

NIGERIA POWER GUIDE

Volume 5, 2024 Edition

Detail

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TABLE OF CONTENTS

Executive Summary

Chapter One:

Structure of the Nigerian Power Sector

Chapter Two:

State of the Nigerian Power Sector

Chapter Three:

Tariff Development till Date

Chapter Four:

Legal Framework for Power Generation, Distribution & Transmission Options in Nigeria

Chapter Five:

Key Provisions of the Electricity Act 2023

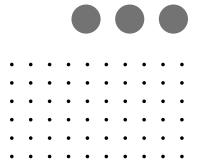
Chapter Six:

Power Sector Outlook

GLOSSARY

AEDC	Abuja Electricity Distribution Company
AMCON	Asset Management Company of Nigeria
ATC&C	Aggregate Technical and Commercial Collection Losses
BPE	Bureau of Public Enterprises
BPE	Bureau of Public Enterprises
CBN	Central Bank of Nigeria
CBN-NEMSF	Central Bank of Nigeria – Nigerian Electricity Market Stabilization Facility
DBP	Domestic Base Price
DISCO	Distribution Company
EDF	Electricity Distribution Franchising
EG	Embedded Generation
EPC	Engineering, Procurement and Construction
EPSRA	Electric Power Sector Reform Act
ETO	Energy Transition Office
ETP	Energy Transition Plan
ETWG	Energy Transition Implementation Working Group
FGN	Federal Government of Nigeria
FMP	Federal Ministry of Power
GACN	Gas Aggregation Company of Nigeria (GACN)
GEAPP	Global Energy Alliance for People and Planet
GENCO	Generating Company
GSA	Gas Sale Agreement
IEDN	Independent Electricity Distribution Network
IEDNO	Independent Electricity Distribution Network Operator
IETN	Independent Electricity Transmission Network
IETNO	Independent Electricity Transmission Network Operator
IOCs	International Oil Companies
IPP	Independent Power Producers
ISO	Independent System Operator
MD	Maximum Demand
MMBtu	Million British thermal unit
MO	Market Operations
MW	Megawatt
MWh	Megawatt hour
MYTO	Multi Year Tariff Order

NBET	Nigerian Bulk Electricity Trading Company
NCCC	National Council on Climate Change
NCP	National Council on Privatization
NDPHC	Niger Delta Power Holding Company
NELMCO	Nigerian Electricity Liability Management Company Limited
NEP	Nigeria Electrification Project
NEPA	National Electric Power Authority
NERC	Nigerian Electricity Regulatory Commission
NESI	Nigerian Electricity Supply Industry
NESP	Nigerian Energy Support Programme
NGIC	NNPC Gas Infrastructure Company
NGML	NNPC Gas Marketing Limited
NIMASA	Nigerian Electricity Management Service Agency
NIPP	National Integrated Power Projects
NMDPRA	Nigerian Midstream and Downstream Petroleum Regulatory Authority
NNPC	Nigeria National Petroleum Company
Non-MD	Non – Maximum Demand
NSE4ALL	Nigeria Sustainable Energy for All
NUPRC	Nigerian Upstream Petroleum Regulatory Commission
O&M	Operation and Maintenance
OPEX	Operational Expenditure
PAC	Partial Activation of Contract
PCC	Partially Contracted Capacity
PHCN	Power Holding Company of Nigeria
PIA	Petroleum Industry Act
PIP	Performance Improvement Plan
PMS	Premium Motor Spirit
PPA	Power Purchase Agreement
PPI	Presidential Power Project
PPPRA	Petroleum Products Pricing Regulatory Agency
PSRP	Power Sector Recovery Program
REA	Rural Electrification Agency
REF	Rural Electrification Fund
SERC	State Electricity Regulatory Commission
SO	System Operations
TCN	Transmission Company of Nigeria
TEM	Transitional Electricity Market
TSP	Transmission Service Provider
USD	United States Dollars
VC	Vesting Contract



EXECUTIVE SUMMARY

The following topics are covered in this Guide:

1. STRUCTURE OF THE NIGERIAN POWER SECTOR

This section discusses the structure of the Nigerian power sector. It introduces the power sector and its current framework covering matters such as the regulatory framework, industry participants in the Nigerian Electricity Supply Industry (NESI), electricity trading and payment structure in the NESI as well as the market stages of the NESI.

2. STATE OF THE NIGERIAN POWER SECTOR

This section discusses the current state of the Nigerian power sector. It highlights the options, sources and capacity of electricity generation, electricity transmission and electricity distribution in the NESI. It also identifies on-going power projects and initiatives in the power sector as well as the key constraints affecting the Nigerian power sector. Other issues considered under this section are recent regulatory and statutory developments which affect the power sector such as the enactment of the Constitution (Fifth Amendment Act, 2023 and the proposed privatization of the National Integrated Power Projects (NIPP) plants among others.

3. TARIFF DEVELOPMENT TILL DATE

This section summarizes the progression of tariffs in the NESI beginning from the MYTO 1 of 2008 to the MYTO 2024 of 2024.

4. LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION & TRANSMISSION OPTIONS IN NIGERIA

This section provides a summary of the options for power generation, power distribution and power transmission available in the Nigerian power sector.



5. KEY PROVISIONS OF THE ELECTRICITY ACT 2023

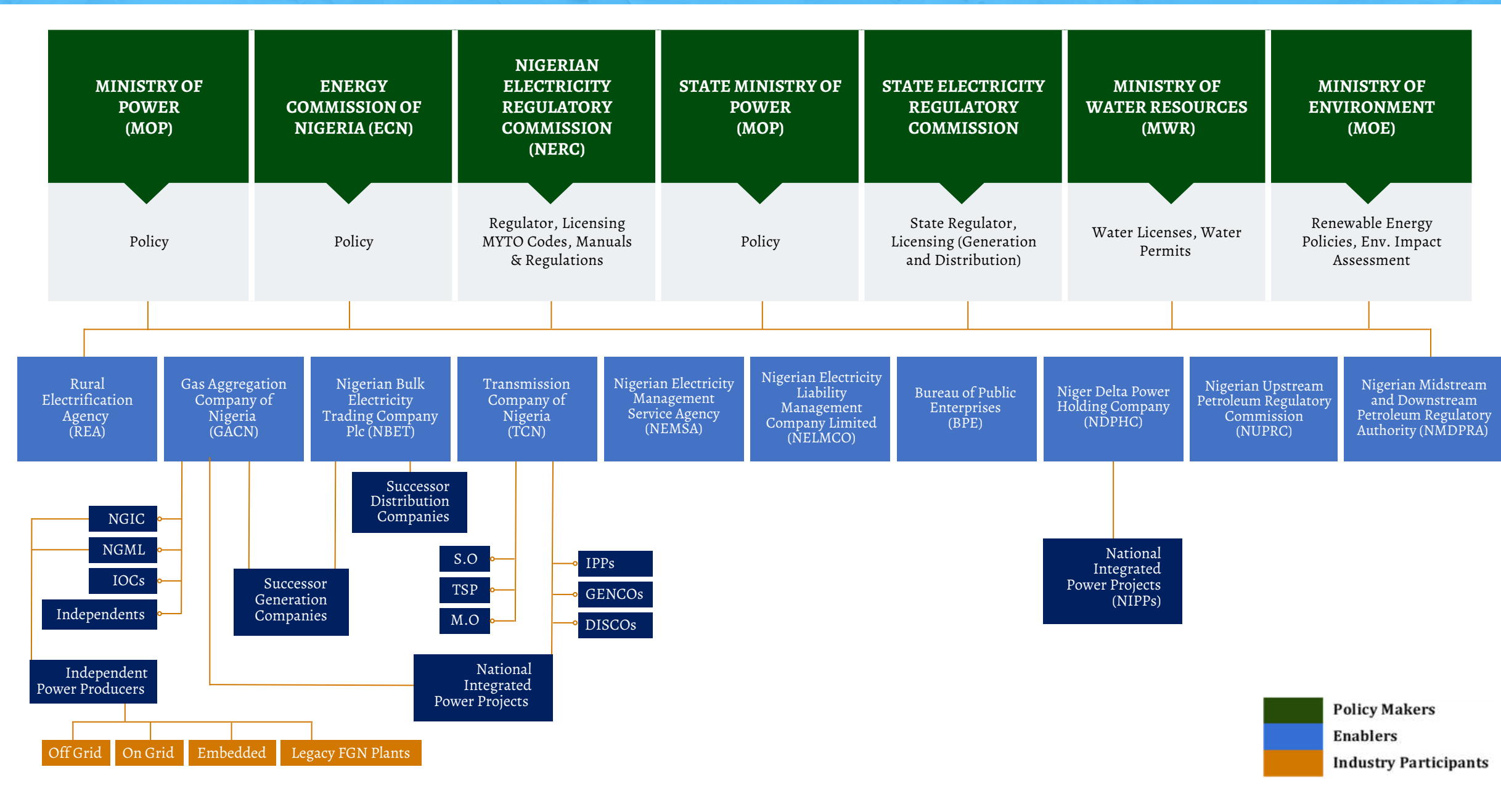
This section contains a high-level summary of the key changes introduced by the Electricity Act, 2023. In this section, we highlight some of the new provisions introduced by the Electricity Act, while analysing the impact of the new introductions on stakeholders in the power sector.

6. POWER SECTOR OUTLOOK

This section recaps recent events in the NESI and provides a forecast of activities in the NESI in 2023. Additionally, it provides Detail's outlook on potential investment opportunities in the power sector based on recent events affecting the power sector such as the enactment of the Electricity Act, the implementation of bilateral contracts between Distribution Companies and Generation Companies, the use of Distribution Franchising and Embedded Generation, to name a few.

Disclaimer: The content of this Power Guide edition, particularly in relation to the legal and regulatory framework of the Nigerian Electricity Supply Industry (NESI), is based on the state of the NESI as of the date of issuance. This Power Guide does not contain information on any legal or regulatory framework that may come into force upon the implementation of the Electricity Act 2023, in the future.

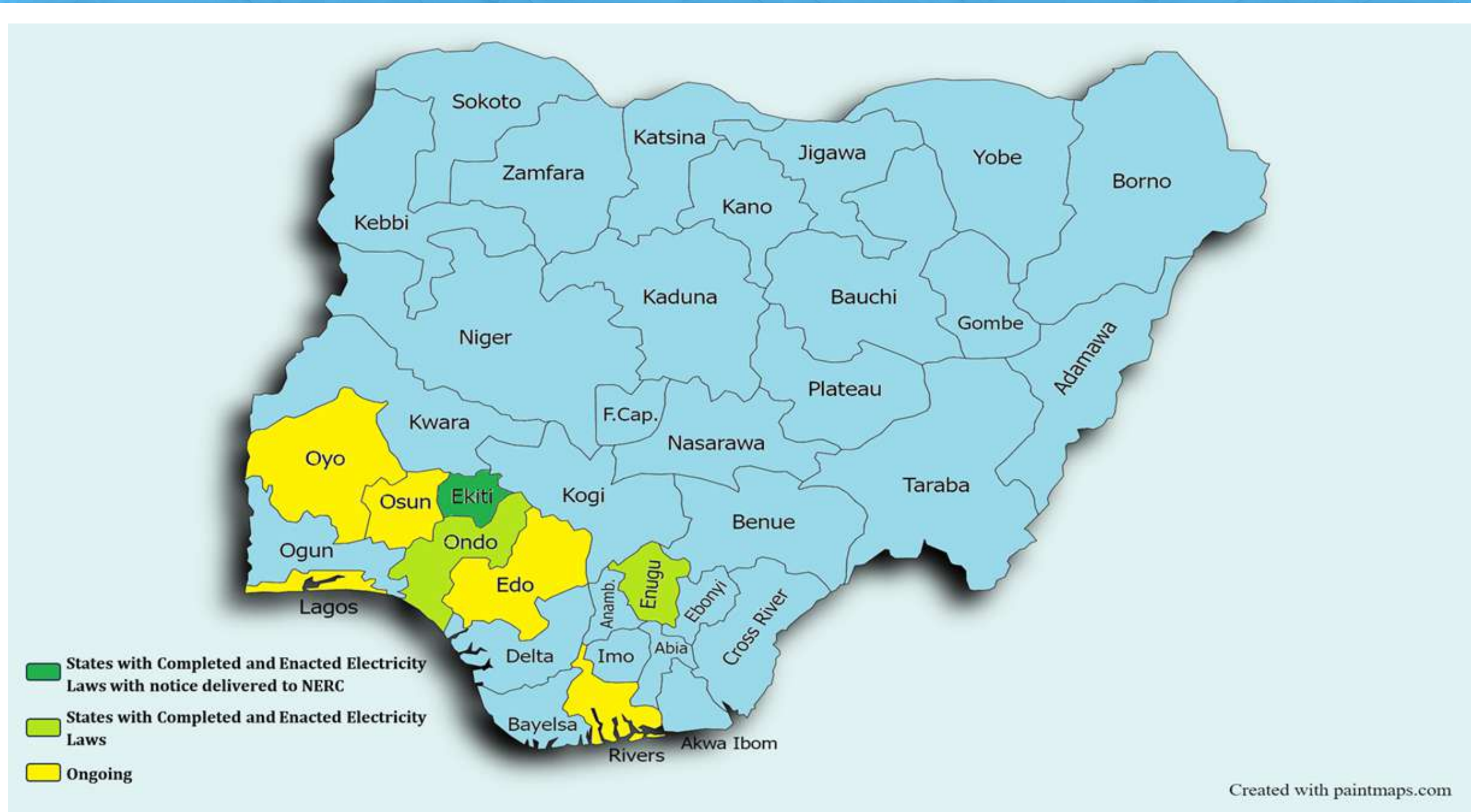
CHAPTER ONE: STRUCTURE OF THE NIGERIAN POWER SECTOR



OVERVIEW OF THE REGULATORY FRAMEWORK OF THE NIGERIAN ELECTRICITY SUPPLY INDUSTRY (AGENCIES AND PLAYERS)

With the recent implementation of the Electricity Act 2023 and the Constitution (Fifth Amendment) Act 2023, state governments are now empowered to regulate the generation and distribution of electricity within their respective states. Additionally, the creation of state electricity markets is expected to bring about a transformative shift in the NESI. As a direct consequence of these developments, we should anticipate the emergence of new regulatory bodies, such as State Electricity Regulatory Commissions. These commissions will play a vital role in overseeing and ensuring fair practices in the state electricity markets, safeguarding the interests of both consumers and industry stakeholders within their respective States.

CHAPTER ONE: STRUCTURE OF THE NIGERIAN POWER SECTOR

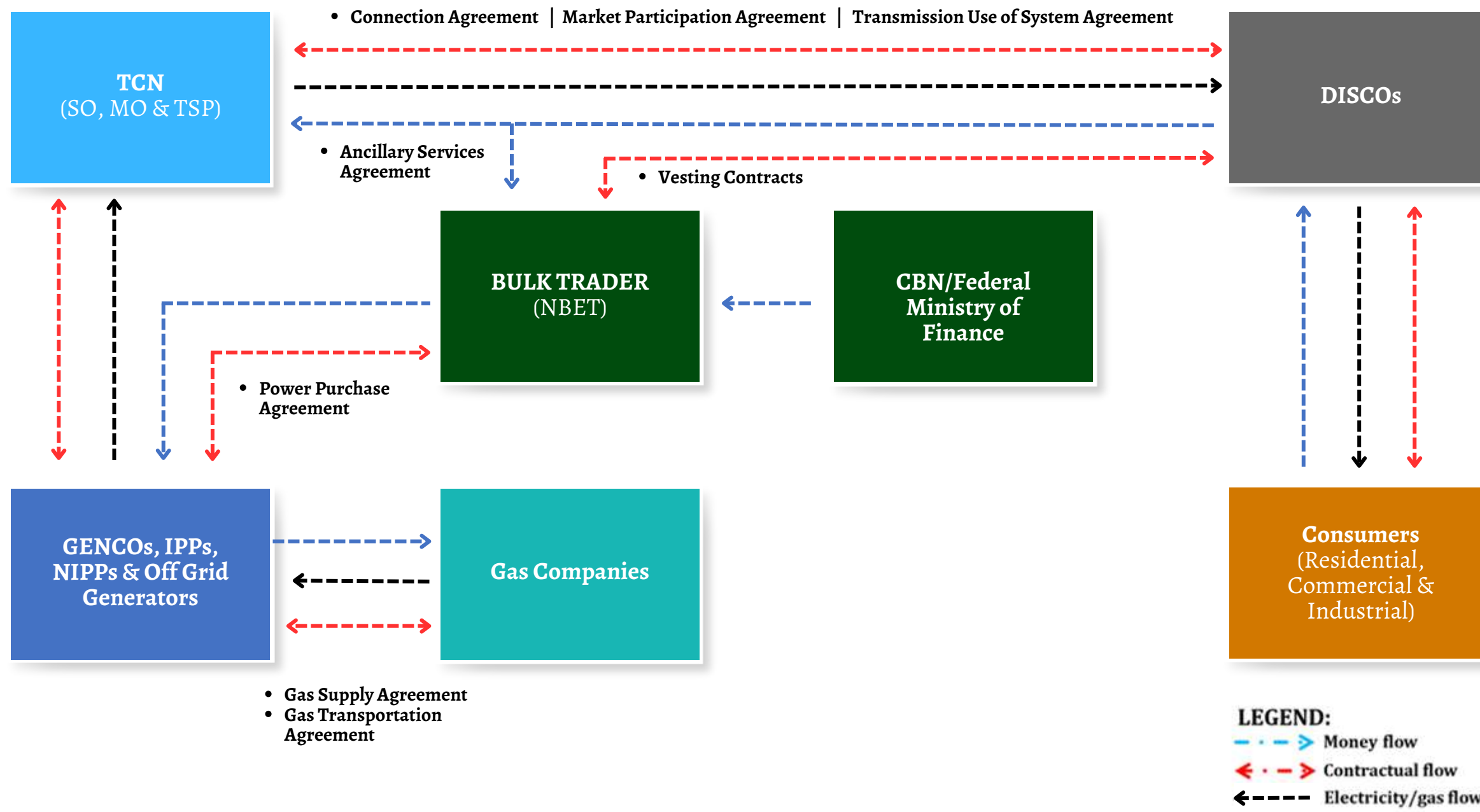


STATES AND STATUS OF THEIR ELECTRICITY LAWS AS OF DECEMBER 2023

CHAPTER ONE: STRUCTURE OF THE NIGERIAN POWER SECTOR

ELECTRICITY TRADING AND PAYMENT STRUCTURE IN THE NESI

The Nigerian government launched electric power sector reforms in 2001 with the goal of establishing a competitive electricity market. The reforms were designed to facilitate the development of efficient market structures and establish transparent regulatory frameworks that would support the emergence and expansion of a competitive market for electricity generation and trading. The Electric Power Sector Reform Act of 2005 (EPSRA) (repealed by the Electricity Act 2023) was introduced to guide a strategically phased transition towards a fully competitive electricity market, ensuring optimal capacity for electricity generation, transmission, and distribution.



