

TECHNICAL NOTE 2: Igniting Economic Growth by Reforming Nigeria's Power Sector

Summary. Electricity not only fuels productivity, it is a vital catalyst in health, education, and other forms of social development including better health and education. According to the latest Tracking SDG7 report, 85 million Nigerians (43 percent of the population) have no access to electricity. Lack of reliable power stifles economic activity; in Nigeria, annual economic losses from lack of reliable power are estimated at 5 to 7 percent of GDP—at a cost of US\$25 billion. The transition to a largely privately owned sector did not bring about the outcomes expected. Distribution companies (DISCOs) report inefficiencies measured by aggregate technical, commercial and collection (ATC&C) losses at about 50 percent, far above the 15 percent that is international good practice. The inefficiencies combined with the irregularity in applying the tariff policy have led to a breakdown of the electricity payment chain. The cumulative shortfalls in tariff collections for 2015–19 were estimated at ₦1,678 billion (~US\$6.0 billion). In 2019 the tariff shortfall rose to ₦524 billion (~US\$1.7 billion), which was more than the total Federal Government of Nigeria (FGN) health budget.¹ It was also fiscally unaffordable. The FGN has recognized that the severely underperforming power sector threatens Nigeria's recovery from the oil price shock and the COVID-19 crisis; in 2020 it began to take critical action to help turn the sector around.

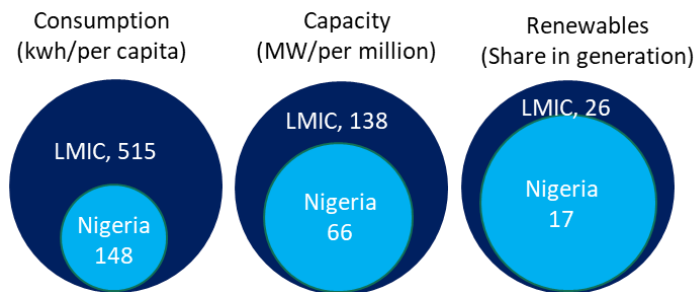
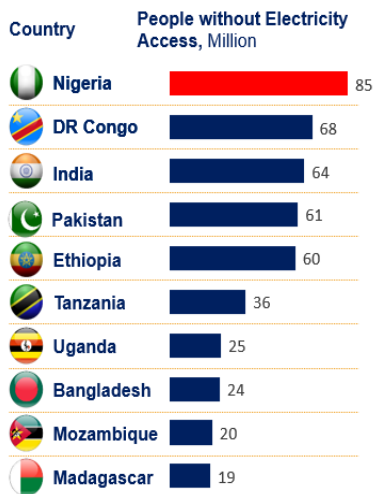
The country that currently has the least access to electricity in the world needs a power sector capable of meeting demand as it grows.

Nigeria's power sector problems have serious repercussions for economic growth. With 43 percent of the population (85 million people) lacking access to grid electricity, Nigeria has the world's largest energy access deficit (Figure 3.1). Nationwide, for the poorest 40 percent of the population, access to grid electricity is only 31 percent. Similar disparities exist between regions and between rural and urban areas. Even those who are connected to the grid cannot rely on the supply; they must deal with frequent outages. Firms cite lack of reliable power supply as one of the top constraints to their business.

Figure 3.1. Nigeria's unreliable, and for many inaccessible, power supply is a threat to economic growth.

Nigeria's consumption per capita, installed capacity, renewable share and access to electricity.

¹ In 2019 the tariff shortfall was ₦524 billion; the FGN budget for health was ₦428 billion.



Source: IEA and EIA

Source: Tracking SDG7, 2020 and Doing Business 2020

With the electricity supply unreliable and insufficient, businesses and wealthy homes have turned to expensive gasoline-run generators. It is estimated that in Nigeria over 22 million gasoline and diesel generators (“gensets”) power about 26 percent of all households and 30 percent of micro, small and medium enterprises (MSMEs); their net capacity is estimated to be eight times more than capacity connected to the national grid. Inhalation of smoke from gensets is linked to about 1,500 deaths annually, not to mention its impact on the country’s total GHG emissions. The FGN has committed to reducing its GHG emission by 45 percent by 2030 primarily from the energy sector and replacing the gasoline generators with clean energy solutions as solar, presents a big opportunity for meeting this target. In 2018 alone the FGN is estimated to have spent ₦ 490–670 billion (US\$1.6–2.2 billion) on subsidizing gasoline consumption for them. On top of that, ordinary Nigerians spent an estimated ₦3.7 trillion (~US\$12 billion) on purchase and operation of gensets. Annual economic losses from the unreliable electricity supply are estimated at about ₦ 7–10 trillion (~US\$25 billion)—5–7 percent of the GDP, but the losses will be much higher if the economic impact of GHG emissions is taken into account.

Firms that experience power outages are more exposed to sales losses compared to those that have continuous supply. Using the World Bank Enterprise Survey (WBES) database for Nigeria one can estimate the impact of reliable electricity on firms’ productivity. The database records a firm’s perception of its power constraint as minor, moderate, major, and very severe obstacle. Analysis indicates that the firms with a sales loss tend to be the ones reporting electricity as a moderate to severe constraint and experiencing more power outages. It is interesting to note that as the perception of electricity worsens, firms have a higher probability of suffering sale losses. A one-unit increase in the number of power outages increases the probability of sales loss by 0.001 percent. While this might look like a small number, one needs to keep in mind that in 2014 (the year of the data) an average Nigerian firm was experiencing 384 outages annually. The 2014-2019 period only got worse in terms of outages.

