

# **A Presentation to the Commission on the Major Review of the MYTO**

By the MC&R Division, NERC

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# Outline

- Tariff Principles
- Market development and objectives of tariff regulation
- MYTO Methodology
- Technical, financial and economic assumptions
- Special issues



# Tariff Principles

- MYTO sets tariffs for the three electricity sectors based on certain principles and assumptions, namely:
  - **Cost recovery/financial viability** – licensees recover efficient costs, including a reasonable return on capital
  - **Signals for investment** – tariffs should encourage an efficient level and nature of investment (e.g., location)
  - **Certainty and stability** of the tariff framework enables private sector investment
  - **Efficient use of the network** – tariffs should reflect the marginal costs that users impose on the system, influence efficient use and reduce cross-subsidies
  - **Allocation of risk** – the tariff framework should allocate risks efficiently to those best placed to manage them



# Tariff Principles.....(2)

- **Simplicity and cost-effectiveness** – the framework should be simple and not costly to implement
- **Incentives for improving performance** – it should incentivise cost reduction and quality of service
- **Transparency/fairness** – it should be transparent and ensure open access to monopoly networks
- **Flexibility/robustness** – it should cater to unforeseen changes in the market
- **Social and political objectives** – it should provide for the achievement of social goals such as universal access and demand-side management



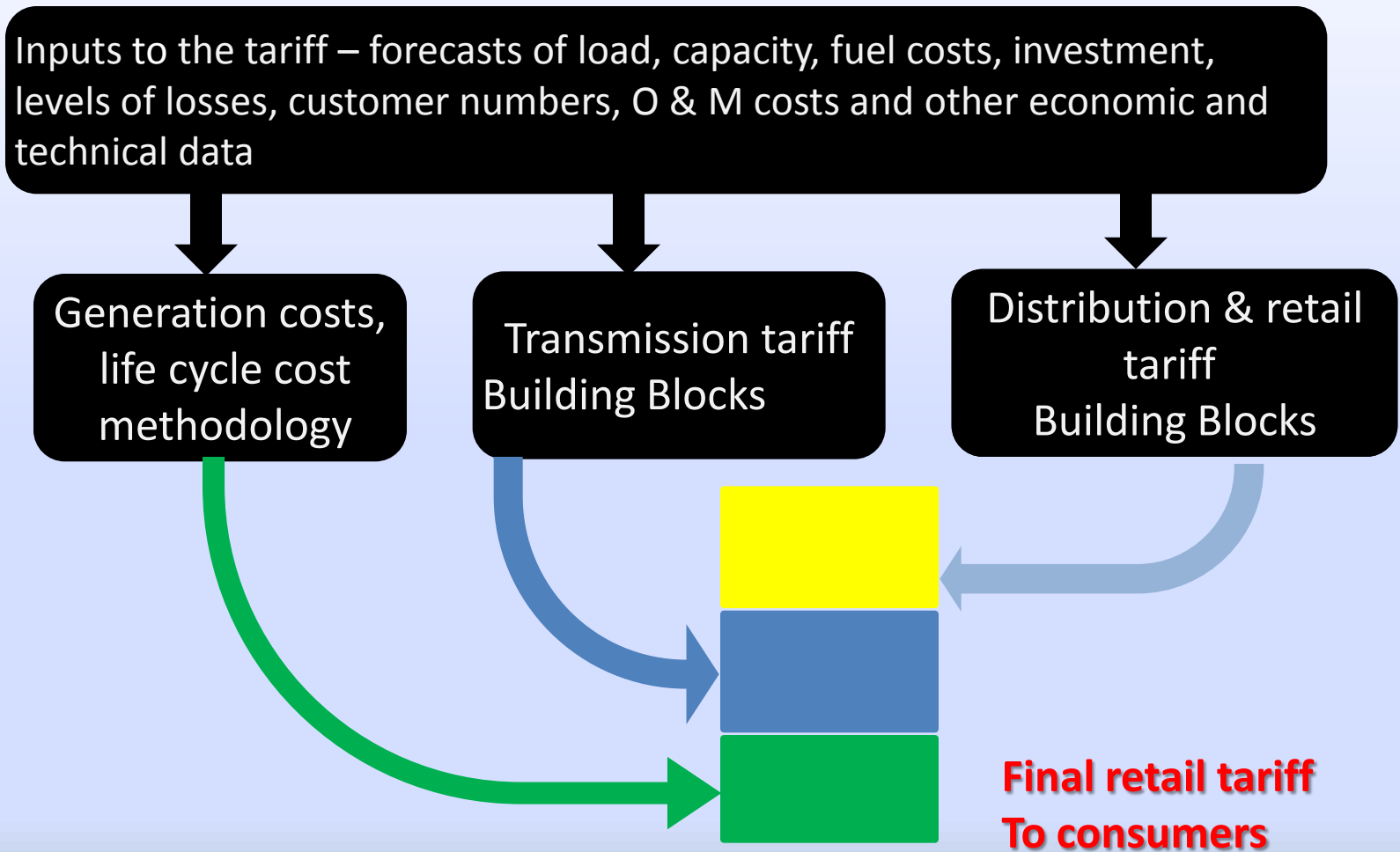
# Market Development and Objectives of Tariff Regulation

