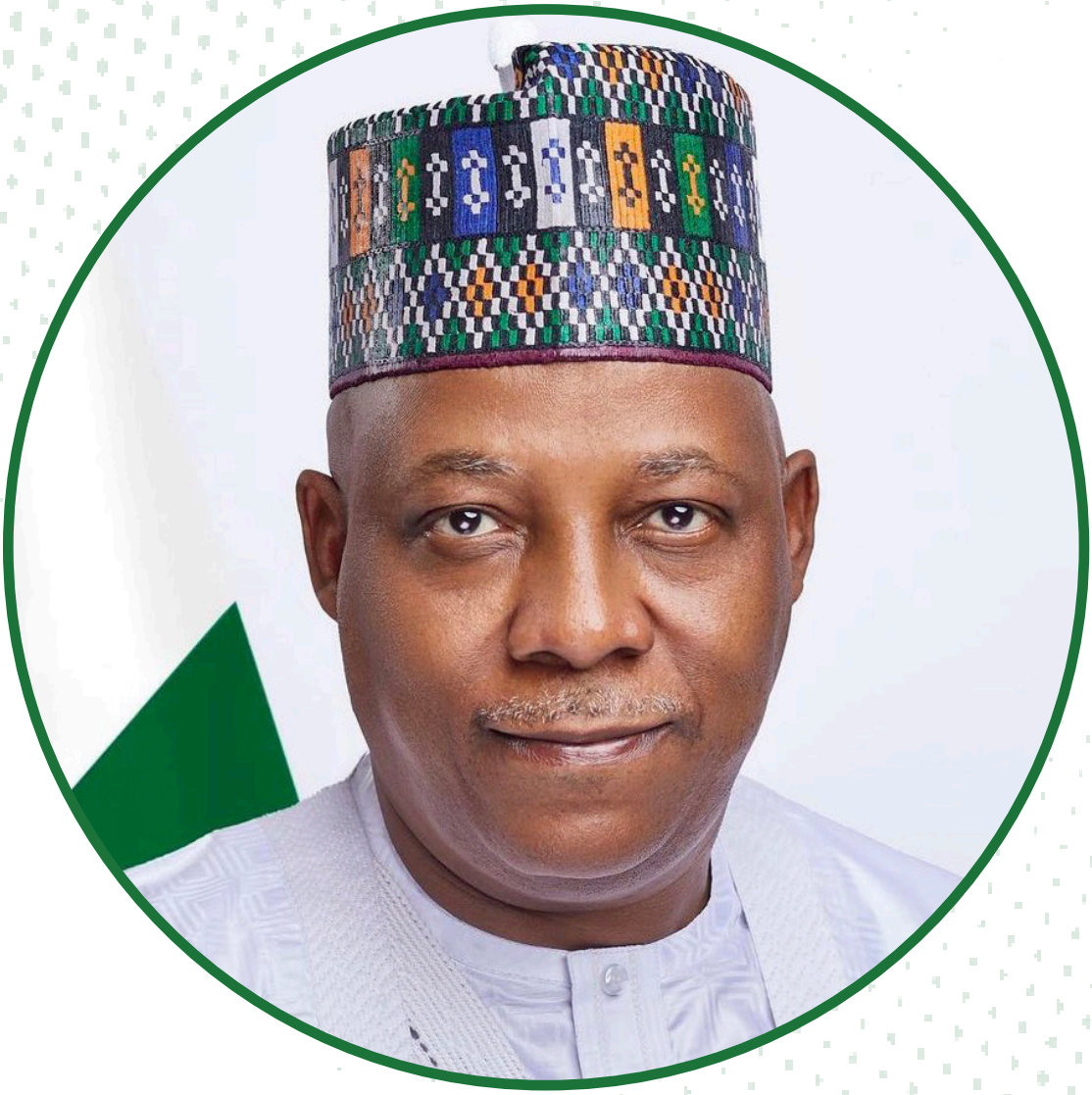
National Integrated Electricity Policy

Federal Ministry of Power

Bola Ahmed Tinubu GCFR

President of the
Federal Republic of Nigeria



Kashim Shettima GCON

Vice President of the
Federal Republic of Nigeria

Adebayo Adelabu OFR, FCA, FCIB

Honourable Minister of Power,
Federal Republic of Nigeria

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List of Acronyms

ACMI	Africa Carbon Market Initiative
AEDC	Abuja Electricity Distribution Company
AEMP	Africa Energy Marketplace
AFDB	African Development Bank
ANCEE	African Network of Centres of Excellence in Electricity
BPE	Bureau of Public Enterprises
CNG	Compressed Natural Gas
DARES	Distributed Access Through Renewable Energy Scale-up
DMO	Debt Management Office
DisCo	Distribution Company
DRE	Distributed Renewable Energy
EA	Electricity Act
ECN	Energy Commission of Nigeria
ESCOs	Electricity Service Companies
ETO	Energy Transition Office
FG	Federal Government
FMoF	Federal Ministry of Finance
GACN	Gas Aggregator Company Nigeria
GEAPP	Global Energy Alliance for People and Planet
GGFRP	Global Gas Flaring Reduction Partnership
GSAs	Gas Supply Agreements
HYPADEC	Hydroelectric Power Producing Areas Development Commission
IETN	Independent Electricity Transmission Network
IDA	International Development Association
INEP	Integrated National Electricity Policy
IRP	Integrated Resource Plan
ISO	Independent System Operator
LDAR	Leak Detection and Repair
LT-LEDS	Long-Term Low Emission Development Strategy
MAN	Manufacturers Association of Nigeria
MOFI	Ministry of Finance Incorporated
MOF	Ministry of Finance
MRV	Measurement, Reporting, and Verification

