Operator (MO). One of the key objective for Manitoba Hydro International will be to reorganize TCN such that the TSP becomes a separate entity from the MO and SO allowing it to become a privatized commercial company

### System Operator

The System Operator operates the Grid Code for the Electricity Industry of Nigeria. The System Operator has the responsibility for 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 operator license from NERC that authorizes 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. Other responsibilities of the System Operator are:

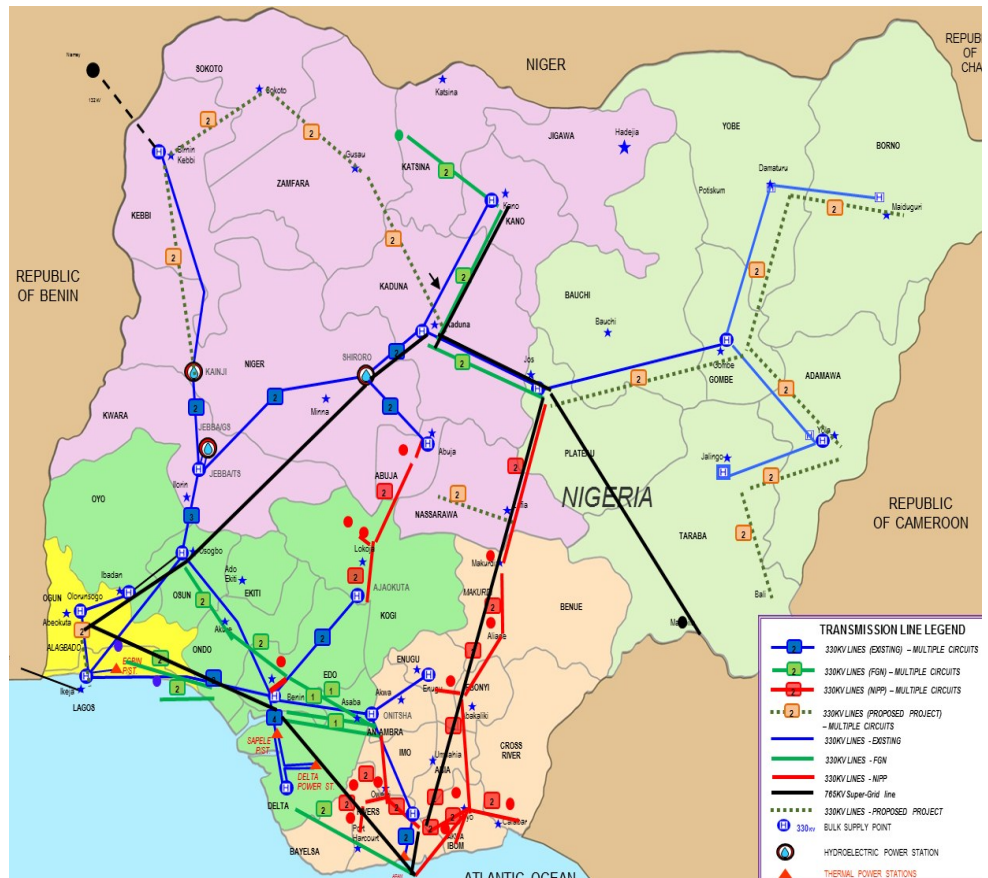
- Grid frequency and voltage control & economic dispatch of generating units

- Load allocation in times of insufficient generation
- Coordinate all planned outages for the maintenance of system equipment
- Design, install and maintain scada and communication facilities for effective grid operations
- Procure & manage ancillary services
- Enforce the grid code and the operational procedures
- Perform post fault analysis of all major grid disturbance

## Market Operator

The Market Operations is responsible for the administration of the Electricity Market, promoting efficiency and where possible competition. Other roles of the Market Operator include;

- Implementing and administering the Market Rules, and Drafting and implementing the Market Procedures;
- Administration of the Commercial Metering System; ensuring that each trading point has adequate metering systems;
- Administration of the Market Settlement System;
- Administration of the Payment System and commercial arrangement of the energy market, including Ancillary Services;
- Periodic reporting on the implementation of the Market Rules;
- Training of Participants on the Market Rules and Procedures and Trading Arrangements;
- Supervising Participants' compliance with and enforcing the Market Rules and the Grid Code.



## Nigerian Power Grid: Existing On-going 330KV and Proposed 765KV Lines Network

Source: Presentation by Prof. Bart Nnaji — Dismantling Barriers to Achieving our Power Sector Vision — Presidential Power Sector Workshop, dated May 7, 2012  
(Download full presentation [here](#))

## Transmission Service Provider

The Transmission Service Provider (TSP) refers to the Transmission Unit of TCN responsible for the national inter-connected transmission system of Nigeria and that provides open access transmission services. The TSP performs the following roles:

- Develops the Transmission Grid to new areas;
- Maintains the infrastructure in the Grid