Unreliable electricity also has a negative effect on the ability of Nigerian firms to compete with their regional and global counterparts. Nigerian firms spend significant amounts to

arrange for supplemental power usually through gasoline or diesel-powered generators. This results in increased production costs that lowers productivity and negatively impacts their competitiveness. The grid connected tariff in 2019 was about US\$0.08/kwh making Nigerian electricity one of the cheapest in Sub Sharan Africa, potentially boosting firm competitiveness. However, widespread outages mean that small and large commercial and industrial enterprises spend over US\$0.40/kwh and US\$0.46 respectively on electricity². Such expenditures, without doubt, make electricity one of the largest components of a firm's cost structure especially in the services sector. Nigerian firms are spending 3 times of even the cost-reflective tariff of US\$0.14/kwh³ indicating that they probably have a much higher willingness to pay for reliable electricity than is generally perceived.

Tariff regulation and market contracts haven't been fully enforced since privatization (2013) and policy direction has been inconsistent, creating a state of constant crisis in the sector.

Nigeria's power sector is unbundled and since 2013 has been largely privately owned, but the transition did not produce the expected results. After the Electric Power Sector Reform Act was passed in 2004, the sector was unbundled into six generation companies (GENCOs), eleven distribution companies (DISCOs), and the Transmission Company of Nigeria (TCN). By 2013 the DISCOs and GENCOs had all been privatized. Three of the five thermal GENCOs, which use natural gas as fuel, were sold in their entirety to new owners, and three hydro GENCOs were transferred to private operators through concession contracts. TCN is still a government-owned monopoly. In the current stage of market development, known as the Transitional Market,⁴ the government-owned Nigerian Bulk Electricity Trading Company (NBET) fulfills the role of bulk trader. NBET buys electricity from GENCOs, including independent power producers (IPPs), and resells it to DISCOs. The transition from a publicly-owned to a largely privately-owned power sector did not bring the expected performance and service quality outcomes. Government ministries and agencies, the Nigeria Electricity Regulatory Commission (NERC), and the private sector have all fallen short of their expected contributions to the sector's turnaround.

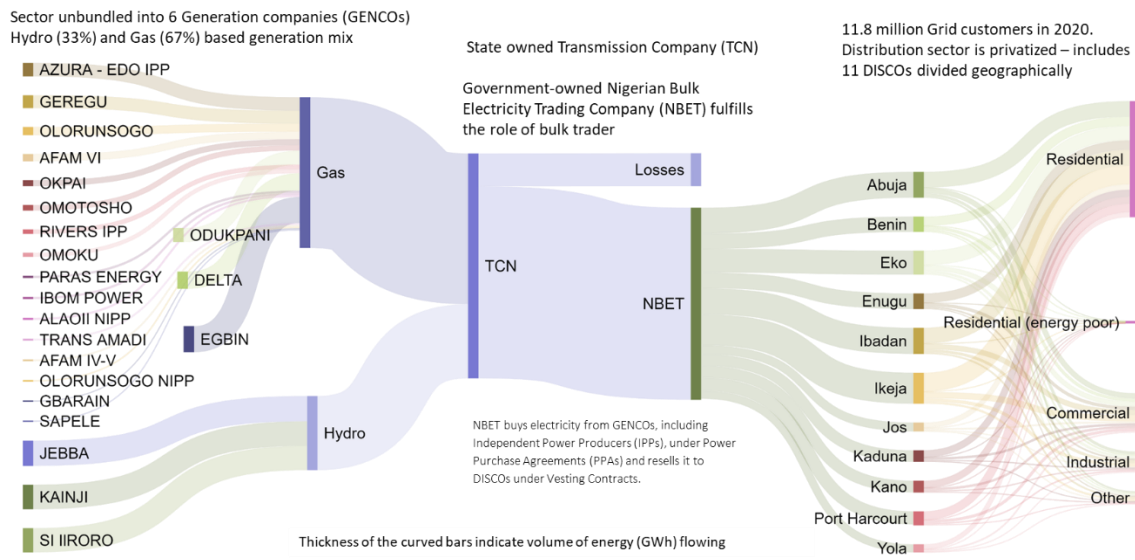
Figure 3.2. The power sector is unbundled and largely privately owned.

Electricity grid

² Based on WB team analysis of power sector in Lagos State.

³ Exchange rate is assumed to be the official rate of – ₦422 (Oct 2021) and cost reflective tariff data is calculated from NERC models that put the cost reflective tariff at ₦58-59/kwh

⁴ This is an intermediate step consisting of a bulk buyer (to interface between GENCOs and DISCOs) envisaged as leading ultimately to a fully functioning willing-buyer (DISCO) and willing-seller (GENCO) with no intermediary.