NACCIMA	National Association for Chamber of Commerce, Industry, Mines and Agriculture
NADDC	National Automotive Design and Development Council
NASPA-CCN	National Adaptation Strategy and Plan of Action for Climate Change Nigeria
NAPTIN	National Power Training Institute of Nigeria
NBET	Nigerian Bulk Electricity Trading Company
NCCC	National Council on Climate Change
NCMAP	National Carbon Market Activation Plan
NESI	Nigeria Electricity Supply Industry
NEMSF	Nigeria Electricity Market Stabilization Facility
NEMSA	Nigerian Electricity Management Services Agency
NESP	Nigerian Energy Support Programme
NERC	Nigerian Electricity Regulatory Commission
NDC	Nationally Determined Contributions
NDPHC	Niger Delta Power Holding Company
NGF	Nigerian Governors Forum
NGMC	Nigerian Gas and Marketing Company
NIEP/SIP	National Integrated Electricity Policy/Strategic Implementation Plan
NMDPRA	Nigerian Midstream and Downstream Petroleum Regulatory Authority
NNPC	Nigerian National Petroleum Corporation
NREEEP	National Renewable Energy and Energy Efficiency Policy
PA-NPSP	Power Africa - Nigeria Power Sector Programme
PCAF	Power Consumer Assistance Fund
PwC	PricewaterhouseCoopers
REA	Rural Electrification Agency
REFIT	Renewable Energy Feed-in Tariffs
RESIP	Rural Electrification Strategy and Implementation Plan
SERC	State Electricity Regulatory Commission
SEforALL	Sustainable Energy for All
SIP	Strategic Implementation Plan
SMEs	Small and Medium Enterprises
TCN	Transmission Company of Nigeria
TSP	Transmission System Providers
UKNIAF	United Kingdom Nigeria Infrastructure Advisory Facility
UNFCCC	United Nations Framework Convention on Climate Change
VRE	Variable Renewable Energy

Foreword

The Nigerian electricity sector stands at a point of transformative change. The passage of the Electricity Act (EA) 2023 marks a pivotal moment, laying the foundation for a Nigerian Electricity Supply Industry (NESI) that enables exponential socio-economic growth. This National Integrated Electricity Policy and Strategic Implementation Plan (NIEP-SIP) is a comprehensive roadmap developed to guide all stakeholders – the Federal and State Governments, market participants, investors, and indeed all Nigerians, through this transition.

In fulfilment of the statutory mandate stated in Section 3, Electricity Act, 2023, this Policy document represents the collective efforts of the Federal Ministry of Power in collaboration with a wide cross-section of stakeholders across the public and private sectors at national and State levels, to address the complex challenges faced by the NESI, from infrastructure deficits to inadequate capital to regulatory inefficiencies. The NIEP is a significant evolution from the National Electric Power Policy 2001, which has been long overdue for replacement.

The Policy outlines various initiatives to aid the growth and development of State Electricity Markets (SEMs). It fosters a decentralised but collaborative approach to energy management and resource planning. This NIEP-SIP is a living document that, even as it evolves with the Industry's needs and challenges, underscores the importance of collaboration, innovation, and a steadfast commitment to consumer protection and engagement.

In attaining this milestone, I must express gratitude to my colleagues in the Federal Executive Council, particularly the members of the Inter-Ministerial Power Sector Working Group, our development partners, including the African Development Bank (AfDB), United Kingdom-Nigeria Infrastructure Advisory Facility (UKNIAF), the United Nations Development Programme (UNDP) and the World Bank, all of whom have been engaged with the Federal Ministry of Power from the beginning of this journey in September 2023. Most importantly, I cannot fail to acknowledge and thank President Bola Ahmed Tinubu for initiating this development by assenting to the Electricity Act, 2023 on 9th June 2023 and for setting clear targets for the Sector to attain.

In closing, I invite all stakeholders to engage with this document, contribute to its implementation and participate in shaping the future of Nigeria's electricity industry. Together, we can harness the power of our diverse resources and talents to build a brighter, more prosperous future for our nation.

ADEBAYO ADELABU, OFR, FCA, FCIB
HONOURABLE MINISTER OF POWER

Executive Summary

With the assent to the Electricity Act (EA or Act) 2023 by President Bola Ahmed Tinubu, the Federal Government of Nigeria, through the Federal Ministry of Power (the Ministry), is mandated to commence the process for the preparation and publication of the National Integrated Electricity Policy and Strategic Implementation Plan (NIEP-SIP) in the Federal Gazette within one (1) year from the commencement of the Act. This plan must be approved by the Federal Executive Council before publication and implementation.

The National Integrated Electricity Policy is set out in eight (8) chapters. The first chapter explains the key changes in the Electricity Act 2023 compared to the repealed Electric Power Sector Reform Act (EPSRA) 2005, the need for the NIEP-SIP and the context and demographic highlights of the Nigerian Power Sector. The second chapter surveys the Nigerian Electricity Supply Industry. It begins with a historical perspective and explains the legislative process and policy directives that have enabled the industry to evolve from a government-owned, vertically integrated system to the evolving private sector-driven, multi-level industry. It highlights the progress made and challenges faced over the years, the demand and supply profiles of the Nigerian Electricity Supply Industry, the status of infrastructure across the sector value chain, an overview of system operations, the Least Cost Grid Expansion Plan, and an overview of off-grid activities in the Nigerian Power Sector.

Chapter 2, “Nigeria’s Electricity Policy Objectives”, outlines the country’s commitment to achieving universal electricity access by 2030, focusing on providing affordable, reliable, and sustainable energy. It highlights significant challenges, including insufficient generation capacity, reliance on off-grid diesel generators, and an underperforming transmission grid. The Transmission Company of Nigeria’s lack of technology-driven system operation exacerbates these issues, leading to frequent power outages and economic disruptions. The chapter emphasises the need for investment in grid infrastructure, firm gas supply agreements, and regulatory reforms to improve reliability and encourage renewable energy integration. Key policy recommendations include completing the Supervisory Control and Data Acquisition SCADA/Energy Management System (EMS) and the implementation of a National Integrated Resource Plan.

Chapter 3 – “The Electricity Market Design, Value Chain, Key Stakeholders, and Their Roles” outlines the electricity market design for Nigeria under the Electricity Act 2023, introducing the National Wholesale Electricity Market (NWEM), State Electricity Markets (SEMs) and Off-grid Electricity Markets. It discusses the transition from a centralised bulk buyer model to a competitive NWEM, highlighting the challenges and policies required for market stability, including investment in infrastructure, regulatory reforms, and integration of renewable energy. The SEMs aim to decentralise power supply, while the off-grid markets focus on providing electricity to underserved and unserved areas. Key policies proposed emphasise private sector participation, regulatory alignment and financial incentives to support market growth.

Chapter 4 – “Climate Change, Nigeria’s Low Carbon Economy, and the Energy Transition” discusses Nigeria’s climate change policies and energy transition strategies, emphasising a shift to a low-carbon economy. It discusses the country’s international commitments that guide Nigeria’s climate objectives. Key policies and legislation include the National Climate Change Policy for Nigeria, the Nigeria Energy Transition Plan, and the Climate Change Act 2021, all aimed at achieving net-zero emissions by 2060. The chapter highlights the need for investment in renewable energy, clean cooking, and transport electrification. It also covers the off-grid energy market’s role in providing access to underserved and unserved areas and the importance of addressing emissions in the oil and gas sector.