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	ADDITIONAL INFORMATION
1.	<b>Captive Generation</b>	<p>Captive generation is defined as generation of electricity for the purpose of consumption by the generator and which is consumed by the generator itself and not sold to a 3<sup>rd</sup> party.</p> <p>The NERC Captive Power Generation Regulation reinforces the definition in the EPSR Act and goes to define <i>captive power generation</i> to mean generation of electricity <b>exceeding 1 MW</b> for the purpose of consumption by the generator and which is consumed by the generator itself and not sold to a 3<sup>rd</sup> party.</p> <p>The Captive Power Generation Regulations also define a <i>captive power plant</i> to mean a power plant of over 1 Mw in capacity set up by the generator for its own use.</p>	<ul style="list-style-type: none"> <li>• Ensures optimal use of power generated as there are no issues with technical and commercial losses.</li> <li>• Industrial customers can generate the power needed for their operations.</li> <li>• Eliminates technical losses as the power produced is consumed directly by the generator.</li> <li>• Least hurdles in terms of financing and regulatory risks.</li> </ul>	<ul style="list-style-type: none"> <li>• A permit holder must apply for and receive prior written consent of NERC before supplying power <b>not exceeding 1 Mw</b> to an off-taker. A permit holder who intends to supply power <b>exceeding 1 Mw</b> to off-taker must apply for a generation license.</li> <li>• The price of grid power is cheaper.</li> <li>• Lack of special incentives to encourage captive generation.</li> </ul>	<ul style="list-style-type: none"> <li>• Off Grid that is, power is not evacuated on the National Grid.</li> <li>• No Power Purchase Agreement required.</li> <li>• No distribution infrastructure required.</li> </ul>

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	ADDITIONAL INFORMATION
2.	<b>Embedded Generation</b>	<p>This is 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.</p> <p>To supply power, the Embedded Generator is required to apply to the Commission and to fulfil conditions of the Market Rules relevant to procurement of more electric power above the amount allocated by the Bulk Trader.</p>	<ul style="list-style-type: none"> <li>• Backup or bonus to on-grid power projects.</li> <li>• Reduces technical and collection losses because of proximity to the distribution system.</li> <li>• More power supply, more cash flows and more capital flows and more customers for the Discos.</li> <li>• Helps in deepening the electricity market and ensures more bankable deals</li> <li>• Creates more options for industrial consumers.</li> <li>• Introduces competition in the market.</li> </ul>	<ul style="list-style-type: none"> <li>• Embedded generation projects may be less bankable because distribution licensees currently lack liquidity to commit to a Power Purchase Agreement.</li> <li>• Connection to the distribution system of a distribution company is dependent on the maximum embedded generation capacity allowable by the distribution license.</li> <li>• Distribution licensee's power purchasing ability is also constrained by the Market Rules as it is required to apply to NERC and fulfil conditions in the market rules relevant to procurement of more electric power above the amount allocated by the Bulk Trader.</li> </ul>	<p><u>Specific rules when applying for an Embedded Generation</u></p> <ul style="list-style-type: none"> <li>• The prospective licensee is to first apply to the NERC for permission and they must satisfy certain conditions prior to approval by the Commission.</li> <li>• The prospective licensee and the Distributor are to enter into a bilateral contract and this can only occur when certain criteria are fulfilled as stipulated in the Market Rules whereby a Distributor may only purchase the Embedded Generation from a Generator in certain circumstances.</li> </ul> <p><u>Registration as a Market Participant</u></p> <ul style="list-style-type: none"> <li>• After obtaining a Generation License, the licensee is required to register as a <b>"Market Participant"</b> in order to trade or participate in the Market. The party is required to apply using the application form to be found on the Market Operators Website.</li> </ul>



## POWER GENERATION OPTIONS

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	ADDITIONAL INFORMATION
3.	<b>IPP Off-Grid</b>	This is a privately funded power generation plant whereby power is not evacuated unto the national grid but instead requires an off-taker which could be a commercial consumer or residential customers within a cluster.	<ul style="list-style-type: none"> <li>Reliable way of meeting the electricity needs of industrial customers.</li> <li>Adds new generation capacity to meet the rapidly increasing demand for electricity.</li> <li>Industrial consumers can have the option of choosing the most suitable suppliers for them.</li> <li>Potential market for power supply for housing estates, industrial estates/ clusters and telecom installations.</li> </ul>	<ul style="list-style-type: none"> <li>A downside however is that if excess power is produced, it cannot be sold to NBET or evacuated unto the grid without an IPP On-Grid license.</li> <li>Constrains with accessing gas for gas fired plants</li> <li>Additional cost as IPP would need to invest in distribution infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Power is not evacuated on the National Grid.</li> </ul>
4.	<b>IPP On-Grid</b>	<p>This is a privately funded power generation plant where the power generated is evacuated on to the national grid.</p> <p>It is suitable for large scale power projects, but may be subject to capacity needs and system constraints.</p>	<ul style="list-style-type: none"> <li>Suitable for large scale power projects.</li> <li>Adds new generation capacity to meet the rapidly increasing demand for electricity.</li> <li>The introduction of competitive bids following the introduction of the NERC Generation procurement Regulations guarantee the off-take of power produced.</li> </ul>	<ul style="list-style-type: none"> <li>High cost of financing.</li> <li>The IPP may require partial risk guarantees.</li> <li>Power Generation on-grid is subject to capacity needs and system constraints.</li> <li>Liquidity risks on the part of the Bulk Trader to buy contracted capacity.</li> <li>Constraints with accessing gas for thermal projects.</li> </ul>	<ul style="list-style-type: none"> <li>Power is evacuated on the National Grid and thus requires an off-taker which could be the Bulk Trader, an eligible customer declared as such by the Minister of power or an individual customer.</li> </ul>

**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 privatizations; regulatory compliance; independent Power Producer start up, structuring, licensing & financing; power purchase agreements gas supply, purchase and transportation agreements.**

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