CHAPTER ONE: STRUCTURE OF THE NIGERIAN POWER SECTOR

Pre-Transition Stage	Transitional Electricity Market Stage	Medium-Term Market Stage	Long-Term Market Stage
<p>During the initial phase of the transition, the Nigerian electricity market operated under a monopoly structure, dominated by the Power Holding Company of Nigeria (PHCN), a state-owned entity.</p> <p>The PHCN was established to assume the assets and liabilities of the National Electric Power Authority (NEPA), the sole participant in the Nigerian electricity market at the time. The National Electricity Regulatory Commission (NERC) was established as an independent regulator to oversee the reform program and encourage private investments in the sector.</p>	<p>The Transitional Electricity Market (TEM) stage was designed to closely resemble an oligopolistic market structure after the Power Holding Company of Nigeria (PHCN) was unbundled into successor companies with the rights to carry out the functions relating to the generation, transmission, trading, distribution (within an authorized area), bulk supply and resale of electricity in accordance with their license terms.</p> <p>The service providers in the TEM stage have distinct market share, interdependent policies and strategies. The market consists of 18 PHCN successor companies, including 6 generation companies, 1 transmission company, and 11 distribution companies. Contracts, such as Gas Sale Agreements (GSAs) and Power Purchase Agreements (PPAs), are used to facilitate electricity trading arrangements. The successor companies were not intended to compete against each other but rather operate with greater autonomy within specific geographical areas, with assurances that generated power will be purchased from the generation companies. Despite the oligopolistic design, there is a thriving off-grid market attracting private sector investments. <i>Despite the Nigerian electricity supply industry being in the transitional electricity market stage,¹ NERC is proposing a phased bilateral market allowing Eko, Ikeja and Abuja DisCos to implement bilateral contracts with GenCos</i></p>	<p>This medium market stage would be characterized by a partly regulated market based on bilateral contracts and partly regulated market based on wholesale contracts that match the regulated load, the existence of a sufficient number of credit-worthy distribution participants that no longer hold Vesting Contracts (VCs) to avoid the likelihood of abuse of market power by such participants, as well as a sufficient number of such GenCos leading to generation competition within the wholesale electricity market to avoid the likelihood of abuse of market power by generation participants.</p> <p>The provisions introduced by the Electricity Act set the tone for the transition to a new stage, as states can now issue generation licenses to private investors who may operate mini-grids and power plants within the state.</p>	<p>This market stage would be characterized by a perfectly competitive market. The generation segment of the industry would be completely unregulated and electricity trading would be based on bilateral contracts.</p> <p>The transmission and distribution segments of the industry would experience regulated electricity prices based on building blocks while the electricity retail segment would have an unregulated pricing regime with all loads as contestable. The fully competitive electricity market would be characterized by economic pricing mechanisms that allow for full recovery of the cost of electricity supplied</p>

MARKET STAGES IN THE NESI

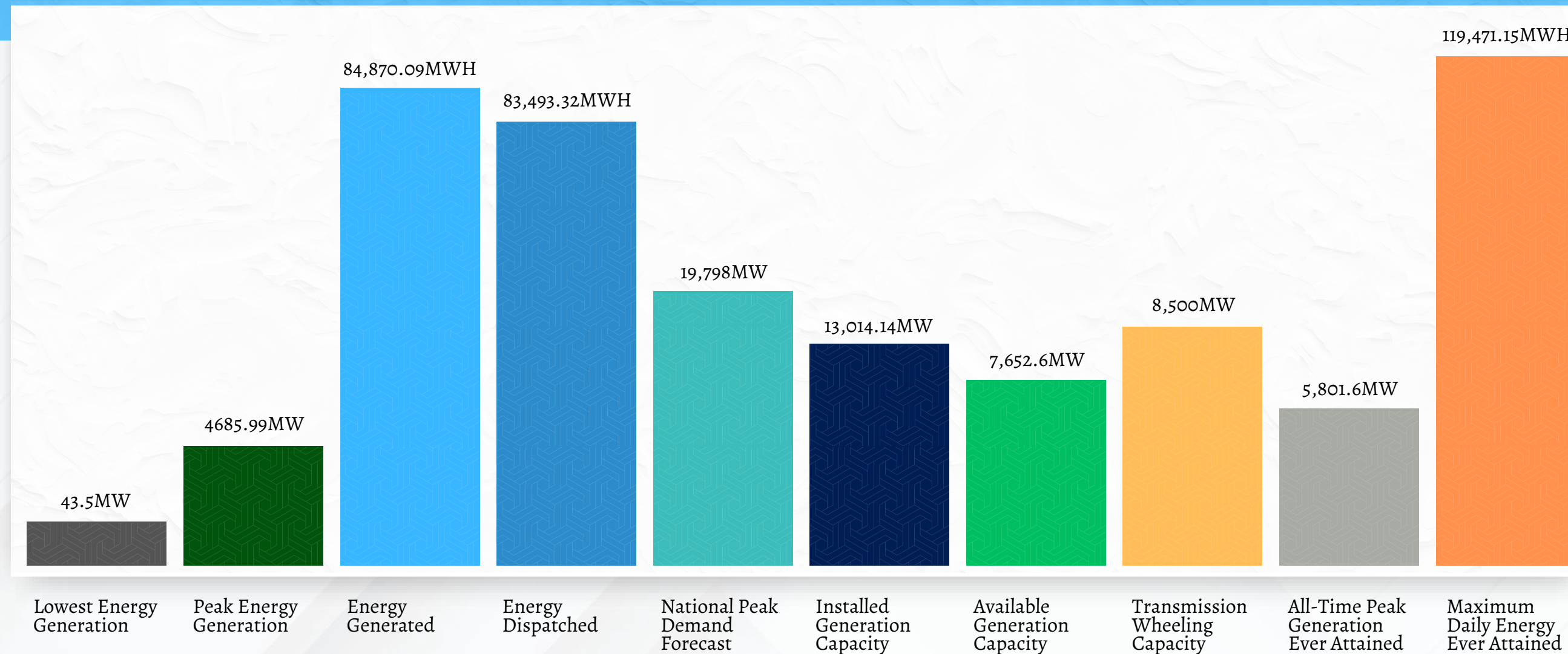
The transition to a fully competitive market was envisioned to unfold in four (4) stages, with each characterized by increasing levels of competition including:

1. Pre-transition stage, with a monopolistic market structure;
2. The transition market stage, with an oligopolistic market structure;
3. Medium market stage, with a wholesale competitive market structure; and
4. Long-term market stage, with a perfectly competitive wholesale and retail market structure.

The NESI is currently at the Transitional Electricity Market Stage.

1. businessday.ng/energy/power/article/nigerias-transitional-electricity-market-part-1/

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR



A. STATISTICS² OF THE NESI AS OF DECEMBER 2023

In Q3 2023, twenty-seven (27) grid-connected and operational power stations had an average available capacity of 4,211.44MW, which is a 4.02% (176.47MW) decrease compared to 4,387.91MW achieved in Q2 2023. The twenty-seven (27) generation stations which injected energy to the national grid in the quarter under review included nineteen (19) gas, four (4) hydro, two (2) steam, and two (2) gas/steam-powered plants. The total amount of power generated from the 27 grid-connected plants across the country for Q3 2023 was 8,664.82GWh. (Source: NERC Q3 Report, 2023)

2. TCN's (as System Operator) Power statistics as of 12th December, 2023 - <https://nsong.org/DownloadHandler.ashx?FileName=op12122023B.pdf>

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

B. POWER GENERATION: OPTIONS, SOURCES AND CAPACITY

Power generation options in Nigeria can be categorised into (i) on-grid generation; (ii) off-grid generation; (iii) captive generation; (iv) embedded generation; and (v) mini-grids. As of December 2022, Nigeria had an installed power generating capacity of over 17,000 megawatts (MW) from both on-grid and off-grid generation infrastructure.³

(a) On-grid Generation

The on-grid generation sector consists of three (3) different types of generation licensees. There are:

i) Successor Generation Companies (GenCos) which were carved out from the defunct Power Holding Company of Nigeria Plc. (PHCN) after the privatisation program in 2013. These GenCos are:⁴

S/N	Generation Companies/Power Plant	Generation Capacity	Type	Privatisation Status
1	Afam Power Plc	776MW	Gas	100% Sold
2	Sapele Power Plc	414MW	Gas	51% Sold
3	Egbin Power Plc	1,020MW	Gas	100% Sold
4	Ughelli Power Plc	900MW	Gas	100% Sold
5	Kainji Power Plant	760 MW	Hydro	Long Term Concession
6	Jebba Power Plant	578MW	Hydro	Long Term Concession
7	Shiroro Power Plc	600MW	Hydro	Long Term Concession

(ii) National Integrated Power Projects (NIPP) generation plants which are currently owned and managed by the Niger Delta Holding Company Limited (NDPHC).⁵ There are currently ten (10) power generation companies/plants under the NIPP scheme and their power generation capacities are as follows:

S/N	Power Plant	Generation Capacity
1	Olorunsogo II	754MW (ISO) and 676MW (Net) ⁶
2	Geregu II	506.1 MW (ISO) and 434MW (Net) ⁷
3	Gbarain	253.8MW (ISO) and 225MW (Net) ⁸
4	Ihovbor	507.6MW (ISO) and 451MW (Net) ⁹
5	Alaoji	1076MW: Gas Turbine: 4 x 126MW (ISO) and Steam Turbine: 2 x 286MW ¹⁰
6	Omoku	264.7MW (ISO) and 225MW (Net) ¹¹
7	Egbema	380.7MW (ISO) and 338MW (Net) ¹²
8	Sapele (Ogorode)	507.6MW (ISO) and 451MW (Net) ¹³
9	Omotosho	512.8MW (ISO) and 451MW (Net) ¹⁴
10	Calabar	634.5MW (ISO) and 562MW (Net) ¹⁵

3. POWER | PMB SCORECARD

4. Generation (nerc.gov.ng)

5. NATIONAL INTEGRATED POWER PROJECT (NIPPS) - Bureau of Public Enterprises - BPE

6. Olorunsogo II Power Plant - Niger Delta Power Holding Company (ndphc.net)

7. Geregu II Power Plant - Niger Delta Power Holding Company (ndphc.net)

8. Gbarain Power Plant - Niger Delta Power Holding Company (ndphc.net)

9. Ihovbor Power Plant - Niger Delta Power Holding Company (ndphc.net)

10. Alaoji Power Plant - Niger Delta Power Holding Company (ndphc.net)

11. Omoku Power Plant - Niger Delta Power Holding Company (ndphc.net)

12. Egbema Power Plant - Niger Delta Power Holding Company (ndphc.net)

13. Sapele Power Plant - Niger Delta Power Holding Company (ndphc.net)

14. Omotosho Power Plant - Niger Delta Power Holding Company (ndphc.net)

15. Calabar Power Plant - Niger Delta Power Holding Company (ndphc.net)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(iii) Independent power producers (IPPs) owned by private investors. The IPPs are companies in the private sector who establish and operate power generation plants. Some of these IPPs include:

S/N	Power Plant	Generation Capacity	Project Developer
1	Kwale-Okpai IPP	480MW	Nigerian Agip Oil Company ¹⁶
2	Ibom Power Plant	191MW	Ibom Power Company Limited ¹⁷
3	The Aba IPP	141 MW	Geometric Power Aba Limited
4	Azura Edo IPP	461MW	Azura Power
5	Dadin Kowa Hydropower Plant	60MW	Mabon Ltd

(b) Off-Grid Generation

Off-grid generation plants are basically any generation option not connected with the national grid. These range from small power generators used by individuals, businesses and households to mid-to-large size power generators/plants utilized by residential clusters, commercial and industrial clusters.

(c) Captive Generation

Captive Power Generation is the generation of electricity that exceeds 1MW and is consumed by the generator itself.¹⁸ These systems operate entirely off the national grid and their generation capacities vary depending on the communities or business ventures they serve. As revealed in 2022 by the then Federal Minister of Power, Nigeria has “266 captive generation power plants with installed capacities of 4,000MW and daily operational capacities of around 2,500MW. These include the Dangote Cement Capacities in Obajana Ibese (400MW), and Nigeria LNG Limited’s Bonny Island Power Plant (240MW)”¹⁹ BUA Cement Plc also operates a 48MW captive power plant to power operations at its cement plant in Sokoto, Nigeria.²⁰



(d) Embedded Generation

Embedded power generation is the generation of electricity that is connected directly to and evacuated through a distribution network either of a successor DisCo or an IEDN operator.²¹ As of 2022, Nigeria had sixteen (16) embedded power plants with 549MW of installed capacities and about 190MW of daily operational capacity.²²

16. [Power \(eni.com\)](#)

17. [About Us – IbomPower News](#)

18. [Regulation 2\(1\) Nigerian Electricity Regulatory Commission \(Permits for Captive Power Generation\) Regulations, 2008](#)

19. [FG: Nigeria’s Installed Electricity Capacity Stands at 18,000mw, Generates 8,000mw Daily – THISDAYLIVE](#)

20. [Sokoto Plant – BUA Cement](#)

21. [Regulation 35 of the NERC Embedded Generation Regulation](#)

22. [FG: Nigeria’s Installed Electricity Capacity Stands at 18,000mw, Generates 8,000mw Daily – THISDAYLIVE](#)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(e) Mini Grids

A mini grid is an electricity supply system that generates electricity on its own and can operate in isolation or be connected to an existing electricity distribution network.²³ The Nigeria Sustainable Energy for All (“NSE4ALL”), an initiative from the Federal Ministry of Power (FMP) in partnership with Nigerian Energy Support Programme (NESP), reports that there are currently 113 mini grids in the country.

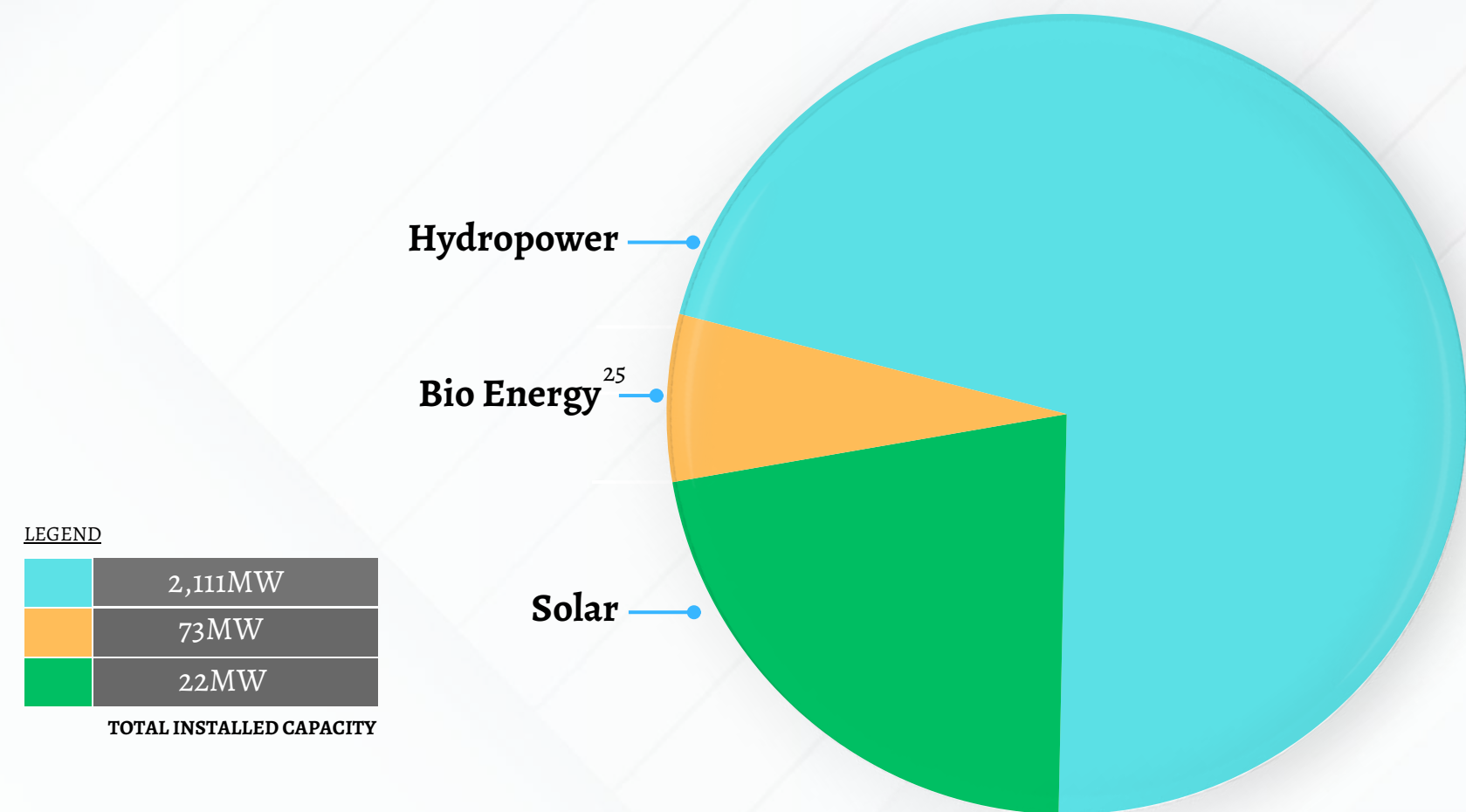
These mini grids are split per registered programme as follows:²⁴

- Nigeria Electrification Project (NEP): 67
- Rural Electrification Fund 1 (REF 1): 12
- Federal Ministry of Power (FMP): 3
- Rural Electrification Agency (REA): 11
- REA Capital Projects: 5
- Nigerian Energy Support Programme 1 (NESP I): 7
- United States African Development Foundation: 1
- Infrastructure Credit Guarantee Company Limited (InfraCredit Clean Energy Fund Project): 7

Renewable Power Generation Sources

As at the end of H1 2023, the renewable generation sub-sector in Nigeria has a grid generation installed capacity of about 2,206MW. Renewable energy power generation sources in Nigeria are mainly:

Source: IRENA Renewable Energy Statistics 2023

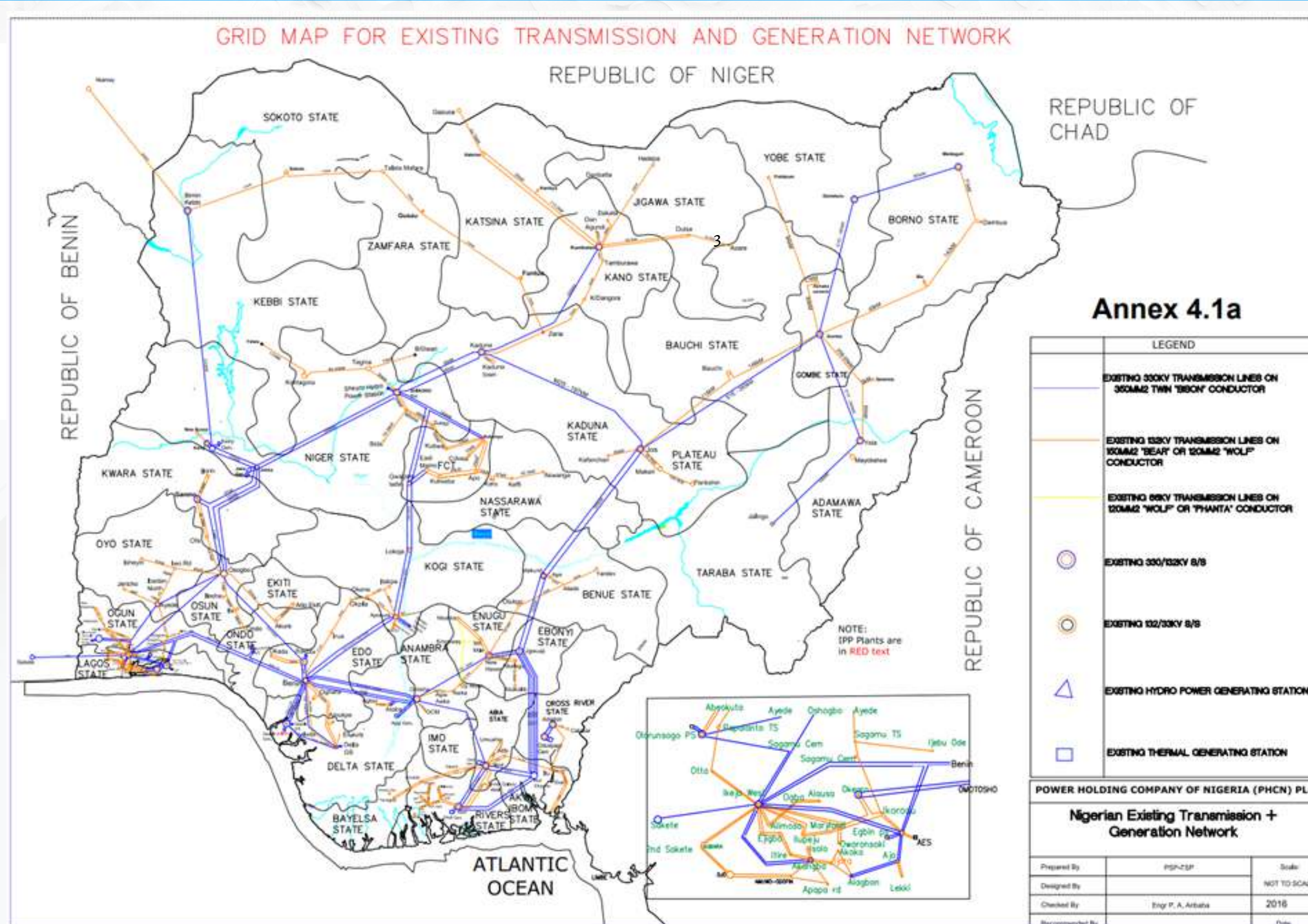


23. Regulation 3 of NERC Regulation for Mini-grids 2016

24. Nigeria SE4ALL | Mini-Grids as at 17th December 2023

25. This consists of solid biofuels and renewable waste such as charcoal, wood residues and by-products, bagasse, animal waste, other vegetal materials and residue, and, the renewable fraction of industrial waste.

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR



C. POWER TRANSMISSION CAPACITY

The transmission segment of the defunct NEPA/PHCN was also unbundled to create the Transmission Company of Nigeria Plc (TCN). TCN is the sole electricity transmission company in Nigeria and it is 100% government owned. In December 2022, the TCN reported that it has the capacity to wheel 8,100MW bulk electricity from power generating plants to distribution load centers nationwide.²⁶ Over twenty (20) electricity-generating plants are connected to the national power grid, and while electricity generation and distribution are permitted to be undertaken by private companies and investors, only the federal government-owned agency, TCN, serves as the middleman transmitting generated electricity to distribution companies that wheel power to the last mile.



CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR



D. POWER DISTRIBUTION CAPACITY

There are two categories of electricity distributors in Nigeria. They are the Successor Distribution Licensees (DisCos) and Independent Electricity Distribution Networks (IEDNs) operators.

(i) Successor Distribution Licensees:

The DisCos were formed when PHCN was unbundled with the government retaining 40% of the shares in each DisCo whilst the remaining 60% of shares are held by private investors in the respective DisCos. The unbundling of PHCN created eleven (11) separate power distribution companies (DisCos) namely:²⁷

- Kaduna Electricity Distribution Company
- Kano Electricity Distribution Company
- Yola Electricity Distribution Company
- Jos Electricity Distribution Company
- Abuja Electricity Distribution Company
- Ibadan Electricity Distribution Company
- Ikeja Electricity Distribution Company
- Eko Electricity Distribution Company
- Benin Electricity Distribution Company
- Port-Harcourt Electricity Distribution Company
- Enugu Electricity Distribution Company

The map shows each DisCo's coverage area in Nigeria.²⁸

27. [DisCos \(nerc.gov.ng\)](http://nerc.gov.ng)

28. <https://nerc.gov.ng/index.php/contact/discos>

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(ii) Independent Electricity Distribution Network (IEDN)

IEDNs are distribution companies that are licensed to distribute power either where there is no existing DisCo's network within the area or where the network of the existing DisCo is unable to satisfy the demand of customers in that area.²⁹ More specifically, an IEDN can be licensed as follows:³⁰

- **Embedded IEDN** – This is an IEDN connected to a distribution network that is connected to the TCN network;
- **Isolated Off-Grid Rural IEDN** – This is an IEDN in an urban area which is not connected to a DisCo's network that is connected to the TCN network; or
- **Isolated Off-Grid Urban IEDN** – This is an IEDN in a rural area which is not connected to a DisCo's network that is connected to the TCN network.

As of December 2022, NERC had issued seventeen (17) IEDN licenses of which 10 are operational.³¹ The number of IEDN licensees can be expected to increase significantly because the Electricity Act 2023 now enables State Houses of Assembly to legislate for the issuance of IEDN licenses provided the licensee does not engage in inter-state or transnational distribution of electricity under the license.³² Also, the State Electricity Boards or other relevant authority within each State are also empowered to grant IEDN licenses, provide the framework for operation of IEDN licensees and investment in electricity utilities within the State.³³



29. Regulation 8(1)(a) & (b), Nigerian Electricity Regulatory Commission Regulations for Independent Electricity Distribution Networks 2012

30. Regulation 3, Nigerian Electricity Regulatory Commission Regulations for Independent Electricity Distribution Networks 2012

31. NERC Market Competition Report 2022

32. Section 63(2)(b) Electricity Act 2023

33. Section 63(7) Electricity Act 2023

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

E. ONGOING POWER PROJECTS AND INITIATIVES

Nigeria's energy needs are largely unmet, and several public, private, local, and international actors are making efforts to rectify this issue. As a result, there are numerous power projects in the country currently ongoing to either reinforce the existing grid system or establish new channels for providing electricity. These projects include:

(a) Siemens Presidential Power Initiative (PPI) Project: The PPI was formed in 2018 between the Federal Government of Nigeria, the German Government, and Siemens Energy AG to enhance the transmission and distribution segments of the Nigerian power sector and increase its total operational capacity from 5,000MW to 25,000MW.³⁴ The project is mapped out in three phases. Phase one (1) aims at achieving 7,000MW operational capacity and resolving grid network issues,³⁵ Phase two (2) aims at increasing operational capacity to 11,000MW, while phase three (3) aims at further increasing the operational capacity to 25,000MW.³⁶ The project was expected to deliver a 2,000MW grid extension by August 2023 as reported,³⁷ but recent reports suggest that the project is experiencing delays.³⁸ Although, an accelerated performance agreement was recently signed for the expedited implementation of the PPI with the aim to achieve end-to-end modernization of Nigeria's transmission grid in 18 to 24 months and the training of Nigerian engineers at the TCN.³⁹

(b) Ibom Power Plant Phase 2: In May 2022, the Akwa Ibom State Government entered into an agreement with African Delta Power Limited to increase the power generation capacity of the Ibom Power Plant from 191MW to 557MW in the first sub-phase, and then to 700MW in the second.⁴⁰ This project is further supported by the Akwa Ibom State Government recently obtaining an IEDN license from NERC in January 2023 through Ibom Utility Company Limited (Ibom Utility).⁴¹ The on-grid generation license of Ibom Power Company Limited was also amended to enable the Ibom Power Plant to embed part of its electricity generation into the new IEDN of Ibom Utility.

(c) Zungeru Hydroelectric Project: This is the second largest hydro project in Nigeria with a 700MW generation capacity.⁴² The project is located in Niger State with an estimated yearly generation capacity of 2.64 billion kWh which is expected to meet 10% of Nigeria's domestic energy needs.⁴³ Besides its power generation capabilities, the project includes flood control, irrigation, water supply and fish breeding facilities.⁴⁴ The project was recently completed, inspected by the Minister of Power, and is expected to begin generating power for the TCN for evacuation soon.⁴⁵ In February 2023, the National Council on Privatization approved Mainstream Energy Solutions Limited as the preferred bidder for the concession of the Zungeru Hydroelectric power plant for 30 years.⁴⁶

34. [Presidential Power Initiative | About Siemens Energy Asia Pacific | Siemens Energy Africa \(siemens-energy.com\)](#)

35. [Decentralizing Nigeria's Power Sector | Stories | Siemens Energy Middle East \(siemens-energy.com\)](#)

36. [Presidential Power Initiative | About Siemens Energy Asia Pacific | Siemens Energy Africa \(siemens-energy.com\)](#)

37. [Siemens deal: 40m people to get improved electricity supply - FG - Vanguard News \(vanguardngr.com\)](#)

38. [BUREAUCRACY, lack of cooperation and other factors have been identified as reasons militating against the release or clearing of eight power transformers meant for Nigeria's Presidential Power Initiative, PPI, at Apapa port in Lagos. \(vanguardngr.com\), PPI: Nigeria's next administration, Siemens to review agreement — Investigation - Vanguard News \(vanguardngr.com\), & FG Clears Air on Siemens Power Deal, Says 80% Equipment Delivered In-country – THISDAYLIVE](#)

39. [Nigeria and Germany Sign Agreement to Accelerate Siemens Power Project Implementation – The Statehouse, Abuja](#)

40. [AKWA IBOM SIGNS PACT FOR 732MW POWER PLANT – IbomPower News](#)

41. [AKWA IBOM GETS ELECTRICITY DISTRIBUTION LICENCE – IbomPower News](#)

42. [POWER | PMB SCORECARD](#)

43. [ZUNGERU HYDROPOWER PROJECT - Bureau of Public Enterprises - BPE](#)

44. [ZUNGERU HYDROPOWER PROJECT - Bureau of Public Enterprises - BPE](#)

45. [FG: \\$1.3bn Zungeru Hydroelectric Plant Completed, Ready for Inauguration – THISDAYLIVE](#)

46. <https://www.bpe.gov.ng/ncp-approves-mesl-as-preferred-bidder-for-zungeru-hydroelectric-power-plant/>

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(d) Kashimbila Concession and Evacuation Infrastructure Phase II: The extension of transmission lines from the 40MW generating Kashimbila Multipurpose Dam is ongoing to electrify neighbouring areas to Makurdi, Benue State. The extension project involves erecting 56km of 132kV transmission lines and the rehabilitation of the 132kv Yandev substation.⁴⁷ In May 2022, Damcrest Energy Limited, with its joint venture partner, Kashimbila Power Limited, was selected as the preferred bidder for the concession of the 40MW Kashimbila Hydropower Plant. Damcrest Energy Limited, a subsidiary of Mainstream Energy Solutions Limited, will operate and manage the plant under a concession agreement with the Federal Government of Nigeria.⁴⁸

(e) Power Sector Recovery Program (PSRP): This program was approved by the Federal Executive Council in March 2017 and is aimed at improving the financial position of the power sector and service delivery through, regulatory operational and financial interventions in partnership with the World Bank and other key stakeholders.⁴⁹ Key deliverables under this program include identifying efficient funding sources to cover revenue shortfall and investment, developing public communication on tariffs, restoring sector technical and financial viability over a period of 5 years, and pursuing loss reduction methods as a strategy for modulating end user rates.⁵⁰ In June 2023, the PSRP financing plan was prepared and approved.⁵¹ The financing plan aims to fund tariff shortfalls in the power sector, through different sources of funding.⁵² For example, the 2022 PSRP financing plan was funded by annual FGN direct budgetary allocations, value added tax retained collections from DisCos, and financing from the World Bank's Program for Results Power Sector Recovery Operation.⁵³

(f) Partial Activation of Contracts (PAC): NERC approved the transition of the NESI to the PAC regime effective 1st July 2022.⁵⁴ This initiative enables DisCos to determine their Partially Contracted Capacity (PCC) which is the target amount of power they will off-take, and they pay only for this agreed portion of energy under their vesting agreements with the Nigerian Bulk Electricity Trading Plc (NBET). DisCos also have a take or pay obligation on their PCC which means they are required to pay for the value of their PCC once declared available for off-take by the GenCos, regardless of whether the DisCos offtake it.⁵⁵



The PAC also provides for payment of liquidated damages by the GenCos and/or TCN for capacity shortfall experienced by the DisCos.⁵⁶ This initiative should improve the effectiveness of the off-take agreements and foster sustainable growth because, for now, it lessens the financial burden on the DisCos and encourages them to make payments under the agreements. Although, NERC observed that most DisCos do not take their full PCC due to a number of limitations and to curtail this practice, NERC passed the Order on Performance Monitoring Framework which triggers regulatory actions against the management of such DisCos.⁵⁷

47. [POWER | PMB SCORECARD](#)

48. <https://businessday.ng/news/article/fg-commissions-kashimbila-dam-40mw-hydropower-plant/>

49. [About Us | PSRP](#)

50. [Nigerian Electricity Regulatory Commission Stakeholders' Workshop on the Electricity Act 2023 \(July 12 2023\)](#)

51. [Milestones | PSRP](#)

52. [Pillars of PSRP | PSRP](#)

53. [World Bank Document page 3](#)

54. [Nigerian Electricity Regulatory Commission Third Quarter 2022 Report page 23](#)

55. [NERC 2022 Half-year Report \(Q3/Q4\) - EMRC \(energymrc.ng\)](#)

56. [Nigerian Electricity Regulatory Commission Third Quarter 2022 Report page 33](#)

57. [Nigerian Electricity Regulatory Commission First Quarter 2023 Report page 13](#)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(g) REA Nigeria Electrification Project /Mini-Grid Development: The electrification efforts of the Nigeria Electrification Project (NEP) continue to expand by providing electricity to households, Micro, Small and Medium Enterprises (MSMEs), and educational and healthcare facilities in unserved and underserved rural communities through the deployment of mini grids and solar home systems with private sector involvement. The NEP recently concluded pre-bid conferences for (i) phase 3 of its energizing education program which aims to provide sustainable power to 37 federal universities and 7 teaching hospitals,⁵⁸ and (ii) the deployment of solar hybrid mini grids in unserved and underserved parts of Kwara, Enugu, Ekiti, Oyo, and Nasarawa states.⁵⁹ Therefore, more projects are expected to emerge under this Federal Government initiative.



58. [NEP HOLDS PRE-BID CONFERENCE FOR EEP PHASE III – Nigeria Electrification Project \(rea.gov.ng\)](#)

59. [REA Holds Pre-Bidding Conference for NEP – MST – Nigeria Electrification Project](#)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

F. KEY CHALLENGES IN THE NIGERIAN POWER SECTOR

(a) Distribution Companies' Inability to improve on Distribution Infrastructures: The DisCos' failure to maintain and improve their network infrastructure causes load rejection and reduces the amount of electricity supplied to consumers. Also, as DisCos are encumbered by huge debts to banks amounting to N823.28 billion, debt servicing has taken priority on the DisCos' expenditure. This leaves little to no funds available for the DisCos to spend on infrastructure maintenance and upgrade.⁶⁰ The devaluation of the Naira⁶¹ has also increased operational costs to the DisCos and made it harder for them to meet their contractual obligations, especially as the current MYTO 2022 tariff is reflective of a Naira/USD exchange rate at N415.8⁶² which is not reflective of current realities. Although the new MYTO 2024 dated 1st January 2024 reflects a Naira/USD exchange rate at N919.39⁶³ However, the tariffs are frozen for all customers at the rates payable since December 2022 therefore the implementation of MYTO 2024 tariff is subject to further policy direction of the FGN. Also, we note that DisCos are exploring innovative ways of overcoming this constraint, such as, by partnering with companies in the private sector to perform these maintenance and network enhancement functions, through embedded generation projects, embedded IEDN projects, or interconnected mini-grid projects.

(b) Corporate Governance Issues at the Distribution Companies: Corporate governance issues such as poor management of financial and operational obligations have affected the effective running of a number of distribution companies. The NERC has identified the following key points to be addressed within the DisCos – (i) Enforcement of payment discipline; (ii) Provision of bank guarantees by DisCos; and (iii) Strengthening of fit and proper management of licensees.

(c) Poor Transmission Network: The transmission network also operates with insufficient infrastructure to wheel electricity enough to meet the country's demand. Consequently, there are many incidences of grid failures. NERC reports that Nigeria's transmission network system had 4 total collapses and 2 partial collapses in 2022. Four grid collapses have been reported in 2023 thus far. Investment in the system is therefore necessary to improve existing infrastructure and avoid system interruptions and associated load and revenue losses.



(d) Gas Supply Disruptions: Nigeria's electricity generation mix consists of mostly gas combined cycle plants and gas open cycle plants.⁶⁷ Therefore, the power sector is greatly affected by gas pipe vandalizations that occur in country as it forces the power generation plants to momentarily shut down for the issue to be resolved.⁶⁸ Other issues around gas include a lack of development of more gas assets to supply power generators, and existing debts owed by the power sector to gas suppliers, which was recently reported at between \$700 million to \$1 billion dollars.⁶⁹ This by implication means that this cycle of gas supply issues is expected to continue until these key issues are resolved.