Chapter 5 – “Human Resource Capability Development of the Nigerian Electricity Supply Industry”, outlines a comprehensive strategy to enhance human resource capabilities in the NESI. The chapter discusses the challenges the sector faces, including inadequate funding and a lack of a comprehensive capacity development framework. Key policy recommendations include continuous professional development, technical and non-technical skills enhancement and strategic partnerships. The chapter emphasises gender equality, integration of technology, investment in training facilities and the implementation of a robust monitoring and evaluation framework with the goal of creating a skilled and motivated workforce that supports the sector’s growth and development.

Chapter 6 – “Gender Equality, Poverty and Social Inclusion for the Nigerian Power Sector”, discusses the challenges that relate to the participation of some demographic groups, including women and persons with disabilities, in sector-specific decision-making. This chapter also highlights the disparities in electricity access and use by different demographic groups. It underscores the heterogeneity of electricity customers and the fact that this leads to customers being impacted differently by sector policies due to constraints that are linked to gender, poverty and social inclusion. It further explores the industry’s struggles with energy poverty, unreliable electricity and limited access, which has impacted economic development and reinforced existing vulnerabilities. In line with the Electricity Act 2023, which seeks to enhance diversity, boost participation in the workforce and ensure equitable energy access, policy recommendations include inclusive policy formulation, gender-responsive monitoring, and skill-building to address the sector’s complexities, enhance inclusiveness, and promote universal access.

Chapter 7 – “Enhancing Local Content Management, Research and Development in the Electricity Sector”, discusses strategies to enable local content and research development in the NESI. Key policy recommendations include defining local content parameters, incentivising local production, facilitating technology and knowledge transfer and promoting local manufacturing with the aim of building local capacity, ensuring economic growth, reducing dependency on imports and ultimately promoting competitiveness in the sector.

Chapter 8 – “The Commercial, Legal and Regulatory Framework for the Implementation of the National Integrated Electricity Policy” outlines the strategy for transitioning from a solely Federal government-driven market to a two-tier, multi-state Government and Federal government-led market. Key recommendations include NERC, in collaboration with State regulators, to implement individual action plans to transition from NERC to State regulation. Key issues to be addressed during individual State transition programmes are also outlined.

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The Historical Context of the National Integrated Electricity Policy

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1.1. Historical Perspectives

1.1.1. The Nigeria Electricity Power Policy (NEPP)

In 2001, the Federal Government of Nigeria (FGN) approved the Nigeria Electric Power Policy (NEPP) as a pivotal tool for electricity sector reform. The FGN adopted privatisation and commercialisation as a key economic strategy to address the longstanding issues. The NEPP proposed the creation of the Nigerian Electricity Regulatory Commission (NERC) as an independent regulator to establish an effective regulatory framework. This framework was essential for a privatised electricity industry, which required competition amongst generating companies to deliver energy over monopoly transmission and distribution grids and an independent regulatory agency free from government and industry influence.

The priority of the NEPP was to create efficient market structures within clear regulatory frameworks that encouraged competitive markets for electricity generation and sales. These frameworks aimed to attract private investors and ensure the economically sound development of the system. The expectation was that, by doing so, the Nigerian electricity sector would be able to meet current and future electricity demand in an efficient and economically viable manner. The overarching principle of the NEPP 2001 was choosing private sector participation as vital in addressing the power sector's problems and contributing to the broader national economy.

The Nigeria Electric Power Policy (NEPP) included a rural electrification sub-policy aimed at rapidly and cost-effectively expanding access to electricity in rural and semi-urban areas via a comprehensive range of options, such as grid, off-grid, mini-grid, non-thermal, and renewable energy sources. It also created a Rural Electrification Fund that provided clear policy guidelines, transparent bidding procedures, and mechanisms for accountability in the disbursement and utilisation of monies.

1.1.2. Electric Power Sector Reform Act of 2005

The policy initiatives set out in the NEPP 2001 were codified into the Electric Power Sector Reform Act of 2005 (the EPSRA). The EPSRA aimed to transform the Nigerian electricity sector to meet the growing electricity demand, improve reliability, and attract private sector investment. It formally established several key institutions and mechanisms to ensure the successful implementation of these objectives.

First, the Nigerian Electricity Regulatory Commission (NERC) was created as an independent regulatory agency. NERC's role included regulating electricity generation, transmission, distribution, and trading. It ensured the creation and maintenance of an efficient, safe, and sustainable electricity market accessible to all Nigerians. NERC is responsible for issuing licenses, setting tariffs, ensuring the development of

technical standards, technical regulations, and safety standards, and protecting consumer rights. Second, the EPSRA established the Rural Electrification Fund (REF), managed by the Rural Electrification Agency (REA), to support both grid-connected and off-grid rural electrification projects, with funding for the REF sourced from electricity levy on consumers, federal subventions and contributions from States, private companies and local communities.

Furthermore, the EPSRA outlined a comprehensive framework for privatising the electricity sector. It mandated the unbundling of the National Electric Power Authority (NEPA) into successor companies responsible for generation, transmission, and distribution. This unbundling process aimed to introduce competition and improve efficiency within the sector via mechanisms for encouraging private sector participation and investment, including clear regulations for market operations, transparent bidding processes, and incentives for renewable energy projects. In addition, the 2005 Act established the Power Consumer Assistance Fund (PCAF) to subsidise electricity costs for underprivileged consumers, ensuring that the benefits of electrification reach all segments of society.

1.1.3. Progress Made Since NEPP 2001 and EPRSA 2005

Overall, the EPSRA laid the groundwork for a modern, efficient, and sustainable electricity sector in Nigeria. Between 2011 and 2013, the NESI went through a process that resulted in the transfer of 60% of equity plus full management control in eleven (11) DisCos to private ownership. A twelfth DisCo, Aba DisCo, was wholly privatised. Additionally, many Generation Companies (Gencos) were either wholly privatised or divested by concessions to private investors. However, the transmission assets, operations, and ten NDPHC Gencos remain under public sector ownership and management.

However, it is now accepted that privatisation of the generation and distribution sub-sectors, the cornerstone of the NEPP 2001 and the EPSRA 2005, has not yielded its intended benefits. Despite significant changes in ownership structure, the expected transformation in the Nigerian electricity sector remains unfulfilled. While it is apparent that the generation sub-sector has seen a certain level of investment, the necessary upgrades and expansions to improve service delivery and reliability in the transmission and distribution sectors have not materialised, leaving many parts of Nigeria with inadequate and unreliable power supply, leading to the increasingly common use of the phrase “unserved and underserved parts of…”.

