

ARE INDEPENDENT DISTRIBUTION NETWORKS A VIABLE SOLUTION FOR ACHIEVING SDG7 IN NIGERIA?

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Nigeria's power development journey since 2005 reflects an emphasis by the Federal Government on the development of on-grid solutions over other solutions to provide electricity throughout the nation. This is in spite of the fact that on-grid solutions have consistently proven an inadequate and insufficient solution to the problem of blackouts and unreliable electricity. The alternative to on-grid solutions is the introduction of off-grid solutions across the entire electricity supply chain. In the distribution sector, this means developing a well-structured independent electricity distribution network (IEDN). Considering Nigeria's Sustainable Development Goals (SDG) 7 commitment, are IEDNs the way to go?

NIGERIA'S CURRENT ELECTRICITY DISTRIBUTION STRUCTURE

The electricity framework which presently subsists was developed by the FG in 2005 to unbundle the electricity sector and it favors the entrenched distributed networks that supply electricity to massive franchise areas under licenses issued by the Nigerian Electricity Regulatory Commission (NERC). Revenue burdens on the whole electricity value chain are placed on these power distribution companies who are responsible

for funding their operations and liabilities as well as remit payments for services provided throughout the value chain. Tariff is centrally determined by the NERC based on several macroeconomic indices which are subject to regular fluctuation. These indices include gas price, local inflation, USD exchange rate, US inflation rate and available generation capacity. Under the multi-year tariff order structure, tariff should be reviewed and updated annually in line with those indicators.

NIGERIA'S ELECTRICITY DISTRIBUTION STRUCTURE AND ITS PROBLEMS

Nigeria's current electricity distribution structure has characteristics which happen to also be the bane of the structure:

- Franchise areas covered under Distribution Licences are too vast to cover all at once and immediately, without steady growth and profitability. Many of the successor-Discos were artificially granted coverage areas without previous experience and with insufficient workplans with no viable paths to profitability. This has proven an unwise approach to electricity distribution.
- The tariff structure previously emphasized a subsidized electricity tariff model where high-end customers subsidize the cost of power to lower income customers and the overall cost of electricity is partly subsidized

1

by the government when tariffs are not cost-reflective. This has beleaguered the electricity value chain and the Federal Government's purse. Since the summer of 2021, Nigeria has steadily moved toward a cost reflective tariff model, which in turn has meant tariff increases across the different tariff bands. This measure has been unpopular due to the general economic conditions in the country. With an upcoming election, power will be a significant point for election campaigns this season, especially in light of general popular and political unwillingness to move the market toward cost-reflective tariffs. This concern is particularly due to the centralized nature of electricity supply and distribution and tariff setting in the country.

- The Multi-Year Tariff Order (MYTO) annual review has not been strictly adhered to and the macroeconomic indices priced into the tariff have fluctuated faster than NERC has updated the tariff. As NERC has sought to update tariffs more regularly, this has led to regular and significant increases in tariff over the past several months and in light of the macroeconomic conditions, has placed a heavy burden on average Nigerians especially those in lower income communities.
- Despite the increasing tariff, power supply has remained erratic and unreliable. In April 2022, the grid collapsed twice, subjecting major portions of the Nigerian economy to power

2

A key part of SDG 7 is access to reliable electricity. In the Nigerian context, affordable and reliable have proven difficult to achieve. The apparent outworking of the current regulatory framework has worked against the unbundling and privatization of the power sector assets undertaken under the EPSRA of 2005 brought with it technical and commercial issues that have proven difficult to surmount. Across the electricity value chain, debt, inefficient assets and operational constraints have bogged down electricity security. This has effectively stunted the achievement of SDG 7 through grid power and opened the option of considering the viability of off-grid solutions for the purpose.

One viable off-grid solution that has been used as a successful supplement to achieve SDG 7 under the current framework are independent distribution networks. In rural areas, the current structure is presently being supplemented by developmental investment in mini grids in order to achieve reliable, modern and affordable electricity. Mini grids are independent distribution networks which under Nigerian law are required to supply power below 100Kw. This capacity is sufficient for rural electricity needs where power requirements mostly cover lighting and the charging of small electrical devices. However, mini grids are insufficient for urban and

suburban requirements, and in light of migration patterns and population density, solving the SDG 7 question for rural areas alone is counterproductive and unsustainable in the long run. Therefore, considerations must be made toward achieving electricity security in urban contexts.

ACHIEVING SDG7 IN URBAN AREAS USING OFF-GRID GENERATION AND IEDN

Under Nigerian law, off-grid electricity generation and Independent Electricity Distribution Networks (IEDNs) provide a solution for urban and suburban settlements.

The IEDN Model provides a sturdier bridge to achieving SDG 7 for a number of reasons:

- IEDNs can test run smaller service areas in order to achieve commercial viability and

ROADBLOCKS: IEDNs VERSUS SUCCESSOR DISCOS IN NIGERIA

The apparent monopoly of successor DisCos over franchise areas has created problems for the distribution network and served as a stumbling block for new entrants. This is more so as the law permits NERC to grant licence to a prospective IEDN in only two instances: where there is no existing distribution system in the area to be served by the IEDN or where the NERC is satisfied that the infrastructure of a DisCo is unable to meet the electricity demands of the customers in the area. In many cases, these conditions are hard to fulfil in the urban areas that are adequately covered by existing distribution networks. In suburban and rural areas which are not connected to the grid, many areas have some form of distribution infrastructure or the other. The DisCos argue that they are expanding their infrastructure and therefore the case for an IEDN would not hold.

CONCLUSION

Achieving SDG 7 is an important policy objective for Nigeria. For urban and suburban communities, this means resolving the lack of adequate power delivery from the grid, for

3

commercial, industrial and residential areas. The present electricity distribution model that grants an apparent monopoly to successor DisCos has not delivered on its objective of powering Nigeria. It is therefore important for policy thinkers, business operatives and investors to consider alternate models to achieve this goal. IEDNs are an attractive and workable option for this purpose, however, they may be hindered by DisCos seeking to enforce their apparent franchise monopolies. Regulatory frameworks must be updated to accommodate this option without the burden of litigious pushback from the successor DisCos. This option is beneficial to the Nigerian economy and will speed up the process of achieving SDG 7 in the country.

4

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5