Nigeria Power Guide

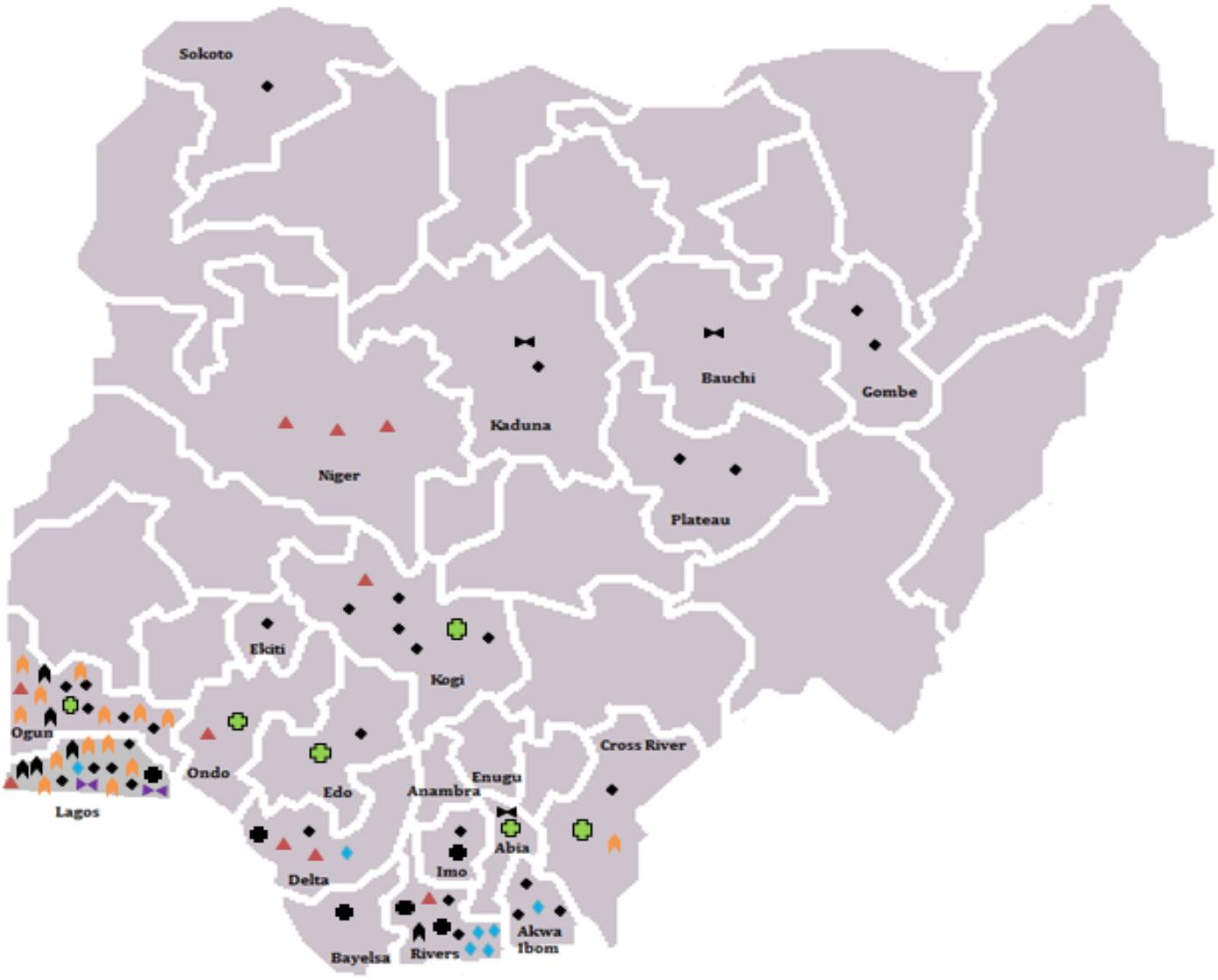
Volume 3, 2015 Edition

Source: http://www.industrialinfo.com/img/news/power.jpg

Detail

Inside this Guide

POWER GENERATION PROJECTS



Power Generation as of May 23, 2015:

- Peak Generation – 1,707.10 Megawatts as at May 26, 2015
- Peak Demand Forecast - 12,800.00 Megawatts as at May 26, 2015
- Energy Generation - **860.47** Megawatts Hour/Hour as at May 26, 2015
- Energy Sent out - **847.97** Megawatts Hour/Hour as at May 26, 2015
- Highest Peak Generated - 4,517.6 Megawatts on December 23, 2012

Source: http://www.nigeriapowerreform.org/

POWER GENERATION LEGEND	
On-Grid IPP's (Operational)	◆
On-Grid IPP's (Non-Operational)	◆
Off-Grid IPP's (Operational)	▲
Off-Grid IPP's (Non-Operational)	▲
NIPP's (Operational)	⬢
NIPP's (Non-Operational)	⬢
FGN Privatized Gencos (Operational)	▲
Embedded Gencos (Operational)	⋈
Embedded Gencos (Non-Operational)	⋈

Power Sector Achievements

According to the Presidential Task Force on Power 2014 Year-in-Review Report, the following Generating Units were restored to the National Grid in 2014:

DATE	GENERATING UNIT
February 6	Omotosho GT5 (38MW)
February 7	Omotosho GT6 (38MW)
February 25	Kainji 1G8 (80MW)
March 8	Jebba 2G5 (90MW)
March 31	Shiroro 411G1 (150MW)
April 13	Kainji 1G9 (30MW)
April 13	Kainji 1G10 (50MW)
July 29	Kainji 1G7 (50MW)
August 16	Omotosho GT3 (38MW)
September 1	Afam GT 17 (45MW)
October 28	Ibom Power GT03 (112.5MW)
December	Ughelli Power (610MW) [NOT IN THE REPORT]

Generation Capacity Projections (MW) for 2015

Source: Presidential Task Force on Power 2014 Year-in-Review Report

Note: As of May 12, 2015, the Available Generation Capacity in Nigeria was 6,000MW .

2. PHCN PRIVATIZATION UPDATE

FACT SHEET

- The handover of 15 Successor Companies took place on 1st November 2013 (Handover Date).

- CMEC/Eurafric Energy Ltd, the preferred bidder for Sapele Genco paid the outstanding balance of the bid price and completed the acquisition of Sapele Genco in February 2014. The plant has now been handed over to CMEC/Eurafric.

- Taleveras Group and Northwest Power Limited, the preferred bidders for Afam Genco and Kaduna Disco respectively, each signed share purchase agreements in December 2013 and paid the initial deposit (25% of the bid price) in February 2014.

- Talevaras Group and Northwest Power Limited were unable to meet the deadline of 6th August 2014 to pay the balance of the bid price and both sought and were granted a sixty day extension, until 6th October 2014, to pay the balance of the bid price. Taleveras Group is yet to complete payment for Afam Genco. Northwest Power paid the outstanding balance in October 2014 and handover took place on 4th December 2014.

- NERC, in conjunction with the Discos, undertook a re-validation exercise of the ATC&C losses in which the baseline losses for each of the Discos were verified.

- Setting up of the over N214 billion CBN NESF by the Central Bank for Nigeria to settle the legacy gas debts which existed prior to the Handover Date and the power and gas debts which accrued during the Interim Rules Period due primarily to inadequate tariffs caused by faulty ATC&C loss baseline and components to the MYTO.

- NERC completed a review of the MYTO 2 tariff regime and following due process issued a new Distribution Tariff Order (NERC Order No NERC/136- Order directing the commencement of TEM) known as MYTO 2.1 that took effect on 1st January 2015.

- By a NERC Order dated 29th January 2015, the TEM was declared to commence on the 1st February 2015. This declaration of the TEM brings an end to the Rules for the Interim Period between Completion of Privatization and the start of the Transitional Electricity Market.

- On 30th January 2015 NERC issued a Supplementary Order on the commencement of the TEM to provide for the effective administration and operation of the TEM.

- On 9th March 2015 NERC issued an order for the removal of collection losses from the customer tariff. This was as a result of complaints from the public against the increase in tariff which was published in the MYTO 2.1.

- On 24th March 2015, NERC issued an Amended MYTO 2.1 for the period of 1st April 2015 to 31st December 2018.

- NERC issued a consultation paper highlighting the issues of non-cost reflectivity of the tariffs raised by the Discos with respect to the Amended MYTO 2.1 Order.

- Consultations with the Discos have commenced to working towards a review of the Amended MYTO 2.1 Order.

A. THE END OF THE INTERIM RULES

The Interim Rules were a set of rules developed by NERC to govern trading and commercial arrangements during the period between the privatization of PHCN and the declaration of the TEM (Interim Period). The Interim Rules came into effect on the Handover Date. The first version of the Interim Rules was published on 3rd December 2013 and an amended version published on 22nd April 2014. The objectives of the Interim Rules included:

i) Establishing a framework to govern trading arrangements during the Interim Period when the PPAs between the PHCN Successor Gencos and NBET and Vesting Contracts between NBET and PHCN Discos will not be effective;

ii) Managing the probable revenue shortfall in the industry by determining the revenue allowable to Market Participants and service providers during the Interim Period;

iii) Establishing the payment arrangements and flow of funds from Discos through the MO to all beneficiaries;

iv) Establishing the sources of funds required to ameliorate the probable shortfall in revenues collected by the Discos during the Interim Period.

Initially the Interim Rules were to remain in force until 28th February 2014, but due to delays in fulfilling certain conditions for the declaration of the TEM, they continued in existence until 31st January 2015, when effectively by an order of NERC, the TEM was declared.

During the Interim Period, the Discos, Gencos and other electricity generators continued with existing pre-TEM trading arrangements whereby Discos received invoices from and made payments to the MO for power received from the Gencos and other sources. The Discos were given the option of making minimum payments on invoices from the MO (Baseline Remittance) for the Interim Period. The Discos were also required to make payments to the MO for the regulatory charges as well as charges of service providers, namely the MO, SO, TSP and NBET (Service Providers).

The major challenge with this framework was that Market Participants operated more on a best endeavors basis without any regard for the terms of existing contracts. Also Market Participants were not sanctioned for failing to meet their contractual obligations. Now that the TEM has been declared, this will no longer be the case as the Industry Agreements will be effective and parties to these agreements will be held accountable to their obligations.

B. AMENDED MULTI YEAR TARIFF ORDER – 2.1

NOTE: THE AMENDED MYTO 2.1 IS SUBJECT TO REVIEW

In September 2014, NERC commenced a review of MYTO II in line with the minor review timetable and MYTO 2.1 was issued for the period of 1st January 2015 to 31st December 2018. Shortly after, further amendments were made to MYTO 2.1 following petitions received by NERC on the current tariff in the MYTO 2.1. An amended version which is available here was subsequently released on the 24th March 2015 for the period of 1st April 2015 to 31st December 2018 (Amended MYTO 2.1). The following are the major highlights of the Amended MYTO 2.1:

i. Verification of the Baseline ATC&C Losses

ATC&C Losses is the sum total of technical, commercial and collection losses due to the non-realization of total billed amounts to electricity consumers. One of the major criteria for selecting the preferred bidders in the Discos privatization process was the determination of the most aggressive but feasible ATC&C loss reduction trajectory over a five year period. The ATC&C loss reduction is also the criterion to determine the performance of the business operations of the new owners. During the privatization transaction, there was uncertainty about the credibility of some of the data from which the aggregate losses were calculated.

Following the privatization, NERC in conjunction with the Discos, commenced an ATC&C loss revalidation exercise which was concluded in 2014. The results of the verified ATC&C losses and projected loss reduction levels for the following 5 years were set out in the original MYTO 2.1 and these losses were to be passed to the customer via the tariffs.

ii. Amendment of MYTO 2.1

Following the publication of MYTO 2.1, there was an outcry against the increase in tariffs. In response, NERC ordered in the Amended MYTO 2.1 that only technical and commercial losses should pass to the customers while the collection losses should be borne by the Discos except where the Discos can prove otherwise and this is accepted by NERC.

Set out below in Table 1 are the approved ATC&C losses **with zero collection losses for all Discos**.