Only one notable IPP has been commissioned since the 2005 Act was passed, indicating a lack of private investment in new generation capacity. In transmission, most investments have come through concessionary loans sourced by the FGN for TCN, which remains under government ownership. This reliance on public sector financing for critical infrastructure highlights the challenges in attracting sufficient private capital. A major contributing factor to these shortcomings is the continued inefficient subsidisation of tariffs and the DisCos’ inability to efficiently collect revenues and reduce losses, leading to significant tariff and market shortfalls and, thus, a gap between the electricity supplied and the revenue collected. The resulting financial deficits are the immediate cause of NESI’s financial insolvency.

Overall, the intended results of privatisation have not been achieved. Strengthening the regulatory framework, enhancing financial viability, and creating more attractive conditions for private investment are crucial steps towards achieving a reliable, efficient, and sustainable electricity sector.

1.2. The Electricity Act of 2023

The Electricity Act (EA), 2023 is an evolution of the NESI’s guiding legislation with significant constitutional, legal and commercial implications. On March 17, 2023, former President Muhammadu Buhari assented to the Fifth Alteration (No.33) Devolution of Powers (National Grid System) Bill (the “Fifth Alteration”). Subsequently, President Bola Ahmed Tinubu assented to the Electricity Act, 2023 (the “**The EA**” or “**The Act**”) on 9th June 2023. The Act repeals the Electric Power Sector Reform Act 2005, the Nigerian Electricity Management Services Agency (NEMSA) Act 2015, and the Hydroelectric Power Producing Areas Development Commission (HYPADEC) Act 2010. It consolidates and codifies legislation on the electricity supply industry to encourage private sector investments, provide guidance on post-privatisation operations, and lead to the attainment of the long-standing objective of consistent and reliable universal electricity access across Nigeria.

1.2.1. Key Features of the EA

The Act's stated primary objective is to provide a comprehensive framework for the operation of "a privatised, contract and rule-based competitive electricity market in Nigeria…" and to provide a comprehensive and institutional framework for developing a holistic national integrated resource plan and policy that recognises all viable sources of electricity generation and integrates renewable energy into Nigeria's energy mix. It also removes the constitutional restrictions on States' right to legislate for electricity business conducted in their territories.

- **De-monopolisation of the Electricity Market**

The Fifth Alteration and the EA, read together, create significant State-level investment opportunities for private investors and, more importantly, enable the more rapid attainment of universal electricity access across the country by empowering States that wish to do so to enact policies and laws for the conduct of all aspects of electricity business strictly within their territories. Essentially, Nigeria has evolved from having a single centrally-regulated electricity sector to having a two-tier sector comprising a National Wholesale Electricity Market (NWEM) comprising the various Gencos and IPPs connected to the national transmission grid operated by an Independent System Operator (ISO) on one hand; and the various State electricity markets now evolving, made up of distribution retail markets supplied either by State-based and State-regulated generators or by the NWEM, on the other hand.

- **The National Integrated Energy Policy and Strategic Implementation Plan**

Section 3(1) of the Act mandates the Federal Government of Nigeria, through the Ministry of Power (the "**Ministry**"), to commence the process for the preparation and publication of the National Integrated Electricity Policy and Strategic Implementation Plan ("**NIEP-SIP**" or the "**Plan**") within one (1) year from the commencement of the Act. This was fulfilled in December 2023 when the Honourable Minister of Power hosted an industry roundtable that kicked off the iterative process of stakeholder engagement, dialogue and drafting that has now culminated in the publication of this NIEP-SIP, which will be reviewed and revised not later than every five (5) years, with each revision approved by the Federal Executive Council.

- **Other Features of the Act**

These include providing a comprehensive list of offences and stringent penalties for these offences. The Rural Electrification Agency (the "REA") was also re-established to more effectively promote electricity access for the rural, unserved, and underserved populace in collaboration with its state counterparts. The Act also provided statutory mandates for the long-anticipated establishment and licensing of the Independent System Operator ("ISO") for the national grid to be created by the Transmission Company of Nigeria.

The EA also includes a framework to stimulate the development and utilisation of renewable energy sources and create an enabling environment to attract investments to increase the contribution of renewable energy to the Nigerian energy mix. This is a major step in the right direction to achieve the country's Energy Transition Plan.

1.3. The Need for a New Policy

There are several reasons why a new comprehensive electricity policy is essential:

- **Holistic Framework for Implementation:**

While the Act provides various statutory mandates, these need to be stated (or re-defined, if necessary) within a policy initiative framework that outlines specific implementation strategies, timelines and stakeholder roles. This ensures a coordinated approach to achieving the Act's objectives.

- **Addressing Transitional Challenges:**

The transition from a single national electricity market with a single regulator for both electricity wholesale and retail/distribution business to a two-tier (Federal and State) NESI with a single regulator for the NWEM and individual State regulators, as occurs in federal jurisdictions, in a country with no prior experience of such a sector design, will encounter transitional challenges. This Policy enables this transition process in a manner that ensures the continuing management and protection of existing assets and investments and the mitigation of potential disruptions during the transition period.

- **Integration with Other Energy Policies:**

The electricity sector is closely linked with the petroleum resources (oil and gas) sector, which evidently requires coherence and synergy between both sectors.

- **Detailed Renewable Energy Strategy:**

While the Act promotes renewable energy, a specific policy is needed to detail the incentives, regulatory frameworks and support mechanisms for renewable energy projects. This need includes addressing technical and financial barriers to renewable energy integration.

- **Capacity Building and Human Resource Development:**

This policy addresses the development of the necessary human resource capacity to support the new market structure. This includes training programs, skill development initiatives, and institutional capacity building.

- **Environmental and Sustainability Goals:**

The policy addresses environmental impacts and sustainability goals, drawing from global environmental and social governance (ESG) standards in more detail, ensuring that the growth of the power sector is aligned with Nigeria's commitments to reducing carbon emissions and promoting sustainable development.

