



REVIEW OF THE AGGREGATE TECHNICAL, COMMERCIAL AND COLLECTION LOSSES (ATCC) AND CUSTOMER NUMBERS

By:

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BACKGROUND

- In exercise of the powers conferred upon it by Section 76(8) of the Electric Power Sector Reform Act, the Nigerian Electricity Regulatory Commission (NERC) adopted a tariff methodology a “Multi Year Tariff Order tariff methodology”
- The MYTO provides a 15 year tariff path for the electricity industry, with minor reviews semi-annually in the light of changes in a limited number of parameters (such as **inflation, exchange rate, gas prices and generation capacity**) and major reviews every 5 years, when all of the inputs are reviewed with stakeholders.

FIVE YEAR MAJOR REVIEW

According to Section 6.4 of the MYTO methodology, the major 5-yearly tariff review, will address the following variables

- capital expenditure
- actual and projected sales
- **Customer numbers and consumptions**
- operating costs
- fuel costs
- taxes and other payments
- forecasts of electricity demand
- interest rates
- reasonable industry WACC
- appropriate expansion of the transmission and distribution networks
- **reasonable annual rates of reduction of industry losses, technical non-technical losses.**

Why Baseline Revalidation ?

- Both NERC and BPE recognise the uncertainty and the credibility of some of the data from which aggregate losses were calculated and
- Commitments on the reduction of aggregate losses was one of the primary determinants for determining successful Disco core investors;
- Section 5.3 of the 2012 tariff order provides for revalidation of these baselines
- At the conclusion of the validation exercise, any difference in losses will be the subject of separate reduction targets to be agreed between NERC and the relevant Discos; and commensurate cost implications will be the subject of a Minor Review consultative process.

Why Baseline Revalidation?

- In line with Section 5.3 of the Distribution and Retail Tariff Order the Commission developed TOR for the engagement of consultants by the 11 discos to carryout ATC&C baseline losses and customer number study.
- In the same vein, the Commission developed a TOR for the engagement of a consultant for the Commission to guide the consultants of the discos in the ATC&C review and to validate the level of accuracy of the final reports by the discos.

Guideline/methodology

- The Commission developed guidelines/methodology for the conduct of the ATC&C and customer number exercise. The guideline include:
- **Sample Size Selection for Determination of ATC&C Losses**
- Select 50% of the Business Units.
 - The Selected Units must as practicably as possible not be physically contiguous to each other;
 - Or the Selected units must not be concentrated in one geographical area of the disco.

Guidelines...

- In the selected Business Units, select 10% of the Service Centers:
 - The Service Centers selected shall again not be concentrated in one geographical area of the Business Units.
- In the selected Service Centers, 100% of the 33KV and 10% of 11/.415kv) lines serving the service center shall be evaluated through final consumers.
- The customer sample size to be selected for 11/415 evaluation shall be a minimum of 0.5% of the total customer population determined under MYTO-2.
- **Sample Size for Enumeration of Customer Population**
100% of the selected service center used for the ATC&C validation.

Guidelines...

Reporting format

1. The report clearly segregates the various classes of losses:
2. Technical (carries the same meaning as distribution) = Ratio between energy delivered to 33KV distribution feeder and delivered to customers;
3. The Report on customer enumeration of the selected undertaking should indicate
 - i. Metered customers (prepaid and postpaid)
 - ii. Non- metered customers; and
 - iii. Estimated customers

Outcome of ATC&C studies

- 10 out of 11 DISCOs submitted their ATC&C Loss studies
 - Abuja, Benin, Eko, Enugu, Ibadan, Ikeja, Kano, Port Harcourt and Yola
- Kaduna's work is on-going
- Teams visited each of the 10 DISCOs for verification
- Sources of data for the review includes:
 - Bank statements
 - Management Information System (MIS) reports
 - Samples of invoices

Technical Losses

- Defined as the:
- Ratio of energy delivered to the DISCO network and energy delivered to retail customers premises.
- In line with the ToR, DISCOs were required:
 - Conduct energy load-flow studies and submit same to NERC for verification
 - Teams validated the load flow studies and made recommendations for each Disco