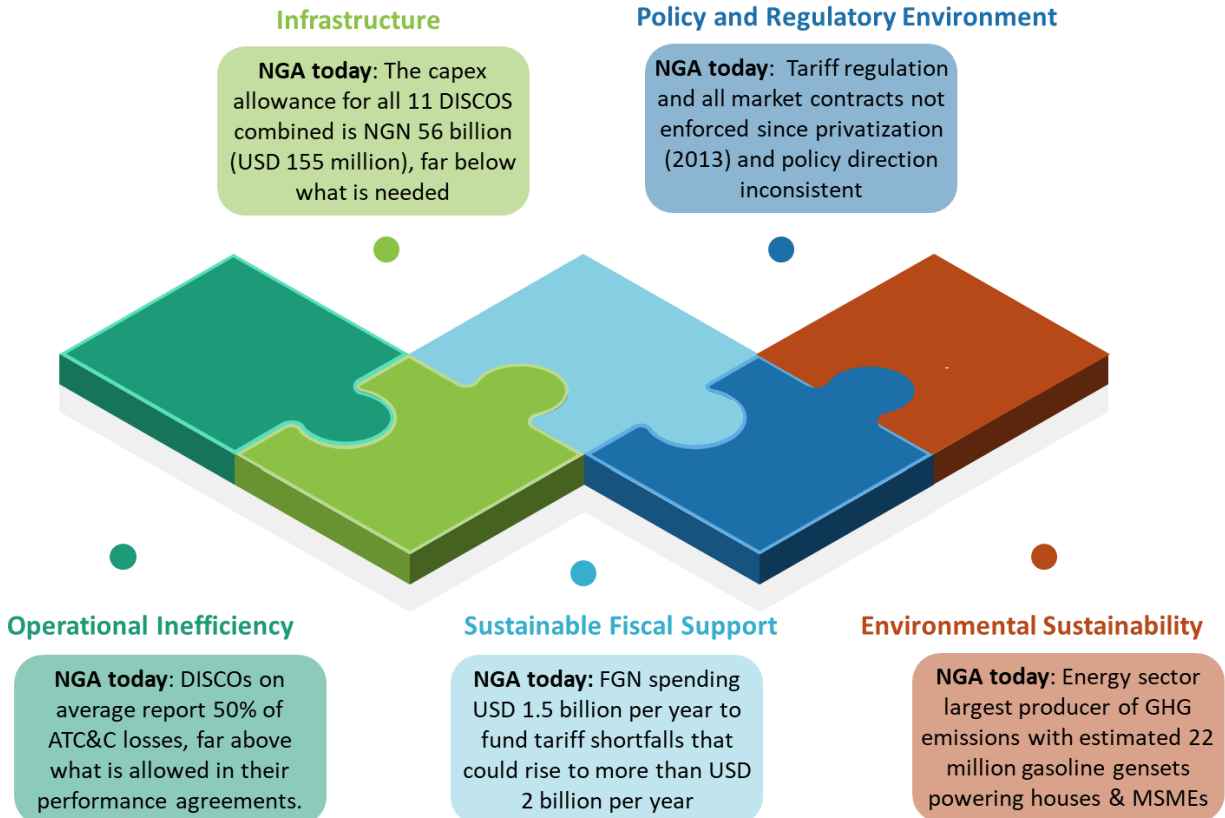
Source: World Bank 2020.

Inconsistent application of tariff policy has made sustainable electricity operations difficult. Although sector regulator NERC periodically issues Multi-Year Tariff Orders (MYTOs⁵) they are not actively enforced, with frequent delays often due to external factors like litigation and political interference. This delay causes the financial situation of sector companies, especially DISCOs, to deteriorate and leaves NERC unable to enforce the contractual obligations of the privately-owned GENCOs and DISCOs. There is also a lack of clarity about how to reduce losses and meet the capital expenditure targets specified in the Performance Agreements between DISCOs and the Bureau of Public Enterprises (BPE), which are used to determine the tariff levels.

The distribution segment is struggling with exceptionally high losses and low collections. The sector’s aggregate technical, commercial, and collection (ATC&C) losses are extremely high, with DISCOs reporting on average 50 percent in 2020, versus 26 percent allowed by NERC in the tariff policy. These high losses are exacerbated by inadequate metering of end-use customers and the failure of many ministries, departments, and agencies (MDAs) of federal, state and local governments to pay their electricity bills. The high losses, coupled with lack of payment discipline by DISCOs and inadequate contractual enforcement of those payments by NBET and NERC, results in low remittances to NBET by the DISCOs (Box 3.1).

Figure 3.3. The power sector must deal with five different types of problems. Comprehensive measures to move Nigeria’s power sector forward sustainably are needed

⁵ The MYTO methodology followed in Nigeria uses an incentive-based regulation that seeks to reward performance above certain benchmarks.

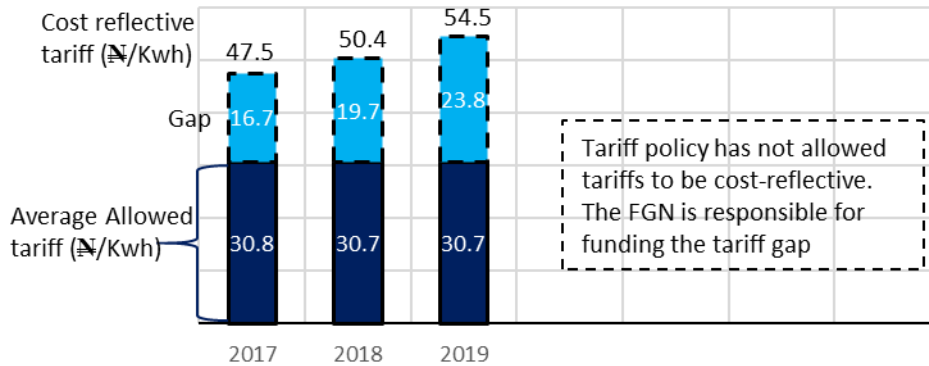


Source: Author's own elaboration based on World Bank 2020.