60. [DisCos, consumers and the burden of infrastructural development - Vanguard News \(vanguardngr.com\)](#)

61. [Nigeria allows naira to drop more than 36% on official market | Reuters](#)

62. NERC Multi-Year Tariff Order 2022

63. NERC Multi-Year Tariff Order 2024

64. [Power grid fails 126 times in 7 years — Nigeria — The Guardian Nigeria News – Nigeria and World News](#)

65. Nigerian Electricity Regulatory Commission Stakeholders' Workshop on the Electricity Act 2023 (July 12 2023)

66. [National grid collapses again, electricity drops to 42.7MW - Businessday NG, Nigeria in darkness as national grid collapses again | The Guardian Nigeria News - Nigeria and World News — Nigeria — The Guardian Nigeria News – Nigeria and World News](#)

67. [Why Nigeria's electricity grid collapses and how to shore it up \(theconversation.com\)](#)

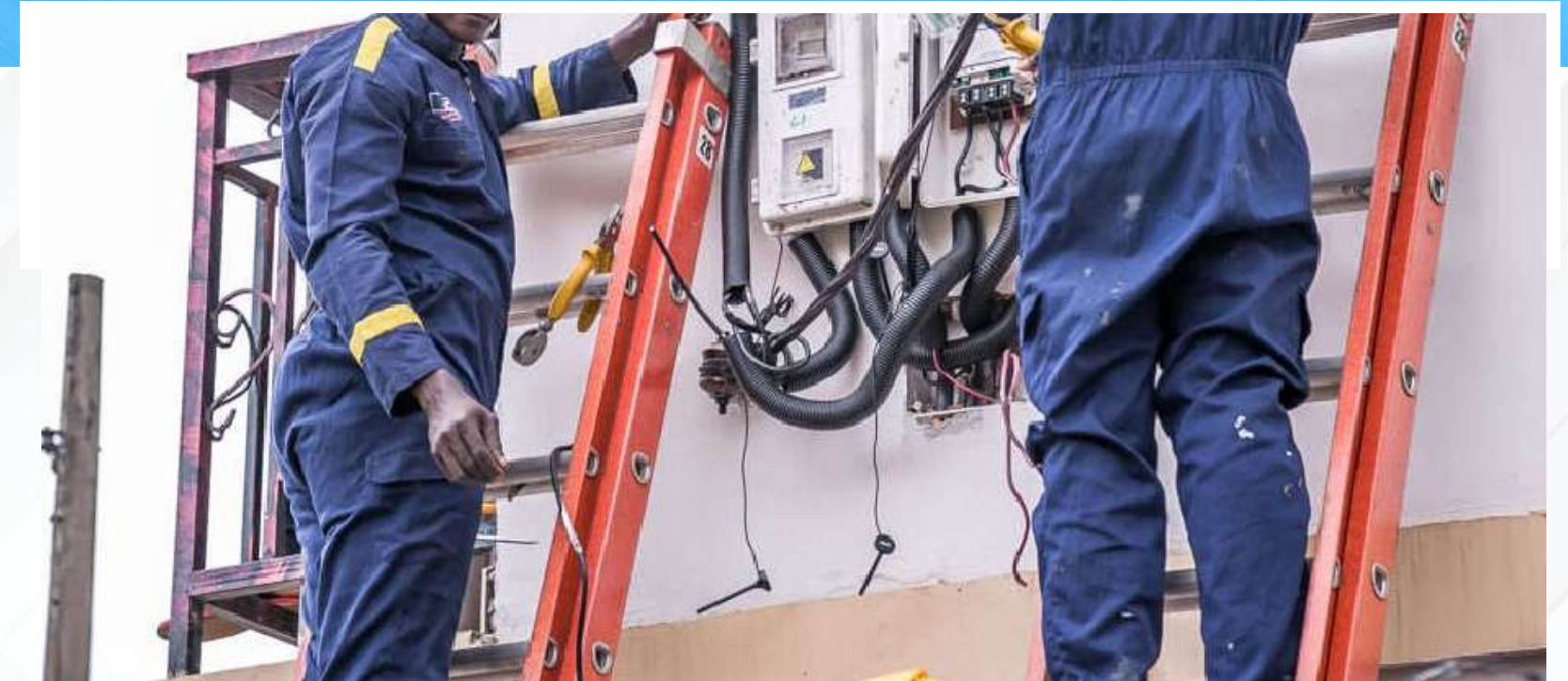
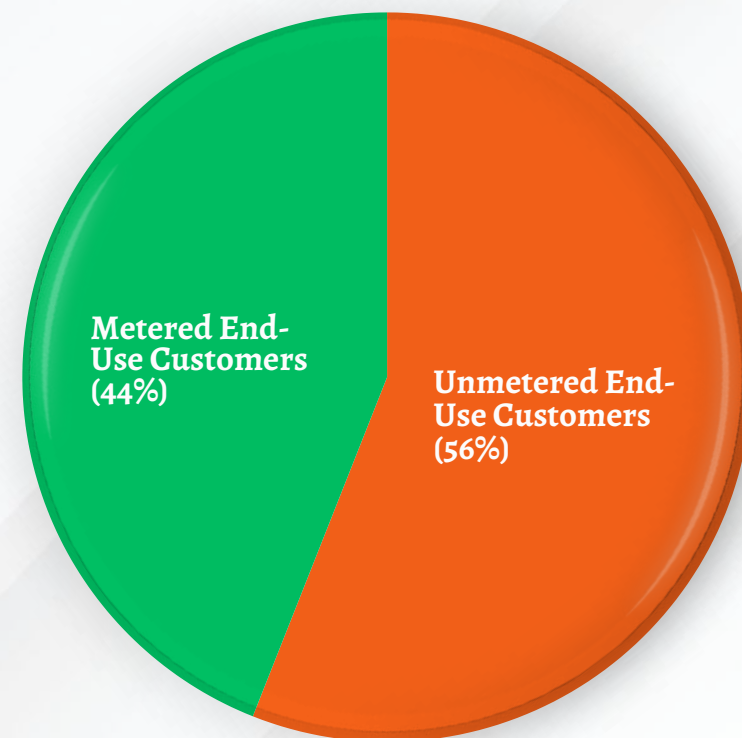
68. [Nigeria rations 2,500MW over vandalism of gas-fired plants | The Guardian Nigeria News - Nigeria and World News — Nigeria — The Guardian Nigeria News – Nigeria and World News](#)

69. [This was reported by the immediate past president of the Nigeria Gas Association, Ed Ubong - Power sector gas debt hits \\$1bn, says NGA - Punch Newspapers \(punchng.com\)](#)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(e) Huge and Growing Metering Gap: The metering gap between metered customers of the 11 DisCos and their total registered electricity customers remains wide. NERC recently reported that as of 30th September 2023, 5,707,838 (Five Million Seven Hundred and Seven Thousand, Eight Hundred and Thirty-Eight) customers in the NESI are metered, compared to a total customer base of 12,825,005 (Twelve Million Eight Hundred and Twenty-five Thousand, and Five) people.⁷⁰ This leaves 55.49% of end-use customers still on estimated billing for lack of meters, a gap which NERC as of its assessment in July 2023, estimated will cost approximately 898.48 billion Naira to close.⁷¹

The Nigerian Metering Gap



70. [Why Nigeria's electricity grid collapses and how to shore it up \(theconversation.com\)](https://theconversation.com/why-nigeria-s-electricity-grid-collapses-and-how-to-shore-it-up-2023-09-28)

71. [Nigeria rations 2,500MW over vandalism of gas-fired plants | The Guardian Nigeria News - Nigeria and World News — Nigeria — The Guardian Nigeria News – Nigeria and World News](https://www.guardiannews.com/news/nigeria-rations-2500mw-over-vandalism-of-gas-fired-plants)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

G. RECENT DEVELOPMENTS: REGULATORY ACTIVITIES

(a) The Takeover of DisCos

As earlier stated, the Nigeria power sector underwent a privatization process in 2013 whereby private investors acquired 60% majority shares of the DisCos that were carved out of the defunct NEPA and PHCN. To purchase the distribution assets, the private investors obtained acquisition loans from various lenders. Unfortunately, most DisCos' shareholders/private investors have defaulted on their repayment obligations due to the inability of the DisCos to generate adequate revenue to improve on their capital and operating expenditure requirements as well as pay the debt for these acquisition loans which in many instances have undergone restructuring. In addition, most of the loans were in foreign currency which became unsustainable for the DisCos to service. As of August 2022, the Nigerian power sector owed over USD\$1.95 billion in loans.⁷² This has resulted in lenders exercising their rights to take over the relevant DisCos under the finance and security agreements they entered into with the shareholders/private investors.

Accordingly, Ibadan Electricity Distribution Company Plc (Ibadan DisCo) has been taken over by the Asset Management Corporation of Nigeria (AMCON) and Kingsley Achife has been appointed as the interim Managing Director. Similarly, the management of Port Harcourt DisCo is undergoing restructuring in a bid to forestall the imminent insolvency of the company. At the National Council on Privatization (NCP) meeting which held on December 16, 2022, the Bureau of Public Enterprises (BPE) gave a directive to banks and other lenders to sell off their 60% shareholding in some DisCos' to private investors. The affected DisCos are Kano, Benin, Kaduna, Ibadan, and Port Harcourt DisCos.⁷³ Furthermore, following the takeover of Kano and Benin DisCos respectively, the Managing Directors of Kano DisCo and Benin DisCo were dismissed and replaced with Ahmad Dangana and Henry Ajagbawa respectively. However, for Kaduna DisCo, its Managing Director, Yusuf Yahaya was re-appointed after the takeover of Kaduna DisCo by Fidelity Bank Plc.⁷⁴

Another DisCo takeover to note is the acquisition of Abuja Electricity Distribution Company (AEDC) by a consortium led by Transnational Corporation (Transcorp) Plc. Transcorp acquired a 60% stake in AEDC and has appointed the Managing Director/CEO of Transcorp Power Limited, Christopher Ezeafulukwe, as the new Managing Director/CEO of AEDC.⁷⁵

(b) NERC's Move to Cancel Kaduna DisCo's License

NERC has issued a notification of its intention to cancel Kaduna DisCo's electricity distribution license due to alleged level of underperformance and severe liquidity challenges which the DisCo is currently faced with, and the failure of the DisCo's management and shareholders to provide a credible plan for the financial sustainability of the DisCo.

Accordingly, Kaduna DisCo was given an initial 60 days' notice from 15th May 2023 to assert why its electricity distribution licence should not be cancelled in accordance with Section 75 of the Electricity Act. The initial notice expired on 17th July 2023 but was extended for another thirty (30) days by NERC. Although the⁷⁶ subsequent (second) notice has also expired, NERC is yet to issue any additional notice or announce its final decision in respect of Kaduna DisCo's licence.

72. ESI Africa [Nigeria: Power sector owes banks over \\$1.95 billion in loans \(esi-africa.com\)](https://esi-africa.com)

73. TheStar [Banks get guidelines to sell 60% shares in DisCos \(thestar.ng\)](https://www.thisdaylive.com/index.php/2022/07/07/fg-backs-fidelity-banks-takeover-of-benin-kano-kaduna-discos-over-insolvency/)

74. Thisday <https://www.thisdaylive.com/index.php/2022/07/07/fg-backs-fidelity-banks-takeover-of-benin-kano-kaduna-discos-over-insolvency/>

75. Transcorp acquires 60% stake in Abuja DisCo
[Transcorp acquires 60% stake in Abuja DisCo - Vanguard News \(vanguardngr.com\)](https://www.vanguardngr.com)

76. [Leadership Newspaper](https://www.leadershipnewspaper.com)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(c) Revision of the Power Sector Payment Waterfall Structure DisCos' Account Administration and Payment Waterfall in the NESI

The Nigerian Electricity Supply Industry (NESI) has been confronted with liquidity challenges arising from technical and commercial losses, tariff and revenue shortfalls leading to insolvency of the Discos and inadequate funding, amongst other reasons since privatization in 2013. Despite regulatory interventions such as the Central Bank of Nigeria (CBN) Nigerian Electricity Market Stabilization Facility (CBN-NEMSF) provided to the DisCos and the introduction of service-based tariffs, liquidity challenges are still apparent in the NESI.

For instance, in 2022, end-use customers owed DisCos about N95.8 billion⁷⁷ while the GenCos are owed over N2 trillion.⁷⁸ Due to these huge debts strangulating the Nigerian power sector, the CBN designed a draft escrow payment structure for DisCo's accounts allowing cash inflow but outflow will be restricted and controlled only by the CBN on a priority basis.

The NERC Order on Securitisation of Contracts and Payment Waterfall in the NESI which became effective in July 2022 prescribes the payment waterfall structure for the monthly market obligations of the DisCos as follows:

- repayment of CBN/NEMS facilities and settlement of value-added tax
- settlement of gas invoices and settlement of DisCos' administrative operating expenditure (OPEX);
- settlement of hydro GenCos; settlement of thermal GenCo invoices net of the gas component; and settlement of the market operator's invoices;
- settlement of DisCos' other OPEX and amortised recovery of investment

Furthermore, there are also proposed modifications to the market contractual framework in the NESI. It is envisaged that new Service Level Agreements, Gas Supply Agreements and Power Purchase Agreements will be executed with fresh and market-realistic commitments.



77. Daily Post Mass disconnection looms over N96bn DisCos customers' debts [Mass disconnection looms over N96bn DisCos customers' debts - Daily Post Nigeria](#)

78. APGCNG DisCos' Debt To GenCos Hits N2tn – Group [DisCos' Debt To GenCos Hits N2tn – Group – APGC](#) | [Association of Power Generation Companies Nigeria](#)

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(d) Proposed Privatization of the NIPP Plants

The government continued its privatization program in the NESI by inviting bids in May 2021 for the sale of five (5) of the National Integrated Power Projects in line with the Bureau of Public Enterprises' 2021 workplan.⁷⁹ The plants announced for sale are:

- Benin Generation Company Limited at Ihovbor Edo State,
- Calabar Generation Company Limited, Cross River State;
- Geregu Generation Company Limited, Kogi State;
- Olorunsogo Generation Company Limited, Ogun State and
- Omotosho Generation Company Limited, Ondo State.

Although the proposed sales were initially met with opposition from various stakeholders citing a lack of capacity and experience of the bidders in the business of power generation⁸⁰ and the need for the federal and state governments and local councils to approve the sale being joint owners of the plants,⁸¹ the federal government and state governments reached an agreement in December 2022 for the sale of the five NIPP plants⁸² with the proceeds from the sale being split 47% to the federal government and 53% to the state governments.⁸³ Although we are not aware if the plants have been sold.

79. [Bureau of Public Enterprises Puts 5 GENCOS for Sale](#)

80. [Pushback over proposed sale of five independent power plants — Energy — The Guardian Nigeria News – Nigeria and World News](#)

81. [House opposes sale of five power plants — Nigeria — The Guardian Nigeria News – Nigeria and World News](#)

82. [FG, states agree on sale of five power plants](#)

83. [Govs, FG agree on NIPPS sale to fund budgets \(punchng.com\)](#)

(e) MOFI Revokes BPE's Power of Attorney in Electricity Discos

The Ministry of Finance (MOFI) has formally revoked the Bureau of Public Enterprise (BPE's) authority over the federal government's shares in 11 electricity distribution companies (Discos). This means MOFI will now directly manage these shares rather than BPE, which had been handling them since they were privatized in 2013. This change affects board representation, share certificates, and access to company documents. The move aligns with MOFI's mandate to manage government equity holdings and is based on the repealed Electric Power Sector Reform Act and the completion of the privatization process. [Access more details here.](#)



CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(f) Impact of the Russia-Ukraine War and Removal of the Fuel Subsidy in Nigeria

Since it began in February 2022, the effects of the Russia-Ukraine war have spiraled to other countries across the world including Nigeria. For example, the conflict triggered an increase in the price of crude oil in the global market from \$76 per barrel in January 2022 to over \$130 per barrel in March 2022.⁸⁴ This led to an increase in the value of crude oil exports for Nigeria, but the increase was neutralized with little impact on Nigeria's finances by the Federal Government's spending on fuel subsidy to reduce the cost of fuel imported in Nigeria. Although the price of crude oil in the global market has gradually fallen from \$130 per barrel,⁸⁵ Nigeria is still reliant on importing refined petroleum for local use which has been backed by the subsidy until recently.

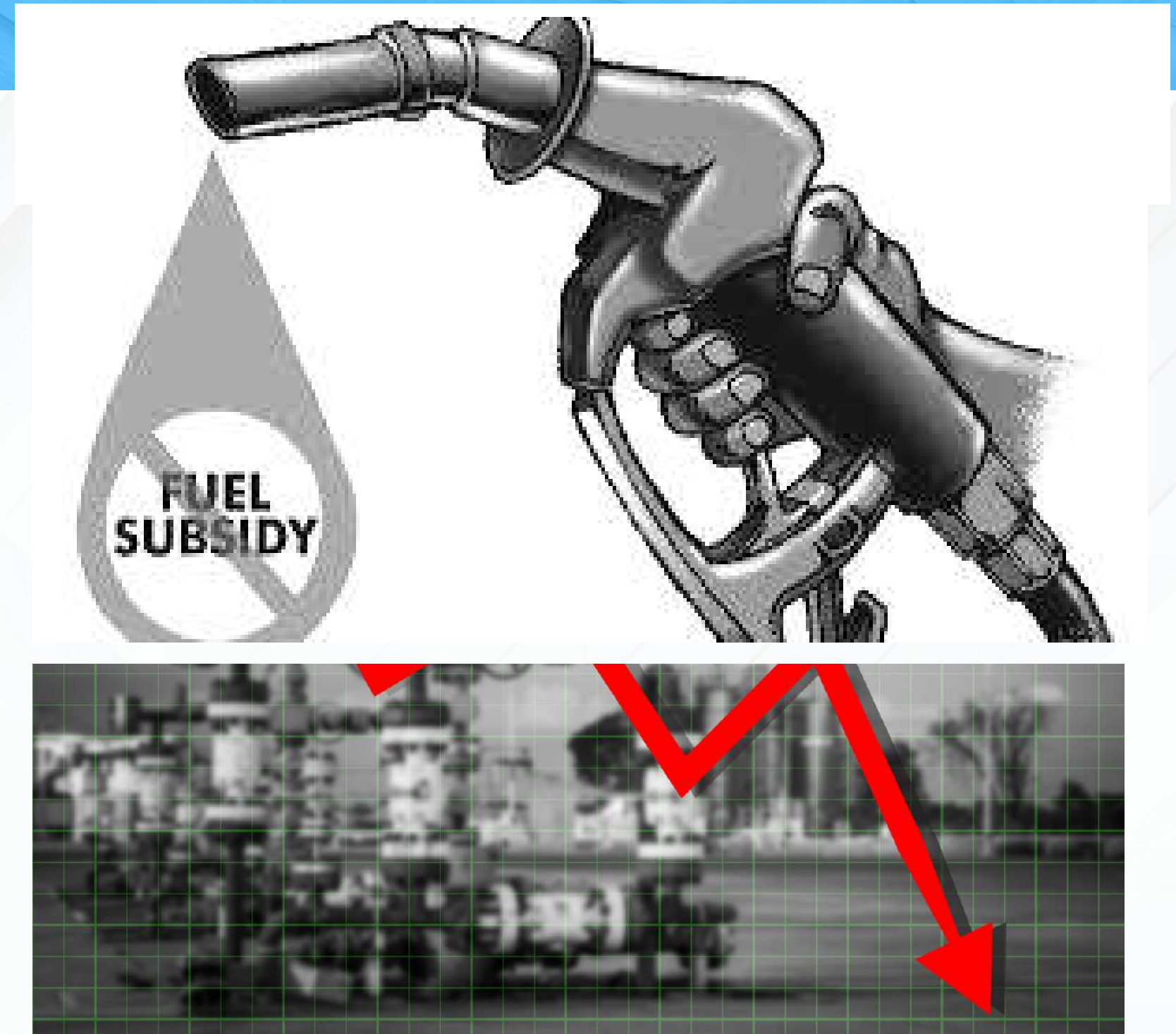
President Bola Ahmed Tinubu in his inauguration speech as President of the Federal Republic of Nigeria on 29th May, 2023 announced the removal of fuel subsidy, thereby ending a practice of the Federal Government of Nigeria that has existed since the 1970s.⁸⁶ Essentially, the fuel subsidy significantly reduced the cost of fuel to the consumer in petrol stations (pump price) from the initial cost when it is imported into Nigeria for sale (landing cost). The fuel subsidy is reported to have cost the federal government US\$7.5 billion from January 2023 to mid-2023 and the government intends to channel the cost savings into better investment in public infrastructure, education, healthcare, and jobs. The fuel subsidy removal has led to an increase of the pump price of fuel across the country with the product selling for as high as N630 per litre in some areas as against the previous price of about N195 per litre in some states.⁸⁷ The increase in the price of fuel and the resulting effects on cost to individuals and business, is forcing the country to assess its energy security.