Technical Loss %

	DISCO	Recommended	Year 1	Year 2	Year 3	Year 4	Year 5
Abuja	13.36	13.36%	9.15%	6.97%	6.48%	5.77%	4.88%
Benin	19.50	13.00%	10.66%	8.53%	6.60%	4.95%	3.96%
Enugu	14.00	13.00%	12.92%	9.65%	6.91%	4.39%	2.49%
Ibadan	10.70	10.70%	8.99%	7.31%	5.81%	4.66%	3.89%
Jos	12.00	12.00%	10.76%	9.79%	8.71%	7.16%	5.43%
Kaduna	13.50	13.50%	9.05%	5.70%	3.53%	2.19%	4.39%
Kano	13.50	13.50%	11.48%	8.84%	6.63%	5.17%	4.39%
Eko	12.80	12.80%	9.34%	6.83%	5.40%	4.85%	4.67%
Ikeja		10.70%	7.95%	5.81%	4.13%	3.37%	3.06%
Port Harcourt	14.5	10.70%	9.10%	7.50%	6.00%	4.80%	3.99%
Yola	12.70	12.70%	10.25%	8.10%	7.11%	6.52%	5.94%

Commercial Losses

- Ratio between energy delivered to customers premises and energy billed (including prepaid and estimated) and;
 - Teams validated data from Market Operator (MO) on energy delivered to DISCOs as well as the Billing information data from DISCO

Commercial losses

	DISCO	NERC	Recommended	Year 1	Year 2	Year 3	Year 4	Year 5
Abuja	17.31	17.31	17.31%	11.86%	8.66%	8.05%	7.17%	6.10%
Benin	14.00		14.00%	11.48%	9.18%	7.11%	5.33%	4.27%
Enugu	6.50	14.00	6.50%	6.46%	4.82%	3.46%	2.20%	1.24%
Ibadan	1.50	1.50	1.50%	1.26%	1.02%	0.81%	0.65%	0.54%
Jos	14.50	-	14.50%	13.01%	11.83%	10.53%	8.65%	6.56%
Kaduna	5.32	5.32	5.32%	4.52%	3.48%	2.61%	2.04%	1.73%
Kano	5.32	5.32	5.32%	4.52%	3.48%	2.61%	2.04%	1.73%
Eko	18.60	9.55	9.55%	6.97%	5.09%	4.03%	3.62%	3.48%
Ikeja	26.00	-	1.50%	1.13%	0.82%	0.58%	0.48%	0.43%
Port Harcourt	22.00	-	1.50%	1.28%	1.05%	0.84%	0.67%	0.65%
Yola	(11.20)	3.00	3.00%	2.24%	1.88%	1.62%	1.43%	1.30%

Collection losses

- Ratio between amount billed customers and amount collected, all in Naira;
- Data on revenue billed and collected including bank statements and revenue data from DISCOs verified

Collection Losses

	DISCO	NERC	Recommended	Year 1	Year 2	Year 3	Year 4	Year 5
Abuja	31.89	31.89	31.89%	22.00%	16.06%	14.94%	13.31%	11.31%
Benin	53.00	53.00	53.00%	43.46%	34.77%	26.91%	20.19%	16.15%
Enugu	48.80	53.00	48.80%	48.49%	36.22%	25.95%	16.48%	9.34%
Ibadan	32.40	32.40	32.40%	27.22%	22.12%	17.60%	14.11%	11.77%
Jos	47.60	32.74	32.74%	29.37%	26.71%	23.77%	19.54%	14.81%
Kaduna	37.36	37.36	37.36%	31.76%	24.45%	18.34%	14.30%	12.16%
Kano	37.36	37.36	37.36%	31.76%	24.45%	18.34%	14.30%	12.16%
Eko	24.90	14.00	14.00%	10.22%	7.47%	5.90%	5.30%	5.10%
Ikeja	18.00	20.00	18.00%	13.50%	9.87%	7.01%	5.71%	5.19%
Port Harcourt	43.00		14.00%	11.90%	9.82%	7.85%	6.28%	6.05%
Yola	60.30	60.00	60.00%	44.90%	37.65%	32.45%	28.54%	26.01%

