



ORDER NO. NERC/.....143.

**BEFORE THE NIGERIAN ELECTRICITY REGULATORY
COMMISSION**

**MULTI YEAR TARIFF ORDER – 2015 FOR THE TRANSMISSION
COMPANY OF NIGERIA (TCN) FOR THE PERIOD
1ST JANUARY 2016 TO 31ST DECEMBER 2024**

Glossary of Terms

ARR	Annual Revenue Requirement
BPE	Bureau of Public Enterprises
Capex	Capital expenditure
CPI	Consumer Price Index
Disco	Distribution company
DUOS	Distribution Use of Service
EPSRA	Electric Power Sector Reform Act
FGN	Federal Government of Nigeria
GENCO	Generation Company
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	Independent Power Producer
KWh	Kilo Watt hours of electrical energy
LRMC	Long Run Marginal Cost
MAR	Maximum Allowable Revenue
MLF	Marginal Loss Factor
MMBTU	Millions of British Thermal Units
MO	Market Operator
MWh	Mega Watt hours of electrical energy
MYTO	Multi Year Tariff Order
NBS	National Bureau of Statistics
NBET	Nigerian Bulk Electricity Trading Company
NEDP	National Energy Development Project
NESI	Nigerian Electricity Supply Industry
NTDP	Nigerian Transmission Development Project
Opex	Operating expenditure
ODRC	Optimized Depreciated Replacement Cost
PPA	Power Purchase Agreement
RAB	Regulatory Asset Base
ROE	Return on Equity
ROT	Rehabilitate, Operate and Transfer
SO	System Operator
SPE	Special Purpose Entity
T.C.N	Transmission Company Of Nigeria
TSO	Transmission System Operation
TSP	Transmission Service Provider
TUOS	Transmission Use of System
WACC	Weighted Average Cost of Capital

BACKGROUND

1. Pursuant to the methodology established under Section 76 of the Electric Power Sector Reform (EPSR) Act 2005; the Commission in 2012 completed a Major Tariff Review and thereafter enacted three separate Tariff Orders, one for each of the sectors in the Nigerian Electricity Supply Industry (NESI), namely Generation, Transmission and Distribution (the MYTO-2 Tariff Orders).
2. Pursuant to the above, the Transmission Company of Nigeria (TCN) in 2014 requested for the review of its Revenue Requirement (cost components) for its three separate but interdependent departments – Transmission Service Provider (TSP), System Operations (SO) and the Market Operations (MO) in the following areas:
 - a. Network/capital expenditure component;
 - b. Operation expenditures; and
 - c. Transmission losses
3. The Commission carried out a comprehensive review of TCN's submission and has approved additional Revenue requirement for TCN to enable it expand and adequately maintain and operate its network in line with the expected growth in the Nigerian Electricity Supply Industry (NESI).
4. By this Tariff Order the Nigerian Electricity Regulatory Commission (NERC) establishes the regulated Transmission Use of System (TUOS) charge to be paid to the Transmission Company of Nigeria (TCN) by distribution/retailing companies (Discos) for the transportation of electricity from generators to their (Disco) local bulk supply point(s).
5. These regulated charges are established for the period 1 January 2016 to 31 December 2024 pursuant to Section 76 of the EPSR Act (2005).
6. The TUOS is levied on distributor/retailers and charged per unit of energy delivered to them at the bulk supply points. The TUOS charge is determined using the building blocks methodology by bringing together existing and forecast capital costs, efficient operating costs, and allowances for return on capital and depreciation. The charges are uniform throughout Nigeria (referred to as a postage stamp tariff) and billed monthly to distributors/retailers.
7. The MYTO financial model will henceforth be labeled the "MYTO-2015 Financial Model".
8. The MYTO-2015 financial model has been updated with the most recent data on generation capacity as well as macro-economic indices used for the 2015 minor review of the tariff. The

14. GENERATION CAPACITY

The Commission obtained the data on projected generation capacity for five years (2016-2020) from the System Operator (SO) and Nigerian Bulk Electricity Trading Company (NBET). The data made available is used for the purpose of this review. However, going forward the periodic minor review of the tariff will take into consideration changes/fluctuations in the generation capacity. In essence, the minor reviews will reflect the actual peak generation capacity for each generator. This is in line with the Regulation on Rate Review for the NESI.