Source: http://connectnigeria.com/articles/wp-content/uploads/2013/09/Power-Plant-in-Nigeria.jpg

***Table 1**: Approved Baseline and Projected ATC&C Loss Reduction Benchmarks*

DISCO	Approved Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
		ATC&C losses passed through to customers				
Abuja	28.4	19.5	14.8	13.8	12.3	10.4
Benin	25.2	20.7	16.5	12.8	9.6	7.7
Enugu	18.7	18.6	13.9	9.9	6.3	3.6
Ibadan	12.0	10.1	8.2	6.5	5.2	4.4
Jos	24.8	22.2	20.2	18.0	14.8	11.2
Kaduna	18.1	12.1	7.6	4.7	2.9	1.8
Kano	18.1	15.4	11.8	8.9	6.9	5.9
Eko	17.4	12.7	9.3	7.3	6.6	6.3
Ikeja	12.0	8.9	6.5	4.6	3.8	3.4
P/H	12.0	10.2	8.4	6.7	5.4	4.5
Yola	16.3	12.2	36.23	8.8	7.8	7.1

Table 2 below sets out the annual percentage reduction committed to by each Disco

***Table 2**: Discos Relative (%) loss reduction commitment per year*

DISCO	Year 1	Year 2	Year 3	Year4	Year 5
Abuja	31.50%	23.80%	7.10%	10.90%	15.50%
Benin	18.00%	20.00%	22.59%	25.00%	20.00%
Enugu	0.63%	25.30%	28.37%	36.47%	43.33%
Ibadan	16.00%	18.71%	20.43%	19.84%	16.61%
Jos	10.30%	9.04%	11.01%	17.82%	24.21%
Kaduna	33.00%	37.00%	38.00%	38.00%	38.00%
Kano	15.00%	23.00%	25.00%	22.00%	15.00%
Eko	27.00%	26.93%	20.94%	10.16%	3.77%
Ikeja	25.70%	26.90%	28.95%	18.50%	9.20%
P/H	15.00%	17.50%	20.00%	20.00%	17.00%
Yola	25.17%	16.14%	13.81%	12.06%	8.85%

Commencement of the Loss Reduction

Notwithstanding TEM commencing in February 2015, NERC will implement each Disco's loss reduction projections from the Handover Date. For the purposes of calculating when the loss reduction projection commences, the base year adopted was 1st November 2012 - 31st October 2013, with Year 1 commencing on the Handover Date. As a result, Discos were expected to commence loss reduction immediately after taking over the ownership and management of these companies.

This is contrary to the expectations of the preferred bidders of the Discos, as the Performance Agreement executed between BPE and the preferred bidders provides that the Discos are to meet the overall loss reduction target by the fifth anniversary of the date on which the BPE approves the revision of the Baseline ATC&C loss level. Therefore, the base year should be the year the loss levels are verified which, in this instance, should be no earlier than 1st November 2013 – 31st October 2014 and the loss reduction projections should commence thereafter. This provision in the Amended MYTO 2.1 is therefore at variance with the Performance Agreement.

iii. Retail Tariff Review

S. 76(2)(a) of the **EPSRA** provides that electricity prices and tariff methodologies adopted by NERC shall allow a licensee that operates efficiently to recover the full costs of its business activities, including a reasonable return on the capital invested. In furtherance of this provision, minor reviews of MYTO are conducted bi-annually to update the total cost of electricity and ensure that the tariffs mirror as closely as possible the current economic realities. The Tariff Order for Distribution states clearly that the following variables are to be considered during a minor review (**Minor Review Variables**):

a. Rate of Inflation;
b. Foreign Exchange Rate;
c. Cost of Fuel - the gas price); and
d. Actual available generation capacity, including the tested capacity of existing plants, new capacities added, availability factors and load factors.

However, for the review of Amended MYTO 2.1, NERC also took into consideration the ATC&C loss for each Disco despite the fact that ATC&C loss is not a variable as it does not change over time. The ATC&C loss could not be factored in previously because at the time of the conclusion of the privatization of the Discos and until the completion of the revalidation exercise, there was no certainty as to the precise ATC&C loss number for each Disco. The Amended MYTO 2.1 states that the present review reflects the changes in the minor review variables as well as realistic and actual levels of verified ATC&C losses for each Disco.

Set out in Table 3 is a summary of the minor review variables used for the calculation of the current tariff.

***Table 3**: Minor Review Variables*

S/N	Parameters	MYTO-@ Assumptions	Last Minor Review - 31st March 2014	Actual - 30th November 2014
1	Inflation	13%	7.80%	7.90%
2	Exchange rate	N178	N158	N166.15
3	Gas price/mmBtu	US$2.30	US$1.80	US$1.80
4	Generation capacity	5,556MW	3,424MW	3,675MW

Some of the information in Table 3, such as the exchange rate, do not reflect current economic realities. There has been a steady decline of the Naira against the dollar, which was not given due consideration.

The Chairman of NERC stated that the decline of the Naira was not factored into this review because it occurred after the cut-off date for the minor review, which was 30th September 2014 (**Source**: This Day Interview with Sam Amadi on 30/12/2014 - http://www.thisdaylive.com/articles/amadi-consumer-fatigue-misleads-regulatory-drive-service-delivery/197928/). It is expected that the prevailing exchange rate would be taken into consideration in the next minor review which should take place in June 2015. Until then, the Discos have been forced to use tariffs that are not cost reflective.

For gas, the regulated price for 2014 is $1.80/mmbtu. However, the Federal Ministry of Petroleum Resources, CBN and NERC reached an understanding in August 2014 as to a new gas price of $2.50/mmbtu and transport cost of $0.80/mmbtu. Notwithstanding the above, NERC placed a caveat in the Amended MYTO 2.1 to the effect that the transport cost still remains as $0.30/mmbtu until when it approves the financial model justifying the $0.80/mmbtu transportation cost proposed by NGC or NNPC. Once these new prices become effective, a re-adjustment of the tariffs will be required for it to be cost reflective.

iv. MYTO 2 Financial Model

The MYTO 2 Financial Model has been updated with the Minor Review Variables and the ATC&C Loss figures.

In addition, the updated MYTO Financial Model now has the costs of each Genco treated separately. PPA prices have been obtained from NBET and the model now recognizes the following types of PPAs: successor thermal, successor hydro, NIPP thermal, and other legacy PPAs such as AES, Agip, Shell, Ibom Power, Rivers IPP and Trans Amadi. PPA costs that were not anticipated in MYTO such as startup costs have now been factored into the model.

Legacy IPPs, Successor Gencos, and all other Generators with effective PPAs will be treated as distinct based on their individual PPA costs and escalations and those without effective PPAs are to take the NERC benchmarked tariffs.

v. TCN Tariff

While the retail tariff was undergoing review, TCN requested a review of its own tariffs on the basis that a number of significant changes had taken place or were expected in 2015 and 2016 since the determination of MYTO 2 tariffs 3 years ago. Particularly, TCN claimed that:

a. existing MYTO 2 tariffs and billing collections were inadequate for it to finance its operations;
b. there was an urgent need to enable it adequately grow the infrastructure in step with the anticipated expansion of generation and load;
c. there was an urgent need to maintain and operate the network at higher standards; and
d. lack of maintenance of the network over the previous two decades had adversely impacted on system reliability and delivery.

Following a review, the new tariff due to TCN for 2015 is N2,743.6 per MWh. This tariff is to be distributed amongst the TSP, MO SO, Ancillary Services, and NERC Regulatory Charge as set out below in Table 4.

***Table 4**: TCN Tariff Allocation*

TCN Tariff Allocation (N/MWh)	2015
TSP	2,193.16
MO	92.44
SO	351.40
Ancillary Services	68.58
NERC Regulatory Charges	37.58
Total	2,743.16

The TCN tariff is recoverable from Discos and export customers in the ratio of 20% per MWh wheeled per hour during the preceding month as a fixed charge and 80% per MWh delivered to distribution/export injection points.

vi. Reduction of Fixed Charges for D2 Customers

The fixed charge for D2 customers (LV Maximum Demand Industrial Customers) shall be reduced from the current percentage to 25% because D2 customers who constitute a significant part of the informal sector of the economy are vulnerable and should not take the burden of the high fixed charge.

vii. R2 Fixed and Energy Charges

R2 Customers are single or three phase consumers who use their premises exclusively as a residence-house, flat or multistoreyed house. NERC ordered a deferment in the increase in the R2 Fixed and Energy Charge from 1st January 2015 to 30th June 2015. Discos may only collect the R2 tariff applicable before the effective date of this Order and shall only be able to collect the revised R2 tariff as from 1st July 2015. The effect of the deferment is to be quantified by NERC and added to the revenue from 2016 onwards.

viii. Revenue Shortfall /CBN Intervention Fund

A revenue shortfall of N214,838,790,055.78, which includes an 11% interest rate (as provided in the Interim Rules), was estimated for all the Discos for the period from Handover Date to 31st December 2014. This revenue shortfall is to be provided as a facility with a 10% interest rate to the Discos from the CBN under the CBN-NESMF to enable the Discos to repay the identified shortfall in revenues in terms of gas debts which accrued up to the Handover Date ("**Legacy Gas Debts**") and those power debts which accrued during the Interim Period due primarily to inadequate tariffs caused by faulty ATC&C loss baseline and components to the MYTO ("**Interim Period Shortfall**").

Set out in Table 5 below are the Interim Period Shortfall and Legacy Gas Debts due to each Disco.

***Table 5**: Shortfall Due To Each Disco (Source: An excerpt from the Amended Multi Year Tariff Order (MYTO) 2.1 for the period of 1st April 2015 – December 2018)*

Disco	Interim Period Shortfall	Legacy Gas Debts
Abuja	25,465,807,655.44	1,643,558,362.60
Benin	28,834,103,114.45	1,286,263,006.38
Enugu	33,476,248,979.90	1,286,263,066.38
Ibadan	24,773,064,486.12	1,857,935,540.33
Jos	15,481,033,811.54	786,049,651.68
Kaduna	17,257,654,809.28	1,143,344,947.89
Kano	9,876,510,247.38	1,143,344,947.89
Eko	5,160,496,610.64	1,572,099,303.35
Ikeja	9,328,368,354.01	2,143,771,777.30
Port Harcourt	20,208,442,829.41	928,967,770.16
Yola	6,472,722,013.74	500,213,414.70
Total	196,334,452,911.91	14,291,811,848.66

The Discos are to receive the amount in full and the loan has been factored into the retail tariff and is expected to be recovered from the customers over a 10 year period through the electricity retail tariff.

ix. HYPPADEC Charge for Hydro Gencos

Under the Amended MYTO 2.1, all Hydro Gencos are expected to pay 10% of their revenue to HYPPADEC (For more information on HYPPADEC see Nigeria Power Sector at a Glance on page 33). As HYPPADEC is not yet operational, NBET is required to open an interest bearing escrow account on HYPPADEC's behalf until HYPPADEC becomes fully operational.

x. Customer Number Growth

The Discos are yet to establish the customer population of the electricity market and this will directly impact on their revenues. NERC has maintained the MYTO 2 customer number projections. These projections will remain pending the conduct of an exercise to comprehensively enumerate and classify the entire customer population and redesign the customer classifications. It is expected that the exercise will result in the revision of the Estimated Billing Methodology in order to reflect established realities in the market.

xi. Energy Imbalance Mechanism

Due to generation and transmission grid inadequacies which affect the Discos, the MYTO 2 Order provided that energy made available to the grid should be allocated to each Disco on some fair, transparent and comprehensive basis. The Amended MYTO 2.1 sets out estimated energy allocation for each Disco and provides that the Discos are to be supplied power based on the percentage of capacity allocated to each company. However, if for whatever reason a Disco cannot absorb its allocation, such power will be allocated to one or more other Discos resulting in an energy imbalance.

NERC has provided the following rules to address energy imbalances:

a. Each Disco's retail tariff is tied to its estimated energy delivered. Any diminution in the expected energy delivered to a particular Disco beyond the estimated value will cause disequilibrium in that Disco's retail tariff. For a Disco to be made whole in a period it must get its equivalent or more of MW capacity for that period.

b. Where due to the SO's directives to ensure reliable operation of the transmission grid or other circumstances, the Disco receives percentage allocations that are not in line with that allocated to the Disco, then an imbalance may occur at the end of the month.

c. A Disco that receives energy in excess of its percentage allocation in such a month may be obliged to compensate the Disco(s) that have received less than their percentage allocation, depending on the circumstances in which the imbalance occurs.

xii. *KVA Charge*

Due to the detrimental effect of reactive power (unproductive power) from large customers on the distribution network, NERC has re-introduced the KVA charge which was not allowed under MYTO 2. Discos can only impose this charge on customers after carrying out a comprehensive study and formally submitting to NERC the list of customers that are liable to pay, the customer class and proposed KVA charge for each class.

Source: http://thenationonlineng.net/new/wp-content/uploads/2013/02/0-phcn.jpg

3. NIPP PRIVATIZATION UPDATES

A. FACT SHEET

- Niger Delta Power Holding Company (**NDPHC**) released a list of the technically qualified bidders for the NIPP Gencos on 4th March, 2014.
- The Financial Bids for the NIPP Power Plants opened on 7th March 2014 and the preferred and reserved bidders for the Power Plants were announced on the same day.
- The Joint Transaction Board of the National Council of Privatization (**NCP**) and NDPHC approved the preferred bidders for Calabar, Egbema, Geregu, Ogorode, Olorunsogo and Omotosho on 21st March 2014.
- On 14th March 2014 the preferred bidders provided Preferred Bidder Bank Guarantees equal to 15% of the purchase price.
- Aiteo Consortium, the sole bidder for Alaoji Power Plant was requested to adjust its offer to $902 million, since its initial bid of $680 million was below the reserve bid mark.
- Seoul Electric Power Limited put in a bid price of $690.2 million for the Geregu Plant but failed to post its Preferred Bidder Bank Guarantee of 15 per cent of the offer within 15 business days of official notification. They also failed to meet the deadline after it was extended by two weeks. As a result, Yellowstone Electric Power Limited, the reserve bidder for the Geregu Plant assumed the role of preferred bidder.
- NDPHC has commenced negotiations with bidders for the Calabar, Egbema, Geregu, Ogorode, Olorunsogo and Omotosho.

