



Is it Time to Establish a Parallel Electricity Market? (Part 2)

Solving Nigeria's power liquidity crises

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The PEM offers a pragmatic way out of one of the major bottlenecks that have engulfed the Nigeria power sector since privatization.

Introduction

A liquidity crisis has persisted in the Nigerian electricity supply industry (NESI) since privatisation in 2013. This liquidity crisis has constrained new investments across the entire sector, including over 1,000 megawatts of private sector-led on-grid renewable energy investments. As explained last week, three specific challenges (**NBET's Monopsony, NESI's Subsidy Regime, Consumer-NESI Distrust**) have sustained the liquidity crisis and constrained new investments in the electricity market so far. To tackle the liquidity crisis, this article recommends introducing a Parallel Electricity Market (PEM) – an electricity exchange for Nigeria.

How the PEM Works

The PEM is an electricity exchange – a marketplace to buy and sell electricity. In the PEM, Generation Companies (GenCos) will sell electricity to a select category of productive, high-consuming credit-worthy customers without the NBET. The PEM will provide 24-hour reliable electricity to its customers. Only large productive credit-worthy customers will initially be allowed to buy

electricity from the PEM, making the PEM operate at near-zero commercial losses and improve the entire sector's liquidity. As sales increases, so will profits. Other credit-worthy customers in the existing market would be allowed to join the PEM in phases.

Unlike the Eligible Customer Regulation (ECR), the PEM focuses exclusively on developing the on-grid market. In the PEM, electricity will be delivered using the grid alone, avoiding the risk of underutilising the grid infrastructure as would be the case with regulations that promote off-grid generation in grid-connected areas. Within the PEM, the system restricts the Transmission Company and distribution companies (DisCos) to transporting electricity alone;

however, they may continue trading electricity in the existing conventional electricity market. Within the PEM, the Transmission Company will charge a transmission use of service (TUoS) fee for operating the grid and transmitting electricity from power stations to the network's distribution end as it currently does. The DisCos will not sell electricity to customers in the PEM; instead, they will only be electricity transporters, receiving a distribution charge and competition transition charge (CTC). The distribution charge will cover the costs of electricity distribution in the PEM. The CTC will be used to compensate the DisCos for losing electricity sales to their prime customers. These prime customers will move in phases to the PEM.

Feature	PEM	ECR	MYTO 2020
Wholesale pricing	Promotes a transparent wholesale electricity price regime through a spot market and a derivatives market.	Promotes bilateral trading with no transparent reference electricity price, creating an inefficient pricing regime.	N/A
Time of use pricing	Facilitates time of use pricing, which is essential to meet Nigeria's on-grid renewable energy targets.	Cannot facilitate time-of-use pricing due to the decentralised nature of consumption.	Does not support time-of-use trading.
Grid utilisation	Promotes on-grid electricity trading exclusively, avoiding underutilisation of the grid and unnecessary increase in grid electricity price.	Promotes on-grid and off-grid electricity trading. Taking prime customers off the grid raises the price of grid electricity for customers left on the grid Nigeria.	N/A
Efficient expansion of the electricity markets	Promotes a more efficient expansion of the electricity market and provides a more efficient way of upgrading the grid infrastructure.	Promotes an efficient way for individual customers and GenCos to expand their energy trade; however, missing out on the opportunity to optimise expansion on a system-wide level.	N/A
Demonstration effect	Creating a prioritised and separate market does not just improve liquidity; it will have a profound demonstration effect, showing stakeholders what the rest of the market should aspire to.	Reminiscent of business-as-usual, where undersupplied customers who can afford it, go off-grid with diesel or gas generators.	N/A

Electricity Pricing in the PEM

Two trading markets will exist in the PEM: a spot market and a derivatives market. PEM customers bid in an auction system for available electricity advertised by GenCos up to thirty minutes before delivery in the spot market. The spot market price of electricity will change with demand and supply in the PEM, creating a transparent reference price for Nigeria. In the derivatives market, PEM customers can enter longer-term contracts with GenCos to hedge against volatility in the spot market. Parties to derivatives contracts could agree on a fixed long-term price with put-call options that allow GenCos to sell at an agreed minimum price and the customer to buy at an agreed maximum price. In its pricing regime, the PEM differs from the recently introduced service band pricing. While the Multi-Year Tariff Order (MYTO) 2020 sets retail prices based on service bands and

to avoid the even higher costs of self-generation through expensive diesel-fuelled electricity generation systems.