84. [How Russia-Ukraine war affected Nigeria's economy](https://businessday.ng) (businessday.ng)

85. [Crude Oil Price Today | BRENT OIL PRICE CHART | OIL PRICE PER BARREL](https://markets.businessinsider.com) | Markets Insider (businessinsider.com)

86. [How the removal of fuel subsidy in 2023 will directly affect you](https://pulsenigeria.com) | Pulse Nigeria

87. [Transport Fares Soar 75% as Petrol, Diesel Prices Rise 222%, 25% in One Year](https://thisdaylive.com) - THISDAYLIVE



CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

H. RECENT LEGISLATIVE DEVELOPMENTS

(a) Statutory Legislation

(i) Constitution (Fifth Amendment) Act 2023: The Constitution (Fifth Amendment) Act was enacted in March 2023 with the main purpose of amending the Concurrent Legislative List contained in Part II of the Second Schedule of the Constitution of the Federal Republic of Nigeria as follows:

- State governments and State legislature will be empowered to make policies, laws and regulations for electricity markets within their territories.
- States can operate electricity markets independent of the national grid, within their borders.

(ii) Electricity Act 2023: The Electricity Act was passed in June 2023, and it repealed the EPSRA which was the primary legislation for the NESI. The key provisions of the Electricity Act are highlighted in Chapter Five of this Power Guide.

(iii) Petroleum Industry Act (PIA) 2021: The PIA was signed into law in August 2021, and it brought about many changes in Nigerian industrial sectors including the power sector.

One of the several challenges stifling the Nigerian power sector is the availability of gas to power the power plants in Nigeria. In the same vein, a key factor militating against gas availability is gas pricing, which for many years has not incentivized investors to continue to invest in gas infrastructure. Previously, the gas prices fixed by the Petroleum Products Pricing Regulatory Agency (PPPRA) were end-user incentivized and not cost-reflective of the investments made by gas producers/suppliers. The Nigerian government has however made efforts to transition into a market-based pricing structure which considers the current and future dynamics of the gas market.

The PIA categorizes gas wholesale customers into three (3) major groups; the Power Sector, the Commercial Sector and the Gas-Based industries and tagged them as “Strategic Sectors”⁸⁸. The gas price for the strategic sectors is determined under Schedules 3 and 4 of the PIA.

The Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA) is saddled with the responsibility of determining a new Domestic Base Price (DBP) framework and applicable gas wholesale price for the strategic domestic sector on a yearly basis,⁸⁹ while the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) is responsible for determining prices applicable to gas supplied under the domestic gas delivery obligation.⁹⁰

The price of marketable natural gas applicable to the power sector is the domestic base price at the marketable natural gas delivery point.⁹¹ Although ‘power sector’ was not defined in the PIA, the Domestic Demand and Delivery Regulations 2023 however defines “power sector” as: “power plants which supply electricity based on regulated tariffs to residential, commercial and industrial customers in a particular geographical area, directly or through distribution companies, and are connected to the main grid and are producing power primarily based on fossil fuels with individual plants typically exceeding a size of 10 MW.”⁹² These would typically be gas fired plants exceeding 10MW and connected to the national grid.

88. Section 167 Petroleum Industry Act.

89. Section 167 and the Third and Fourth Schedule to the Petroleum Industry Act 2021.

90. Section 110 Petroleum Industry Act 2021.

91. Section 167(5) Petroleum Industry Act 2021.

92. Paragraph 16 of the Gas Pricing Regulations, 2022

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

For the commercial sector, the gas price is the domestic base price at the gas delivery point plus US \$0.50 per MMBtu.⁹³ The gas price for gas-based industries shall be determined by the pricing principles specified in the Fourth Schedule to the PIA.⁹⁴ The formula prescribed in the Fourth Schedule to the Gas Pricing Regulations is $CP = NRP * (1 + EPF) \leq EPP$.

Another gas pricing provision introduced by the PIA is the change of the pricing benchmark from Mscf (thousand standard cubic feet) to MMBtu (Million British thermal unit). Mscf is based on the volume of gas delivered by a seller/supplier while MMBtu is based on the energy generable from gas delivered by a seller/supplier.⁹⁵

(iv) Climate Change Act 2021: This legislation establishes a framework for mainstreaming of climate change actions, provides a system of carbon budgeting and the establishment of the National Council on Climate Change (NCCC). Amongst its many functions, the NCCC is tasked with the function of ensuring that climate change is mainstreamed into national development plans and programs. Also, public and private entities as well as ministries, departments and agencies are required to adhere to climate change related obligations under the Climate Change Act. With these provisions, it is envisaged that incentives and initiatives of the Climate Change Act will engender the use of renewable energy, particularly solar for both on-grid and off-grid projects in Nigeria.

93. Section 167(6) Petroleum Industry Act 2021.

94. Section 168(1) Petroleum Industry Act 2021.

95. Fourth Schedule of the Petroleum Industry Act 2021.

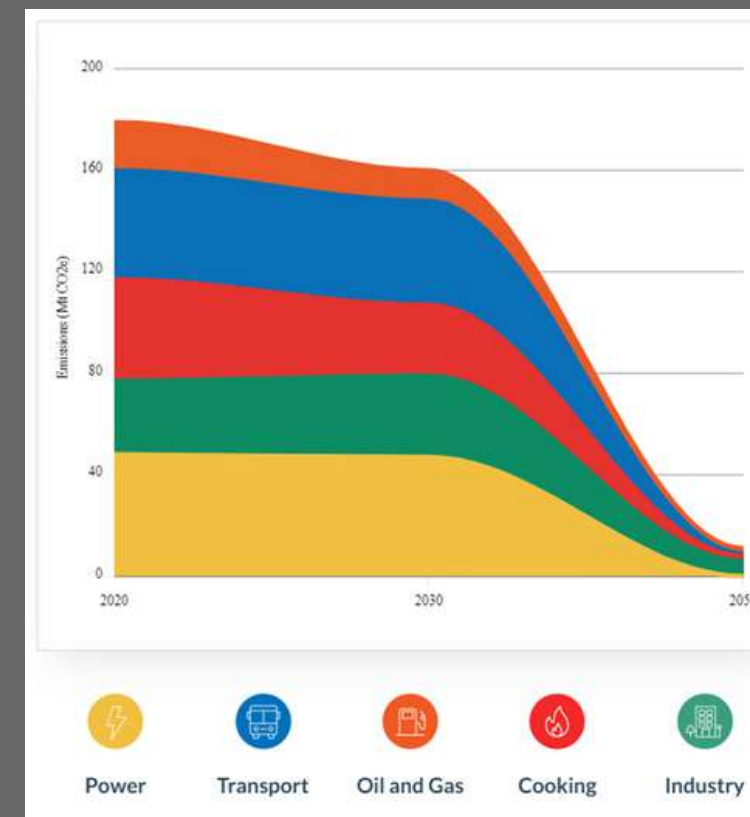
96. [The unveiling of Nigeria's Energy Transition Plan at COP26 — Rural Electrification Agency \(rea.gov.ng\)](#)

97. [At COP26, President Buhari Pledges Net Zero Emissions by 2060, Says Nigeria will Maintain Gas-Based Energy Transition – The Statehouse, Abuja](#)

98. [Nigeria Energy Transition Plan](#)

(b) Regulatory/Subsidiary Legislation

(i) Nigeria Energy Transition Plan (ETP): The ETP was developed in 2021⁹⁶ following a commitment at the United Nations Climate Change Conference 2021 (COP26) to achieve carbon neutrality in Nigeria by 2060.⁹⁷ The Energy Transition Implementation Working Group (ETWG) chaired by the former Vice President, President Yemi Osinbajo (SAN), comprising of several key ministers including the Ministers for Environment, Power, Finance, Works & Housing, Petroleum Resources, and Foreign Affairs and supported by an Energy Transition Office (ETO) was established. A reshuffling of this working group is anticipated with the new President Bola Ahmed Tinubu-led administration. The ETP involves making significant emission reductions in 5 key sectors namely:⁹⁸



Source: ETP

-Power: transition away from diesel/petrol generators, initially expand gas generation capacity, and increase renewable energy electrification.

-Transport: decrease emissions by increasing the proliferation and use of electric vehicles.

-Cooking: replacement of the use of firewood, kerosene, and fuel for cooking, in favour of electric stoves and biogas (mainly in rural homes).

-Oil & Gas: reduce flaring and fugitive emissions and support decarbonization.

-Industry: decarbonization efforts in cement and ammonia production, and 100% shift to zero emission fuels for heating

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR

(ii) NERC Multi Year Tariff Order (MYTO) 2020 (Introducing Service Base Tariffs): In November 2020, NERC issued MYTO 2020 that introduced a service-based tariff mechanism whereby electricity end users' tariff will be based on the number of hours of electricity supply per day. This move was aimed at improving the financial viability of the sector and encouraging DisCos to improve their service delivery to end users.

(iii) NERC Guidelines for Secondary Escrow Account Management for Bilateral Transactions by Electricity Distribution Licensees of May 2023: These Guidelines provide a framework for implementing secondary escrow account arrangements to facilitate bilateral electricity supply contracts between DisCos and generation and/or trading licensees. Secondary escrow account arrangements are being carved out to allow DisCos to easily enter into projects with other power developers and create accounts that can be excluded from existing restrictions on DisCos' accounts under the CBN-NEMSF.

The Guidelines aim to guide DisCos and their counterparts in implementing bilateral transactions, facilitate the adoption of secondary DisCo account escrow arrangements, ensure payment reliability, revenue assurance, proper accounting of collections, support improved energy offtake, provide reliable power supply to customers, improve third-party investments in DisCos' networks, and supplement collections to meet market obligations.

The Guidelines provide for both direct and indirect islanded bilateral transactions. Direct Bilateral Transactions with Direct Connection to a Generation Plant involves a DisCo entering a bilateral contract with a GenCo where a feeder directly supplies power to DisCo's dedicated feeder(s) or customer clusters while Islanded Bilateral Transactions with Indirect Connection to Generation Plant refer to arrangements where a DisCo enters a bilateral contract with a GenCo (grid or embedded) to supply dedicated feeder(s) not directly connected to the generation plant. The Guidelines also provide for Non-Islanded Bilateral Transactions by

DisCos which involve additional power supply to DisCos without specific dedication to feeders or customer clusters.

Subject to fulfilling conditions listed in the Guidelines, DisCos must obtain NERC's approval for the bilateral transactions and the opening of the relevant accounts thereof.

(iv) NERC Mini-Grid Regulations 2023:

The 2023 Regulations were recently released by NERC, replacing the 2016 Mini Grid Regulations. Key amendments are as follows:

- A key innovation in the 2023 Regulations is in the introduction of mini-grid portfolios, allowing portfolio applications for both isolated and inter-connected mini-grids. In line with the portfolio permit applications, the Regulations also recognises portfolio tariff applications allowing a single tariff application for all sites under a portfolio of mini-grids.
- The 2023 Regulations also addresses the uncertainty with respect to grid extensions in the 2016 regulations by requiring a DisCo intending to extend its network to an area covered by an isolated mini-grid to notify the mini-grid operator in writing no later than 12 (twelve) months before the grid extension is expected to reach the isolated mini-grid.
- Also, the Regulations simplifies the process for issuing permits for interconnected mini-grids. For instance, the requirement to seek information from the DisCo on whether a proposed mini-grid site is within its five-year expansion plan which constituted a considerable bottleneck in the process for obtaining a mini-grid permit in the 2016 regulations have been removed in the 2023 Regulations. Similarly, the 2023 Regulations also contain provisions facilitating compensation to interconnected mini-grid operator where Disco reintegrates interconnected mini-grid into its network.
- The 2023 Regulations provides for the transfer of mini-grid permit and business, requiring permit holders to apply to NERC with the necessary documentation for such transfers.

CHAPTER TWO: STATE OF THE NIGERIAN POWER SECTOR



(v) **Other NERC Regulations and Guidelines:** The NERC Regulations ⁹⁹ and Guidelines ¹⁰⁰ enacted in the power sector since 2018 are:

- **NERC Guidelines for the Preparation of Performance Improvement Plans (PIP) by DisCos (2019)** provides guidance for DisCos to develop plans to improve their performance for the period of 2020-2024.
- **NERC Guidelines for the Continuity of Service in the Nigerian Electricity Supply Industry (2020)** provides guidance to sector stakeholders to ensure continuity of service by electricity operators at the start of the COVID-19 pandemic.
- **NERC Guidelines on Distribution Franchising in the Nigerian Electricity Supply Industry (2020)** provides the framework for electricity distribution franchising arrangements by DisCos.
- **NERC Guidelines on Filing Applications for Competition Transition Charge by Electricity Distribution and Trading Licenses (2020)** provides regulatory guidance to distribution and trading licensees in filing applications to NERC for the collection of competition transition charge.
- **NERC Guidelines for Economic Merit Order Dispatch (2020)** provides guidance on the procedures for implementing economic merit order dispatch.
- **NERC Meter Asset Provider and National Mass Metering Project Regulation (2021)** was released with the aim to eliminate estimated billing for electricity and foster an accelerated roll out of meters supported by private investment .
- **NERC Customer Protection Regulations 2023** consolidate existing regulatory instruments of NERC on the protection of customers in the NESI into one regulatory instrument and reinforces the available frameworks for the protection of end-use customers in the NESI.

99. [NERC Regulations](#)

100. [NERC Guidelines](#)

CHAPTER THREE: TARIFF DEVELOPMENTS TILL DATE

GENERAL INFORMATION ABOUT MULTI YEAR TARIFF ORDER (MYTO)

The Multi Year Tariff Order is a tariff methodology adopted by NERC as provided in Section 116 (2) of the Electricity Act which adopts a building block approach which factors in fair rate of return on invested assets; return of capital, which is associated with recouping the capital over the useful life of the asset (depreciation); and efficient operating costs and overheads into the tariff regime.

MYTO 1

- Issued by NERC in 2008, and expected to operate for five years before it was due for a major review
- The tariff regime was built on two principles; cost reflectivity and affordability
- Following increasing cost of power and operations, Discos requested for an early major review
- The consultative review resulted in the 2011 order to take effect from January 2012

MYTO 2

- MYTO 2 was issued for the period of 1st June 2012 – 31st May 2017 during the privatization process for the Discos & Gencos
- Major changes were made to the revenue requirements, ATC&C losses, end user/retail tariff, removal of uniform national tariffs, returns on working capital, consolidation of consumer classes, etc.
- The MYTO 2 tariff took into account economic and financial assumptions like inflation rate, exchange rate, gas price, inflation, weighted average cost of capital, asset valuation and rate of depreciation.

MYTO 2.1

- MYTO 2.1 was issued for the period of January 2015 – 31st December 2018
- The retail tariffs in MYTO 2.1 were as high as 80-103% of the prior tariff set for different consumer classes
- The tariff hike resulted in a public outcry which prompted NERC to review the tariff

AMENDED MYTO 2.1

- The Amended MYTO 2.1 was issued for the period April 1st 2015 to December 2018
- The Collection loss component of the verified ATC&C losses were removed from the tariff regime, which resulted in complaints from all 11 Discos and filing of force majeure notices on the ground that tariffs were not cost reflective

MYTO 2015

- The MYTO 2015 reinstated the collection loss component of the verified ATC&C losses (less MDA debts) in the end user tariffs.
- The fixed charge component of the tariff for all Discos were removed and rebalanced to the energy charge
- The 10 year tariff plan submitted by the Discos was adopted by NERC

MYTO 2020

- MYTO 2020 took effect from 1st September 2020 and ceases when a new Minor Review Order or an Extraordinary Tariff Review Order is issued by NERC
- MYTO 2020 introduces a novel service reflective tariff regime in the Nigerian Electricity Supply Industry to incentivize continuous improvement of services to all customers and also ensures that the prices charged by the DisCos are fair and based on customers service experience
- MYTO 2020 reclassified the previously existing tariff classes and also introduced tariff service bands (Band A, B, C, D and E)

CHAPTER THREE: TARIFF DEVELOPMENTS TILL DATE

REVISED MYTO 2020

- The Revised MYTO 2020 took effect from 1st November 2020 and ceases when a new Minor Review Order or an Extraordinary Tariff Review Order is issued by NERC.
- The Revised MYTO 2020 was passed owing to the need for the tariff methodology to consider the impact of inflation, foreign exchange and implementation of the investment of the DisCos in the provision of services to customers.
- The Revised MYTO 2020 further sub-divided the tariff service bands (Band A, B, C, D and E) into tariff classes as follows:
 1. Non-Maximum Demand (Non-MD)
 2. Low voltage Maximum Demand (MD 1)
 3. Medium/High voltage Maximum Demand (MD 2)
 4. Lifeline tariff class (R1) (for consumption of not more than 50kWh/month)
- However, there was no upward review of the CAPEX provisions in the tariffs and MYTO load allocation to DisCos

MINOR REVIEW OF MYTO 2020

- The Minor Review of MYTO 2020 took effect from 1st January 2021 and ceases when a new Minor Review Order or an Extraordinary Tariff Review Order is issued by NERC
- The Minor Review of MYTO 2020 provides that TCN be held responsible responsible for any deviations from the economic merit dispatch order that increase the overall cost of wholesale energy. Further to this TCN shall defray the financial burden suffered by DisCos due to such deviations according to the table provided therein. The amounts payable are to be amortised in 6 instalments over the billing period of January to June 2021.
- The Minor Review of MYTO 2020 also introduces capacity payment and makes TCN liable to pay capacity charge where it is unable to deliver DisCo's load allocation. However, where DisCos are unable to take the entire load allocation due to constraints on the DisCo's network, the DisCo shall be liable to pay the capacity charge as allocated in the vesting contract.
- Furthermore, the Minor Review of MYTO 2020 introduces a loss of revenue and makes TCN liable to compensate the DisCo for loss of revenue where it is unable to deliver DisCo's load allocation. However, where DisCos are unable to take the entire load allocation due to constraints on the DisCo's network, the DisCo shall be liable to compensate TCN for loss of revenue from stranded capacity.