B. OUTCOME OF THE BID PROCESS

Table 6

S/N	Plant	Bidders	Bid Offer ($million)	Preferred Bidder	Reserve Bidder
1	Alaoji	Aiteo Consortium	$902	Aiteo Consortium	-
2	Benin	EMA Consortium	$580	EMA Consortium	Index Consortium
		Index Consortium	$575		
		Bolivar Consultants	$419		
3	Calabar	EMA Consortium	$625	EMA Consortium	Nebula Consortium
		Nebula Consortium	$623.75		
		First Imperial Power Consortium	$542.8		
4	Egbema	Dozzy Integrated	$415.075	Dozzy Integrated	Aiteo Consortium
		Aiteo Consortium	$392		
		Essential International Limited Consortium	$289		

5	Gbarain	KDI Energy Resources	$340	KDI Energy Resources	Azikel Power Limited
		Azikel Power Limited	$305.09		
		ESOP Power Limited	$258.88		
		Tempo Energy	$231.99		
		EMA Consortium	$190		
		CET Power Consortium	$181		
6	Geregu	Seoul Electric Power	$690.2	Yellowstone Electric	Index Consortium
		Yellowstone Electric	$613.1		
		Index Consortium	$590		
		EMA Consortium	$510		
		Power Ventures Consortium	$502.9		
7	Ogorode	Daniel Power Consortium	$531.777	Daniel Power Consortium	ESOP Power Limited
		ESOP Power Limited	$510		
		Tempo Energy Consortium	$360.56		
		Aiteo Consortium	$351		
8	Olorunsogo	ENL Consortium	$751.24	ENL Consortium	Index Consortium
		Index Consortium	$730		
		Sepco-Pacific Partners Limited	$702		
		Cyrex Energy Consortium	$449		
		Aiteo Consortium	Withdrew		

9	Omoku	Shayobe International	$318.71	Shayobe International	ENL consortium
		AITEO Consortium	$312.5		
		DFC Alliance Energy Limited	$255.93		
10	Omotosho	Omotosho Electric	$659.999	Omotosho Electric	ENL Consortium
		ENL Consortium	$645.156		
		Nebula Power Generation Consortium	$603		
		Index Consortium	$595		
		Bresson Consortium	$591.999		
		Worsley Parsons/ Arrow Capital	$555		
		CET Power	$521		
		EMA Consortium	$515		
		AVS Power	$251		

Source: http://www.nipptransactions.com/nipp-transaction-preferred-bidders/

Litigation on Bid Process

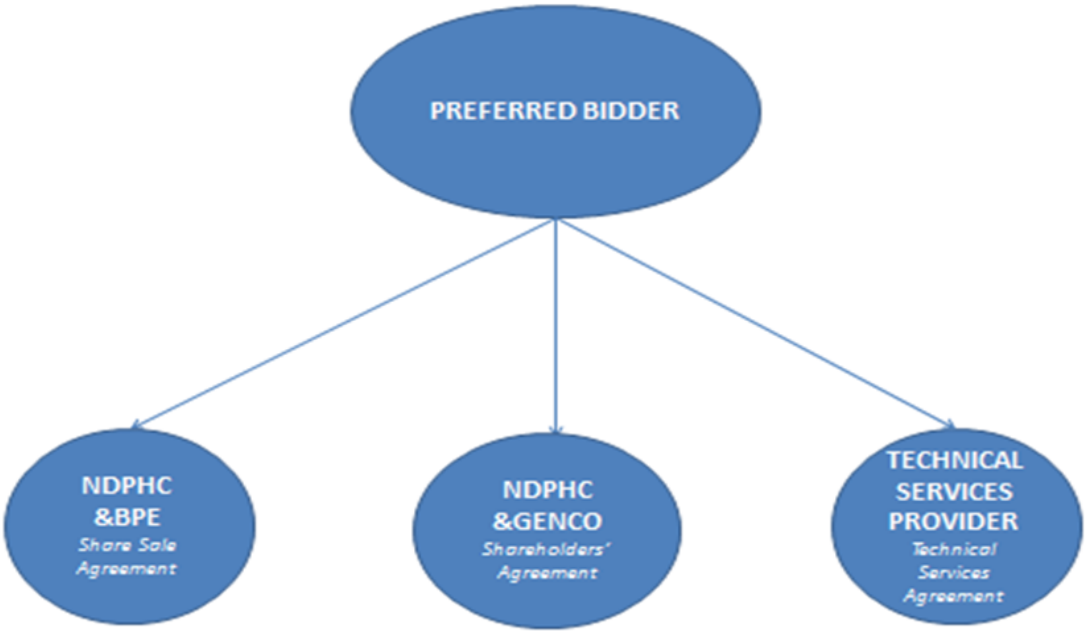
The sale of Alaoji, Gbarain and Omoku Power Plants was suspended due to a court injunction following a suit instituted on 17th March 2013 by Ethiope Energy, a prequalified bidder who failed to qualify at the technical bid stage for these Plants. An interim injunction preventing the BPE from proceeding with the bidding process of the power plants was granted. To date the matter has been adjourned three times for ruling, on 27th January, 11th March and 4th May 2015.

Alaoji Power Station

C. CONTRACTUAL STRUCTURE FOR THE PRIVATISATION PROCESS

The contracts executed to effect this process can broadly be categorized into two, namely Transaction and Industry Agreements.

TRANSACTION AGREEMENTS



Share Sale Agreement (SSA)

This agreement between the preferred bidder, NDPHC and the BPE and governs the terms of the sale of 80% equity in the NIPP Gencos to the preferred bidders.

Shareholder Agreement (SHA)

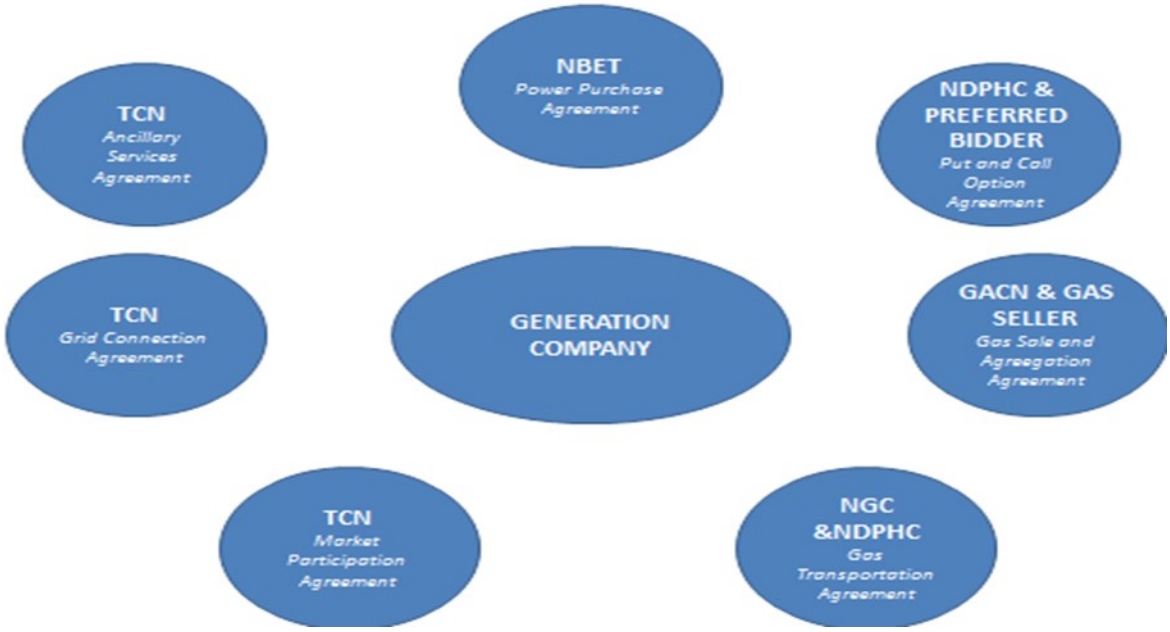
This agreement is between the preferred bidder, NPDHC and the NIPP Genco and governs the internal affairs, operations and management of the Generation Company post acquisition. It also provides the shareholders' mutual obligations, privileges, protections and rights.

Technical Services Agreement (TSA)

This agreement is between the preferred bidder and its technical service providers for the provision of technical management, operation and maintenance of the power plant for a minimum term of 5 years It is the intention that ultimately this agreement will be novated to the Genco after the share sale.

Olorunsogo Power Plant

INDUSTRY AGREEMENTS



Power Purchase Agreement (PPA)

The PPA is the 20 year contract between a Genco and NBET that sets out the rights and obligations and respective risk mitigations of the Parties with respect to the sale and purchase of power and capacity amongst others.

Put and Call Option Agreement (PCOA)

The PCOA is between NDPHC, the preferred bidder and a Genco. The PCOA governs the terms in which NDPHC will re-purchase the shares from the preferred bidder where there is an early termination of the PPA. It has been raised in several fora by the bidders that NDPHC may not be the most suitable counterparty to the PCOA given the precedent with Greenfield IPPs like Azura where the Federal Ministry of Finance is the counterparty.

Gas Sale And Aggregation Agreement (GSAA)

This is between the Gas Supplier, Generation Company and the Gas Aggregation Company of Nigeria ("Aggregator"). The GSAA provides the contractual framework, rights, obligations and risk allocation for gas supply to the Genco. It guarantees the supply of gas to the Genco to enable power supply to the national grid. Apart from Calabar which is supplied by Accugas, the NIPP Plants have gas supply arrangements based on gas purchase orders , which are issued by the Aggregator to enable the Genco purchase gas from gas producers.

Gas Transportation Agreement (GTA)

This agreement agreement is between the NGC and the Genco and provides the contractual basis, rights obligations and risk allocations for regulating the transportation of gas by the NGC, the transporter, on behalf of the Genco, the shipper.

Market Participation Agreement (MPA)

This agreement is between TCN and the Generation Companies. This agreement is entered into pursuant to the Market Rules which requires that participants in the electricity market need to be registered and this agreement forms part of the registration process.

Grid Connection Agreement (GCA)

This is a site specific agreement between the TCN and the Generation Company for connection to the grid and sets out the terms on which the Generation Company will be connected to the grid, operations and safety across the transmission network.

Ancillary Services Agreement (ASA)

This agreement is is between TCN and the Genco and governs the terms under which services shall be rendered by the Genco other than the production of electricity to ensure the operation of a stable, secure and reliable network.

D. CHALLENGES TO CLOSURE OF THE NIPP PRIVATIZATION

According to the timelines provided by the NDPHC in June 2013, the handover of the 10 NIPP plants was scheduled for June 2014. This is yet to occur due to a myriad of challenges which include:

Gas Supply Constraints

One of the biggest challenges to the completion of the privatization of the NIPP Plants is the availability of gas and this has stalled the signing of the gas supply agreements that would guarantee gas supply. The NDPHC is still in the process of sourcing gas for some of the plants and putting in place a viable contractual framework for gas supply. Currently, there is a shortfall of over one billion cubic feet of the gas required per day to operate the NIPP plants at the available capacity. This is largely due to the fact that historically gas producers were unwilling to invest in the required gas infrastructure because of the low gas prices. Also they had no guarantee of payment, even at these low prices, since the Gencos were not financially viable. [*Table 7 below depicts the current status of the NIPP Plants]*

It is anticipated that the new gas price of $2.50 /mmbtu and transmission price of $0.80/mmbtu will incentivize the gas producers to invest in the infrastructure going forward. However, gas producers have reportedly stated that gas prices would need to be even higher to incentivize local and foreign gas players, and not just the oil majors, to invest in gas processing and transportation in Nigeria.

Incomplete Gas and transportation infrastructure to the Plant

The NIPP plants are at different stages of mechanical completion. Some plants have no or incomplete gas transportation infrastructure including pipelines to convey gas purchased to fuel the plants. Some of the plants particularly in Eastern Nigeria still lack complete transmission infrastructure. *Table 7 below depicts the current status of the NIPP Plants.*

Liquidity constraints in the sector

Majority of the Nigerian Banks were involved in the PHCN privatization, providing a significant amount of financial support, thereby extracting a considerable amount of cash from the banking sector. It is now proving difficult to raise funds from these same banks for the NIPP Transaction so soon after the PHCN privatization. This is more so as the market is yet to become fully governed by the industry contracts and while the liquidity issues of the Discos remain a reality. This issue is further exacerbated by the CBN policy restricting the Nigerian banks' exposure to a sector. At this point, the preferred bidders may look to the international banks to provide the majority of the funding. However, since international banks are more risk averse than the Nigerian banks, this may lead to an increase in the cost of funding and conditions to be ful-

"Majority of the Nigerian Banks were involved in the PHCN privatization, providing a significant amount of financial support, thereby extracting a considerable amount of cash from the banking sector."

