

Evaluating the Methodology of Setting Electricity Prices in Nigeria

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Introduction

The methodology in setting electricity prices in Nigeria has been ill-defined and opaque since the Nigerian electricity sector was established. Electricity was considered a public welfare service to be provided by the government. Therefore, the electricity price had traditionally been subsidized.

Prior to the 2008 Multi-Year Tariff Order (MYTO), a uniform pricing structure was used in which the electricity tariff remained fixed for years despite a continuous rise in the price of natural gas. Interestingly, over 80 per cent of Nigeria's power is generated from gas. The Power Holding Company of Nigeria (PHCN) tariff was last set in February 2002 and averaged from N4.50/kwh to about N6/Kwh. Following that setting, the company still operated with monthly deficits of nearly N2 billion (figures in \$). This led to its inability to tackle the problems of inadequate and unreliable electricity service. In 2011, the government approved electricity prices of between N4/Kwh and N6/Kwh for single-phase consumers; between N6/Kwh and N8/Kwh for industrial users; and between N8/Kwh and N12/Kwh for the highest demand users, but the cost of electricity production was N10 per Kwh. This pricing regime discouraged the entry of profit oriented private investors (the existing law or absence of enabling legislation was a greater deterrent to private investment than the tariffs). There is need for appropriate policy to institute transparency in tariff determination and provide stability and predictability in electricity pricing.

Owing to this, the Nigerian Electricity Regulatory Commission (NERC) was established to develop a new tariff regime based on industry revenue requirements. This led to the new tariff regime that took effect through a Multi-Year Tariff Order (MYTO) in 2008.

The MYTO-1 (2008)

The MYTO-1 was based on the new entrant cost profile for generation companies and the building block approach to electricity pricing of transmission and distribution services, all with an underlying set of pricing principles and cost assumptions. MYTO-1 was mainly aimed at providing the industry with a stable and cost-effective pricing structure to guarantee a modest return on investment for efficient industry operators. Concomitantly, the tariff order would safeguard consumers against excessive pricing.

The MYTO-1 employed the efficient new entrant model for pricing and the Long Run Marginal Cost (LRMC) method was adopted in determining the unit price of an efficient plant. The LRMC Method calculates the full life cycle cost of the most efficient new entrant generator considering current costs of plant and equipment, return on capital, operation, maintenance and fuel costs, etc. Its advantage is that it has its basis in economic theory and encourages new investment to enhance capacity whilst striving to maintain the lowest cost of generation. It aims at providing a reasonably efficient price as it is set at the lowest cost of a new entrant and should help to keep costs and tariffs at a minimum.

The Building Blocks approach to electricity pricing of transmission and distribution services was adopted because it guaranteed the efficient recovery of operating costs, reasonable returns on investment and capital recovery for replacement of fixed assets. Also, it protected end users against exploitative pricing.

The 2008 MYTO set tariffs for electricity consumers for a five-year time period, while providing a 15-year projection on the evolution of tariffs with time. The new tariff regime also provided incentives for reducing technical and non-technical losses, and signals for suppliers to invest more and consumers to adjust their consumption style efficiently. Tariffs for the initial five years, ranged from N9 to N11.50 per Kwh with an average of N10 per Kwh. Thus, the average electricity price which had stood at N6 per Kwh was increased substantially. Owing to this marked tariff increase, the Federal government designed a strategy that allows for a gradual rise in the price over four years (2008-2011) but without an increase in the first year; increases then occurring in years 2, 3 and 4. The tariff would become fully effective in the fourth year, 2011. In order to keep the sector financially viable, the government closed the gap between the required tariff and what consumers were actually billed. Unlike the previous uniform pricing regime, only the most needy tariff classes would enjoy a subsidy. The gradual removal of the subsidy is expected to reduce the burden on consumers while allowing them to adjust to the new price. The exit of the Federal government subsidy would occur when power availability rises sufficiently to enable a further rebalancing of the tariff.

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In addition, the NERC provided different pricing options for arriving at tariffs to power generators. The MYTO model was designed to be applicable to all industry participants and end users and incorporate major and minor reviews of the electricity tariffs. Four variables considered in the minor reviews are the inflation rate, gas prices, foreign exchange rates and actual daily generation capacity while a comprehensive review and overhaul of all the assumptions in the MYTO model are considered in the major review. The major review gave room for evaluating the methodology, adding inputs to the existing models, incorporating Feed-in-Tariffs (FITs) for renewable energy and developing tariffs for coal generation among stakeholders. The assumptions reviewed include available generation capacity; forecast of electricity demand; expansion of the transmission and distribution networks; capital expenditure; operating costs; fuel costs; interest rates; weighted average cost of capital; revenue collection efficiencies; and subsidies, etc.

Some Identified Challenges in MYTO-1

The commission identified substantial changes in gas prices and the exchange rate employed in the MYTO model and this made the rates unattractive to prospective participants. Also, it noticed that some potential investors in the generation segment of the electricity industry intended to enter the market using other sources of fuel for generating electricity such as coal, wind and solar, etc. which the MYTO-1, did not consider. However, its major disadvantage is that it fails to consider the different conditions that new or existing generators face. Owing to the above-highlighted challenges, NERC resolved to carry out the major review of the Tariff Order much earlier than the 2013 major review year.

MYTO-2

MYTO-2 was designed for the period 1st June 2012 to 31st May 2017 with effect from May 31, 2012. It was aimed at being cost effective and providing financial motivations for needed incremental investments in the industry. Invariably, these investments would lead to increasing improvement in the energy quantity and service quality enjoyed by the consumer.

The MYTO-2 introduced a wider review scope compared to the 2008 MYTO-1. For instance, material variation was incorporated into the MYTO-2 which is defined as a price variation of plus or minus five per cent (+/-5%) in any of the above mentioned elements (inflation, exchange rate etc.). In addition, its regulatory model was based on data obtained from market participants. Industry costs and tariffs developed in its financial model are formulated from estimates and forecasts supplied by the participants and establishments in the industry.

Furthermore, a bi-annual minor review was considered in the new MYTO-2 which included retail tariffs and effective corrections would occur if variables such as inflation rate, US \$ exchange rate, daily generation capacity, capital expenditure and operating expenditure requirements differ significantly from that employed in the original calculation of the tariff.

Some noticeable changes in the MYTO-2 include more flexibility in wholesale generation pricing, the consideration of many other essential variables during the minor reviews as well as other fuel types such as coal. In addition, the MYTO-2 created fourteen different classes of customers who would pay different rates according to their class. Consumers that use less than 50Kwh/month would enjoy a special benefit of not paying a fixed charge for their electricity and they are regarded as *Lifetime Consumers* (class R1). Further, the movement of R1 consumers to the next tariff class (R2) was based on the average monthly electricity consumption of the previous three months. For example, if the calculated average consumption for three months is above 50Kwh, the R1 consumer will be advanced to the next tariff class. However, an R1 consumer could use more than 50 Kwh of power in one or two months of the three, but still remain classed as R1 so long as the average usage for the three months was less than 50 Kwh.

Conclusion: Future Issues

Little or no attention has been given to the issue of fuel availability, particularly natural gas, (the considered fuel for the duration of MYTO-2). Paradoxically, gas, which as mentioned, provides 80% of the fuel for thermal generation is mostly concentrated in the Niger Delta region where the issue of insecurity, oil theft and pipeline vandalism is rampant.

References

MYTO 1 document available at www.nerc.gov.ng

MYTO 2 document available at www.nerc.gov.ng

Transmission Company of Nigeria Report available at www.tcnnng.org