MYTO 2022

- The MYTO 2022 took effect from 1st January 2022 and ceases when a new Tariff Review Order is issued by NERC
- MYTO 2022 approved the Performance Improvement Plan and CAPEX Programme for DisCos for the period of 1st July 2021 to 30th June 2026. Approval of the CAPEX Programme and Performance Improvement Plan mandates DisCos to provide annual updates on proposed investment programme during minor reviews of the tariffs.
- MYTO 2022 further approved a new benchmark transmission loss factor of 7.5% effective from January 1st 2022.
- MYTO 2022 further temporarily suspended the returns on investment for the Federal Government in the DisCos and TCN for the next 5 years to facilitate smooth transitioning to cost reflective tariffs in the NESI
- DisCos are to be held accountable for service improvement per commitments under their obligations to customers.

On 14th July 2023, NERC notified the public of the DisCos' application for a review of the MYTO tariff pursuant to Section 116 (1) and 2 (a) & (b) of the Electricity Act 2023 and other extant rules. The request for rate review is premised on the need to incorporate changes in macroeconomic parameters and other factors affecting the quality of service, operations and sustainability of the DisCos.¹⁰¹ It is believed that some of the reasons for this request for review of tariffs is due to the removal of subsidies on Premium Motor Spirit (PMS) and the harmonization of foreign exchange rates in Nigeria.

Although NERC intended to commence review of the MYTO 2022 in July 2023 and had invited members of the public and stakeholders to send their comments or representations, no further updates have been provided as to the review of the MYTO.

101. [Nigeria's 11 DisCos file application for electricity tariff review](#)

CHAPTER THREE: TARIFF DEVELOPMENTS TILL DATE

MYTO 2024

The Multi-Year Tariff Order (MYTO) 2024 for Discos which was issued on the 17th of January 2024, takes effect from the 1st of January 2024 and ceases upon the issuance of a new tariff review order by NERC. This is, however, subject to the Federal Government policy freeze on tariffs which in effect means that as long as there is a freeze on tariff increases, the Federal Government would have to subsidise. The MYTO 2024 currently envisages a subsidy as high as 1.6 trillion naira by the government for the years 2023 and 2024.¹⁰² The MYTO 2024 documents can be accessed by clicking [here](#).

Tariff Changes

- MYTO 2024 reviewed the annual OPEX to reflect changes in the macroeconomic environment to sustain and improve service delivery.
- MYTO 2024 resets the Aggregate Technical Commercial and Collection (ATC&C) losses applied in tariff determination for each Disco to reflect operating realities.
- The tariff also anticipates the exit of discos from vesting contracts with NBETs thereby allowing Discos procure electricity from GenCos.

The following changes were made to the tariff review orders issued to all Discos.

- Nigerian and the U.S. inflation rates were set at 28.20% and 3.10% respectively for 2024 and beyond.
- Exchange rate was set at N919.39/ per USD\$1.
- Gas price was set at USD\$2.18 and gas transportation cost at 80 cents; and contracted gas price outside domestic gas delivery obligations based on effective gas sale agreements were approved.
- There is still disparity between tariffs proposed by the Discos and what was approved by NERC which could mean that the tariffs are still not cost reflective.
- CAPEX adjustments were made to TCN and Discos MYTO CAPEX provisions.

Automatic Monthly Tariff

The Order also allows for the implementation of monthly adjustments of tariffs to allow for changes in inflation rate, Naira/USD exchange rates and gas to power prices.

Minimum Offtake and Transition to Bilateral Contracts

DisCos must ensure a specific minimum offtake to take effect from 1st of January 2024, and are required to secure adequate bilateral contract to facilitate a seamless exit from NBET's vesting contract regime.

Meter Acquisition Fund

A Meter Acquisition Fund (MAF) is established to support the deployment of end-user customer meters - a provision for N1.185/kWh is factored into Discos' revenue requirement for the MAF. The MAF is to be managed by a fund manager to be appointed by NERC. It is, however, not clear at the moment who manages this fund.

Market Payment Discipline

Effective January 2024, Discos are required to pay 100% of their market obligations to NBET and other bilateral counterparties and provide relevant payment securities in line with the market rules. Failure to comply will be in breach of the Disco's licence.

¹⁰². <https://businessday.ng/news/article/fg-to-pay-n1-6trn-electricity-subsidy-in-2024-as-nercs-new-tariff-debuts/>

CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

This section highlights the various options open to persons who are looking to invest in the generation, transmission and distribution segment of the NESI. To this end, it should be noted in addition to the innovative business models recognized in the Electricity Act and NERC regulations, it is expected that State Electricity Regulatory Commissions (SERCs) will introduce new generation, distribution and transmission business models that suites their local situations.

A. POWER GENERATION OPTIONS

The power generation options outlined are as provided in the relevant NERC regulations through which power is generated for final utilization by end users. Power generation options should not be confused with the sources of fuel for power generation but are rather the legal framework through which a person may invest in the power generation industry.

(a) Captive Generation

- Captive Generation means generation of electricity exceeding 1MW for the purpose of consumption by the generator and which is consumed by the generator himself and not sold to third-parties.
- The regulatory framework for captive generation is the NERC Captive Power Generation Regulations 2008.

S/N	CAPTIVE GENERATION	
1.	Key Features	<ul style="list-style-type: none"> ▪ A captive power plant is a power plant of over 1 MW in capacity set up by the generator for its own use. ▪ Sale of surplus power not exceeding 1 MW requires NERC's written consent. ▪ Sale of surplus power exceeding 1 MW requires procurement of a generation license.
2.	Licensing Process	<ul style="list-style-type: none"> ▪ Generator must apply for and be issued a Captive Generation Permit before it can commence operations. ▪ The period between the receipt of the applicant and the date in which NERC responds with granting or denying the application must not exceed 3 months.
3.	Key Agreements (Indicative)	<p>Typically, a captive permit holder will not require a Power Purchase Agreement (PPA) as generation is for self-use. However, PPAs will be required where:</p> <ol style="list-style-type: none"> <i>Permit holder outsources power generation to an IPP:</i> PPA (Between Company (Captive Permit holder) and IPP) <i>Permit holder intends to supply power to an Offtaker:</i> Power Purchase Agreement (Between the Company (Captive Permit holder) and Offtaker) <i>Fuel Supply Agreement</i> (where applicable)

CAPTIVE POWER GENERATION	
PROS	CONS
<ul style="list-style-type: none"> ❖ Least hurdles in terms of regulation ❖ Option for end users who need stable, predictable, and reliable power within their control. ❖ Possibility of selling excess power, subject to NERC's approval ❖ Minimizes technical losses 	<ul style="list-style-type: none"> ❖ More expensive than grid power and added cost for consumers. ❖ Risk of stranded power ❖ Lack of special incentives to encourage captive generation.



CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

(b) Mini Grid Generation

- A mini-grid is an electricity supply system with its own power generation capacity, supplying electricity to more than one customer and which can operate in isolation from or be connected to a DisCo's network.
- The regulatory framework for mini grid generation is the NERC Mini Grid Regulations 2023, replacing the 2016 Mini Grid Regulations.



S/N	MINI GRID	
1.	Key Features	<ul style="list-style-type: none"> ▪ Mini-grid is the term used for describing any Isolated or Interconnected Mini-Grid generating between 0 KW and less than 1 MW of generation capacity. ▪ Retail tariffs for Mini-Grid Permit Holders are determined using the MYTO methodology designed for mini-grids approved by NERC. ▪ The Registered Mini-Grid Operator may decide to determine retail tariffs using: (a) using the MYTO designed for the Mini Grids; or (b) by an agreement between the Mini-Grid Operator and the Community (being a minimum of electricity customers representing 60% of the electricity output of that community). ▪ Discos are permitted to take over investments of an isolated mini grid system within its network. Where this occurs, the isolated mini grid could either (a) convert to an interconnected mini grid or (b) receive compensation from the Disco as provided for in the regulations.
2.	Licensing Process	<ul style="list-style-type: none"> ▪ Isolated Mini grids operators with a capacity of less than 100kw do not require a permit but must be registered with NERC while Isolated Mini Grids greater than 100kw and all Interconnected Mini grid must obtain a permit from NERC. ▪ In applying for the Isolated Mini Grid Permit/Registration, the applicant must provide written consent of the Disco that the intended area for operation will be within the five-year expansion plan of the Disco and that the area has not been assigned to an IEDNO or any other Mini-Grid Developer. ▪ NERC's decision on applications for permits will be made within 30 days of the submission of the application.

MINI GRIDS	
PROS	CONS
<ul style="list-style-type: none"> ▪ Promotes the use of renewables or hybrid systems. ▪ Suitable for end-users in a community or cluster with smaller energy needs. ▪ Simplified application process with the inclusion of standardized templates contracts and form in the regulation 	<ul style="list-style-type: none"> ▪ Electricity supplied from mini grids is limited to 1 MW. ▪ More suited for rural areas as urban areas would already be covered by the Discos. Except for Interconnected Minigrids developed in collaboration with the Discos. ▪ The ability of the Disco to take over the assets of the isolated mini grid may be a disincentive.

CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

(c) Embedded Generation

- Embedded power generation is the generation of electricity that is directly connected to and evacuated through a distribution system which is connected to a transmission network operated by a System Operations Licensee or through an Isolated or Independent Distribution Network.
- The regulatory framework for Embedded generation is the NERC Regulation on Embedded Generation 2012. The Embedded Generation Regulation is being reviewed by NERC with a view to addressing the barriers to the successful implementation of embedded generation in Nigeria.

EMBEDDED GENERATION (EG)	
Key Features	<ul style="list-style-type: none"> ▪ EG is power generated directly connected to and dispatched either through the distribution network of a distribution licensee or through an Isolated or Independent Electricity Distribution Network. ▪ DisCos who require embedded generation capacity are required to obtain consent from NERC and the DisCo's procurement of such capacity must be on a competitive basis unless the project falls outside the procurement criteria. <p>An EG licensee shall not engage in the business of distribution, transmission, trading, and system operations. However, an affiliate of such Licensee may be licensed to engage in the above-named activities if NERC is satisfied with the applicant.</p>
Licensing Process	<ul style="list-style-type: none"> ▪ Embedded Power Generator must apply for a license prior to commencing the construction and operation of an embedded power plant. ▪ The period between the receipt of the application and the date on which NERC notifies the applicant of its decision shall not exceed six (6) months.
Key Agreements (Indicative)	<ul style="list-style-type: none"> ▪ Power Purchase Agreement between the embedded generation licensee and the Disco/User/IEDN. ▪ Connection Agreement/Interface Agreement between DisCo/IEDN and the embedded generation licensee. ▪ Operation and Maintenance (O&M) Agreement between the embedded generation licensee and the O&M Contractor ▪ Engineering, Procurement and Construction (EPC) Agreement between the embedded generation licensee and the EPC Contractor ▪ Fuel supply agreement (where applicable) between the embedded generation licensee and the fuel supplier ▪ Contract of Sale of Land/Lease Agreement (where applicable)

EMBEDDED POWER GENERATION	
PROS	CONS
<ul style="list-style-type: none"> ▪ Reduced losses and reduced cost of transmission infrastructure. ▪ An option for DisCos to increase the amount of power capacity available to them. ▪ Ring fencing a section of willing paying customers of a DisCo could be commercially viable. ▪ Useful for industrial and commercial clusters. 	<ul style="list-style-type: none"> ▪ Not necessarily cheaper than grid supplied power which is a disincentive for Discos considering their financial situation. ▪ Discos are currently not able to guarantee their offtake because of their liquidity issues. ▪ Limits to how much power can be generated depending on the DisCo's system unless the embedded generation licensee will invest to upgrade the DisCo's network for the project.



CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

(d) Off Grid Generation

- This is a power generation option whereby power is not evacuated through the national grid/TCN network or a distribution licensee's network but instead connected and sold directly to an offtaker which could be an industrial, commercial or residential customer.
- The regulatory framework for Off Grid IPP is the Electricity Act 2023 and the NERC Application for License (Generation, Transmission, System Operation, Distribution and Trading) Regulation 2010.

S/N	OFF GRID GENERATION	
1.	Key Features	<ul style="list-style-type: none"> ▪ Applies to off grid generation above 1 mw and would be ideally suited for isolated and underserved areas. ▪ There is just a single offtaker of the power generated by the off-grid generation licensee; ▪ It can be explored by commercial or industrial users that require stable electricity supply.
2.	Licensing Process	<ul style="list-style-type: none"> ▪ Generator must apply for and be issued Off Grid Generation License ▪ The period between the receipt of the applicant and the date in which NERC responds with granting or denying the application must not exceed 6 months.
3.	Key Agreements (Indicative)	<ul style="list-style-type: none"> ▪ Power Purchase Agreement between the off-grid generation licensee and the customer.

OFF GRID GENERATION	
PROS	CONS
<ul style="list-style-type: none"> ▪ Potential market for power supply to commercial or industrial customers. ▪ Adds generation capacity to meet the rapidly increasing demands of electricity. ▪ Viable alternative to the incessant on grid power issues. 	<ul style="list-style-type: none"> ▪ The cost of the power is usually expensive. ▪ Where excess power is produced, it cannot be sold to NBET or the grid without obtaining an on-grid license. ▪ Additional cost as the off-grid generation licensee may be required to invest in distribution infrastructure, setup a separate distribution company which obtains a distribution license; ▪ Could be expensive if there is no access to cheap fuel source



CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

(e) On Grid Generation

- This is a power generation option where the power generated is evacuated through the national grid/TCN network.
- The regulatory framework for On Grid IPP is the Electricity Act and the NERC Application for License (Generation, Transmission, System Operation, Distribution and Trading) Regulation 2010.

S/N	ON GRID GENERATION	
1.	Key Features	<ul style="list-style-type: none"> ▪ Applies to generation of power above 1 Mw which is dispatched through the national grid/TCN network. ▪ The offtaker of the power is primarily NBET however there are on-grid licensees supplying to eligible customers and doing bilateral sales. ▪ On-grid power generation currently consists of about 21 thermal power plants and 3 hydro stations with a total installed capacity of approximately 13,500 MW.
2.	Licensing Process	<ul style="list-style-type: none"> ▪ Generator must apply for and be issued On Grid Generation License ▪ The period between the receipt of the application and the date in which NERC responds with the grant or denial of the application must not exceed 6 months.
3.	Key Agreements (Indicative)	<ul style="list-style-type: none"> ▪ Power Purchase Agreement between the on-grid generation licensee and NBET/Eligible Customers. ▪ Grid Connection Agreement between TCN and the on-grid generation licensee. ▪ Operation and Maintenance (O&M) Agreement between the on-grid generation licensee and the O&M Contractor. ▪ Engineering, Procurement and Construction (EPC) Agreement between the on-grid generation licensee and the EPC Contractor. ▪ Transmission Project Agreement between the on-grid generation licensee and the EPC Contractor (where applicable for the upgrade of the TCN network). ▪ Fuel supply agreement (where applicable) between the on-grid generation licensee and the fuel supplier ▪ Contract of Sale of Land/Lease Agreement (where applicable)

ON GRID GENERATION	
PROS	CONS
<ul style="list-style-type: none"> ▪ Suitable for large scale power projects ▪ Procurement of on-grid power must be competitive and thus ensures that there is a guaranteed offtaker for power produced. ▪ Adds new generation capacity to meet the rapidly increasing demand for electricity 	<ul style="list-style-type: none"> ▪ High cost of financing. ▪ Liquidity risks on the part of NBET and the key stakeholders to buy contracted capacity. ▪ Prone to losses on both the transmission and distribution ends.



CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

B. POWER TRANSMISSION OPTIONS

Transmission refers to the evacuation of generated power at transmission voltage level (i.e. 132 kilovolts (“KV”) to 330kv) and wheeling of same from the generation plants to the user (typically the distribution companies or NERC approved customer such as eligible customers). Currently, the TCN which currently have 100% federal government shareholding is the sole provider of transmission services in Nigeria.

However, the Electricity Act now provides in sections 109(1) and 112 for investments into national grid/transmission networks by both TCN and non-licensees/investors. Additionally, the Electricity Act establishes a foundation for collaborative efforts between Federal or State Governments and private enterprises, facilitating public-private partnerships to foster investment in transmission networks. These partnerships are required to be in line with the relevant framework on infrastructure concessions and public-private partnerships.

Furthermore, it should be noted that the new Act also provides that States can issue licenses to persons to build, own, or operate an Independent Electricity Transmission Networks (IETN) within the State. Accordingly, the relevant State electricity regulator has the responsibility of issuing IETN licenses to Independent Electricity Transmission Network Operators (IETNO) operating within its territory when the relevant State has established a legal and institutional framework for the regulation of electricity activities within the State.¹⁰³ On the other hand, NERC will continue to issue transmission licenses to persons operating inter-state activities, or transnational distribution of electricity.

Under the Electricity Act, it is contemplated that TCN which currently comprises of the transmission service provider, market operator and the systems operator will be separated and a separate entity called the Independent System Operator (ISO) would be incorporated by TCN to be responsible for market and system operation functions. Upon the incorporation and licensing of the ISO, TCN will be required to transfer all assets.

and liabilities related to market and system operations to the ISO, while TCN retains its transmission service provider license and focus on functions which are relevant to the development and maintenance of the power transmission infrastructure.[1] The functions of the ISO will include ensuring thorough planning; dispatch and control of the grid and maintaining technical stability in the electricity market; administration of settlement payments; controlling grid frequency and voltage; procuring and managing ancillary services; coordinating all planned outages for the maintenance of the system equipment.¹⁰⁴



103. Section 15 Electricity Act 2023.

104. Section 67 Electricity Act 2023.

CHAPTER FOUR: LEGAL FRAMEWORK FOR POWER GENERATION, DISTRIBUTION AND TRANSMISSION OPTIONS IN NIGERIA

C. POWER DISTRIBUTION OPTIONS

Power distribution refers to the wheeling of electric power from generation or transmission using a distribution network to consumers. The Electricity Act prohibits persons from owning or constructing an undertaking for distributing electricity above 100KW without a distribution license from the NERC.



Independent Electricity Distribution Network (IEDN)

A distribution network not directly connected to a transmission network.

Variants of an IEDN are:

- **Embedded IEDN** – A distribution network connected to a DISCOs network.
- **Isolated Off-Grid Urban IEDN** – a distribution network in an urban area not connected to a DISCO's network.
- **Isolated Off-Grid Rural IEDN** – a distribution network in a rural area not connected to a DISCOs network.