Geregu Power Plant

Table 7: *Status of the NIPP Plants*

S/N	Power Plant	Design Capacity (ISO)	Available Capacity	Completion Status	Commissioned	Gas Supply Sources	Gas Transportation Infrastructure
1.	Alaoji Power Plant (Aba in Abia State)	1131 MW	504 MW	Available Capacity is mechanically Complete and Functioning	Yes 24th March 2015 (Phase 1 - 504 MW)	• Shell Petroleum Development Company Nigeria (**SPDC**) • Total E&P • Mobil • Seven Energy - Interim Gas	• Northern Option Pipeline by Total E&P • Pressure Reduction & Metering Station, (**PRMS**) and spurline from main pipeline to Aba • Pipeline gap inside the NIPP Alaoji Power Plant
2.	Benin (Ihovbor) Power Plant	507.6 MW	450 MW	Mechanically Complete and Functioning	No	• Nigeria Petroleum Development Corporation (**NPDC)** • Pan Ocean Oil Company (**POOC**) • Chevron Nigeria Limited	• NIPP Ihovbor PRMS with a capacity of 120mmscufd • Pipeline from POOC, Ogharefe to the Escravos-Lagos-Pipeline Service (**ELPS**) • Pipeline from ELPS to the NIPP Ihovbor PRMS • Pipeline from NIPP Ihovbor PRMS to NIPP Ihovbor Power Plant • Pipeline from NPDC, Oredo to the ELPS
3.	Calabar Power Plant (Cross Rivers State)	634.5 MW	**NPA**	Mechanically Complete but only 4 out of 5 turbines are functioning	No	• Addax Adanga – Long term • Accugas/ Seven Energy and Eastern Horizon Gas Company (**EHGC**) - Interim Gas	• Calabar PRMS with a capacity of 200mmscufd, including the tie-in to the power plant gas receiving facility • Pipeline from Oron to NIPP Calabar PRMS (Still under construction) with focus on the first 25 km and interconnection facilities for interim gas supply from NGC/Oando • Pipeline construction from Oron to Addax Adanga
4.	Egbema Power Plant (Near Owerri in Imo State)	380.7 MW	**NPA**	Incomplete	Not applicable	• Addax – Izombe • NDPC – Egbema East • NDPHC – Egbema West	• Pipeline from Addax-Izombe to NIPP Egbema PRMS • Pipeline from SPDC/NPDC Egbema-East to NIPP Egbema PRMS • Pipeline from SPDC/NPDC Egbema-West to NIPP Egbema PRMS

5.	Gbarain Power Plant (Near Yenegoa in Bayelsa State)	253.8 MW	**NPA**	Incomplete	Not Applicable	SPDC	• NIPP Gbarain PRMS with capacity of 70mmscufd • Pipeline from SPDC Gas plant to NIPP Gbarain PRMS
6.	Geregu II Power Plant (Ajaokuta in Kogi State)	506.1 MW	434 MW	Mechanically Complete and Functioning	Yes – 4th October 2013	Unconfirmed	• Pipeline from NGC Geregu PRMS to NIPP Geregu Power Plant. The PRMS is connected to Oben- Ajaokuta pipeline owned by NGC • New metering skid with 125 mmscufd capacity
7.	Olorunsogo II Power Plant (Ogun State)	754 MW	450 MW	Mechanically Complete and Functioning	Yes – 20th February 2015	Unconfirmed	• Pipeline from Itoikin along Escravos – Lagos Pipeline Service to Olorunsogo
8.	Omoku II Power Plant (Rivers State)	264.7 MW	**NPA**	Incomplete	Not Applicable	• Nigeria Agip Oil Company (**NAOC**)	• Pipeline from NAOC Facility to NIPP Omoku Power Station
9.	Omotosho II Power Plant (Ondo State)	512.8 MW	450 MW	Mechanically Complete and Functioning	Yes – 19th October 2013	Unconfirmed	• Pipeline from NGC Omotosho PRMS to NIPP Omotosho Power Plant • New Metering skid with 280mmscufd capacity
10	Sapele II Power Plant (Delta State)	507.6 MW	450 MW	Mechanically Complete and Functioning	Unconfirmed	• SPDC • Seplat Petroleum Development Company	• NIPP Sapele PRMS with a capacity of 140mmscufd • Pipeline from NGC Sapele PRMS to NIPP Sapele Power Plant

Source:

1. http://www.ndphc.net
2. Presidential Task Force on Power 2014 Report
3. Technical Due Diligence Report – Fuel Gas Transportation Projects
4. http://www.punchng.com/news/jonathan-commissions-504mw-abia-power-plant/
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9. Information Memorandum - Divestment of Niger Delta Power Holding Company Limited Generation Companies, Page 20
10. http://www.punchng.com/business/business-economy/jonathan-inaugurates-434mw-geregu-power-plant/
11. http://www.ngrguardiannews.com/2015/02/jonathan-commissions-olorunsogo-power-plant/

4. TRANSITIONAL ELECTRICITY MARKET (TEM)

A. WHAT IS TEM?

One of the objectives of the electricity sector reform, which commenced in 2001 with the National Electric Power Policy (**NEPP**), is to create efficient market structures, within clear regulatory frameworks, that encourage competitive markets for electricity generation and trading. In line with this objective, EPSRA provides for a phased and strategic implementation of the power sector reforms until optimal capacity generation and a fully competitive market is achieved. Implementation of the competitive electricity market is intended to be a gradual process whereby competition is increased in four stages, namely, Pre-Transition, Transition, Medium Term and Long Term.

The Pre-Transition Stage kick started the unbundling and privatization of PHCN, which brought to an end the Government's monopoly in the power sector. Initially the TEM was due to commence on the Handover Date. However, a number of the conditions precedent to the declaration of the TEM had not been fulfilled at the time. These conditions included:

i. Development, implementation and testing by the SO and MO of the systems and procedures required to implement the Grid Code and the Market Rules;

ii. Formalization of the trading arrangements - Vesting Contracts and PPAs between the companies that will participate in the Transitional Stage Market;

iii. Publication of the Initial Transmission Usage Charge by NERC;

iv. Constitution of the initial Dispute Resolution Panel responsible for arbitrating or otherwise resolving disputes between (1) the SO or MO or Transmission Licensee and any Market Participant (2) the MO and any person who has been denied certification as a Market Participant; and (3) Market Participants to the extent that such disputes are in accordance with the Market Rules of the Grid Code; and

v. Constitution by NERC of the Initial Stakeholder Advisory Panel, responsible for reviewing the Market Rules, Grid Code, proposing and/or approving amendments on an on-going basis, and advising NERC on specific technical issues relating to the operation of the MO Administered Market.

A full list of conditions precedent to the declaration of the TEM is set out in Appendix 2 to the draft Market Rules. In addition to the conditions precedent, the deferment of the commencement of the TEM was attributed to other elements such as the lack of a cost reflective tariff, liquidity challenges of the Discos downstream and gas supply challenges faced by the Gencos upstream.

However, on the advice of NERC, on 1st February 2015, the TEM was declared by the Minister of Power. Once the TEM is effective, it would mean that the electricity market, particularly trading arrangements, will be wholly contract governed. It is now expected that there would be in place a fully cost reflective tariff that would ensure investors' full cost recovery and confidence for financing and investment in the sector based on certainty of revenues. Letters of credit required under the PPAs, Vesting Contracts and Gas Supply Agreements to backstop payment obligations under these agreements, are meant to serve as a form of guarantee of revenues for power supplied by the Gencos to NBET. NBET will be responsible in the transitional stage for entering PPAs to purchase bulk power from Gencos and IPPs, and concluding Vesting Contracts with Discos and eligible customers whereby it resells the power to them.

Source: http://www.vanguardngr.com/wp-content/uploads/2010/06/power-plant.jpg

"The Pre-Transition Stage kick started the unbundling and privatization of PHCN, which brought to an end the Government's monopoly in the power sector."

B. FACTORS CONSTRAINING THE OPERATION OF THE TEM

i. Full operation of the TEM

Following the declaration of the TEM, it was evident that the TEM would not be operational by the 1st February 2015, given the varied status of the Market Participants.

To illustrate the challenges being faced by the market participants, the Discos are required under the applicable Vesting Contracts to provide letters of credit as financial security to NBET for the trading of electricity on the TEM. However, as at 20th March 2015, 3 out of the 11 Discos had not posted letters of credit to NBET (**Source**: http://www.thisdaylive.com/articles/afdb-provides-200m-guarantee-for-nigeria-s-coal-to-power-projects/204604/).

Therefore NERC deemed it necessary to issue a Supplementary Order to provide for the effective administration and operation of the TEM in accordance with the relevant Rules, Codes and Orders in the NESI and cater to the market participants at their varied levels of readiness for the TEM.

Highlights of the Supplementary Order include:

a. The NIPP power plants, which have not yet been privatized, will enter into short-term PPAs with NBET for an initial term of 6 months which may be renewed subject to NERC's approval.

b. The NIPP Plants are required to meet their existing supply obligations to international customers up to a maximum of 300MW. The balance of energy from NIPP Plants shall be sold to the market through the respective Vesting Contracts. However, this arrangement shall terminate by 31st December, 2015, after which all energy shall be sold to offtakers through the Vesting Contracts. NBET will be responsible for any financial shortfalls that may arise from trading arrangements with international customers.

c. Gencos without effective PPAs shall be paid for their delivered energy and delivered capacity by NBET.

d. Discos that have not provided effective payment guarantees to NBET and the MO shall have their revenues escrowed for remittance according to a payment waterfall to be approved by NERC.

e. Except Kaduna Electricity Distribution Company which has been granted an extension for 6 months from the commencement of the TEM, any Disco, that has not posted payment security to activate their contracts 3 months after the commencement of the TEM, shall attract sanctions.

f. The payment of Baseline Remittances introduced by the Interim Rules shall no longer apply. All participants must make full payment of quantities settled by the MO based on invoices issued to Discos by NBET and the Service Providers Late payments will attract interest at NIBOR plus 10%.

ii. Recovery of ATC&C Losses

The recovery of ATC&C losses directly impacts the liquidity of a Disco or Genco. Therefore the recovery of ATC&C losses remains of primary concern since if not properly addressed it will continue to limit the effectiveness of the TEM. In tackling the problem of recovery of ATC&C losses, it is important that Discos take certain measures, such as: deploying adequate and functional metering systems, replacing faulty parts, equipment and transformers, strengthening preventive maintenance for effectiveness; and zero tolerance for non-payment of bills and vandalism of power installations. Implementing these measures will require a substantial amount of funding which can be raised once there is a clear path of revenue recovery.

Although it was NERC's aim when issuing the Amended MYTO 2.1 to provide a feasible ATC&C loss reduction trajectory, however by excluding collection losses from the ATC&C loss reduction targets, NERC has cast a shadows on the clear path for revenue recovery by the Discos.

iii. Six month freeze on residential tariffs

The Amended MYTO 2.1 imposed a freeze on tariff increases for residential consumers until 30th June, 2015, who constitute about 80% of electricity consumers in the country. To tackle the issue of under-recovery, it is important that the projected shortfall created by the six-month freeze be provided for through a proper cost recovery plan. NERC and the Discos must ensure that they create a balance between the cost of investment, the quality of service and the tariffs that electricity consumers are

willing and able to pay.

iv. Shortage of gas supply

Although Nigeria has the 9th largest Natural Gas reserves in the world and the largest in Africa, there is a limited supply of gas to power plants. This has continually hindered the generation of electricity in Nigeria, as most power generation companies are thermal and dependent on natural gas. One of the proposed benefits of the TEM is provided by the Gas Supply Agreements which ensure that gas suppliers deliver on their gas supply commitments to the power producers. The current Gas Suppliers include NGC, SPDC, Chevron, ExxonMobil Producing Nigeria, Total Exploration & Production Nigeria, NAOC, PanOcean Oil Corporation, Seplat Petroleum Development Company, and NPDC. Despite the fact that the TEM has created an enabling environment and fiscal framework that encourages further investment in the development of more gas reserves as well as processing and transportation facilities, access to gas remains a major challenge.

v. Vandalism

Power generation is constantly affected by sabotage and vandalism of gas pipelines and it appears that the declaration of the TEM cannot directly resolve this situation. According to press reports, Nigeria lost a minimum of N8.04 billion between January and 10th March 2015, to the incessant vandalism of the country's gas pipelines. Also, the Minister of Power confirmed that Nigeria's 3,642MW of electricity dropped to about 3,000MW due to vandalism of the ELPS in Delta State.

vi. Funding Challenge

The Discos and Gencos will now need to adhere to their contractual commitments with the BPE which include rehabilitation of plants, distribution networks, and ATC&C loss reduction. Therefore, long term funding will be required. The issues around achieving a cost reflective tariff for the Discos must be given higher priority to ensure that the Discos are able to access funding that would make the rest of the value chain bankable. Where there is cost reflective tariff, Discos can meet repayment obligations after funding has been accessed.

vii. Dearth of skilled manpower

There is the concern that power generation and distribution will not attain its desired capacity due to a lack of adequately trained human resources. Considerable financial and human resources will have to be utilized in order to recruit and train individuals that would become experts in the field. Although long term solutions have been put in place by the government through the establishment of the National Power Training Institute of Nigeria (**NAPTIN**), more efficient short term solutions will need to be implemented by both the Government and stakeholders in the NESI in order to reverse this dearth in skilled manpower.