Benefits of the PEM

There are three critical arguments for the PEM. First, in the PEM, NBET will not bear the risk of low bill payment, reducing the fiscal burden on NBET. PEM customers will initially be large credit-worthy customers who have bankable credit letters. And as credit-worthy customers move in phases from the existing market into the PEM, less trade will occur in the existing market, allowing the market to wean off NBET sustainably. Second, creating a prioritised and separate market does not just improve liquidity; it will have a profound demonstration effect by showing stakeholders what the rest of the market should aspire to. Reliable supply in the prioritised PEM would also offer customers

While DisCos had, and continue to have their billing and collection inefficiencies, the non-cost reflective retail tariff was one of the sector's most critical issues.

service cost, the pricing regime in the PEM will depend on demand and supply in the PEM. Such a system will introduce productive competition in the wholesale market and prepare the market for time-of-use pricing. Non-PEM customers would not need to pay PEM prices until they join the PEM.

Customers in the PEM spot market will pay an auction clearing price, transmission cost, distribution cost, taxes, plus two extra charges as (CTC and reliability charges). The reliability charge includes two components. The first component covers capacity payments for an unplanned supply shortage in the PEM. The second component covers grid upgrades to enable 24-hour supply to premium customers. The incentive for these large customers to pay a cost-reflective tariff plus two extra charges will be the opportunity

the benefits of paying a sustainable price for electricity and make those who can afford it more willing to move to the PEM. The PEM will help build trust between the DisCos and customers as participating customers receive 24-hour reliable electricity and pay their bills with near-zero commercial losses. Such a reality could make non-participating customers more willing to pay higher electricity prices to join the PEM in subsequent phases. This assumes that consumers' willingness to pay is constrained primarily by a trust deficit rather than financial constraints.

Third, the PEM provides a more efficient way of upgrading the grid infrastructure. Grid upgrade investments can simply be directed towards projects that facilitate and expand profitable trade in the PEM. This approach would mean directing NESI operators' investments towards

parts of the grid that allow qualifying PEM customers to receive electricity simultaneously and reliably. Conditions for the Success of the PEM.

The PEM provides a powerful option to solve the liquidity crisis. However, the following factors must be in place to ensure its success:

1. Electricity price structure in the PEM must include distribution use of the system (DUoS) and CTC.
2. The power system must be modeled to identify the technical constraints to reliably supplying all prospective PEM customers simultaneously. The removal of these constraints would present profitable transmission and distribution network investment opportunities.
3. The regulator must enforce infrastructure upgrades by requiring operators who participate in the PEM to submit investment plans that facilitate and expand the PEM itself.
4. The government must re-adopt the strategy of facilitating industry-wide technical working groups to address pertinent issues that affect the sector's liquidity and performance.

5. Stakeholders must consider potential political opposition to the PEM from non-qualifying customers. There is the potential for non-qualifying consumers to perceive the PEM as an act of economic discrimination. However, careful and transparent stakeholder engagement will help to mitigate this potential risk to the PEM.

Next Steps

As the government and labour unions debate the electricity sector's fate, the PEM offers a suitable and sufficient option to improve liquidity in the industry. PEM's effectiveness can be easily modelled to determine the rate at which it will improve liquidity and accept new customers. To develop the PEM, stakeholders need to invest resources into modelling it from a social and technical perspective. After this, stakeholders can pilot the PEM in pre-identified zones.

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