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1.4. The Nigerian Electricity Supply Industry (NESI)

1.4.1. Status of the NESI

- **Energy Sources:** Nigeria's electricity generation relies heavily on gas-fired and hydroelectric power plants. Approximately 80% of on-grid electricity in the country is generated from gas-fired plants, with the remainder predominantly generated from hydroelectric facilities. However, efforts are being implemented by the Nigerian government to promote the utilisation of more renewable energy sources to reflect a more environmentally sustainable energy mix for electricity generation in the country.
- **Electricity Generation Capacity, Demand and Supply:** The country's installed electricity generation capacity is about 13,000MW. However, the available capacity supplied is significantly lower, averaging about 4,200MW. As will be discussed presently, this is due to inefficiencies, poor infrastructure, poor maintenance, and other factors. Thus, the safety, reliability and adequacy of grid electricity across the country are significant issues.
- **Transition to a more Competitive and Decentralised Electricity Market:** The NESI is expected to transition to a fully liberalised and competitive market. The EA authorises NERC to declare market stages depending on the level of privatisation and competition in the NESI upon consultation with the Ministry of Power. The adoption of corporate governance frameworks by sector participants, including principles of accountability, transparency, and ethical business practices, will strengthen investor confidence and sector performance. At the same time, in accordance with recent constitutional amendments, the Act also enables States to progressively move towards taking responsibility for regulating all electricity business conducted entirely within their boundaries.
- **Global Factors:** The NESI reflects significant efforts to ensure that global considerations such as the energy transition and the promotion of renewable energy sources are implemented to promote energy access, sustainability, and security.

1.5. Demographics and Economics

a. **Population:** Nigeria has a rapidly growing population, estimated at over two hundred and twenty-three million, eight hundred thousand (223,800,000) as of July 2023, making it the most populous country in Africa and the sixth most populous country in the world. This growing population places increasing pressure on the power sector to scale up to meet rising residential, commercial and industrial demand.

b. **Urban and Rural Access:** Reports indicate that 54.28% of the Nigerian population lives in urban areas, while the rest reside in rural areas. It is no surprise that urban areas, particularly the key metropolitan cities like Lagos, Abuja, and Port Harcourt, have higher rates

of electricity access compared to rural areas. Many rural people rely on off-grid solutions such as petrol and diesel generators and renewable energy (solar).

c. **Electricity Subsidy:** Prior to April 2024, electricity subsidies were provided to all classes of electricity consumers in Nigeria to ensure the provision of electricity to Nigerians at affordable costs. However, policymakers and regulators have now accepted that the provision of electricity subsidies is no longer sustainable. A service-based tariff methodology was implemented, customers were reclassified based on the number of hours of electricity supply they received, and the electricity subsidy was removed for Band A consumers, who receive 20 or more hours of supply daily.

d. **Unemployment, Economic Poverty and Energy Poverty:** The NESI is a significant employer in Nigeria, providing jobs in the operations, maintenance and manufacturing of generation, transmission and distribution assets. However, its deficiencies greatly limit its potential for job creation. On the other hand, the rates of unemployment and poverty affect the rate of electricity consumption in the country, which in turn has an impact on both the ability to purchase electricity and the quantity of electricity that can be purchased. The resultant general energy poverty and lack of universal access to electricity have a direct effect on the quality of life and economic opportunities.

1.6. Generation, Transmission, and Distribution Infrastructure

1.6.1. Generation Infrastructure

Nigeria's total installed generation capacity is about 13,000 megawatts (MW), comprising a mix of about 20% hydro and 80% thermal power plants. However, the available generation capacity is significantly lower, at 7,652MW between 2023 and 2024, of which, typically, the daily average capacity connected to the grid has ranged between 3,500MW and 4,200MW[1]. The significant gap between nominal capacity and capacity connected to the grid is due to various operational inefficiencies, maintenance issues, and gas supply constraints, primarily precipitated by the financial issues earlier highlighted. Despite the improvements in the generation sub-sector, the distribution sector has not experienced similar benefits. This lack of progress in the distribution sector has resulted in a lack of creditworthiness, leading to insufficient investment across the entire value chain. Consequently, gas production and processing remain underfunded, so thermal generation capacity is nominal and unavailable for delivery to customers willing to pay.

[1] See Operational Reports at nsong.org

1.6.2. Transmission Infrastructure

The transmission network, owned and managed by the Transmission Company of Nigeria (TCN), remains entirely under government ownership. TCN manages a grid spanning nearly 18,000 kilometres of high-voltage transmission (330kV and 132 KV) lines, taking power from the about 29 Generating stations through over 200 330/132kV and 132/33kV transmission substations to DisCos, directly connected customers and international customers.

Table 1: Transmission Infrastructure Statistics

Network Component	Unit	Value
330kV Infrastructure		
330 kV Substations	No.	52
330/132 kV Transformers	No.	87
330/132 KV Transformer Capacity	MVA	14,576
330 kV Circuits	No.	91
Length of 330 kV Lines	Km	9308.43
132kV Infrastructure		
132 kV Substations	No.	160
132/33 kV Transformers	No.	343
132/33 KV Transformer Capacity	MVA	18020
132 KV Circuits	No.	215
Length of 132 kV Lines	Km	8558.13

Since privatisation, there has been massive investment and improvement in the transmission sector, primarily funded through FG-backed concessionary loans arranged by the Federal Ministry of Finance (FMoF), interventions from the Niger Delta Power Holding Company (NDPHC) projects, and support from the Federal Government of

Nigeria Power Company (FGNPC). However, critical areas of deficiency remain; for example, most of the Northwest and the entire Northeast are served by radial single-circuit transmission lines, meaning that any outage on these lines would leave the entire region without service. Despite extensive capacity expansion over the years, the national transmission network is still severely constrained by equipment obsolescence and a relatively high technical loss level of 7% to 9%.

1.6.3. Distribution Infrastructure

The distribution subsector in Nigeria consists of 12 traditional distribution companies (DisCos) created out of NEPA/PHCN under the 2005 Act. These DisCos operate 33kV, 11kV, and 400V lines across the States, transforming electricity from transmission substations down to lower voltages suitable for residential, commercial, and industrial use. Each DisCo serves a specific geographic area, each covering between 1 and 5 States, as shown in Table 2.