The Electricity Act enables State Houses of Assembly to legislate for the issuance of IEDN licenses provided the licensee does not engage in inter-state or transnational distribution of electricity under the license.¹⁰⁵ Also, the State Electricity Boards or other relevant authority within each State are also empowered to grant IEDN licenses and provide the framework for operation of IEDN licensees and investment in electricity utilities within the State.¹⁰⁶

PROS	CONS
<ul style="list-style-type: none"> ▪ Embedded IEDN increases the potential for Discos to increase access to electricity for their customers. ▪ Isolated Rural IEDN increases the potential for access to electricity for rural areas though it may have to be subsidized by government. ▪ Isolated Urban IEDN could potentially be commercially viable with willingly paying customers. 	<ul style="list-style-type: none"> ▪ Isolated Urban IEDN – licence procedure has more regulatory hurdles ▪ Embedded IEDN viability is Disco and customer dependent and expensive

105. Section 63(2)(b) Electricity Act 2023

106. Section 63(7) Electricity Act 2023

CHAPTER FIVE: KEY PROVISIONS OF THE ELECTRICITY ACT 2023

On 9th June 2023, President Bola Ahmed Tinubu assented to the Electricity Act (the “Act”) which repealed the EPSRA. In a bid to provide an omnibus regulatory framework governing the NESI and encourage private sector investment, the Act consolidates extant legislation and regulations applicable in the NESI.

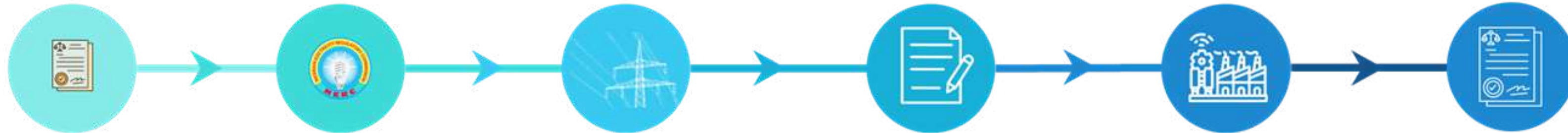
The Act introduces a comprehensive legal and institutional framework to guide the operation of a privatized competitive electricity market in Nigeria and promote private sector investments in the NESI through policies and regulatory measures. Key provisions in the Electricity Act include:

1. Decentralisation of the Power Sector: The Act emphasizes the decentralisation of the Nigerian power sector by recognising States’ rights to make laws for electricity generation, transmission, and distribution within its territory. Sections 2(2) and 63(1) of the Act explicitly grants states the power to legislate, establish local electricity markets, grant licenses, establish regulatory bodies to regulate electricity operations within their domains, and perform other regulatory functions.

Further to the above, sections 230(2) – 230(9) of the Act provide for the process for transition of regulatory functions from NERC to a state electricity regulatory authority (“State Regulator”) upon the enactment of a law to establish a state’s electricity market. However, for states where no law has been enacted and no State Regulator has been established, NERC will continue to be the substantive regulator for the industry in such states. It should also be noted that where the operation of such electricity generation, transmission and distribution undertaking within any State of the Federation relies on any part of the national grid for its operations, NERC will continue to assume jurisdiction over such States.



The Procedure for the Transfer of the Power to Regulate on Electricity Markets from NERC to the State Governments



The State is to enact a State Electricity Law and establish a State electricity regulatory authority ("the **State Regulator**") for the State. Section 230 (2) (a) & (b) of the Electricity Act.

The State delivers a formal notification of these events to NERC and request NERC to transfer regulatory authority over electricity operations in the State to the State Regulator. Section 230 (2) (c) of the Electricity Act.

The State also delivers a formal notification of these events to the relevant electricity distribution company (the "**DisCo**") operating within the State, with a copy to the National Council on Privatization, through the Bureau of Public Enterprises ("**BPE**"), requesting them both to ensure that the DisCo sets up a subsidiary for that particular State. Section 230 (2) (d) of the Electricity Act.

NERC will within 45 days of receiving formal notification of the enactment of the State law, draw up and deliver to the State Regulator, a draft order setting out a plan and timeline for the transition of regulatory responsibilities from NERC to the State regulator. The transition must be completed not later than six (6) months from the date on which the formal notification was delivered to NERC. Section 230 (3) of the Electricity Act.

The DisCo must within two months of receiving the formal notification from NERC, incorporate a subsidiary electricity distribution company ("the **State DisCo**") and transfer the assets, liabilities, employees and the relevant contractual rights and obligations of the DisCo in that State to the State DisCo. Section 230 (4) of the Electricity Act.

On the completion of the transfers, NERC will have no further regulatory responsibility whatsoever for electricity market activities carried on entirely within the State. Section 230 (6) of the Electricity Act.

Also, the State DisCo will on the completion of the transfers, and the issuance of a license by the State Regulator, be under the regulatory oversight of the State Regulator and will have no further obligation to pay any form of license fees to NERC. Section 230 (7) of the Electricity Act.

CHAPTER FIVE: KEY PROVISIONS OF THE ELECTRICITY ACT 2023

2. Promotion of Renewable Energy: The Act makes a concerted effort to amplify the utilization of renewable energy sources by incorporating specific provisions that compel the engagement, growth, and financial backing of renewable energy initiatives. Part XVIII of the Act is dedicated towards the promotion of renewable energy and energy efficiency. Notably, sections 72(2)(d), 80, 113(1), and 164 of the Act imposes obligations on the GenCos and DisCos within the NESI to generate electricity from renewable sources, procure renewable energy-generated power, or secure relevant instruments representing renewable energy generation.

3. Introduction of Independent Electricity Transmission Networks: Sections 63(2)(b) and 63(7) of the Act introduces a new licensing framework called the Independent Electricity Transmission Network (“IETN”) license for independent transmission of electricity in Nigeria which is similar to the current Independent Electricity Distribution Network (“IEDN”) framework in the distribution segment of the NESI. IETN licenses issued by NERC grants the licensee the right to construct and operate a transmission network where there is no existing transmission facility or where there are existing transmission facilities that require reinforcement of the transmission network. State Regulators, where established, can also issue IETN licenses within their boundaries provided that such a state issued IETN license does not permit the licensee to provide inter-state or transnational transmission of electricity in Nigeria.

4. Legislative Recognition of Electricity Distribution Franchising: Sections 68(4) and 68(5) of the Act formally recognises electricity distribution franchising (“EDF”) as a commercial arrangement within the NESI. Section 116(1)(c) of the Act further recognises EDF as an activity that will be subject to tariff regulation. However,

the law provides that all such arrangements must be in accordance with approved franchising terms, models and tariffs as may be approved by NERC within the respective coverage areas. The law also provides that the franchisee shall not be deemed as holding a distribution or supply license or sublicense, but rather would operate under the terms of distribution and supply licensee’s license, whichever is applicable, with the distribution and supply licensees being ultimately responsible for quality distribution and supply of electricity in their respective licensed areas of operational coverage.

5. Open-ended duration of licenses: Section 72(10) of the Act provides that the tenure of a license granted by NERC will now be open-ended (i.e., without time duration) or will be valid for such duration as stipulated in such license. Formerly, licenses issued by NERC were to have a tenure of 10 years and extendable by an additional 5 years each. However, NERC reserves its discretionary power to cancel, suspend, amend, or renew any license taking into account the performance track record of the licensee, the nature of the undertaking, public interest, and the provisions of the Act relating to amendment, suspension, cancellation, or renewal of licenses.

6. Promotion of Investments in the Power Sector: The Act protects investor’s interest by guaranteeing asset protection, the right of sale and transfer of licensee’s undertaking and compensation in the event of a forceful takeover in the interest of national security. The Act also provides that the Minister of Finance shall introduce such tax incentives that are necessary to promote and facilitate the generation of electricity from renewable energy sources.

7. Laying Groundwork for a New Trading License Framework: NBET is currently the sole licensed entity for bulk electricity trading and ancillary services in the on-grid segment of the NESI. As per sections 7(2)(d) and 69(1) of the Act, NBET will eventually cease its trading in the NESI at a time determined by NERC. Upon the cession of its activities as the sole trading licensee, all existing contracts entered into by NBET will be novated to new trading licensees.

CHAPTER FIVE: KEY PROVISIONS OF THE ELECTRICITY ACT 2023

8. Criminalisation of Electricity Theft and other related offences: The Act recognises electricity theft and other related criminal acts as offences including meter tampering, damaging streetlights, disruption of power supply, and stipulates economic reflective penalties to deter offenders.. Furthermore, the Act provides that the Attorney-General of the Federation and the Attorneys-General of respective states have the power to prosecute offences in the Act at the appropriate courts.

9. Repeal and Incorporation of Acts: The Act repeals the following laws and incorporates their provisions into the Act:

- Hydroelectric Power Producing Areas Development Commission (Establishment Act, etc) Act, No.7, 2010.
- Hydroelectric Power Producing Areas Development Commission (Establishment, etc) Act, 2010 (Amendment) Act, 2013
- Hydroelectric Power Producing Areas Development Commission (Establishment, etc,) Act, 2010 (Amendment) Act, 2018
- Nigerian Electricity Management Services Agency (Establishment, etc) Act, 2015.

10. Incorporation and Licensing of Independent Systems Operator (ISO): Section 15 of the Act enables the TCN to, within such market stage or period as NERC may specify, take steps to incorporate an Independent System Operator (ISO) to perform market and system operation functions. The ISO may be a limited liability company or have such ownership and governance structure as NERC may specify. Upon incorporation, TCN will retain its transmission service provider (TSP) license and functions, and its assets and liabilities with respect to operations and maintenance of power transmission infrastructure. TCN is required to transfer all

assets and liabilities relating to its market and system operation functions to the ISO. NERC is mandated to draw up a plan with timelines for the transition of functions, and transfer of assets, personnel from the TCN to the ISO.

11. National Integrated Electricity Policy and Strategic Implementation Plan: Section 3 of the Act provides that within one year from the commencement of the Act, the Federal Ministry of Power is mandated to initiate the process of preparation and publication of the Integrated National Electricity Policy and Strategic Implementation Plan (the “Plan”) in consultation with relevant stakeholders and government authorities to guide the overall development of the Nigeria Electricity Supply industry (“NESI”). The Plan is to be approved by the Federal Executive Council and reviewed at least every five years.

The Plan is to cover the following aspects which are relevant for the development of the NESI:

- development of the NESI based on the optimal utilization of the different energy sources (i.e., renewable and non-renewable energy sources);
- rural electrification;
- public-private partnership to boost access to electricity;
- power-source specific policies including waivers and subsidies that will stimulate the development of renewable energy; and
- development across the electricity value chain.

CHAPTER FIVE: KEY PROVISIONS OF THE ELECTRICITY ACT 2023

COMMENTARY ON THE ELECTRICITY ACT

The Act marks a turning point in the NESI in that it gives further legislative direction in the decentralisation of the NESI as envisaged in the Constitution Alteration Act. The Act introduces a dual regulatory framework in which States that have not yet formulated their state electricity laws will be regulated by NERC or regulated by a State Regulator where they have enacted laws governing their electricity market. The effect of this is that it enables a transition from a centrally regulated power sector to a more decentralised power sector. While the decentralisation of the regulatory authority may mean an increase in the cost of governance, it would allow for a more tailored law and policy that address local issues on electricity more effectively. This also reduces the regulatory burden on NERC.

However, it is worthy of note that there are drawbacks to having a dual regulatory framework in the NESI:

- One of such drawbacks is that there would be a loss of uniformity in the regulation of the power sector in Nigeria. Where the federal and state laws and regulations differ significantly, this would increase compliance burdens on power project developers, especially those operating in multiple states. Such lack of uniformity would also apply in the regulation of electricity tariffs, which is currently only performed by NERC.
- Furthermore, where not properly delineated, the overlapping roles of the federal and state regulators in NESI may result in conflict between federal and state regulators with regards to the implementation of law. The possibility of duplication of functions between the federal and state regulators may not only further increase regulatory bureaucracy for obtaining relevant licences and approvals, but may also increase registration and filing fees, as well as result in regulatory uncertainty.

- Lastly, as States boundaries are to be delineated with a view of transferring to States, the powers to regulate electricity markets within their boundaries, regulatory conflicts are bound to arise between competing States on who the competent authority to regulate activities is, in areas where boundary disputes exist between some States of the federation.

The Act specifically defines actions that constitute offences and imposes penalties to serve a deterrent effect. Offences were not clearly defined in the EPSRA and owing to changing economic conditions, some of said penalties lacked commiserate punitive measures to deter offenders. By clearly defining what constitutes offences and stipulating penalties for same, the Act is more likely to ensure compliance with its provisions.

The provisions of the Act also seek to improve and promote private participation in the transmission segment of the NESI by permitting private investors/non-licensees to invest in the national grid as well as allowing these investors to set up IETNs in States. These innovations show a clear intention of the government to improve the transmission segment of the NESI. These actions are expected to attract private investment, fostering transmission sector growth and NESI performance enhancement.

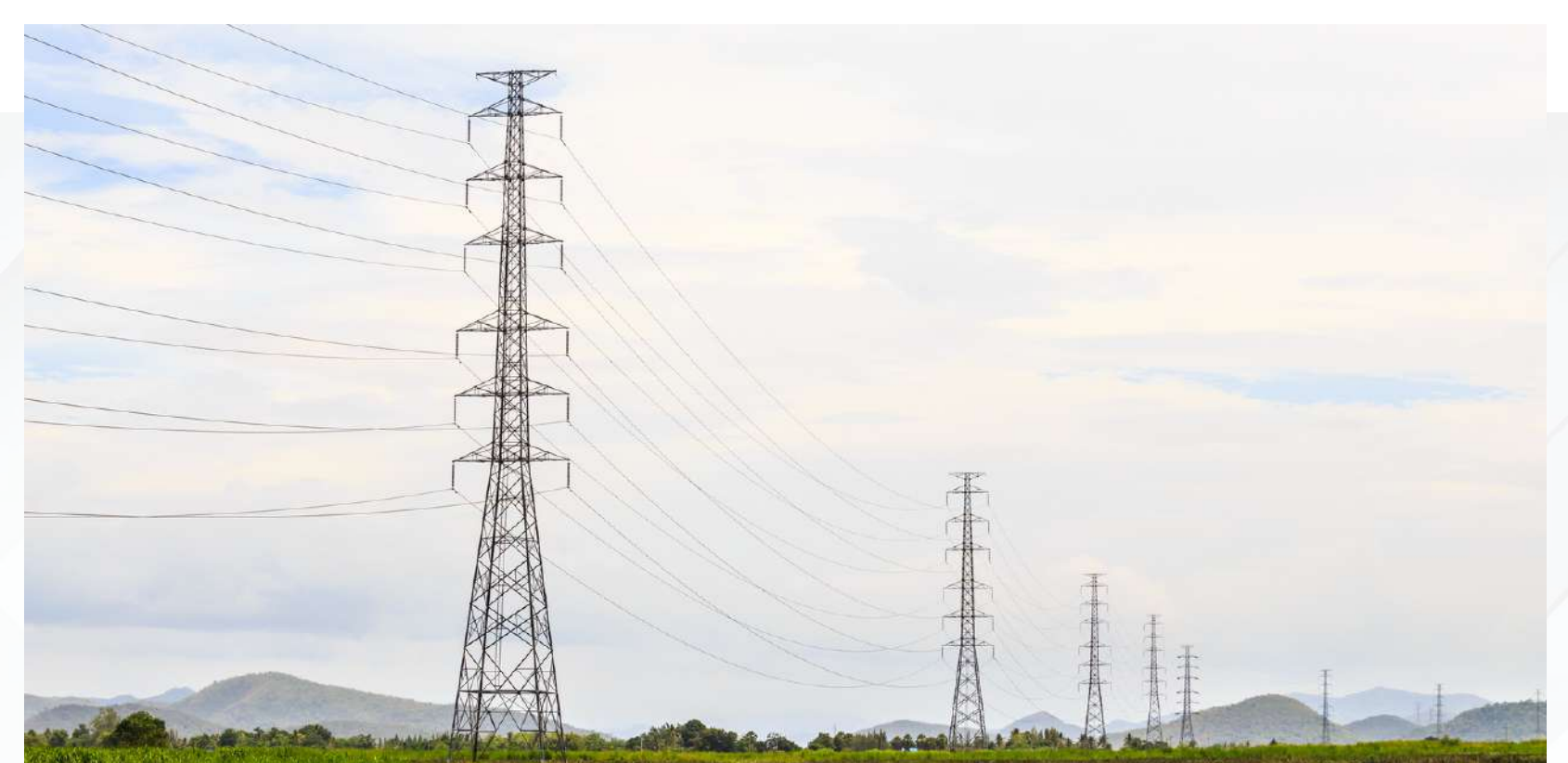
CHAPTER FIVE: KEY PROVISIONS OF THE ELECTRICITY ACT 2023

The recognition of innovative business models like EDF and issuance of IETN licenses is also noteworthy. This development undoubtedly heralds the opportunity for enhanced private participation in the NESI and increased infrastructure development in distribution and transmission segments of the NESI. In particular, NERC's (and State Regulator's) power to issue an IETN License where there is no existing transmission facility or the existing transmission facilities require reinforcement and/or refurbishment will aid in reducing the amount of areas without grid connection.

Additionally, the Act has further promoted investment in the sector by rendering licence terms as open-ended. As such, licences for electricity projects undertaken in Nigeria are no longer fixed at ten (10) year but can be indefinite provided the project developers adhere to the requirements of law and their license terms and conditions.

It is laudable that steps have been taken to reshape the NESI in order to realign post-privatisation issues and expectations of stakeholders. However, in order to achieve the goals of the Act, it is imperative that there is co-operation between the federal and state electricity regulators in order to ensure that the parallel regulation of the sector achieves its objectives. While it is important that state electricity laws be tailor-made to solve a state's peculiar issues, it is important that they are not so drastically different from the federal laws so as to cause a power tussle between the regulators. It is also important that state boundaries are clearly delineated so as to prevent encroachment into another jurisdiction and reduce incidence of ambiguous boundaries causing conflicts as to the applicable regulatory framework.

It is also recommended that NESI stakeholders continue to engage and lobby the federal regulators (particularly NERC) and the State Governments on the need to ensure harmony and uniformity when enacting the different State laws with a view to limiting the areas of conflict between the respective States laws and the federal laws.



CHAPTER SIX: POWER SECTOR OUTLOOK

1. Bilateral Contracts in the NESI

In anticipation of a path towards financial viability of the sector, the availability of Federal Government subsidies and the role of NBET are being phased out. The annual subsidy has been reduced from N528bn in 2019 to N144bn in 2022. Before tariff reviews in 2019, it was estimated that annual subsidy in the NESI would have risen to N3trn by 2023. However, the subsidy provided in Q1 2023 was about N57bn.