Market Stages	Transition Stage	Medium Stage	Long Term
Generation	Regulated prices using vesting contracts based on life cycle costs of an efficient new entrant	Part unregulated (based on bilateral contracts)	Unregulated (based on bilateral contracts)
		Part regulated based on vesting contracts (matches the regulated load)	
Transmission	Regulated prices using building blocks	Regulated prices using building blocks	Regulated prices using building blocks
Distribution	Regulated prices using building blocks	Regulated prices using building blocks	Regulated prices using building blocks
Retailing		Regulated prices for the regulated load	Unregulated (all load is contestable)
		Unregulated prices for the contestable load	



# MYTO Methodology-

## From General Assumptions to Disco Retail Tariff



# OPEX AND CAPEX FOR THE DISCOS -2012

Company	Personnel Cost	OPEX	CAPEX	Staff Number
Abuja	9,541,459,756	7,933,430,535	9,578,672,277	4,524
Benin	12,023,893,051	4,620,141,000	6,362,231,330	5,013
Eko	10,765,553,369	5,610,828,188	14,183,393,268	4,304
Enugu	10,896,486,238	3,602,334,024	7,125,108,964	4,493
Ibadan	18,176,934,756	11,773,177,990	11,478,133,907	6,147
Ikeja	11,562,814,657	6,363,018,925	18,443,397,154	4,236
Jos	6,268,027,598	8,094,537,370	8,931,207,006	2,594
Kaduna	8,904,238,117	3,562,006,229	11,759,150,000	3,658
Kano	5,719,298,850	3,052,257,253	7,949,053,364	2,480
Port Harcourt	5,805,443,933	6,979,169,352	10,014,436,939	2,312
Yola	4,483,129,389	1,942,293,848	3,436,557,370	2,038

# Key performance Indicators

1. Capital Investment
2. Revenue collection
3. Pre paid metering
4. Collection of existing debt
5. ATC&C loss reduction
6. Submission of budget and plan of action on the above





# Generation Methodology

Issues	Detail	Recommendation
Type of technology benchmark	NERC adopted OCGT as its benchmark in calculating generating prices due to the (still) low price of natural gas, which makes it costly to adopt CCGT	This should remain but the Commission should weigh environmental issues
Long run marginal cost method/methodology	Two approaches: i. Single cost as benchmark ii. Individual LRMC for each generator	The benchmark procedure should be retained for legacy plant with site specific benchmarking for new entrants, at least until NERC acquires a credible cost database
Wholesale tariff	Complaints in the Industry that the wholesale price is based on the wrong factors and therefore too low	A cost-reflective tariff is now shown