C. EXPECTATIONS OF STAKEHOLDERS FOR THE TEM

The following are some of the expectations of stakeholders, which include the Federal Government, regulators, investors, financiers, market participants, Service Providers, and electricity consumers:

i. Enforceable Contracts

A fundamental expectation of the TEM for all stakeholders is that it will ensure strict accountability of the market participants. Under TEM, the Industry Agreements will become effective. Market Participants are obliged to commence full trading based on these Industry Agreements and will be sanctioned for failing to meet their contractual obligations to other participants. For instance, gas suppliers would be faced with contractual consequences of a failure to deliver on their gas supply commitments to Gencos, in line with the Gas Supply Agreements they have signed. In turn if the Gencos fail to meet their energy supply commitments as provided in their PPAs with NBET, they will not receive payment for energy not supplied. NBET would not be paid for power not supplied to the Discos, who will ultimately lose revenue for

failing to supply improved electricity to the end users.

ii. Full Cost Recovery

Investors are hopeful that there would be put in place a fully cost reflective tariff that would ensure full cost recovery and increase confidence for financing and investment in the sector.

iii. Certainty of Revenues

Related to enforceable contracts is the certainty of revenues. The letters of credit required under the PPAs, Vesting Contracts and Gas Supply Agreements are to serve as a form of guarantee of revenues for power supplied by the Gencos to NBET and NBET to the Discos respectively.

While these stakeholder expectations may be reasonable, they need to be managed in light of the current realities, particularly the need for a cost reflective tariff and gas supply challenges Without cost reflective tariffs and sufficient supply of gas, the value chain will be stunted, and power delivery to the electricity consumers will be negatively impacted to the detriment of

"Although Nigeria has the 9th largest Natural Gas reserves in the world and the largest in Africa, there is a limited supply of gas to power plants. This has continually hindered the generation of electricity in Nigeria, as most power generation companies are thermal and dependent on natural gas."

D. CONCLUSION

Following the privatization of the PHCN Gencos and Discos in November 2013, the move of the NESI into the TEM has become imperative to unlock the much needed funding and growth in the industry. In spite of the myriad of issues plaguing the industry, steps are being made in the right direction by the Federal Government, relevant Ministries and Agencies to bolster the stability of this very crucial industry that is key to Nigeria's economic growth. However, as highlighted above, NERC, the Market Participants and Service Providers still have much to do to boost investor confidence in the NESI.

GT 13 Gas Turbine at Ughelli Power Plant

Source: http://www.ughellipower.com/plants-facilities

QUICK FACTS

- The Facility will be implemented through 46 disbursements to Market Participants (11 Discos, 21 Gencos, 7 Service Providers, and 7 Gas Suppliers)
- Participation Agreements have been signed with 15 mandate banks approved by CBN to serve as lenders under the CBN-NEMSF
- Transaction expected to last until final disbursement within 12-18 months
- As of May 2015, a sum of 52.68 Billion Naira has been disbursed in 2 different batches to 5 Discos and 5 Gencos

A. BACKGROUND

Against the background of the Disco liquidity issues and accumulation of debt in the power sector value chain since the Handover Date, and during the tenure of the Interim Rules, the CBN, Federal Ministry of Petroleum Resources, Federal Ministry of Power and NERC sought to resolve the liquidity problems in the power sector, and at the same time phase out the Interim Period and launch the TEM.

The CBN indicated its intention to provide the CBN-NEMSF - a ten year loan to the Discos to settle the Interim Period Shortfall owed to the Gencos and gas suppliers. The Legacy Gas Debts owed to gas suppliers will also be paid as part of the facility. On its part, NERC expressed its commitment to review the MYTO such that it is cost reflective and guarantees that the Discos, who ensure payments to the rest of the NESI value chain, are able to make a decent return on investment and access working capital to meet their contractual commitments and operations.

Source: http://www.cenbank.org/FeaturedArticles/2014/articles/CBNothersSignMoUonNEMSF.asp

B. AIMS AND OBJECTIVES OF THE CBN-NEMSF

The following are the core objectives of the CBN-NEMSF:

1. To ensure the power sector is sustainable, by resolving its liquidity problems and thus, clearing up the huge debts owed within the market value chain;
2. To ensure the power sector is bankable by enabling market participants to honor their respective obligations to lenders;
3. To enable the reset of the economics within the power sector and address the financial problems resulting from the revenue shortfall, through the review of the MYTO; and
4. To facilitate the take-off of the TEM.

"On its part, NERC expressed its commitment to review the MYTO such that it is cost reflective and guarantees that the Discos, who ensure payments to the rest of the NESI value chain, are able to make a decent return on investment and access working capital to meet their contractual commitments and operations."

C. KEY PARTICIPANTS IN THE CBN-NEMSF

Table 8

PARTIES	ROLE
CBN	Co-Transaction sponsor responsible for provision of the CBN-NEMSF.
NERC	Co-Transaction sponsor responsible for issuing a revised MYTO which will be cost reflective and which will make provision for repayment of the CBN-NEMSF.
Administrator	The Administrator will administer and manage the CBN-NEMSF for and on behalf of the Refinancer.
Beneficiaries	The Beneficiaries under the CBN-NEMSF are collectively the Market Participants, Service Providers, NGC and gas suppliers, owed the Interim Period Shortfall and Legacy Gas Debts.
Collection Banks	These are the Banks with which the Discos open and maintain the Disco Feeder Collection Accounts where all payments for electricity consumed are or will be paid.
Discos	The Discos will be the Borrowers and be responsible for repayment of the entire facility, which includes funds disbursed to the Discos and funds paid directly to other Market Participants, service providers and gas suppliers.
Gencos	The Gencos will be a class of beneficiaries under the CBN-NEMSF. However the utilisation of funds received are generally tied to compliance with their performance obligations under their NESI Agreements, to ensure sustainability of the NESI.
Gas suppliers	The gas suppliers have executed a Gas Supply Memorandum of Understanding through which they have committed to supply additional gas for the Power Sector.
Lenders/Mandate Banks	These are the Deposit Money Banks approved by the CBN that will transfer the Commitment amounts to the Refinancer for the purpose of disbursement. The Commitment amounts will be approved by the CBN for each Lender to disburse to the refinancer.
Market Participants	These are the persons that have executed a Market Participation Agreement in accordance with the Market Rules for the Electricity Sector of Nigeria 2009. The Market Participation Agreement is required under the Market Rules to be signed by a person who intends to play any role or participate in the NESI, to confirm the person's participation in and undertaking to abide by the rules and regulations of the NESI.
Principal Collection Bank	This is a Collection Bank designated by a Disco to hold its Principal Collection Account which receives all payments from the Feeder Collections Accounts.
Refinancer	This is a Special Purpose Vehicle set up by the CBN and NERC for the purpose of implementing the CBN-NEMSF

D. TERMS AND CONDITIONS OF THE CBN-NEMSF

In February 2015, the CBN published its Terms and Conditions for participation by Deposit Money Banks in the implementation and execution of the CBN-NEMSF. Set out below are some of the key provisions.

Table 9

Mode of Funding	The CBN will subscribe to debenture notes issued by the Refinancer to the total sum of the Facility amount. Each Lender will then make available for the benefit of the Beneficiaries, the amount of its Commitment in the Facility to the Refinancer.
Refinancing	The Refinancer will refinance the Facility by repaying the Lenders the portion of their commitment in accordance with the transaction agreements duly executed.
Facility Amount	N 213, 417, 694, 034. 34
Currency	Naira
Tenor	10 years
Moratorium	There shall be a moratorium period of 12 months on the principal amount.
Charges	The Facility will attract an all-inclusive charge of 10% per annum on the outstanding balance payable monthly in accordance with the Transaction Documents.
Disbursement	All amounts to be disbursed under the Facility must be confirmed by NERC and the MO, and approved by the Refinancer. The Refinancer shall disburse the Facility strictly for settlement of all Legacy Gas Debts owed to NGC and the gas suppliers and settlement of all IRP Debts owed to the Beneficiaries.Disbursement shall only be made on the fulfilment or waiver of all Conditions Precedent in accordance with the Disbursement Agreements.
Repayment	Repayment of the Facility shall be in accordance with the repayment schedule set out in the Amended and Restated Disco Disbursement Agreement. All transfers made by the Principal Collection Banks to the Refinancer in repayment of the Facility shall be made without set-off, deductions or counterclaim.
Transaction Documents	The Transaction Documents include but are not limited to the following: 1. Deed of Debenture 2. Participation Agreement 3. The Disbursement Agreements a. The Genco Disbursement Agreement b. The TCN Disbursement Agreement c. The Amended and Restated Disco Disbursement Agreement d. The Genco Novation Deed 4. Disco Disbursement Refinance Agreement 5. Accounts Administration Agreement 6. Liability Transfer and Debt Settlement Agreement

Source: http://www.cenbank.org/Out/2015/FPRD/CBN-NEMSF%20Terms%20and%20Conditions%20Final.pdf

6. POWER SECTOR OPPORTUNITIES

A. INTRODUCTION

Nigeria's population is the seventh largest in the world (**Source**: http://www.thisdaylive.com/articles/leveraging-on-population-attributes-for-growth/186273/), and consists of approximately 160 million people (**Source**: www.nigerianstat.gov.ng*)*. The United Nations' statistics reveal that Nigeria's population will reach nearly 230 million within the next 20 years. Nigeria is, therefore, a viable destination for investments as a result of its numbers, and its influential position in the African continent.

Despite the fact that $2billion had been injected into the power sector in the past two decades, the ongoing reform in the power sector still requires high turnouts of investments. To attain the desired transformation in the power sector, the Federal Government estimates that about $3.5billion per annum would have to be expended in the next 10 years (**Source**: Federal Government Country Report to the Rio + 20 Summit 2012; https://sustainabledevelopment.un.org/content/documents/1023nigerianationalreport.pdf). It is, therefore, without gainsaying, that there will be vigorous large and intermediate scale investments in the various parts of the power sector supply chain within the next 10 years.

Currently, only 51% of Nigerians have access to electricity, but the Federal Government aims to increase this to 75% by 2020 (**Source**: www.power.gov.ng). This is expected to be achieved by connecting an average of 1.5 million households annually to the national grid.

B. OBJECTIVES OF THE POWER SECTOR REFORM — INVESTMENT PERSPECTIVE

The ultimate objective of the power sector reform is to ensure that the Nigerian power sector becomes the sector which enables economic growth - bringing about jobs, improvements in social welfare, and development of other infrastructure.

Through privatization, the Federal Government aims to achieve a paradigm shift in the power sector, from the position of significant government ownership and control, to a largely privately driven Nigerian Electricity Supply Industry (**NESI**), in accordance with the Electricity Power Sector Reform Act (**Source**: www.power.gov.ng).

Below is a table showing the current formation and required formation of the ownership/control of the power sector value chain. The table below highlights where the power sector is, and where it aims to be:

Table 10

Power sub-sector	Ownership		Operational control	
	Current	Required	Current	Required
Gas Production	Mixed (i.e. IOCs and FG)	Private	Largely Private	Largely private
Gas Transmission	Largely FG	Mixed	FG	Largely private
Power Production	Mixed	Largely private	Mixed	Largely private
Power Transmission	FG	FG	Transitioning to Private	Private
Power Distribution	Largely Private	Private	Largely Private	Private

As an offshoot from the power sector reforms, the NESI aims to achieve the following milestones:

- Start the recovery of redundant generation and distribution capacities;
- Commence expansion projects by the new owners of the privatized Gencos and Discos ;
- Complete the sale of the 10 NIPP generation plants;
- Implement the Transmission Expansion blueprint;
- Conclude gas infrastructure projects; and
- Facilitate the establishment of new IPPs.

To achieve these objectives, the role of private sector investments cannot be over-emphasized.

C. INVESTMENT OPPORTUNITIES

INFRASTRUCTURE DEVELOPMENT EXPANSION

Undoubtedly a substantial level of infrastructure development is required in the power sector value chain to meet the Federal Government's goal of 40,000MW by 2020. However, it seems that 20,000MW may be a more achievable target. The Federal Government, through the Federal Ministry of Power, has signed a number of MOUs in the past years to ensure an increase in power generation. For infrastructure expansion, sources of funding include International Development Banks, multilateral funding sources, Public Private Partnerships, and Local Capital Market.

The investment opportunities in the power sector infrastructure fabric include as follows:

Power generation

In the past year, Nigeria's average level of power generation has been below 3,000MW, out of an available capacity of 6000MW. The Federal Government aims to ensure that by 2020, Nigeria's power generation capacity will exceed 40GW, and the projected energy utilized will consist of 69% thermal generation, 17% Hydro, 10% Coal (**Source:** http://www.nigeriadevelopmentandfinanceforum.org); and about 10% renewable energy (**Source:** www.power.gov.ng; www.scribd.com).

Other pertinent initiatives for generation include the sale of NIPP (4775MW), establishment of new IPPs (2.6GW), and the promotion of rural electrification.

Nigeria is aiming to grow her electricity generation capacity by introducing coal-to-power initiatives. Some coal-to-power projects have received backing from the Federal Government, such as the 500MW One Nation Energy Platform, 1,000MW Atlas Petroleum and 1,200MW Zuma Power (**Source**: http://www.thisdaylive.com/articles/afdb-provides-200m-guarantee-for-nigeria-s-coal-to-power-projects/204604/).

Power transmission

The transmission network in Nigeria is currently inadequate, and thus, incapable of transmitting power in the required capacity. The transmission network system, therefore, requires a significant amount of investment for the transformation of the cross-national grid, the expansion of the network, and deployment of substations across Nigeria. The TCN provides the vital transmission infrastructure between the generating stations and the Disco Feeder Substations. The entire infrastructure is essentially radial, without redundancies thus creating inherent reliability issues. Therefore, there are investment opportunities in terms of provision of critical components or of the infrastructure which will increase functionality and reliability of the system, and provide a form of backup or fail-safe.