Lack of cost-reflective tariffs since 2012 and low remittances of DISCOs to NBET forced the FGN to intervene and cover the shortfall—a significant fiscal burden. The FGN is responsible for funding the tariff shortfalls, which are the difference between allowed and cost-reflective tariffs. Since 2012, the tariff shortfall widened significantly because allowed tariffs stayed flat but cost-reflective tariffs shot up due to foreign exchange depreciation and domestic inflation. The cumulative shortfalls for 2015–19 were an estimated ₦1,678 billion (US\$6.0 billion). To ensure that the GENCOs and gas suppliers received enough payments to continue generating electricity, since 2017 the FGN has borrowed a total of ₦1,301 billion (US\$4.2 billion). In 2019 total FGN support reached ₦524 billion (US\$1.7 billion), 0.4 percent of GDP—higher than the ₦428 billion budget for health and just 20 percent less than the ₦650 billion budgeted for education.

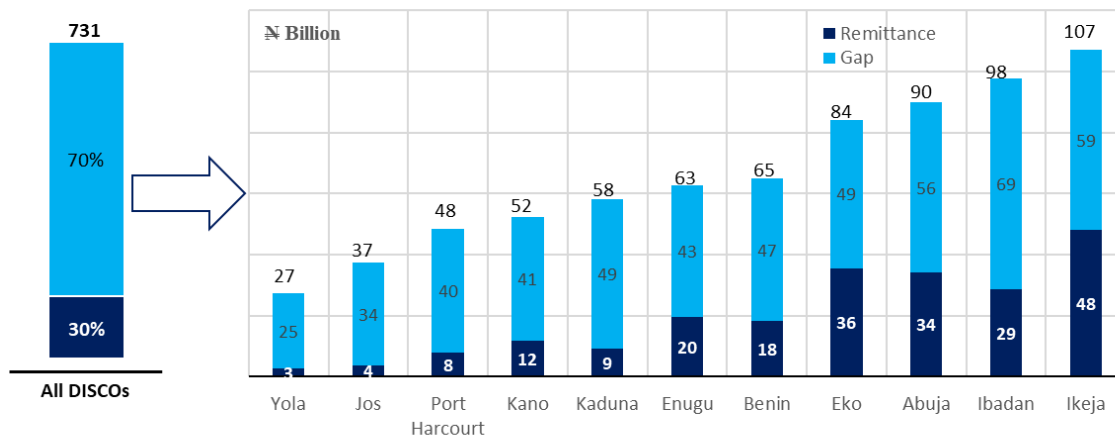
Figure 3.4. The Government has had to step in to cover shortfalls and let the energy flow.

Annual tariff shortfalls (difference between allowed and cost-reflective tariffs)



Remittance gap (Includes both tariff and nontariff shortfalls)

In 2020, the DISCOs could not pay for 70 percent of the energy they bought, a sum of ₦511 billion. The NBET billed the Discoms ₦731 billion but received only ₦220 billion.



Source: Nigerian Electricity Supply Industry (NESI) data, NERC.

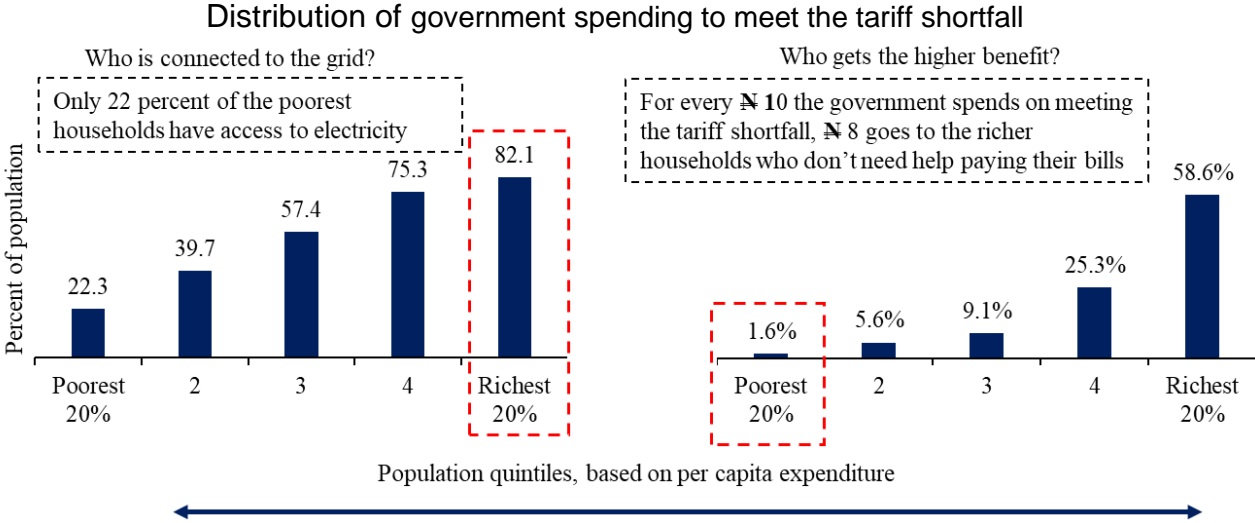
The current government funding to the sector to cover the tariff shortfalls is not benefiting the poor.

The FG N wanted to keep electricity tariffs low to protect the economically disadvantaged, but most of the benefits went to the relatively wealthy. Every Nigerian who receives electricity from a DISCO pays less⁶ for electricity than the cost of supplying it. However, 80 percent of the spending on tariff shortfalls benefits the richest 40 percent of the population; only 8 percent benefits the bottom 40 percent, and of this less than 2 percent benefits the poorest 20 percent.

⁶ This excludes the amount spent by consumers on gasoline, gensets, solar and other alternatives to augment the unreliable supply.