Table 2: Distribution Companies Geographic Spread

Disco	Coverage Area (States)
Aba	Old Aba and Osisioma Districts (9 LGAs of Abia State)
Abuja	FCT, Kogi, Nasarawa, Niger
Benin	Delta, Edo, Ekiti, Ondo
Eko	Southern LGAs of Lagos State (from Badagry to Epe) plus Agbara Industrial Estate (Ogun State)
Enugu	Abia (8 LGAs not covered by Aba DisCo), Anambra, Ebonyi, Enugu and Imo
Ibadan	Kwara, Ogun, Osun, Oyo
Ikeja	Northern LGAs of Lagos State
Jos	Bauchi, Benue, Gombe, Plateau
Kaduna	Kaduna, Kebbi, Sokoto, Zamfara
Kano	Jigawa, Kano, Katsina
Port Harcourt	Akwa Ibom, Bayelsa, Cross River, Rivers
Yola	Adamawa, Borno, Taraba, Yobe

Eleven DisCos have 60% of their shares held by private entities who also manage them, while the twelfth, Aba DisCo, is fully owned and managed by a private entity. The hallmark of the DisCo sub-sector is highly inefficient operations and poor revenue collection. Much of the existing asset base is obsolete and poorly maintained, leading to frequent load shedding and outages. This is in spite of the huge demand by all customers, particularly commercial and industrial customers, for cost-efficient and reliable service. All these cause the unacceptably high Aggregate Technical Collection and Commercial (ATC&C) losses historically prevalent in the sub-sector. Additionally, the sector has faced criticism for poor customer service and inadequate metering, with various efforts at rolling out smart meters that have consistently failed to deliver effective results.

While privatisation was intended to attract significant private sector investment, a combination of poor-quality governance and management, non-cost-reflective tariffs, absence of firm contracts and the resulting lack of capital that these factors lead to has perpetuated a cycle of inefficiency and unreliability in power supply. In effect, privatisation has not brought the needed capital to the subsector. This has compelled the FGN, since 2014, to intervene intermittently to fund certain critical activities in the distribution sub-sector.

1.7. Systems Operation

The TCN-owned national grid is operated with a focus on maintaining balance and stability in both system and market operations, i.e., in managing the flow of electrons from sellers to buyers and the counter-balancing and commensurate flow of funds from buyers to sellers. Unfortunately, the System Operation function still relies on manual systems that impede efficiency. There is also a shortage of essential ancillary services, the lack of which compels the System Operator (“SO”) to rely heavily on the unsustainable practice of using under-frequency relays to maintain grid stability.

Moreover, the SO must often instruct generating units to reduce their output below nominated levels due to transmission constraints, gas supply issues and/or load rejection by DisCos. The grid’s lack of effective protective devices is also a major concern due to the abnormally high rate of consequent blackouts or system collapses. Addressing these challenges requires significant upgrades to the existing infrastructure, including the integration of

modern automated systems for real-time grid management and investment in reliable ancillary services.

1.8. Least Cost Grid Expansion Plan

The Nigerian Electricity Supply Industry (NESI) has struggled for almost 40 years with uncoordinated expansion activities, particularly evident in the misalignment between capacities across the three sub-sectors all across the country, resulting in bottlenecks and inefficiencies. This situation underscores the crucial need for least-cost, need-based planning in the NESI. Such planning would ensure that investments are made strategically based on actual demand and system requirements rather than ad hoc decisions. Implementing a systematic approach to expansion planning would involve a careful assessment of the entire electricity supply chain to identify critical needs and prioritise investments that offer the greatest return on efficiency and reliability. This would align the expansion efforts across transmission and distribution sectors, optimising resource allocation and reducing instances of unused capacity.

Adopting the least cost, need-based planning requires improved coordination and collaboration among the system operator, transmission companies and DisCos. It also necessitates robust data collection and analysis to accurately forecast demand and tailor infrastructure developments accordingly. By focusing on strategic, data-driven investments, the NESI can enhance its operational efficiency and better meet the growing electricity demands of Nigeria, ultimately ensuring a more stable and sustainable power system. This is why the FGN embarked, in 2022, on developing an Integrated Resource Plan (IRP) for the country.

This IRP work is nearing completion and will conclude in Q4 2024, with the delivery of a Version 1 IRP to the Honourable Minister of Power (HMoP). The HMoP has also recently determined that when the national IRP is completed, it will form the basis of the Strategic Implementation Plan (SIP) that is to accompany the NIEP. The SIP will set out in some detail the various plans and programmes expected to meet the reliability and universal service objectives that are the focus of this Policy. At the same time, the states are being actively encouraged to develop their individual IRPs using the same technology platforms and implementation methods as the FGN IRP.

This will enable the seamless interchange and exchange of updates between each State and between the States and FGN.

1.9. Off-Grid Activities

The REA has played a crucial role in promoting and incentivising the development of renewable energy projects, including mini-grids and Solar Home Systems (SHS). The REA has effectively leveraged various programs and funding mechanisms to encourage the adoption of renewable energy solutions in unserved and underserved rural areas. This has increased electricity access, ensured that the energy provided is sustainable and environmentally friendly, and contributed to the diversification of Nigeria's energy mix and the reduction of carbon emissions, aligning with global sustainability and Gender Equality and Social Inclusion (GESI) goals.

2

Nigeria's Electricity Policy Objectives

2

2.1. Healthy Capitalisation, Universal Access, Electricity Reliability

2.1.1. Background

Nigeria's electricity policy objectives are aimed at catalysing a thriving economy to power Nigeria's sustainable development, especially seeking to ensure unfettered access to the urban elite and the unserved and under-served rural dwellers. Currently, an estimated 94 million Nigerians (45 percent of Nigeria's population) do not have access to electricity, of which the vast majority are in rural communities. According to the International Energy Agency, Nigeria, Africa's most populous and fourth-largest economy, also holds the unenviable position of manifesting challenges that have exacerbated the largest energy access deficit in sub-Saharan Africa.

2.1.2. Challenges

These include insufficient generation capacity, with only around 33% of the country's approximately 13,000 megawatts (MW) of installed generation capacity available, representing just about 24% of recorded peak demand. Furthermore, power generators often encounter debilitating gas supply constraints, including inadequate volume, low delivery pressure and out-of-specification gas (e.g., low quality) due to under-investment in gas infrastructure, unreliable gas contract structures, and pipeline vandalism. Existing gas supply contracts are executed on a "best endeavour" basis attributable to the unwillingness of gas suppliers to enter firm supply obligations due to significant counterparty payment risk, thereby affecting power generation availability.

Given the unbalanced mix between grid supply and self-generation from distributed petrol, diesel and a few gas generators, it is understandable that interest is increasing in harnessing various renewable off-grid solutions such as sun, wind, etc. This is not helped by the manually managed and ageing grid infrastructure, operated without reserves or ancillary services that often compels Gencos to operate well below their nominated levels and regularly triggers blackouts and brownouts, significantly undermining the country's energy security.

In the distribution sub-sector, weak distribution systems, on average, can deliver to most customers between 6 to 7 hours of uninterrupted supply daily, indicating poor service reliability and quality. The high cost of this inefficient grid supply means that affordability is a real issue for most customers, further accentuating access challenges that electricity remains out of reach for most citizens, especially the rural and urban poor.