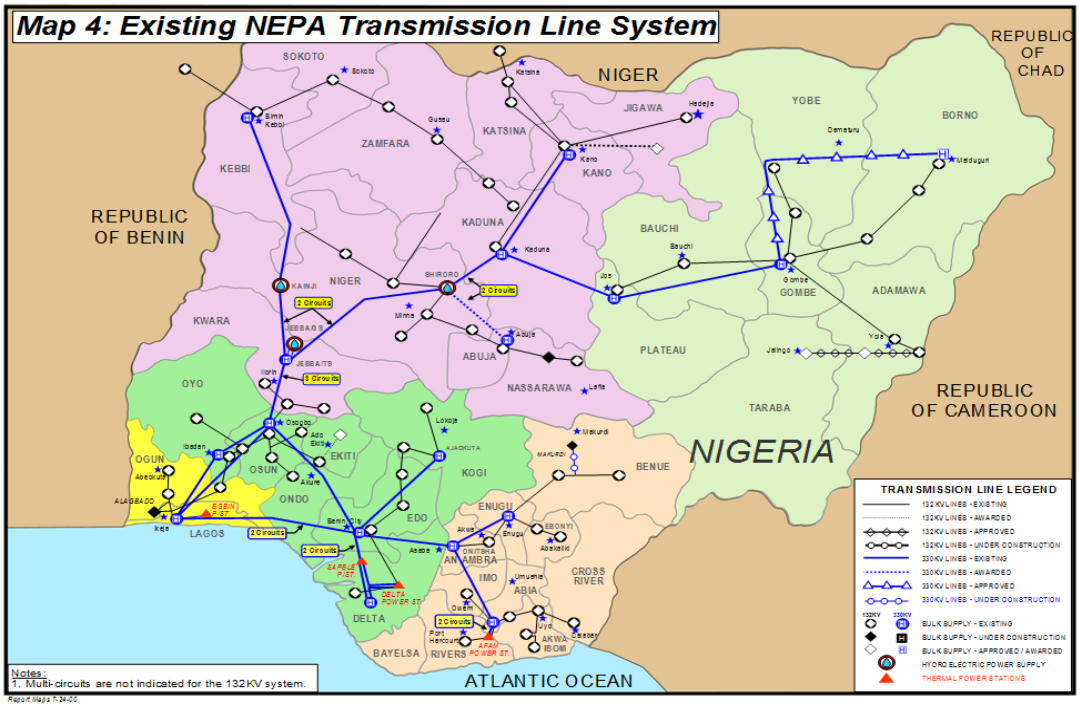
It is noteworthy, that the Presidential Action Committee on Power has prepared a Transmission Expansion Blueprint, which essentially requires the Federal Government to expand the transmission capacity in Nigeria to carry 16,000MW. The Federal Government has projected that expanding the transmission capacity would cost the sum of $2.8billion. (**Source**: http://www.punchng.com).

To further ensure a reduction of huge transmission losses, it is also projected that the sum of $5billion would be expended within the next 5 years for a 765KV Super Grid (Source: http://www.nigeriadevelopmentandfinanceforum.org). By the year 2020, it is expected that the Grid would have been expanded to 40GW (**Source**: www.power.gov.ng).

The Private Sector can participate in the following development opportunities which are necessary to improve the network:

- Transmission Network expansion;
- Dualization of critical lines to create relief;
- Relief for congested segments of the grid;
- Implementation of the Super Grid concept which will cost approximately $5bn and is unachievable by the FGN alone;
- Vegetation management;
- Human capacity development; and
- Local manufacture of components.

What would be crucial for private sector investment would be the contractual and regulatory framework for the investors to recoup their investment. The TCN therefore needs to have a tariff that encourages investment in transmission.



Source: Presentation by Engr. A.S.A. Bada, Senior Special Assistant on Transmission to the President

Power distribution

Following the revalidation of the Baseline ATC&C losses of the Discos, the Discos are now mandated with the task of reducing their ATC&C losses in accordance with set targets. A substantial amount of capital expenditure is required to achieve these targets. This is an opportunity for debt, equity and commercial investors.

"Undoubtedly a substantial level of infrastructure development is required in the power sector value chain to meet the Federal Government's goal of 40,000MW by 2020."

Source: http://www.transez-nigeria.com/wp-content/uploads/2013/02/1343.jpeg

Table 11: Snapshot of MOUs signed by the Federal Ministry of Power

S/N	MOU Partners	Purpose
1.	General Electric (2012)	For General Electric to invest up to 15% equity in power projects, summing up to 10,000MW capacity by 2020
2.	Siemens AG (2012)	For the facilitation and promotion of private sector investment, summing up to 10,000MW capacity
3.	Electrobras (2012)	For the facilitation and promotion of private sector investment, summing up to 10,000mw capacity
4.	Daewoo E&C (2012)	For the facilitation of development, financing, procurement, manufacture, commissioning and operations of 10,000MW capacity
5.	EDF/ETDE (2012)	For the promotion of the power sector investments by sponsoring feasibility studies for approved projects.
6.	US-Exim Bank (2012)	For the US-Exim Bank to provide an investment window of up to $1.5billion for investors willing to invest in the power sector.
7.	Koztek Electric and Energy Technologies, Turkey (2012)	For Koztek to build power generation and transmission infrastructure in Nigeria, and provide adequate training for employees by adhering to the local content provisions.
8.	Power Africa, a US Agency for International Development (USAID) Initiative	For the mobilization of affordable and long term financing for capital and operational expenditure requirements to generation and distribution companies to accelerate elec-
9.	Multi-Lateral G-G Agency Support (2013)	For the promotion of the development of small/medium hydro-power plants as embedded generation for rural communities.

Gas supply infrastructure

A high percentage of associated gas which is not flared in Nigeria is usually exported as liquefied natural gas, and natural gas liquid. This is because there is insufficient infrastructure to appropriately utilize the gas and/or transport the gas. This in turn has led to insufficient gas supply to thermal stations in Nigeria, and has proven to be one of gravest challenges to the NESI. The effect on the NESI is significant, and pales in comparison to the Nigerian gas reserves, estimated to be 187 trillion cubic feet of proven natural gas reserves and 600 trillion cubic feet of unproven gas reserves, (**Source:** http://ng.boell.org/sites/default/files/uploads/2014/11/facts_about_nigerias_gas.pdf).

However, the Federal Government has begun to put in implement its plans to expand the gas infrastructure, and to incentivize gas suppliers to supply gas to the NESI. For example, the NNPC has initiated a number of gas infrastructure projects with the objective of delivering gas to NIPP gas fired power stations.

The NGC, a subsidiary of the NNPC, owns and operates the main pipeline transmission systems in Nigeria and acts as the major gas merchant. NGC's pipeline infrastructure comprises of two unintegrated pipeline networks: the Alakiri-Obigbo–Ikot Abasi Pipeline, otherwise known as the Eastern Network, and the ELPS, also known as the Western Network. The NGC has commenced its own gas infrastructure expansion projects, and is highly dependent on Public Private Partnerships as a source of funding. For instance, in January 2015, through an NGC/NNPC-led initiative, Seven Energy's gas supply to Calabar was integrated with the NGC's facilities to supply 60 MMscfd of gas to AlaojiPower Station. The NGC has also undertaken construction of permanent gas metering facilities at Alaoji Power Station (**Source**: Presidential Task Force on Power 2014 Year

-in-Review Report).

At present, the outlook for future gas supply/infrastructure development appears promising. Notably, the Federal Government's' construction of the Calabar-Umuahia-Ajaokuta pipeline and the Aba-Enugu-Gboko pipeline is underway. Work is also being done to increase the capacity of the ELPS from 1 bcf per day to 2.2 bcf per day.

Renewable Energy

Renewable Energy in Nigeria remains under-utilized. The National Energy Policy 2003 states that Nigeria will explore the use of renewable energy sources, such as hydro, solar, wind, biomass amongst other sources of renewable energy. Unfortunately, the initiative has not been vigorously pursued.

In view of the power sector reform, the current projection is that by 2025, 18% of the total electricity generated in Nigeria will have a renewable energy source which is also projected to increase by 2% within a 5 year period. Based on the Renewable Energy Master Plan of 2006, the Federal Government projected that Nigeria will generate 100MW of small hydropower by 2015, which will increase to 760MW by 2025, 300MW of solar photovoltaic (**PV**) capacity by 2015, which will increase to 4000MW by 2025; 40MW of wind power capacity by 2020; and 30MW of biomass-fired capacity by 2020 (**Source**: www.power.gov.ng). In total, it is projected that Nigeria would generate about 30,000MW from renewable sources to augment supply from the national grid within the next 10 years. The 2015 targets for hydropower and solar PV capacity are not near accomplishment. It is left to be seen how Nigeria will fare in achieving the 2025 targets. If there can be more private sector investors in renewable energy sources, those targets may become achievable after all.

Other opportunities available in the Renewable Energy power generation include:

- funding and technical support for the initial Renewable Energy project implementation, including pre-feasibility and feasibility studies, and load profiling and forecast for remote and off-grid locations;
- establishment of Solar PV grid-tied systems;
- supply of renewable energy equipment and accessories;
- Engineering Procurement, and Construction contracting opportunities for projects;
- manufacturing of solar panels and small hydropower equipment;
- enhancement of hydro power potentials; and
- general capacity building.

Notably, the following initiatives have been implemented in the NESI, to incorporate renewable energy in the new energy generation mix:

- The Energy Commission of Nigeria, under the supervision of the Federal Ministry of Science and Technology, has developed a draft National Renewable Energy and Energy Efficiency Policy (March 2014) passed in 2015, which is expected to drive the development of Renewable Energy resources in Nigeria;
- In June 2012, NERC published Feed-in-tariffs for most renewable energy sources, which provide investors cost recovery and a return on their investment
- NBET is developing a contractual framework for offtakers of renewable energy, including renewable PPAs for solar energy.
- The Rural Electrification Agency has been established to promote renewables in rural areas.
- NERC has developed regulation to promote embedded power generation which includes embedded renewable power generation in distribution networks.

Financing

The first phase of the privatisation exercise of PHCN, which involved the carve-out of the Successor Companies from PHCN, was funded mainly by local banks. This phase involved acquisition financing of about $3.3billion, and it is estimated that $4.28 billion would be expended as rehabilitation and capital expenditure in the future. Congruently, the second phase of the privatisation exercise, which involves the sale of the NIPP Power Plants, requires over $3.8 billion. The sale involves the divestment of 80% equity in 10 NIPP Power Plants with a total capacity of 4,775MW. The assets of these Plants include 39 Gas Turbine Generators.

However, due to single obligor

limits imposed by the CBN, each local bank has a limit to which they are able to invest in the Nigerian power. Therefore this presents an opportunity for international banks to invest in the rehabilitation and capital expenditure of the Successor Companies as well as in the NIPP acquisition. Notably, the African Development Bank announced recently its commitment of a $200 million Partial Risk Guarantee to support coal-to-power investment in Nigeria, which will boost Nigeria's efforts to diversify its sources of electricity generation (**Source**: http://www.thisdaylive.com/articles/afdb-provides-200m-guarantee-for-nigeria-s-coal-to-power-projects/204604/).

Local banks are not foreclosed from these opportunities, to the extent that they have not reached their single obligor limit. Also, many international banks still prefer to on lend through Nigerian banks. Therefore the Nigerian banks can still play a major role in the second phase of the privatization process.

Regulations on National Content Development for the Power Sector 2014

On 24th December 2014, pursuant to sections 32(1) and 96 EPSRA, NERC passed the Regulations on National Content Development for the Power Sector (**the Regulations**). Section 32 (1) specifies the functions of NERC which include the creation, promotion and preservation of efficient industry and market structures, and ensuring the optimal utilization of resources for the provision of electricity services. Section 96 gives NERC the power to make regulations as are necessary. The Regulations apply to all licensees of NERC, and the objectives of the Regulations are as follows:

- Ensuring deliberate utilization of Nigerian human and material resources, goods, works and services in the industry;
- Opening of the NESI at all levels of its complexity to involve Nigerian people and expertise;
- Building capabilities in Nigeria to support increased investment in the industry; and
- Leveraging existing and future investment in the NESI to stimulate the growth of Nigerian and Nigeria-located enterprise.

Under the Regulations, priority is to be placed on the employment of Nigerian workers, technologies and consultants, over their foreign counterparts. Nigerians are to be given precedence in the general award of contracts, and rendering of professional services such as insurance businesses, legal advisory services, financial services and engineering. Regulation 8 requires licensees to maintain a Nigerian Content Plan for major projects. Under Regulations 11 and 12, licensees are also required to prepare and implement an employment and training plan, a technology acquisition plan, and report on the implementation of these plans to NERC.

As a result of the dearth of investment in the power sector, licensees are in dire need of skills, expertise, man power and technological know-how, which unfortunately cannot always be provided by the indigenous companies or workforce. Under Regulation 9 (g) where there is inadequate local capacity for any contract to be undertaken, NERC may grant in its discretion approvals for waivers to adopt foreign expertise for up to 3 years.