Significant resources spent on funding tariff shortfalls disproportionately benefit the relatively wealthy who have access to the grid and use more electricity, so that ultimately a big chunk of government support goes to those who do not really need help with paying bills.

Figure 3.5. Keeping tariffs low benefits the rich more than the poor.



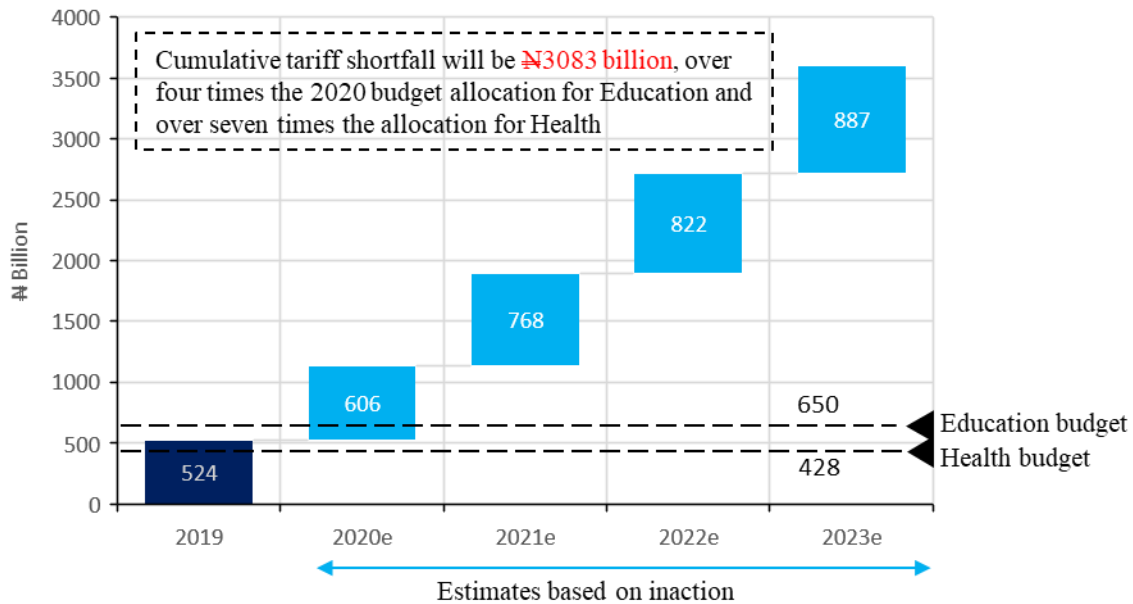
Source: World Bank 2020

The need to turn the power sector around has long been recognized by all parties—the government, the electric supply industry, the private sector, and international partners—as one of Nigeria’s most critical development priorities. The cost of inaction is very high. At the start of 2020, it was estimated that if the sector continued its current performance and tariffs stayed not only flat but far below cost-recovery, through 2023 the FGN would have to provide another ₦3.082 trillion⁷ (US\$7.94 billion) in regressive subsidies that benefit mainly the wealthiest consumers. And this massive spending would not have bought any improvements in service quality. Apart from taking money away from other important social development efforts, the power sector itself would continue being a serious barrier to economic growth and a threat to fiscal sustainability.

⁷ This analysis/scenario assumes no action on part of FGN in addressing tariff shortfalls. In reality, FGN did move in 2020 to narrow tariff shortfalls.

Figure 3.6. Early in 2020, it was predicted that through 2023 there would be another N3,082 trillion of tariff shortfalls.

Estimated new annual tariff shortfalls 2020-2023 *if* tariffs remained unchanged



Source: NESI Data, NERC, and FGN Budget 2019

The FGN is committed to reducing annual tariff shortfalls and in November 2020 took a significant step by introducing a service-based tariff (SBT),⁸ which effectively increased tariffs by an average of 38 percent. The FGN has targeted reducing new tariff shortfalls from ₦ 502 billion in 2020 to less than ₦ 300 billion in 2021 in its PSRP Financing Plan as it moves the power sector towards full cost recovery and a fair electricity pricing policy. The transition to the SBT and the increased payment discipline will enable DISCOs to increase collection efficiency and remittances to NBET and TCN, further improving the sector finances and enabling increased, better quality electricity supply to Nigerians. Reducing the tariff shortfall to improve financial and fiscal sustainability is one of the comprehensive reforms needed to turn the power sector around (see next section).