# Transmission Methodology

Issue	Detail	Recommendation
Cost recovery	MYTO says that the connection costs between constructed plant and the national grid are borne by the transmission provider and spread in its revenue requirement through the life of the connection	IPPs to build connections on behalf of TCN and recover cost from ROI portion of TCN revenue
Methodology	MYTO adopts the building blocks methodology because it offers the most transparency in reviewing the cost base for each sector and in permitting a reasonable return. Current alternatives leave the determination of tariffs too much in the hands of the operator	The Building Block methodology should be retained as it is an incentive-based regulation



# Distribution Methodology

Issues	Detail	Recommendation
Rate consolidation (SEE TABLES BELOW)	There is a need to review and reduce the current 19 tariff classes	We have consolidated to 14 tariff classes
Losses (SEE TABLE BELOW)	The targets set for the reduction of ATC&C losses need to be carefully determined and credible targets developed for the next five years. This is a major element of privatisation	The Discos have been advised to submit realistic figures to the Commission and the Division is organising a training workshop for NERC and BPE on best practice in determining ATC&C targets and evaluating performance



# The Existing Tariff Schedule

	Tariff Classification	No. of rate elements
R	Residential	5
C	Commercial	4
D	Industrial	5
A	Special	4
S	Street lighting	1
		19



# Proposed Tariff Classification

	Classes to be merged	New classes	Total
Residential	R2, R3	R1, R2, R3, R4	4
Commercial	C1, C2	C1, C2, C3	3
Industrial	D1, D2	D1, D2, D3	3
Special	A1, A2	A1, A2, A3	3
Street lighting	S1	S1	1
			14




# Projection of losses (%)

	2011	2012	2013	2014	2015
<b>Transmission</b>	8.05%	8.05%	8.05%	8.05%	8.05%
<b>Distribution</b>	11%	11%	11%	11%	11%
<b>Non-technical</b>	14%	12%	10%	8%	6%
<b>Billing</b>	8%	6%	4%	2%	2%



# Distribution Methodology.....(2)

Issues	Detail	Recommendation
Customer numbers	Of utmost importance both in designing tariff schedules and in recovering fixed costs. We now have figures current to end of 2010.	
Rate elements	Two rate elements are up for consideration in the current MYTO: <ul style="list-style-type: none"> <li>i. Fixed charge</li> <li>ii. Meter maintenance Charge</li> </ul>	To merge the MMF with the fixed charge and have fixed and energy charges only
Working capital allowance	Provided in MYTO 2 as follows: <p>Operating costs: operations and maintenance expenses for two months;</p> <p>Cost of energy: receivables equivalent to three (3) months capacity charge for purchase of electricity, to be calculated based on power allocation factor</p> 	Should be adopted because it serves to mitigate payment risk in the market

# Periodic Reviews

Major Review	Minor Review
<ul style="list-style-type: none"><li>• Given the status of sector reform and privatisation, we recommend that another Major Review should be undertaken within three (3) years and not five (5) years</li></ul>	<ul style="list-style-type: none"><li>• Considering the need for efficient and credible power procurement, Minor Reviews should include newly-commissioned generation, power sent out from stations during 2012 – 2015 and system planning data to be developed by TCN as variables to be considered</li><li>• Also recommended that Minor Reviews be conducted semi-annually</li></ul>





# Revised Assumptions for Thermal Plants

Assumption	Old	New
Capacity (MW)	250	250
Auxiliary requirement (%)	1	2
Capacity factor	70	76
Construction period (yrs)	2	3
Sent out efficiency (%)	34	32
Fixed O&M (N/MW/Yr)	1, 947, 901	2, 400, 000
Variable O&M (N/MWh)	252.25	800
Capital cost (\$/KW)	866	1, 200



# Revised Financial Assumptions

Assumption	Old	New
Gearing	70/30	30/70
Nominal risk free rate (%)	14.80	16.2
Exchange rate (N/US \$)	149.83	1% above CBN rate
Nominal market Rate of Return		24
Nominal cost of debt (%)	19.29	22
Real pre tax WACC (%)	5	10