Investment opportunities abound for foreigners and indigenous companies as a result of the Regulation. Foreigners (or specialized indigenous experts) may take advantage of the local content obligation, specifically in the following areas:

- providing specialized training for electricity industry, technicians and operators;
- assembling plants for intermediary power equipment and accessories;
- advising in regulatory and consumer education initiatives;
- providing power sector specific equipment testing, calibration and logistic services; and
- devising energy efficiency initiatives and products (amongst others).

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. In discharging this mandate, the Ministry is guided by the provisions of the NEPP, EPSRA, 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 NERC on the power sector which NERC has an obligation to comply with except where such policy directions conflict with the EPSRA 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. Its statutory mandate is the strategic planning and co-ordination of National Policies in the field of energy in all its ramifications.

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 EPSRA. NERC is the independent regulator of the electricity industry in Nigeria. It 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 include:

- Providing a formal independent regulatory framework for the electricity industry;
- Ensuring sustainable growth, development and stability of the power sector;
- Boosting investor confidence while protecting the interests of consumers;
- Promoting competition within the industry;
- Setting and enforcing quality standards;
- Enforcing consumer service obligations;
- Providing all necessary regulatory functions for the electricity industry;
- Regulating prices paid for electricity and ensuring that they are sufficient to allow the licenses to finance their activities and allow for responsible earnings for efficient operation;
- Ensuring safety, security, reliability, and quality of service in the production and delivery of electricity to consumers;
- Creating, promoting and preserving an efficient industry and market structures and ensuring optimal utilization of electricity resources;
- Maximizing access to electricity services by promoting and facilitating consumer connections to distribution systems in both rural and urban areas;
- Ensuring that an adequate supply of electricity is available to consumers;
- Ensuring that regulation is fair and balanced for licenses, consumers, investors, and other stakeholders;
- Licensing and regulating persons engaged in the generation, transmission, system operation, distribution, and trading of electricity;
- Approving amendments to the Market Rules;
- Monitoring the operation of the electricity market.

Source: http://energymixreport.com/wp-content/uploads/2013/06/Transco-lines.jpg

OTHER REGULATORS

A. FEDERAL MINISTRY OF WATER RESOURCES

Section 9 of the Water Resources 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. Thus a water license would be required to undertake a hydro power project.

In line with the general policy directive of Government to increase energy supply to meet the nation's energy demands, the Federal Ministry of Water Resources is collaborating with the Federal Ministry of Power to foster this directive. While the Ministry of Power will handle the power generation component of the collaboration, Ministry of Water Resources will handle 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 (NIWA)

NIWA is a parastatal of the Federal Government under the supervision of the Federal Ministry of Transport. NI-WA regulates the navigation of the inland waterways. NIWA also has the responsibility for planning, monitoring and advising the Federal Government on inland waters. A permit or license must be issued by NIWA where utility lines would cross the inland waterways or for projects requiring water intake such as hydro power projects.

C. RURAL ELECTRIFICATION AGENCY (REA)

REA was established under section 88 EPSRA. REA's mandate is 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 expansion of the grid to rural areas, development of isolated and mini grid systems, and renewable power generations.

REA also administers the Rural Electrification Fund. Through public and private sector participation, the Fund is to be used to promote, support and provide rural electrification programmes, with a view to expanding the national grid and developing off-grid electrification among others.

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

The Hydro Electric Power Producing Areas Development Commission Act 2010 established HYPPADEC to manage the impact of ecological issues due to the operations of dams and hydroelectric power activities in power producing areas. HYPPADEC seeks primarily to improve the plight of people in host communities where dams and other energy infrastructure are located. Hydro power Gencos are required to pay 30% of their revenue into a fund maintained by HYPPADEC. The Hydro Electric Power Producing Areas Development Commission (Amendment) Bill of 2012 which was passed by the National Assembly in February 2012 expands the list of communities affected by the activities of hydroelectric Gencos. The Bill also reduces the level of contributions to be made by Gencos to the fund to "*10% of 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. An alternative way of interpreting this requirement is that the Federal Government and Hydro Plants will make equal contributions of 10% of their revenue. Nevertheless, the President is yet to assent to the Bill.

E. ELECTRICITY MANAGEMENT SERVICES LIMITED (EMSL)

EMSL is an offshoot of the Electrical Inspectorate Services Department (**EISD**) of the Federal Ministry of Power that existed before the power sector reforms. The EISD had a full complement of technical staff, laboratory and test equipment spread across the country.

EMSL was created to take over some non-core professional, operational and subsidiary services and assets of the PHCN and its Successor Companies. These assets, such as the engineering laboratories, meter test stations, and central storage for electrical equipment and materias, were excluded from the facilities sold to the private sector investors under the PHCN privatization. Other assets handed over to EMSL include the central workshop where transformers are repaired

and nuts and bolts manufactured, central laboratories, and the printing press where electricity bills and other important documents are printed.

The management team of EMSL was inaugurated on 10th September 2013 on the approval of the President.

The establishment of EMSL was borne out of the need for a professional Government agency to close up technical gaps that may be created during the process of power sector reform. The mandate of EMSL includes providing all needed ancillary, technical and support services for improved power production and supply in the NESI. These services include inspection testing and certification of all electrical equipment and materials to ensure stability of the power system and safety of life and power assets.

Other functions of the company include:

- Providing the platform for standardisation in the industry;
- Ensuring through EMSL inspecting engineers, that all imported electrical appliances, materials and equipment meet the required standards;
- Archiving the power sector data and information management;
- Facilitating logistics services for the movement of generation, transmission and distribution equipment from ports to site and also transportation of damaged equipment to EMSL's repair workshop; and
- Providing storage facilities for all electric power sector players and other related businesses.

There is a proposed private member bill, Nigeria Electricity Management Services Authority Bill 2014 (**NEMSA Bill**) in the pipeline that seeks to convert the EMSL into a full-fledged technical regulatory authority called the Nigeria Electricity Management Services Authority (**NEMSA**). If the NEMSA Bill is signed into law, NEMSA will replace, and assume the role of EMSL. Although the NEMSA Bill has the full support of the Standards Organisation of Nigeria and the Nigeria Society of Engineers, it has been heavily opposed by the BPE and NERC on the grounds that in some respects NEMSA will duplicate the regulatory role of NERC.

F. TRANSMISSION COMPANY OF NIGERIA

TCN was incorporated in November 2005 and is a product of the merger of the Transmission and Operations sectors on 1st April 2004. TCN is one of the 18 companies unbundled from PHCN. As such, the company was issued a transmission license on 1st July 2006.

TCN's licensed activities include: electricity transmission, system operation and electricity trading which is ring fenced. TCN is responsible for evacuating electric power generated by the Gencos and wheeling it to Discos.

Manitoba Hydro International took charge of TCN in a $24.7 million contract that is expected to run for three years until 2015 with a possible extension of two years. The Government is currently considering the possibility of extending the contract which is aimed at improving the electricity transmission system. TCN operates as the TSP, the SO and the MO. A key objectives for Manitoba Hydro International is to re-organize TCN such that the TSP becomes a separate entity from the MO and SO allowing the TSP to become a privatized commercial company.

System Operator (SO)

The SO operates the Grid Code for the NESI. The SO has the responsibility for ensuring through planning, dispatch and control of the grid that the transmission grid lines are reliable Ultimately the SO is responsible for maintaining technical stability in the electricity market. Notwithstanding the merger of the TSP and SO in the TCN, the TCN is still required under the EPSRA to obtain a system operator license from NERC. However, as stated above the EPSRA contemplates that when the electricity market is fully developed the SO will be devolved into an independent body separate from TCN. Other responsibilities of the SO are:

- Controlling grid frequency and voltage;
- Economic dispatch of generating units;

- Allocating power loads in times of insufficient generation;
- Coordinating all planned outages for the maintenance of system equipment;
- Designing, installing and maintaining Supervisory Control and Data Acquisition and communication facilities for effective grid operations;
- Procuring & managing ancillary services;
- Enforcing the Grid Code and the operational procedures; and
- Performing post fault analysis of all major grid disturbances.

Market Operator (MO)

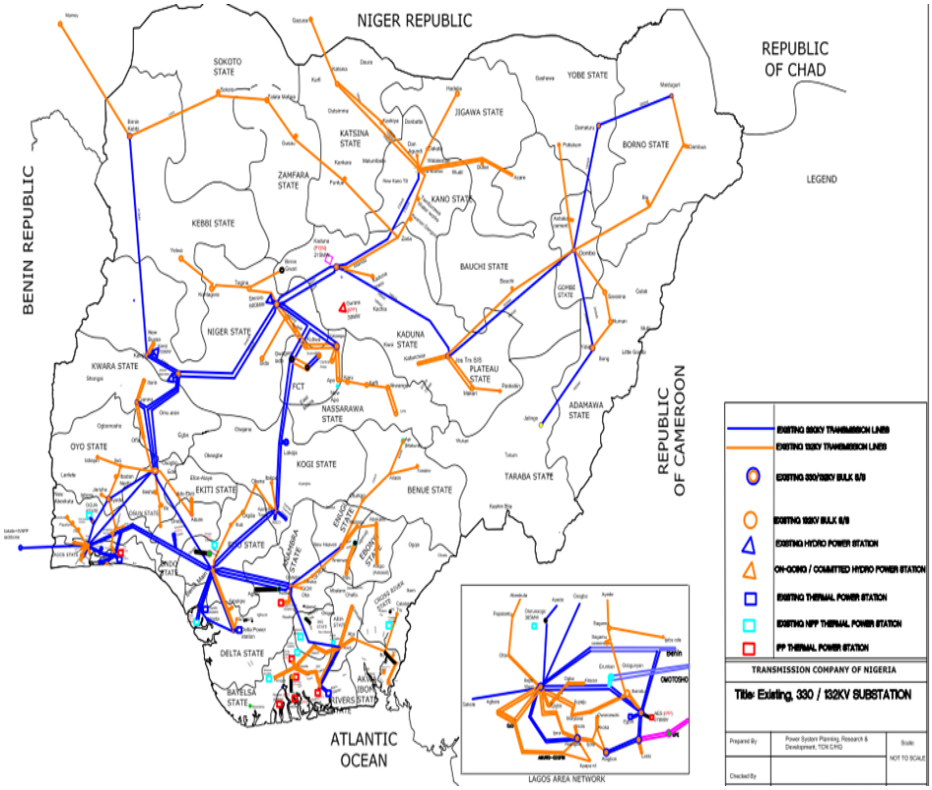
The MO is responsible for the administration of the Electricity Market, promoting efficiency and where possible competition. Other roles of the Market Operator include:

- Implementing and administering the Market Rules, and drafting and implementing the Market Procedures;
- Administration of the Commercial Metering System by 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.

Transmission Service Provider (TSP)

The TSP refers to the Transmission Unit of TCN responsible for the national interconnected transmission system of Nigeria and providing open access transmission services.

It is the TSP's role to develop the Transmission Grid to new areas, and maintain the infrastructure in the Grid.



The National Grid

The Transmission system in Nigeria comprises 330 kV and 132 kV circuits and substations.

Source: http://www.nsong.org/

Key legislations and regulations guiding the Nigerian Power Sector

- The 1999 Constitution of the Federal Republic of Nigeria
- The Electric Power Sector Reform Act 2005
- Estimated Billing Methodology 2012
- NERC Business Rules 2006
- NERC (permit for Captive Permit for Captive Power Generation) Regulation 2008
- NERC Connection and Disconnection Procedures for Electricity Services, 2007
- NERC Regulation on Embedded Generation 2012
- NERC Application for Licence (Generation, Transmission, System Operations, Distribution and Trading) Regulation 2010
- NERC Regulation for Independent Electricity Distribution Networks 2012
- NERC Licence and Operating Fees Regulation 2010
- NERC Regulation for the Procurement of Generation Capacity, 2014
- NERC Customer Service Standards of Performance of Distribution Companies 2007
- Rules for the Interim Period between completion of Privatization and the start of the TEM, 2013
- NERC Guidelines for Certification of Metering Service Providers and Related Matters 2013
- Meter Reading, Billing, Cash Collections and Credit Management for Electricity Supplies
- Nigerian Electricity Supply and Installation Standards Regulations 2015
- NERC Supplementary Order on the Commencement of TEM 2015
- NERC (Methodology for Estimated Billing) Regulations, 2012
- NERC Customer Complaints Handling Standards and Procedures 2006
- NERC (Methodology for the Determination of Connection Charges for Electricity Supply) Regulations 2012
- Regulations on National Content Development for the Power Sector 2014
- Regulations on Procedure for Electricity Tariff Reviews in the Nigerian Electricity Supply Industry 2015
- NERC Distribution Code
- NERC Grid Code
- NERC Metering Code
- NERC Health and Safety Standards Manual 2008
- Nigerian Electricity Health and Safety Code 2014
- Nigeria Electricity Supply Industry Market Rules, December 2014
- Metering Market Procedure
- Connection Methodology
- Metering Code Volume 2
- NERC Guidelines for obtaining Clearance Certificate for the Importation of Generating Sets and Related Matters 2011
- NERC (Acquisition of Land and Access Rights for Electricity Projects) Regulations 2012
- NERC Reporting Compliance Regulation 2009
- NERC Investment in Electricity Networks Regulation 2015
- Electricity Industry (Enforcement) Regulation 2014

The Codes, Standards and Manuals; Guidelines and Regulations issued by NERC can be downloaded here, here and here respectively.