Table 1: Projected Generation Capacity

List of GENCOS	2016	2017	2018	2019	2020
KAINJI	165	192	218	300	400
JEBBA	202	241	287	364	462
SHIRORO	242	289	344	436	554
EGBIN	1,006	1,100	1,100	1,100	1,100
SAPELE	101	117	134	300	400
DELTA	515	614	732	900	900
AFAM IV-V	100	200	300	400	500
GEREGU GAS	159	185	210	246	282
OMOTOSHO GAS	254	303	336	336	336
OLORUNSOGO GAS	231	275	328	336	336
GEREGU NIPP	213	248	282	330	378
SAPELE NIPP	116	135	153	180	250
ALAOJI NIPP	130	151	300	400	500
OLORUNSOGO NIPP	194	225	256	300	344
OMOTOSHO NIPP	226	262	298	349	400
IHOVBOR NIPP	279	333	397	504	508
OKPAI					



	452	480	480	480	480
AFAM VI					
	529	631	650	650	650
IBOM POWER					
	100	119	142	180	190
OMOKU					
	-	100	200	250	250
A.E.S.					
	50	200	200	200	200
TRANS AMADI					
	-	100	100	200	200
RIVERS IPP					
	50	100	100	200	200
ASCO					
	50	100	100	100	100
ODUKPANI					
	100	200	300	400	413
GBARAIN NIPP					
	-	100	200	200	200
EGBEMA NIPP					
	-	100	200	200	200
OMOKU NIPP					
	-	100	200	200	200
AZURA					
			450	450	450
Total	5,465	7,199	8,999	10,493	11,383

11. CHANGES IN MACRO ECONOMIC INDICES

In line with the provisions of the law, the Commission carried out a minor review of the tariff in 2015 and have incorporated the changes in these minor review indices in MYTO 2015. The data used for this review is as follows:

12.1. Nigerian Rate of Inflation – the inflation rate of 8.3% was used based on the data from NBS. This however, is subject to minor review bi- annually. In the MYTO, the rate of inflation is used to ensure that investors are well compensated against rising cost of doing business. To achieve this, the Commission escalates the following variables with the rate of inflation:

- a. WACC
- b. Fixed admin and labour cost

- c. Variable O&M cost
- d. Capital Investment

Table 2: Assumed Rate of Nigerian Inflation (2016-2020)

	2016	2017	2018	2019	2020
Inflation %	8.76	8.76	8.76	8.76	8.76

12.2. Exchange Rate –The data from Central Bank of Nigeria shows an exchange rate of N197 to US\$1.0 as at 30th October 2015. Please note that MYTO-2 also allows a premium of 1% above CBN rate. This is also subject to review bi-annually.

Therefore, 1% of 197=1.97

CBN exchange rate +1% premium is therefore 197+1.97= **198.97**

Table 3: Assumed Naira/US Dollar Exchange Rate (2016-2020)

	2012	2013	2014	2015	2016
Exchange Rate	198.97	198.97	198.97	198.97	198.97

12.3. US rate of inflation – the US rate of inflation from the US Bureau of Labor Statistics website shows the US inflation rate to be 0.2% as at 30th October 2015. This is also subject to review bi-annually.

Table 4: Assumed US Rate of Inflation

	2012	2013	2014	2015	2016
US rate of inflation	0.2%	0.2%	0.2%	0.2%	0.2%

13. **WACC**- The cost of capital included in the MYTO is intended to provide a return on existing assets and appropriate incentives for future investment. The cost of capital is an important component of the tariff and is included in the annual revenue requirement calculation as a return on the value of capital invested (refer to MYTO 2 Transmission Order on the Computation of WACC for TCN).



Major Changes Used for TUOS Calculation in MYTO-2015

14. Adjustments to Asset Value and Capital Expenditure

NERC in 2012 determined that TCN's initial asset valuation will largely reflect historical costs plus recent additions to TCN's asset base. This provides an initial asset value at the beginning of 2012 of =N=189billion (one hundred and eighty-nine billion Naira). In order to calculate the asset value in each year of the tariff period, the forecast capital expenditures are added to this amount and depreciation plus any reduction in asset values due to the optimization are deducted. However, this was reviewed in this tariff review to reflect additional asset base as follows:

- 14.1. Starting balance as of end 2010 based on NERC's MYTO 2 ODRC (Optimised Depreciated Replacement Cost) valuation of NGN 189 billion;
- 14.2. Recognition of additional asset base that will result in higher return of capital (depreciation cost on assets in service) based on:
 - a. Recognition of additional transmission assets of NGN 72 billion not captured in the 2010 valuation in '14.1' above as reported in PHCN books to have been procured/completed as at December 31st 2013;
 - b. Transfer of NIPP asset received by TCN in 2014 amounting to NGN 310.4 billion;
 - c. Transfer of Investment in plant using internally generated funds and World Bank/other donor (NTDP and NEDP) assisted transmission projects managed by the Project Management Unit (PMU) of PHCN not reflected in valuations used in 2010. These assets together amount to NGN 23.4 billion as at 2013.
- 14.3. Higher annual investment levels totaling NGN 1.36 Trillion over the next five years that results in increased carrying cost (return on capital) and an increase in depreciation expense (return of capital).

Table 5: Capital expenditure included in the TUOS calculation (nominal N' 000,000)

2016	2017	2018	2019	2020
205,212	418,504	265, 203	247, 828	224,395

- 14.4. It is important to note that NERC is already in the process of valuing all transferred assets (NIPP and others) to Discos and TCN. Once the process is concluded, the Commission will effect necessary adjustments to Discos' and TCN's regulatory asset bases (RAB) to reflect revalued figures subsequently.

rationale for this is to remain as close as possible to current economic realities. The available/tested generation capacity and macro economic variables will continue to be reviewed semi-annually in line with the MYTO methodology and the Regulation on Procedure for Electricity Tariff Review in the NESI.

9. The TUOS charges will be reviewed bi-annually and a change made to the TUOS charge if Nigerian inflation, exchange rate and generation capacity has varied materially from that used in the calculation of the tariff.

10. Pricing Principles

The Commission has maintained the use of building blocks approach as a regulatory method to set TUOS charges in the MYTO in line with the Methodology. The building blocks approach is simply a way of bringing together all of the industry's costs in a consistent accounting framework. The standard building blocks used in this approach are:

- a. **The allowed return on capital** – being the return necessary to achieve a fair (market based) rate of return on the assets necessarily invested in the business;
- b. **The allowed return of capital** – associated with recouping the actual capital invested during the useful lives of the assets (depreciation); and
- c. **Efficient operating costs** and overheads.

10.1. In order to calculate a projected annual value for each of the building blocks an estimate was required for:

- The initial value of the TCN regulatory asset base (RAB);
- A particular Weighted Average Cost of Capital (WACC) to be achieved each year;
- A capital expenditure program developed from a forecast of feasible growth;
- An appropriate method of depreciation;
- An efficient level of operating expenditure and overheads; and
- A rate of improvement in industry losses.

The annual revenue requirement for transmission determined using the building block approach was then divided by the forecast level of energy transmitted on the TCN network each year to produce a TUOS charge per unit of transmitted energy.

15. **Operating and Maintenance Expenditure and Transmission Losses**

The table below shows the allowance made for annual operation and maintenance and administration costs in the tariff calculation.

Table 6: Annual O & M included in the TUOS calculation (nominal =N='000)

		2016	2017	2018	2019	2020
TCN Variable O&M Costs - excluding Admin	TSP	18,572,000	22,675,000	24,661,330	26,821,663	29,171,240
	MO	0	0	0	0	0
	SO	0	0	0	0	0
	Total Variable O&M	18,572,000	22,675,000	24,661,330	26,821,663	29,171,240
TCN Fixed O&M Costs - excluding Admin	TSP	11,505,132	13,176,000	13,703,040	14,251,162	14,821,208
	MO	461,000	593,000	616,720	641,389	667,044
	SO	7,161,000	10,650,000	11,076,000	11,519,040	11,979,802
	Total Fixed O&M	19,127,132	24,419,000	25,395,760	26,411,590	27,468,054
TCN Fixed Costs Admin	TSP	3,308,000	3,516,000	3,898,625	4,240,144	4,611,581
	MO	397,000	460,000	187,589	204,022	221,894
	SO	6,191,000	6,694,000	2,569,832	2,794,950	3,039,787
	Total Admin	9,896,000	10,670,000	6,656,046	7,239,116	7,873,262



16. TUOS Charges

Market Participants will be required to pay a number of institutional charges in order to enhance the effective regulation and administration of the electricity market. These charges are the regulatory charge, system operation (SO) charge, market operation (MO) charge and payment for ancillary services.