As a result of these challenges, unreliable power supply disrupts manufacturing, small businesses and households, hindering economic growth and societal well-being. Within the agriculture sector, unreliable power supply disrupts irrigation schedules, leading to crop failures and worsening the cases of post-harvest losses due to the limited availability of cold hub storage

facilities for strategic perishable food system value chains such as fisheries, dairy, horticulture, etc. Sectors such as healthcare, communication, transport, and the hospitality industry are also crippled by frequent power outages, which disrupt operations, hindering essential services and ultimately affecting economic output.

2.1.3. Objectives

This National Integrated Electricity Policy, therefore, proposes three key objectives:

2.2. Healthy Capitalisation

First, the healthy capitalisation of the NESI is a key element in its becoming a credible market. This requires that all licensees have access to capital raised either via their companies' balance sheets and/or their shareholders raising capital on commercial terms for the companies. A number of issues stand out in attaining this goal. These include the outstanding debts owed by stakeholders in the NESI to one other.

These debts, including debts owed to gas suppliers, have been collated and audited across the electricity value chain. Efforts are now being made to resolve these debts across the entire electricity value chain to allow a smooth exit of NBET and a transition to State markets. Several measures are being used, including factoring or selling some of the debts, writing off others, and repaying others over time.

To enhance market liquidity and financial stability within the Nigerian Electricity Supply Industry (NESI), it is imperative to strengthen payment discipline through robust enforcement and revenue assurance mechanisms. Additionally, securing sustainable cash flows requires innovative financing mechanisms, cost-reflective tariffs, and potential government support for critical infrastructure projects. By implementing these strategies, the NESI can attract investment, improve operational efficiency, and ultimately deliver reliable and affordable electricity to Nigerian consumers.

Another capitalisation issue is the need to follow up on previous decisions of the National Council on Privatisation and the National Economic Council to determine the full extent of States' rights to equity allotments in the DisCos and/or in the additional successor companies to be created under Section 230(4), EA, 2023; and consequently determine the split of shareholding between the Ministry of Finance Incorporated, on behalf of the FGN and each of the States, with clear directives on how the assets and liabilities, if any, of the additional successor companies are to be transferred to them by the existing DisCos.

In the context of policymaking and implementing the Act, it is apparent that strategic collaboration and partnerships amongst MDAs, including the National Council on Privatisation, the Ministries of Finance, Power and Petroleum, the Office of the Special Adviser to the President (Energy) and the various companies, regulatory agencies and parastatals that they supervise are vital to strengthen public sector accountability and ensure joined-up implementation of policy initiatives and the provisions of the various governing laws.

2.3. Universal Access

Second is universal access, defined as the connection of all Nigerian States at 330kV/132kv/33kV/11kV voltage levels. This connection enables distribution and supply licensees in each State to enter into contracts for bulk supply via the National Wholesale Electricity Market (NWEM). This bulk electricity supply is then delivered to the various communities to connect individual customers across the various customer classes. At the State level, universal access may encompass the various initiatives put in place to ensure that customers of classes who may wish to do so are connected to a reliable supply of the voltage at which they want to be supplied.

In driving the attainment of universal access, it is recognised that electricity is a public good that can be provided within a commercial, market-driven, and private sector-led framework. However, in this context, in which 55% of the population does not have electricity connections, it is also acknowledged that targeted Federal and State Government interventions to subsidise capital investments in infrastructure development are essential to accelerate electricity access. It is also understood that, while States are not obligated, the Federal Government may opt to subsidise consumption as part of its pro-poor agenda, ensuring that, if this happens, all market participants are fairly supported.

Furthermore, it is understood that several initiatives will be adopted (as further detailed elsewhere in this Policy) to ensure that the renewable energy targets for the country are aligned at Federal and State levels, as detailed in the Energy Transition Plan, in Vision 30:30:30 and the adoption of an effective framework to enhance

RE, including via Renewable Energy Feed-in Tariffs, net metering, green energy purchase obligations, and implementing a domestic carbon credits framework. In addition, particular attention will be paid to creating a functional carbon credit that promotes energy efficiency, including clarity on implementation, tax incentives with fiscal authorities for energy-efficient equipment, streamlined importation process for energy-efficient products, establishing initiatives promoting the productive use of electricity, greater use of energy-efficient supply systems in agriculture and agro-produce support and clear plans for rural industrialisation (industrial parks, agro-processing zones).

Lastly, the physical implementation of universal access schemes across the country will be driven by establishing a coherent and harmonised data platform for visibility and planning via the national and sub-national Integrated Resource Plans. In the case of the Federal Government, it is noted that Version 1 of the National Integrated Resource Plan is close to completion after a 2-year process, and it will form the basis of the Strategic Implementation Plan that accompanies this Policy document.

2.4. Electricity Reliability

Third, electricity reliability may be defined simply as the assurance provided by every seller of electricity to its customer that the electricity sold is of the quality contracted and is supplied with an adequate reserve margin. To drive reliability in the NWEM, access to natural gas supplies will be enhanced by several initiatives, including the domestication of the trading currency for gas-to-power contracts, as has now been done with crude oil pricing for domestic petroleum refineries (while also providing foreign currency for the non-Naira element of capital investment). In addition, deliberately, the Federal Ministry of Power will seek to drive policy and regulatory collaboration between itself and NERC, the Ministry of Petroleum (Gas) and the Nigeria Midstream and Downstream Petroleum Regulatory Authority (NMDPRA) to facilitate exploiting Non-Associated Gas (NAG) resources in Inland Basins for power generation.

Furthermore, several projects focused on modernising and digitalising the transmission network will improve monitoring, control, and resilience. Simultaneously, efforts continue to be made to support decentralised energy solutions and promote energy efficiency, reducing reliance on traditional power sources and optimising overall system performance.

On the other hand, at the State level, State Governments will be encouraged to develop their universal access and reliability schemes via tailored initiatives such as encouraging private sector participation in Variable Renewable Energy (VRE) grid integration and directives to encourage run-of-the-river micro- and mini-hydropower generation.

2.5. Other Policy Recommendations

Other policy recommendations proposed to enhance the attainment of the three key objectives highlighted above include those that cover seven areas noted below: (iv) infrastructure and technology development; (v) data management and transparency. The following were identified for consultation.

2.5.1. Enhanced National and Sub-National Coordination

The key issue identified is the need for coordination in electrification and reliability plans from the national level down to the state level. This would also include granular steps to increase investments in the respective electricity markets, particularly for renewable energy integration and the productive use of off-grid electrification for low-income populations.