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
1	**Captive Generation**	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 3rd party. The NERC Captive Power Generation Regulation reinforces the definition in the EPSR Act and goes to define *captive power generation* to mean generation of electricity **exceeding 1 MW** for the purpose of consumption by the generator and which is consumed by the generator itself and not sold to a 3rd party. The Captive Power Generation Regulations also define a *captive power plant* to mean a power plant of over 1 Mw in capacity set up by the generator for its own.	• Ensures optimal use of power generated as there are no issues with technical and commercial losses. • Industrial customers 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.	• A permit holder must apply for and receive prior writ-ten consent of NERC before sup-plying power **not exceeding** 1 Mw to an off-taker. A permit holder who intends to supply power **exceeding 1 Mw** to off-taker must apply for a generation license. • The price of grid power is cheaper. • Lack of special incentives to encourage captive generation.	• Off Grid that is, power is not evacuated on the National Grid. • No distribution infrastructure required.

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
2	**Embedded Generation**	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. 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.	• Backup or bonus to on-grid power projects. • Reduces technical and collection losses because of proximity to the distribution system. • More power supply, more cash flows and more capital flows and more customers for the Discos. • Helps in deepening the electricity market and ensures more bankable deals • Creates more options for industrial consumers. • Introduces competition in the market.	• Embedded generation projects may be less bankable because distribution licensees currently lack liquidity to commit to a Power Purchase Agreement. • Connection to the distribution system of a distribution company is dependent on the maximum embedded generation capacity allowable by the distribution license. • 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.	**<u>Specific rules when applying for an Embedded Generation</u>** • The prospective licensee is to first apply to the NERC for permission and they must satisfy certain conditions prior to approval by the Commission. • 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.

S/N	POWER GENERATION OPTION	DEFINITION OF POWER GENERATION OPTION	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
3	**IPP Off-Grid**	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.	• Reliable way of meeting the electricity needs of industrial customers. • Adds new generation capacity to meet the rapidly increasing demand for electricity. • Industrial consumers can have the option of choosing the most suitable suppliers for them. • Potential market for power supply for housing estates, industrial estates/ clusters and telecom installations.	• 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. • Constraints with accessing gas for gas fired plants • Additional cost as IPP would need to invest in distribution infrastructure.	
4	**IPP On-Grid**	This is a privately funded power generation plant where the power generated is evacuated on to the national grid. It is suitable for large scale power projects, but may be subject to capacity needs and system constraints.	• 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 guarantee the off-take of power produced.	• High cost of financing. • The IPP may require partial risk guarantees. • 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.	• 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.

NIGERIA POWER SECTOR AT A GLANCE: INDEPENDENT ELECTRICITY DISTRIBUTION ("IEDN") OPTIONS

An IEDN is a distribution network not directly connected to a transmission system operated by the System Operator. Put differently, an IEDN is a Distribution Company other than the Successor Distribution Companies.

S/N	IEDN OPTION	DEFINITIONS	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
1.	**Embedded IEDN**	This is an IEDN connected to a distribution network that is connected to the transmission system operated by the system operation licensee. Embedded IEDN Operator is essentially to support the existing Distribution Company in the supply of power to end users within a geographical area.	• Maximize access to electricity services particularly for the successor distribution companies. • Reduction of distribution congestion to the benefit of consumers • Incentivizes investments in the distribution networks. • Island arrangements i.e. ring fencing a section of willing paying customers of a Disco could be commercially viable. • Cheaper than the Isolated Off-Grid (Rural &Urban) IEDN as the successor distribution company connected to the embedded IEDN shall be responsible for the procurement, certification, installation and maintenance and vending of all meters in the embedded IEDN.	• This license shall be issued only when there is no existing distribution system within the geographical area to be served by the proposed IEDN Operator or where the area is poorly serviced. • Tariff would have to make commercial sense to an Embedded IEDN Operator given capital outlay required and the liquidity issues currently being faced by Discos	• Where an Embedded IEDN does not have a generator, it is required by NERC regulations to enter into a service agreement with the distribution company supplying the IEDN electric power. • Cognizance is taken of renewable energy of a feed in tariffs. • An IEDN signs connection agreements with every user who accepts to connect to the IEDN and shall disconnect at the request of the IEDN. Eligible customers shall be required to pay a Distribution Use of System Charge to the IEDN

S/N	IEDN OPTION	DEFINITIONS	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
2.	**Isolated Off -Grid Rural IEDN**	This is an IEDN in a rural area which is not connected to a distribution network that is connected to the transmission system operated by the system operation licensee. A rural area is any area of the country not existing within 10km from the boundaries of an urban area or city and which has less than 20000 inhabitants or population density is less than 200 per square kilometer and which is at least 20km from the nearest existing 11KV line.	• In line with the rural electrification plan which seeks to promote development of off grid electrification and ensure that the inhabitants of the rural areas have access to access to electricity. • The IEDN Operator can apply to the Rural Electrification Agency for financial support in developing his project.	• There will have to be an existing generator with the network who will supply power to the IEDN Operator for distribution to its customers. Where there is no existing generator, IEDN Operator will need to invest in generation infrastructure and also secure gas for the generators. This will increase the cost of financing which may not make it worthwhile for the Operator. • Strong likelihood of substantial collection losses as the inhabitants in rural areas are often low income earners and the Rural Electrification Fund is not to be used as subsidies for consumption in these areas.	The EPSRA establishes a Rural Electrification Fund to promote and support rural electrification programmes. Purpose of the fund include: • Maximizing the economic, social and environmental benefits of rural electrification subsidies; • Achieving more equitable regional access to electricity • Promoting expansion of the grid and development of off-grid electrification • Stimulating innovative approaches to rural electrification

INDEPENDENT ELECTRICITY DISTRIBUTION ("IEDN") OPTIONS

S/N	IEDN OPTION	DEFINITIONS	ADVANTAGES	DISADVANTAGES	OTHER INFORMATION
3.	**Isolated Off-grid Urban IEDN**	This is an IEDN in an urban area which is not connected to a distribution network that is connected to the transmission system operated by the system operation licensee.	• Maximize access to electricity services • Reduction of distribution congestion to the benefit of consumers • Promotes competition in the market particularly in areas which are poorly serviced. • Investor has considerable control of tariff (subject to the approval of NERC) and revenue collection provided that customers are willing to pay for the service.	• This license shall be issued only when there is no existing distribution system within the geographical area to be served by the proposed IEDN Operator or where the area is poorly serviced. • High cost in connecting customers as the IEDN Operator shall be responsible for the procurement, certification, installation and maintenance and vending of all meters in its network. • IEDN License is subject to additional regulatory hurdles as NERC has to be satisfied that the area to be covered is poorly serviced. Therefore maintaining a balance between ensuring increased access to reliable and stable electricity and ensuring that the Disco's market share is not eroded.	Urban Area means the boundaries of an area or city in any state of the federation as determined by the Governor of that state or the Minister in charge of the Federal Capital Territory, as applicable, through the appropriate agency of the state or the territory.

Background

On 11th February 2014, NERC published Regulations for the Procurement of Generation Capacity, 2014 (**Regulations**) which outlines the processes to be followed by a Buyer in procuring additional electric generation capacity. A Buyer in the Regulations was defined as a person licensed in accordance with the Act and authorised to purchase bulk power from existing and/or new generating companies, including holder of a bulk trading license (NBET) and a distribution license (Discos).

The Regulations apply to the purchase of any generation capacity which is, or is intended to be connected to the Transmission Grid System or, as an Embedded Generator, generating capacity that is connected to a Distribution Network. In other words, the Regulations seem to exclude the Off-Grid IPPs in its application.

Prior to the issuance of the Regulations, NERC had issued to over 80 new entrant IPP licenses which only a few are currently being developed. The Regulations are to ensure that licenses issued met the purpose for which they were issued.

Generation Capacity Procurement Process

Regulation 6.1 provides that the System operator (**SO**) shall prepare an annual report assessing the position on capacity needs and system constraints for a five year period ahead. If an Annual Report published by the SO indicates a requirement for contracting additional generation capacity within the next twelve months, a Buyer who has obtained NERC's approval to procure additional generation capacity shall:

- Announce that it intends to request proposals for the provision of such capacity in accordance with the Regulations;
- Invite potential bidders to qualify for consideration in the solicitation process by submitting an Expression of interest (which shall show evidence of technical expertise, financial capability and operating experience);
- Announce the date on which it anticipates it will make available a Request for Proposal (**RFP**) relating to such additional capacity; and
- Announce that existing on-grid licensees of NERC who have not reached financial close for their projects or who have not started project construction shall be deemed to be pre-qualified in respect of RFPs issued during financial years 2014 and 2015.

Unsolicited bids

Regulation 12 specifically provides that unsolicited bids for additional generation capacity shall not be considered by buyers in connection with any RFP process or under any other circumstances whatsoever.

Prohibition on Procurement outside these Regulations

The Regulations generally prohibits a buyer from soliciting for bids or proposals for generation capacity or entering into any contract to purchase electrical output outside the process stated in the Regulations. However, the following transactions are exempt from this prohibition and they are:

i. Small scale power plant generating 10MW or less;
ii. Purchase of occasional electricity supply from a self-scheduling generator;
iii. Any procurement by a buyer under any agreement entered into prior to the passing of the Regulations, including pending applications;
iv. Any procurement by a buyer under any option or other right to acquire generating capacity that had been granted prior to the passing of the Regulations (subject to NERC's approval).
v. Where NERC determines for "good cause" that the buyer can contract outside the terms of the Regulation.

Good Cause

The Regulations do not provide a definition of 'good cause'. However, via a press briefing on the 29th of October, 2014, NERC identified 'good cause' projects which additional licenses will be issued to generate power. Those projects include:

i. renewable energy-based power projects such as solar, wind, biomass or small hydro which require no fuel supply agreement and in respect of which feed-in-tariffs have been approved with no capacity charge component;
ii. environment-related projects where a guaranteed fuel source for the generation of power may be a solution to waste disposal challenges;
iii. projects that would contribute to the stability of Nigeria's grid system;
iv. captive generation plants with excess generation capacity to the national grid; or
v. generation projects with available fuel source.

Conclusion

It is important to note that the Regulations generally leave a wide discretion to NERC to make decisions with respect to the procurement process. It would also be expedient for the definition of Good Cause to be included in an amendment to the Regulations which could lead to delays in the procurement process.

8. GLOSSARY OF TERMS

Ancillary Services	Services other than the primary production of electricity, which is used to operate a stable and secure power system
ATC&C losses	Aggregate, technical, commercial and collection losses
Baseline Remittance	Minimum payments on invoices from the MO
Bcf	Billion Cubic Feet
CBN-NEMSF	Central Bank of Nigeria - Nigerian Electricity Market Stabilisation Facility
Disco	Electricity distribution company
ELPS	Escravos-Lagos Pipeline System
EPSRA	Electric Power Sector Reform Act 2005
Genco	Electricity generation company
GSAA	Gas supply and aggregation agreement
Handover Date	1 November 2013
HYPPADEC	Hydro Electric Power Producing Areas Development Commission
Industry Agreements	Suite of agreements to be used in the NESI going forward which include Vesting Contracts, Transmission Use of Service Agreements, Grid Connection Agreements, Ancillary Services Agreement, Power Purchase Agreements, Gas Supply Aggregation Agreements and Gas Transportation Agreement
Interim Period Shortfall	Outstanding payment obligations due to the Market Participants during the Interim Rules Period
Interim Rules	Rules issued by NERC to govern trading and commercial arrangements during the interim period from the completion of privatisation of the National Electric Power Authority until the declaration of TEM
IOC	International Oil Company
IPP	Independent Power Producer
KVA	Kilovolt Ampere
Legacy Gas Debts	The gas debts of the PHCN Successor generation companies owed to gas suppliers for gas supplied prior to the 1st of November 2013 which has been transferred to Nigeria Electricity Liability Management Ltd/Gte (NELMCO) by the virtue of Pre-completion Liabilities Transfer Agreements between NELMCO and the PHCN GENCOs
Market Participants	These are the persons that have executed a Market Participation Agreement in accordance with the Market Rules for the Electricity Sector of Nigeria 2009. These persons include Gencos, Discos and IPPs
Mmbtu	One million British Thermal Units
MMscfd	Million Standard Cubic Feet per Day
MYTO	Multi-Year Tariff Order

GLOSSARY OF TERMS

MO	Market Operator
NBET	Nigerian Bulk Electricity Trading Plc
NCP	National Council on Privatisation
NDPHC	Niger Delta Power Holding Company
NEPP	Nigerian Electric Power Policy 2001
NERC	Nigerian Electricity Regulatory Commission
NESI	Nigerian Electricity Supply Industry
NGC	Nigerian Gas Company
NIPP	National Integrated Power Project
NPA	Not Publicly Available
PPA	Power Purchase Agreement
Service Providers	Collectively refers to the MO, SO, TSP and NBET
SO	System Operator
Successor Companies	PHCN Successor generation companies
TEM	Transitional Electricity Market
TSP	Transmission Service Provider

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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