ATC& C Losses

- The Aggregate technical, commercial and collection losses
- $ATC\&C = (1 - BE * CE) * 100$
- Where BE= Billing Efficiency
 - CE= Collection Efficiency

ATC&C Loss

	DISCO Constt.	Bid Basis	Recommended	Year 1	Year 2	Year 3	Year 4	Year 5
Abuja	52.77	35%	52.77%	36%	27%	25%	22%	19%
Benin	57.00	40%	54.1%	44%	36%	27%	21%	16%
Enugu	59.10	35%	59.1%	59%	44%	31%	20%	11%
Ibadan	40.60	35%	40.6%	34%	28%	22%	18%	15%
Jos	60.30	40%	56.5%	51%	46%	41%	34%	26%
Kaduna	48.70	40%	48.7%	41%	32%	24%	19%	16%
Kano	48.70	40%	48.7%	41%	32%	24%	19%	16%
Eko	48.40	35%	21.9%	16%	12%	9%	8%	8%
Ikeja	39.82	35%	32.9%	25%	18%	13%	10%	9%
Port Harcourt	57.59	40%	55.0%	47%	39%	31%	25%	24%
Yola	61.90	40%	57.6%	43%	36%	31%	27%	25%

Direction of Average Tariff After ATC&C Validation

	2013	2014	2015	2016
Abuja	36.66	30.70	31.27	30.90
Benin	38.56	35.42	36.50	32.50
Enugu	43.11	46.30	39.87	33.32
Ibadan	31.73	31.33	32.81	30.93
Jos	42.18	41.60	39.59	37.70
kaduna	36.28	30.63	29.61	27.15
Kano	33.24	32.25	32.25	29.33
Eko	22.58	23.22	27.31	26.62
Ikeja	24.10	23.90	24.76	23.98
PH	40.18	37.77	27.41	26.69
Yola	44.75	36.79	41.82	38.60

Direction of Average Tariff After ATC&C Validation

	Before validation	After Validation
<i>Ibadan - 2013</i>	21.99	31.73
<i>Ibadan - 2014</i>	25.33	31.33
<i>EKO - 2013</i>	20.81	22.58
<i>EKO - 2014</i>	23.76	23.22
<i>IKEJA - 2013</i>	19.39	24.10
<i>IKEJA - 2014</i>	21.77	23.90

Consultation with Discos

- We discuss outcome of the losses validation
- We explain the differences between the consultant's report, NERC validation team and NERC historic data, and
- The reasons for the Commission decision to adopt the more efficient figure.

Revenue Shortfall

- Revenue shortfall arose due to the difference between the old 2013 average tariff with revalidated tariff or the difference between tariff with wrong baseline losses with validated data.
- Calculate the actual shortfall by multiplying the difference by number of KWh delivered to the disco over the period November 2013 to November 2014.

Revenue Shortfall

- If we must recover the short fall from consumers immediately it will create;
 - Rate shock
 - Inflation
 - Unplanned cost on businesses
 - Hard ship on residential consumers
 - Negative reaction from society due to low power availability

Revenue Shortfall

- Revenue shortfall to be covered not at once by Discos and not directly from consumers, but
- Through CBN intervention.
- Soft loan to Discos by CBN through Commercial Banks
- CBN to recover its intervention of shortfall over 10 years.
- One year moratorium to be granted to the Discos.
- 11% of the money to be paid annually after the moratorium of one year.

Issues for consultation/comments

- Out come of the loss data validation
- Extent of CBN intervention
- Approach to cost recovery by Discos
- Consumer expectations from the commission
- Consumer expectations from the Discos
- What will be the appropriate loss reduction targets over the next five years?



THANK YOU

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