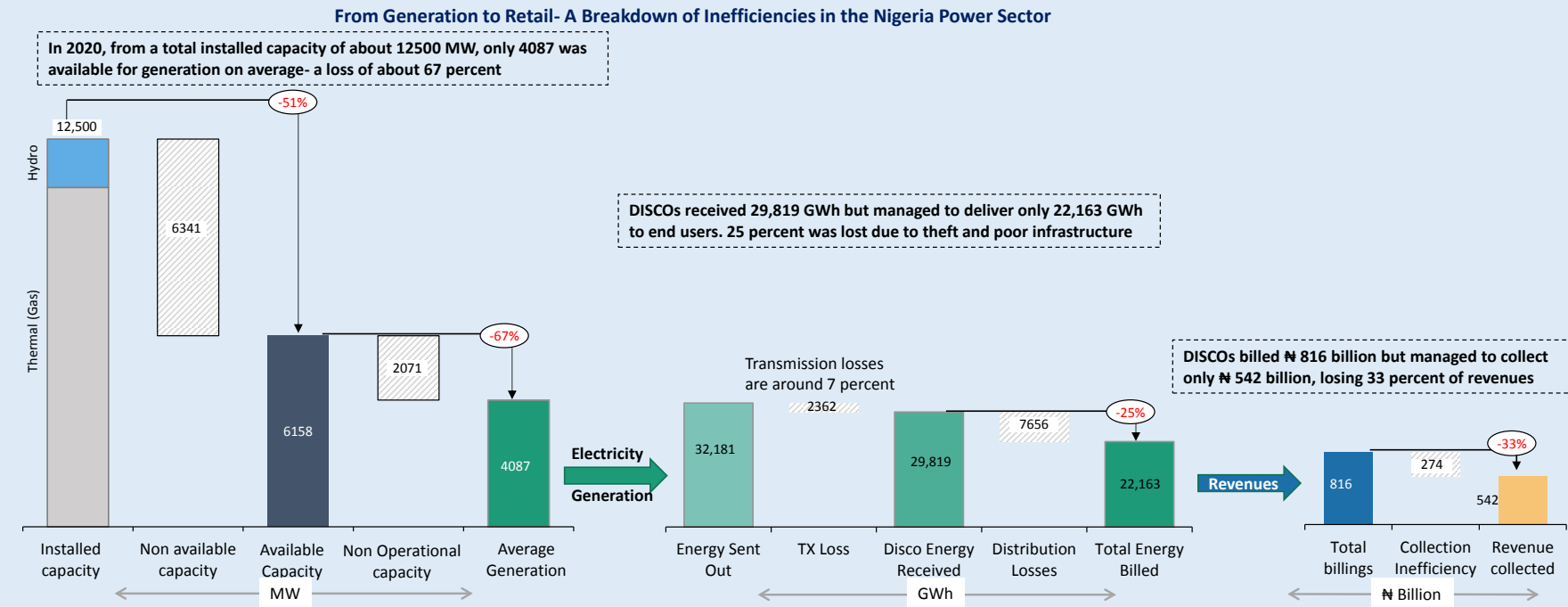
⁸ The SBT was introduced on September 1, 2020 and suspended for October, but has been in effect since November 1, 2020.

Box 3.1. Understanding Operational Inefficiencies and their Impact

Operational inefficiencies in the sector are numerous. To understand their extent and the impact they have on sector finances, it is helpful to travel along the supply chain using 2020 data from NERC:

Generation: Nigeria has about 12,500 MW of installed capacity, dominated by natural gas (88 percent) with hydro making up the rest. However, just over 51 percent of this capacity was not available in 2020 due to maintenance and repair work. Of the 6,158 MW available during the year, an average of just 4,087 MW was actually used for generation, because of both insufficient gas supply, transmission and distribution constraints, and the inability of DISCOs to purchase power. As a result, in 2020 only 33 percent of installed capacity was used.

Figure B3.1.1. From Generation to Retail: Inefficiencies in the Nigeria Power Sector



Source: NESI data, NERC.

Transmission and Distribution: The 4,087 MW of generation capacity available was used to generate 32,181 gigawatt hours (GWh) of electricity. This was sent to DISCOs, which received just under 30,000 GWh--a transmission loss of 7 percent, about 3 percent above benchmarks. Distribution network losses are also quite high. The DISCOs delivered only 75 percent of the electricity they received, losing 7,656 GWh to poor infrastructure and theft. In all 32 percent of electricity is lost during transmission and distribution.

Retail: DISCOs could bill 22,163 GWh of electricity to their customers (60 percent of whom are not metered). This should have ideally generated ₦816 billion in revenue for the DISCOs, but they were unable to collect only 33 percent of these revenues leading to collection of only ₦542 billion in 2020. Thus, inefficiencies in the distribution sector contribute a significant portion of the 50 percent aggregated technical, commercial and collection (ATC&C) losses.

A holistic approach integrating comprehensive measures is necessary to address Nigeria's power problems sustainably.

Addressing problems of power sector offers Nigeria an opportunity to tackle longstanding challenges and give the economy a boost. To address the economic challenges that have arisen from the oil price shock and COVID-19, in July 2020 the FGN launched a ₦ 23 trillion (US\$5.9 billion) Nigerian Economic Sustainability Plan (NESP). The NESP lays out an ambitious package of policy measures and programs to stimulate activity and create jobs through investments in agriculture, roads, renewables, and housing. But any economic recovery program will be severely challenged by minimal access to electricity, an insufficient power supply, and a financially unviable power sector. However, the focus on kickstarting the economy, and the general push to place it on a stronger and more sustainable recovery path, provide a new impetus to reforms in the sector.

There is a broad political consensus and real commitment to start turning around the sector by taking critical actions set out in the Government's Power Sector Recovery Programme (PSRP), some of which has already been done. The PSRP is a comprehensive package of financial, operational, governance, and policy interventions for restoring the sector's financial viability, improving service delivery, reducing its fiscal burden on the government budget, strengthening sector governance and transparency, and ensuring that contracts are enforced and reforms communicated. Given how urgent it is to address the multiple challenges in the sector, a Presidential Working Group has been created to coordinate and monitor the sector reforms. The FGN has chosen to undertake critical PSRP actions in all four areas: (a) policy and regulatory environment; (b) fiscal and financial sustainability; (c) operational efficiency; and (d) network infrastructure. It will not be easy to reverse many of the important regulatory actions, such as NERC requiring DISCOs to prepare and carry out performance improvement plans (PIPs), issuance of the order to cap estimated billing, and launching the extraordinary MYTO review to set new conditions for DISCOs and TCN. There is also widespread agreement within the government that improvements in sector performance are necessary conditions for future public funding, i.e., no more unconditional funding.