For NBET, its initial licence tenure expired in November 2021 and was only extended for another three (3) years i.e. till November 2024. Typically, NBET uses its trading licence to sell and purchase power amongst DisCos and GenCos. NBET would enter into PPAs with GenCos to purchase power on behalf of the DisCos and enter into separate PPAs with DisCos to sell the purchased power. In spite of this, NERC was reportedly engaging three (3) DisCos - Ikeja Electricity Distribution Plc, Abuja Electricity Distribution Plc and Eko Electricity Distribution Plc to commence implementation of bilateral power contracts with GenCos from Q2 2023. This was being done by NERC with the aim of promoting a competitive and transparent power procurement framework that will result in least cost pricing and value for money. A bilateral power contract within this context is an agreement between two parties for the purchase of power on the basis of the agreed terms and conditions with little or no intervention from NERC and with no middleman/trader. More recently in the MYTO 2024 dated the 1st of January 2024, DisCos are now expected to secure adequate bilateral contracts to facilitate a seamless exit from the NBET contract regime.

Whilst DisCos are making efforts to commence the implementation of bilateral contracts, there are still some pending concerns as to the viability of this initiative. These concerns include poor transmission/distribution infrastructure of the national grid, high levels of technical and commercial losses and the debt profile of DisCos and GenCos. Therefore, for

proper implementation of the bilateral contracts of the DisCos, efforts should also be made towards a simultaneous improvement of the grid infrastructure. Also, the market participants would have to negotiate and devise commercially acceptable means for settling existing debts owed.

On the other hand, there has been an increased quest by GenCos for additional offtakers. This can be attributed to the inability of NBET to purchase the entire capacity of GenCos as well as the launch of a partial activation of contract regime for PPAs between NBET and GenCos in Q3 2022, thereby exposing GenCos to unavoidable losses resulting from unpurchased capacity. These additional offtakers are typically commercial and industrial customers who fall under the relevant class of eligible customers and can pay premium tariffs. We are also likely to see more GenCos vertically integrate into the generation and distribution business. For example, Transcorp Plc which is an affiliate of a GenCo – Transcorp Power Plc, recently led the consortium that purchased a 60% stake in AEDC.

In all, it will be interesting to see if DisCos are able to implement their bilateral contracts with GenCos and other generation licensees, or if GenCos focus on more viable and creditworthy offtakers will continue to increase.



2. Emergence of Traders in the NESI

Similarly, in view of the proposed expiration of NBET's licence, there has been an emergence of private sector interests in electricity trading activities. According to NERC's Q2 2022 report, the regulator issued its first private electricity trading licence in the NESI to Comercio Electricity Exchange Limited, noting that the licensee will be able to undertake generation aggregation and sale to eligible customers or DisCos. According to NERC's Q2 and Q3 2023 reports, the regulator also issued two new trading licenses to Electric Utility Nigeria Limited and Onction Services Limited in Q2 2023 and one new trading license to Ember Power Limited in Q3 2023.¹⁰⁷

To function effectively, electricity traders would have to enter into agreements with the respective generation licensees and offtakers. Where necessary, there will be agreements with the relevant distribution licensees or the transmission licensee.

A likely downside to an increase in trading activities, particularly in the private sector, may be increased tariffs. Procuring power from a trader may be more expensive than making a direct purchase of power from a generation licensee. We anticipate that the traders would be looking at cheaper sources of electricity with reliable infrastructure for evacuation and the GenCos or IPPs who are suitably positioned would likely be the first takers.

3. State Power Projects

In a bid to foster infrastructural development, state governments have been investing in electricity projects. These projects range from streetlights to mini-grids to large-sized power plants. In Anambra state, about 6,300 streetlights have been converted to solar-powered streetlights and the state government's target is to have 25,000 solar-powered streetlights by

June 2023. Kano state, on the other hand, has established a focus on hydro-power stations within the state and commissioned a 10MW hydropower station at Tiga Dam, Kano State in Q1 2023.

In addition, there have been collaborations with both private sector stakeholders such as development finance institutions and public stakeholders such as the Rural Electrification Agency (REA). The REA mainly supports mini-grids projects in rural areas across states through its Rural Electrification Fund.

Aside from investing in and collaborating on power projects, state governments have also embarked on the improvement of the enabling regulatory framework for power projects within their territories. The Lagos State Government issued an Electricity Policy which spells out the State's intentions for the development of its electricity market, as well as the state's short-term plans, medium-term plans, long-term plans, investment prospects and plans towards an efficient off-grid electricity system

Following the passing of the constitutional amendment and the Electricity Act which allows state governments to legislate on electricity matters involving any areas within their respective territories, state governments will intensify their participation in electricity projects, from both statutory and project perspectives.

4. Premium Grids

The concept of premium grids emerged from the collaboration of the Federal Ministry of Power with the European Union and the German Federal Ministry for Economic Cooperation and Development under the Nigerian Energy Support Programme (NESP) II. A premium grid project is an electricity distribution franchising project bundled with embedded generation or an additional generation source with an aim to deliver reliable 24/7 power supply.

The concept is initiated under the NERC Franchising Regulations whereby an eligible entity obtains a franchise permit from a DisCo vesting the former with total management rights and obligations over a select area within the DisCo's franchise area. The franchisee will be responsible for supplying customers with power using embedded generation power and the DisCo's grid supply as backup. Subject to the demand of the relevant customers, there may also be backup batteries for industrial customers in the event of a technical failure or power unavailability. A major contributing factor to implementation of the premium grid model is the willingness of customers to pay premium tariffs to cover necessary costs.

As DisCos continue to consider strategies and projects to improve electricity supply within their franchise areas, the premium grid option is a viable avenue that can be adopted in the near future. Premium Grids particularly with a mix of solar, gas and grid power would be potentially viable in commercial, industrial and residential areas where more reliable power is required and diesel generation would be displaced.

5. Embedded Generation

The Embedded Generation Regulations were issued by NERC in 2012 and with over ten (10) years of trial runs, multiple embedded generation projects have begun to emerge. NERC has issued at least two (2) embedded generation licences annually in the past two (2) years.

The small number of embedded generation projects may be attributed to the regulatory requirement of DisCos to procure additional generation through competitive procurement (if more than 10MW) rather than through bilateral arrangements. Other likely factors include tariff justification and collection risks, the unreliability of the national grid (where used) and/or the burden of additional costs to refurbish the existing grid network.

The success of the existing embedded generation projects will trigger the initiation of subsequent embedded generation projects. However, it is important to tackle issues such as the poor state of the national grid infrastructure and the antagonism of DisCos towards isolated IEDN arrangements for embedded generation power projects, in order to attract investors. Nonetheless, with the emergence of premium grid projects and demand from commercial and industrial customers, it is hoped that there will be more embedded generation projects stemming from collaborations between DisCos and private power generators. Also, State Governments are likely to initiate embedded generation projects to support their electricity goals following the constitutional amendment and enactment of the Electricity Act.

6. Volatility of Diesel Prices and Associated Costs

In 2022, the Nigerian populace experienced an unexpected surge in diesel prices. According to the National Bureau of Statistics (NBS) monthly Automotive Gas Oil (Diesel) Price Watch Reports, the average price of diesel increased from N288.02 in January 2022 to N817.86 in December 2022 (a 283.96% price increase) and further to N1004.98 in October 2023. The unforeseen surge in diesel prices has been attributed to the non-regulation of the prices and its dependency on oil prices and foreign exchange rates. This price surge forced Nigerians (individuals and entities) to shift to other fuel sources like PMS or solar energy for their power generators.

CHAPTER SIX: POWER SECTOR OUTLOOK

Whilst the diesel prices will increase or decrease given the unsteady exchange rate/international prices, the recent removal of PMS subsidy will likely result in increased logistics for diesel transporters across the nation. Some stakeholders have expressed hope that the Dangote Oil Refinery which was recently inaugurated in Lagos State, Nigeria and began operations in January 2024 would reduce the price of diesel. The refinery has received 6 million barrels of crude oil since December 2023, and is expected to start with refining 350,000 barrels per day and subsequently ramp up to full production of 650,000 barrels per day later this year.¹⁰⁸ Experts have also noted that it could take months to move from test runs to the production of high-quality fuels at full capacity following the startup of the refinery's crude distillation unit.¹⁰⁹ The company in a recent statement revealed that production of diesel and aviation fuel has begun, and the products are expected to be in the domestic market once regulatory approval is obtained from the NMDPRA.¹¹⁰ Seven major oil marketers have also registered with the Dangote Petroleum Refinery for the lifting and distribution of the refined petroleum products produced by the plant.¹¹¹ Although the operations of the refinery should ordinarily deflate the diesel price surge, the issue of increased logistics costs may dampen this expectation. This again, will force the Nigerian populace (individuals, businesses, communities, and corporate entities) to reconsider the fuel sources for their electricity generators. PMS which is used for most household generators has become almost as expensive as diesel. Currently, the most common alternative option is to use solar energy facilities for power supply. Besides initial purchase costs, running solar powered appliances or facilities would be considerably cheaper than running PMS or diesel fueled generators.

7. Increase in Utilisation of and Investment in Renewables for Commercial and Industrial Users

The fuel subsidy removal (and increase in diesel prices) as earlier addressed has largely increased energy costs which has in turn increased the cost of living and cost of doing business in Nigeria.

The earlier mentioned Energy Transition Plan also aims to transition away from diesel/petrol generators and ramp up renewables-backed electrification to meet the 2060 target for carbon neutrality in Nigeria.

Therefore, we envisage that the rising costs in fuel prices will encourage more commercial and industrial businesses to transition to renewable energy projects for powering operations.

United Bank for Africa Plc (UBA) recently partnered with Renewvia to supply its branches with clean energy generated from Renewvia's solar microgrids,¹¹² and Sterling Bank's corporate headquarters integrated photovoltaic solar panels on the building's façade to power the building's operations using solar energy.¹¹³

Meanwhile, in the telecommunications sector, the Nigerian Communication Commission recently admonished telecommunications operators to reconsider the sustainability of their operations and lower the environmental impact of their operations by adopting renewable energy solutions.¹¹⁴ Therefore, a number of renewable energy projects across the sector are expected to increase as the operators re-assess their increased operational cost caused by high diesel prices, the impact on the environment of such continued operations and the expected increase in energy consumption required to provide 5G network services across Nigeria. Perhaps recognizing the opportunity to service this energy transition need in the sector, a solar power provider company, WATT Renewable Corp. recently announced its plans to raise US\$100 Million by the end of 2024 to expand its business of providing solar power, mainly to telecommunications towers in Nigeria.¹¹⁵

108. [Nigeria's Dangote refinery starts production after years of delays | Reuters](#)

109. [Nigeria's Dangote refinery starts production after years of delays | Reuters](#)

110. [Dangote Refinery seeks approval to hit market with diesel, aviation fuel - Vanguard News \(vanguardngr.com\)](#)

111. [Seven major marketers get approval to sell Dangote fuel \(punchng.com\)](#)

112. [Renewvia signs long-term power agreement to supply UBA with clean energy - Businessday NG](#)

113. [Sterling Bank begins powering headquarters solely on solar energy \(businessday.ng\)](#)

114. [NCC tasks telcos on clean energy, claims 5G will drive high consumption — Business — The Guardian Nigeria News – Nigeria and World News](#)

115. [Solar Power Provider Seeks \\$100 Million for Nigeria Growth \(1\) \(bloomberglaw.com\)](#)

8. Financing Programmes for scaling Clean Energy projects by Development Finance Institutions and Institutional Investors

The sheer deficit in power supply and the huge potential for clean energy projects in Nigeria continues to attract the attention of development finance institutions, institutional investors and philanthropies as they look at ways to attract development, concessional and blended finance to scale up clean energy projects across Nigeria. As the absence of sufficient power supply in Nigeria has depicted the NESI as a sector in dire need of adequate financing for the various power project options available.

Consequently, financing programmes have been established by interested institutional investors and development finance institutions to assist players in the NESI in actualizing their projects. These programmes include:

- Infrastructure Credit Guarantee Company Limited's (InfraCredit) Clean Energy Funding Programme which is focused on funding small-scale energy projects and supporting energy transition strategies. Using its programme, InfraCredit has supported renewable energy companies like Darway Coast Nigeria Limited, to raise local debt for their projects;
- ARM-Harith Infrastructure Investment Ltd's Infrastructure Fund which is aimed at energy (and transportation) projects in Nigeria;
- Rocky Mountain Institute is currently working on the establishment of a viable business model for renewable embedded generation, in conjunction with a few DisCos, the Lagos state government and other industry stakeholders; and
- Global Energy Alliance for People and Planet (GEAPP) has established two (2) financing programmes: (a) a US\$10,000,000 (facility) Demand Aggregation for Renewable Technology programme with an investment firm – All On, to finance solar equipment purchases and logistics expenses by Nigerian solar companies; and (b) a US\$50,000,000 Energy Transition & Access Facility for Africa with another investment firm – Chapel Hill Denham to support distributed renewable energy projects in Nigeria.

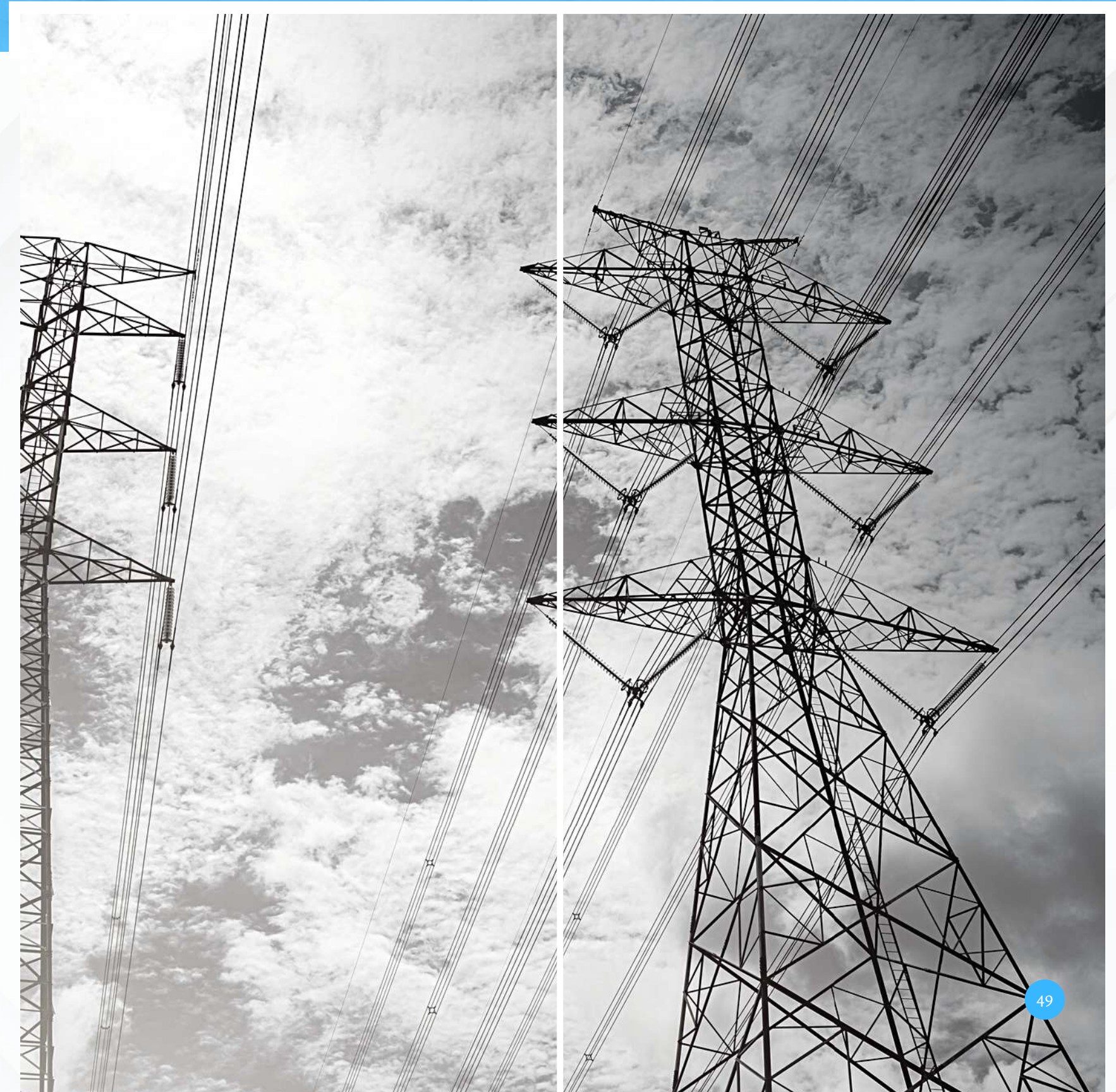
Whilst some of these programmes are in the development stage, other programmes are already being implemented and have financed projects. The successful outcome of these programmes will engender the scaling of similar programmes to facilitate investment in the clean and distributed in Nigeria and will boost the interests of other entities in the NESI.

9. The Electricity Act and Renewable Power Generation

With the passage of the Electricity Act, the emphasis on renewable power generation in the energy sector is expected to lead to a substantial transformation in the power industry. The Electricity Act represents a significant step towards achieving a sustainable and environmentally friendly energy future, prompting increased investments in renewable energy projects throughout the country. The government, in collaboration with private sector partners and international organizations, is expected to introduce schemes and initiatives to facilitate funding for renewable energy projects. These could include green bonds, public-private partnerships, and investment funds exclusively dedicated to renewable energy ventures. Such financial support will further encourage businesses and investors to channel their resources into clean energy initiatives, increasing renewable energy generation capacity in the country.

APPENDIX I – LEGISLATION IN THE NIGERIAN POWER SECTOR

- [Electricity Bill 2021](#)
- [Climate Change Act 2021](#)
- [Constitution \(Fifth Alternation\) Act 2023](#)
- [Domestic Gas Delivery Obligation Regulations 2022](#)
- [Electricity Act 2023](#)
- [Lagos State Electric Power Sector Reform Law 2018](#)
- [CNERC Customer Protection Regulations 2023](#)
- [NERC Distribution Usage Fee Tool 2021](#)
- [NERC Guidelines for Economic Merit Order Dispatch 2020](#)
- [NERC Guidelines for Secondary Escrow Account Management for Bilateral Transactions by Electricity Distribution Licensees](#)
- [NERC Guidelines for the Continuity of Service in the NESI 2020](#)
- [NERC Guidelines for the Preparation of Performance Improvement Plans \(PIP\) by DisCos 2019](#)
- [NERC Guidelines on Distribution Franchising in the Nigerian Electricity Supply Industry \(NESI\) 2020](#)
- [NERC Guidelines on Filing Applications for Competition Transition Charge by Electricity Distribution and Trading Licensees 2020](#)
- [NERC Meter Asset Provider and National Mass Metering Regulations \(MAP and NMMR\) 2021](#)
- [NERC Mini Grid MYTO Model 2021](#)
- [Petroleum Industry Act 2021](#)



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