# Assumptions for Feed-In Tariffs

Category	WIND	SOLAR	HYDRO	BIOMASS
Installed capacity (MW)	10	5	10	5
Capital cost (US\$/KW)	2, 525	5, 545	3, 020	3, 289
Fixed O&M cost (N/MW/Yr)	2, 900, 000	9, 570, 000	5, 655, 000	8, 370, 000
Variable O&M cost (N/MW/H)	232	87	87	775
Capacity factor (%)	29	33	30	68
Auxiliary requirement (%)	1	1	7	10
Economic life (yrs)	30	30	30	20
Depreciation (%)	10	10	10	10
Construction period (yrs)	3	3	3	3



# Assumptions for Coal-fired Generation

Category	Assumption
Capacity	250 MW
Fuel (N/GJW)	519
Sent-out efficiency	42%
Auxiliary	7.5
Capital cost (N/KWh)	299, 250
Fixed O&M (N)	4, 800, 000
Variable O&M (N/MW)	140
Construction period	4 yrs
Life of plant	25yrs
HHV Heat rate (Btu/kwh)	40%



# Projection of Inflation Rate (%)

Year	2011	2012	2013	2014	2015
	15	15.8	16.5	17.4	18.2



# Foreign Exchange Rate (N per US\$)

Year	2011	2012	2013	2014	2015
	155	156.55	159.68	162.87	166.13



# Load Allocation (%)

Disco	% of total daily generation
Abuja	11.89
Benin	9.40
Eko	11.36
Enugu	9.44
Ibadan	13.12
Ikeja	15.34
Jos	5.09
Kaduna	8.26
Kano	5.49
Port Harcourt	5.61
Yola	5.00
<b>Total</b>	<b>100.00</b>



# Actual Generation vs. MYTO 1 Projections

Year	Generation projection (MW)	Actual (MW)
2008	4, 000	3, 595
2009	6, 000	3, 710
2010	10, 000	4, 333
2011	16, 000	3, 700





# Daily Generation Projections

Scenario	MW	2012	2013	2014	2015	2016
1	Capacity	4, 000	4, 200	4, 500	5, 000	5, 500
2	Capacity	5, 750	7. 500	9. 061	10, 071	10, 571
3	Capacity	5, 750	7, 500	9, 061	11, 571	14, 761



# Special Issues

## PHCN Corporate Headquarter Charges

- MYTO 1 provides for funding of PHCN CHQ
- PHCN CHQ is neither a market participant nor a licensee
- MYTO 2 can no longer provide for this charge, given private sector participation and a simple cost/benefit analysis
- The FG has to make a budgetary provision if CHQ is not liquidated and outstanding staff transferred to existing licensees

## (HYPADDEC) Act

- 30% of total hydro generation revenues to HYPADDEC will cripple the sub-sector
- The MoP proposal for calculating 30% should be adopted



# Ancillary Service Cost

- MYTO 1 1% of OPEX paid by TCN to Generators agreed to be inadequate
- MYTO 2 provision of  $\$750/\text{MWH}$  based on March 2011 agreement between TCN and generators

## (NELMCO)

- NELMCO is an electricity liability management SPV, subsidiary of MOFI, but not an electricity licensee
- NELMCO has requested to recover its operating revenues from the market
- No clear reason to permit this



# Bulk Trader

- EPSRA provides for this SPV to conduct contract management and bulk trading on behalf of the Discos
- What is to be allowed as an “administrative charge”?

## Subsidy/inclining block tariffs/lifeline tariffs

- Timeline for introducing inclining block
- CPs for its commencement



# Regulatory Charge

- The established 1.5% (of revenues) regulatory charge continues under MYTO 2 and gives expected revenue of:
  - ✓ Transmission: =N=273,549,000
  - ✓ Distribution: =N=3,838,300,000
  - ✓ Generation: =N=5,387,714,000
  - ✓ **Total** =N=9,499,563,300

**Lesson: NERC's financial autonomy, and therefore, enhanced authority, depends ENTIRELY on a more productive market,**





# THANK YOU

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