Increasing the capacity and reliability of the transmission network is critical to the sector's financial viability. Insufficient investment in transmission has curtailed the network's capacity to transport power, contributing to the fact that only 33 percent of the installed capacity is usable. Historically, transmission investment has been led by political pressure to connect all parts of the country to the grid rather than demand from the Discos to deliver power where paying customers are located. Hence, much of the grid is underused and the transmission capacity in high-demand areas is inadequate. Such mismatches between supply and demand can be addressed with integrated resource planning coordinated by the regulator. There is a clear need to refurbish the transmission infrastructure to enhance system stability and ensure that the grid can dispatch generation at lower cost while increasing the supply. At the same time, Nigeria is a critical member of the West Africa Power Pool (WAPP), the regional market launched in 2018, which can significantly improve the electricity supply not just in Nigeria but throughout all of West Africa. By the mid-2020s it is expected that all 14 countries in the WAPP will be interconnected; efforts are already underway to increase the capacity of the network and to reinforce it in order to increase domestic supply and accrue the benefits of regional trade.

Because DISCOs own and operate the Nigerian distribution network, they are central to the turn-around of sector performance. The PSRP recognizes poor revenue collection and remittances, as well as insufficient investment, as factors in the inadequacy of DISCO

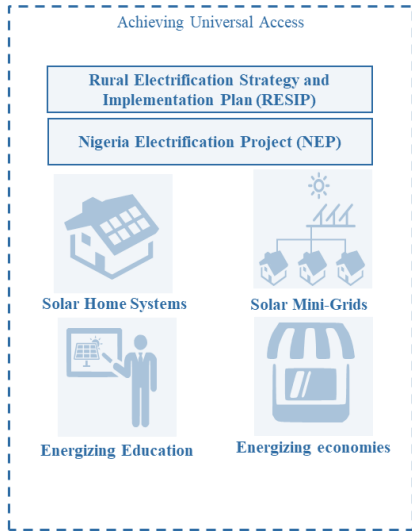
performance. Recognizing the critical need to improve distribution and transmission networks the FGN has provided ₦ 240 billion to improve services and resolve transmission and distribution bottlenecks. Programs such as the National Mass Metering Program aim to increase metering significantly to help DISCOs increase their billing transparency and collection efficiency. PIP preparation and activation under NERC guidelines will ensure that investment planning is fact-based rather than speculative. Timely adherence to PIPs will improve the technical and financial performance, and the governance, of DISCOs, reducing ATC&C losses, increasing collection rates, and connecting more customers to the grid. This will eventually enable the sector to end FGN assistance and fill its investment needs by accessing private financing.

Increasing operational efficiency and improving infrastructure are essential for a transition to clean energy. The energy sector is the largest contributor to Nigeria’s greenhouse gas (GHG) emissions. The country has committed to cutting its GHG emissions by 45 percent by 2030, primarily from the energy sector; 22 percent of the targeted emissions can be met by replacing the more than 20GW of gasoline-based generator capacity that Nigerians use to supplement grid-based electricity. In the short to medium term, distributed solar-based solutions for homes and rooftops, and mini grids, can be used to replace the gensets using innovative business models and financing that meets the needs of end-users, developers, and local finance institutions. In the long run, grid-connected solar capacity is a critical component of the least-cost generation path that can keep the sector in line with the Nationally Determined Contribution targets. A framework that addresses credit risk for buyers and allows market-based mechanisms for bilateral deals between generators and DISCOs will be required if grid-based solar is to take off.

There is widespread acknowledgment that increasing access to electricity is critical to Nigeria’s plans for recovery from COVID-19 and the oil price shock. To achieve universal access to electricity by 2030, Nigeria would need to connect 500,000 to 800,000 households every year. Both grid-extension and off-grid solutions will be needed to provide timely quality services to unserved and underserved households and businesses, especially as the country recovers from the impact of the pandemic. Recognizing the need for action outside the grid-connected areas that the DISCOs currently service, the FGN launched the Rural Electrification Strategy and Implementation Plan and the Nigeria Electrification Project to focus on underserved rural populations and rural institutions. The Rural Electrification Agency has since established the Rural Electrification Fund. Additionally, the FGN launched the Solar Power Naija initiative in April 2021 that aims to roll out 5 million solar connections in communities that are not connected to the grid.

Figure 3.8. FGN is already responding to the policy priorities for the power sector.

Reform programs implemented



Resetting the Nigerian Power Sector



Operational Efficiency

- Strengthened DISCO corporate governance
- DISCO management information systems
- NERC performance monitoring system
- Performance Improvement Plan (PIP) for DISCOs

Policy and Regulatory Environment

- Tariff RESET and Business Continuity Regulations in place
- Strengthened financial & operational transparency

Sustainable Fiscal Support

- A Financing Plan in place ensures tariff shortfalls are fully funded

Infrastructure

- PIP implementation by DISCOs and leverage other financing for PIPs

Source: REA and FGN.