The table below shows the TOUS charges that have been allowed by NERC for each year of including the institutional charges noted above. The table shows the charges derived through the building blocks (operation and maintenance, return on capital and depreciation) approach and aggregated to a total annual revenue requirement. This annual revenue requirement is then divided by the forecast energy transmitted and delivered to distribution and export customers to arrive at the estimated per unit charge (Naira/MWh) of transmission services.

Based on TCN's submission and the structure of the MYTO-2015 model, the Commission has approved the following charges in Table 7 below:

Table 7: Approved TOUS charges (Naira/MWh)

	2016	2017	2018	2019	2020	2021	2022	2023	2024
TSP	2,975.12	3,202.70	3,624.46	3,708.54	3,921.57	3,873.98	3,657.35	3,520.48	3,384.57
SO	330.08	329.55	211.10	187.92	181.75	172.38	168.41	167.80	167.00
MO	22.21	20.04	12.46	11.10	10.76	10.23	10.01	10.00	9.97
NERC ISO Charge	5.28	5.24	3.35	2.99	2.89	2.74	2.68	2.67	2.65
Ancillary Services	50.69	55.94	61.40	67.13	73.19	79.82	86.97	94.70	103.12
Total TUOS Charge	3,383.38	3,613.47	3,912.77	3,977.67	4,190.16	4,139.14	3,925.42	3,795.64	3,667.32

17. Bi-Annual Review

- (1) NERC will continue to review TCN's tariffs bi-annually as part of the minor review. However, with effect from the issuance of this MYTO-2015 Order, minor reviews will henceforth apply retroactively by taking into account changes (gains/losses) that occurred within the minor review period in adjusting TCN's tariffs bi-annually. This is fair to both TCN and its customers in order not unduly shortchange any party on account of market indices not fully within their control.
- (2) NERC will vary TCN's tariffs during minor reviews if there is a material change in the inflation rate, exchange rate and generation capacity used in the derivation of TCN's Tariffs. NERC considers that a material change would be plus or minus 5% in the minor review indices.

18. Date and NERC Performance Targets

From 1st January 2016, TCN will be held accountable for service improvements in relation to annual projected generation capacity and service standards stated below:

- a. TCN shall be penalized for its inability to deliver allocated energy to Discos due to constraints on TCN's network. In this vein, TCN will be liable to compensate Discos for imbalance in revenue resulting from such action. Likewise, where a Disco does not take its allocation for any reason other than SO's instructions, the Disco shall compensate TCN for attributable loss in revenue.
- b. Full SCADA communication system in 12 months of tariff approval
- c. TCN shall on annual basis submit for NERC's approval the following on their capital expenditure budget before the commencement of each financial year:
 - i. Achieving specific service improvement objectives by locations in relieving immediate to long term grid constraints;
 - ii. Evidence of consultation with customer groups (Discos and Gencos) in developing TCN's investment plan and specific projects tailored towards addressing specific Disco/Gencos needs;
 - iii. Evidence of alignment of the investment plan with generation adequacy and planned load projections;
 - iv. Justification for cost estimates used in deriving the planned investment program and relevant benchmarks against which the procurement plans can be evaluated;
 - v. Evidence of TCN's capability to raise the required financing to fund planned investment program in a timely manner;
 - vi. Evidence of TCN's procurement and project management capabilities to enable efficient delivery of planned investment program and related penalties for delays in delivering of projects;
 - vii. Evidence that TCN's planned investment program will not result in gold-plating or the creation of stranded assets in the network.



19. Following consultation with relevant stakeholders, the Commission hereby orders that-

- (1) This Transmission Tariff Order as described above shall be effective from 1st February 2016;
- (2) The Table of Charges for TSP, SO, MO and Ancillary services shall come into effect from 1st February 2016 and continue to be in force until 31st December 2024 as is shown hereinbefore, subject to the provisions of this Order.
- (3) Upon coming into effect, the said charges shall continue in force subject to such minor and major reviews as the Commission may conduct from time to time.
- (4) This Order shall be called the Multi-Year Tariff Order (MYTO) 2015 for Transmission Company of Nigeria (TCN).

20. Effective Date

This Order shall be effective from 1st February 2016.

Dated at Abuja this 21st day of December 2015



Dr. Sam Amadi
Chairman/CEO



Dr. Steven Andzenge
Commissioner
(Legal Licensing and Enforcement)