Key Policy Options

Why Reforms Are Needed	Which Reforms Are Critical	What Impact these Reforms Could Have
Strengthening the Policy and Regulatory Environment		
<ul style="list-style-type: none"> One of the biggest challenges in the sector is inadequate enforcement of sector contracts. Delays in issuance of MYTOs on tariff reviews and effective application of their outcomes hurt the sector. Performance targets for DISCOs under current MYTOs fall short. 	<ul style="list-style-type: none"> Carry out an extraordinary tariff review for all DISCOs and before year end 2021 issue new MYTOs to set the revenue requirements for these companies for 2022–25. <i>Who:</i> NERC Include in revenue requirements allowances for capital and operating expenditures and estimated total aggregated technical and commercial losses in supply, based on Performance Improvement Plans (PIPs) approved by the Regulator. <i>Who:</i> NERC Sector institutions fully commit to adhere effectively to sector contracts and regulations. <i>Who:</i> NERC, TCN, NBET, FGN Improve the investment climate, including economic procurement of generation capacity pursuant to a Least Cost Development Plan (LCDP) and clarification of the monetary and fiscal policies that provide incentives for private investments in the power sector. <i>Who:</i> FGN 	<ul style="list-style-type: none"> DISCO payment discipline is strengthened and enforced. Regulatory conditions are predictable and defined through 2025. The investment climate improves.
Achieving Fiscal and Financial Sustainability		
<ul style="list-style-type: none"> The FGN cannot afford the more than ₦500 billion (over US\$1 billion) of new tariff shortfalls annually. DISCOs do not pay up to 70 percent of their invoices to NBET. 	<ul style="list-style-type: none"> Move toward full cost recovery with tariff adjustments through new MYTOs, accompanied by measures to protect the poor and enforce payment discipline. <i>Who:</i> NERC Implement the PSRP Financing Plan to fully fund new tariff shortfalls and clear historical arrears with sustainable sources of funds. <i>Who:</i> FGN (Federal Ministry of Finance, Budget and National Planning – Budget Office of the Federation) 	<ul style="list-style-type: none"> Tariff shortfalls are fully funded and gradually reduced to zero. The fiscal burden of the power sector on the FGN is reduced. The financial situation of DISCOs improves as tariffs come to better reflect current conditions and the costs of efficient service delivery.

Improving Operational Efficiency		
<ul style="list-style-type: none"> Operational inefficiencies in the system result in massive financial as well as economic losses. There is an immediate need to ensure that the transmission and distribution networks receive at least the minimum level of supply that allows the grid stability and reduction of system outages. 	<p>Address constraints in the transmission and distribution segments and maintenance issues in generation.</p> <ul style="list-style-type: none"> Implement PIPs⁹ approved by NERC in late April 2021, to be reflected in MYTOs of extraordinary review for 2022–25. <i>Who:</i> DISCOs Systematically oversee DISCO performance after MYTOs are issued, and adopt corrective action (including license revocation) when DISCOs fail to adhere to PIPs and deliver on MYTO provisions. <i>Who:</i> NERC Follow corporate governance and transparency best practices. <i>Who:</i> DISCOs Increase accountability and transparency: <ul style="list-style-type: none"> Timely publish financial statements of DISCOs audited according to International Financial Reporting Standards. <i>Who:</i> DISCOs Publish key operational and financial performance data of the sector every quarter <i>Who:</i> NERC 	<ul style="list-style-type: none"> Minimum supply necessary for grid stability is achieved. The distribution network is increasingly reliable. Operations in all business areas of DISCOs are efficient, transparent, and accountable. Investor confidence increases as DISCOs emerge as credible commercial partners. Sector credibility and investor confidence both increase.
Expand and Improve Infrastructure		
<ul style="list-style-type: none"> Substandard infrastructure is a major factor in sector inefficiencies. There is an urgent need to improve and expand the network to improve the quality of supply. Poor access to electricity severely impacts the economic prospects of all Nigerians. About 43 percent (~85 million people) of the 	<ul style="list-style-type: none"> Define technical and operational interventions required to turn-around operations. Identify the capital investments required to do so in the PIPs. <i>Who:</i> DISCOs To close the metering gap, effectively implement programs for metering of customers. <i>Who:</i> DISCOs Tackle electricity theft and bill collection to reduce the critically high ATC&C losses. <i>Who:</i> DISCOs 	<ul style="list-style-type: none"> ATC&C losses are reduced from an unsustainable 50 percent. Quality of service improves Better collection increases revenues Increase i transfer capacity of the transmission network. Dispatch least-cost generation and enhance regional trade to optimize costs. Increase access.

⁹ DISCOs prepared PIPs based on guidelines issued by NERC in 2019 that could incorporate tools (information systems, revenue protection programs, etc.) to improve efficiency and enhance transparency and accountability in operations

<p>population has no access to electricity</p>	<ul style="list-style-type: none"> • Upgrade, rehabilitate, and reinforce transmission lines. <i>Who:</i> TCN • Adopt a dual strategy to expand access to electricity service that involves off-grid access solutions, such as mini grids and solar home systems. Focus on underserved rural populations and rural institutions, such as schools, health centers, and administrative buildings as well as rural businesses, farms, and enterprises for job creation and economic development. <i>Who:</i> FGN, REA 	
<p>Clean Energy Transition</p>		
<ul style="list-style-type: none"> • The energy sector is the largest contributor to GHG emissions. Over 20GW of gasoline genset capacity is employed by households and small businesses, about 8 times more than the national grid. 	<p><i>Short and Medium Term</i></p> <ul style="list-style-type: none"> • Create enabling regulatory and policy for unlocking Distributed Photovoltaic (DPV) solar market <i>Who:</i> NERC, FGN, State Governments, CBN, DFIs • Identify innovative-use cases and business models for scaling up DPV <i>Who:</i> Private sector, DFIs, FGN <p><i>Long Term</i></p> <ul style="list-style-type: none"> • Define enabling conditions for development of large-scale grid connected solar projects <i>Who:</i> NERC, FGN, DISCOs, GENCOs 	<ul style="list-style-type: none"> • Renewables comprise a larger share of the generation mix. • GHG emissions from the power sector are reduced.

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