2.5.2. Enabling Community-Level Engagement and Capacity Building

This is vital if the successful implementation and security of energy projects are guaranteed and they yield adequate returns that encourage re-investment and capacity and quality of service enhancements. Properly engaging grassroots communities and building their knowledge base for proposed energy projects aims to ease community penetration and assure the security of assets and cash flows. This approach could be further improved by encouraging State Governments to facilitate the formation of electricity management committees within communities. These committees could play a vital role in protecting local electricity supply assets, such as lines and distribution transformers. Their responsibilities might include monitoring for vandalism and energy theft, as well as participating in maintenance activities. Additionally, establishing monitoring and evaluation standards for these community committees would assist developers in collecting accurate data and help ensure that tariffs are both reflective of community realities and commercially

viable.

2.5.3. Development of Capacity Building Programmes

Capacity-building programmes should be implemented for local governments and community groups to enhance their ability to manage and oversee energy projects effectively. This training should be provided by DisCos/Sub-DisCos performance metric in line with their CSR or ESG programmes and implemented as part of a collaborative effort between the DisCos /Sub-DisCos, REA, and the local government, managed by the relevant REA or State Electrification Agency.

2.5.4. Fiscal Incentives and Strategies

Regulators should create and strengthen incentive structures, particularly in the off-grid space, such as REFIT, Net Metering, and green energy purchase obligations, to attract private investment into the power sector, particularly in underdeveloped and less viable areas.

2.5.5. Infrastructure and Technology Development

Investments in grid infrastructure are critical to not only improve electricity access but also increase the reliability of existing electricity sources. The expansion of the grid should be accelerated where feasible with public-private partnership arrangements, and grid extensions for commercially viable load centres should be prioritised. TCN should engage States to discuss expansion and upgrades to transmission assets that cut across their States with a view to partnerships and collaborations that can potentially finance the relevant projects that will spur or unlock more generation capacity into respective States. This move can help prioritise investments and focus on grid stability and commercially viable areas.

2.5.6. Innovative Energy Solutions

Sub-nationals should establish a research and development unit empowered to adapt new technologies to state power needs and source for funding. NERC should collaborate with State governments to undertake research and pilot projects for technologies like run-of-the-river hydropower and promote the use of solar pumps for irrigation to diversify the energy mix and enhance reliability.

2.5.7. Curbing Power Asset Vandalism

Measures to combat power asset vandalism in Nigeria require a multifaceted strategy. Stricter laws with swift justice, enhanced security measures, and community engagement are crucial. Inter-agency collaboration between security forces and power sector stakeholders is essential to coordinate efforts and intelligence sharing. State-level initiatives can address local challenges and strengthen security at the state level. By implementing these measures, Nigeria can effectively reduce vandalism, improve power supply reliability, and stimulate economic growth.

2.5.8. Data Management and Transparency

For any reliable electricity market to run successfully, it is important that data is collected and managed efficiently with the ability to be accessed and modified adequately according to the changing realities. Accordingly, a national data repository accessible to all stakeholders on existing and planned projects generated from different donor-funded programmes will be created to streamline strategic energy access planning. The repository should also contain maps highlighting unserved and underserved areas as well as the existing on-grid and off-grid infrastructure across the country. Each State Government should create a research and statistics unit to gather and validate data periodically on unserved and underserved areas and monitor energy services.

2.5.9. Cross-border Electricity Trading within WAPP

To enhance energy reliability, energy security and economic integration, optimise resource utilisation, encourage investment, reduce costs, and support renewable energy, it is recommended to prioritise cross-border electricity trading within the West African Power Pool (WAPP). This involves harmonising regulations, strengthening infrastructure, establishing market mechanisms, enhancing institutional capacity, fostering collaboration, implementing risk mitigation, promoting transparency, and supporting regional planning, creating a robust and integrated regional electricity market that improves reliability.

3

The Electricity Market Design, Value Chain, Key Stakeholders and their Roles

3

3.1 Situation of the Nigerian Electricity Supply Market

From 2011 until the enactment of the EA, 2023, the NESI had a market design statutorily mandated based on a wholesale electricity market built around a Bulk Buyer model. This model was primarily facilitated by the Nigerian Bulk Electricity Trading Company Limited (the Bulk Trader or NBET). The framework was established to manage the purchase of electricity from power generation companies and sell it to distribution companies, acting as a single buyer to insulate Gencos from the DisCos' historical high risk of lack of creditworthiness and give the DisCos (which were about to be privatised) time to make investments to reduce losses, grow the asset base, deliver more energy to customers and ensure financial stability.

Additionally, the Bureau of Public Enterprises (BPE), as a key stakeholder, played a crucial role in driving public-private sector participation and reform processes, including the privatisation of power assets and facilitating public-private partnerships.

The Federal Government of Nigeria is committed to transforming the Nigerian Bulk Electricity Trading Plc (NBET) into a robust Energy Exchange to advance electricity sector reforms. This transformation aims to create a transparent, efficient, and competitive electricity market that attracts private investment, reduces the fiscal burden on the federal treasury, and supports long-term sector viability. The envisioned Energy Exchange will be largely private-sector-driven, collaborating with key electricity sector participants to ensure efficient system operations and seamless transmission services. The Exchange will enhance market efficiency, promote fair pricing, strengthen transparency, and encourage private sector participation, ultimately improving market liquidity and financial stability. This initiative is expected to increase supply reliability, reduce financial risks, improve service delivery, create jobs, stimulate economic growth, and align Nigeria with global best practices in energy trading.

With the enactment of the EA, 2023, there is now expected to be a transition from the existing Buyer Model to a two-tier system of a National Wholesale Electricity Market regulated by NERC and individual State electricity markets potentially in each State but envisaged to come into existence as States of their own will take responsibility for developing their markets according to their individual policy preferences. Until then, the electricity retail/distribution business in each State will continue to be regulated by NERC by default until each State elects to design and set up its own electricity market.

Additionally, the unbundling of the Transmission Company of Nigeria (TCN) is a critical part of this transition, as it will enable more efficient transmission operations, the separation of system operator functions from transmission services, and increased private sector participation in infrastructure development. This will further strengthen the overall electricity market structure.

3.2 Complexities of the Nigerian Supply Market

Transitioning from the current bulk buyer model to a functional NWEM involves addressing several complexities, including;

- Novating existing Power Purchase Agreements (PPAs) by transferring NBET's rights and obligations to the proposed Energy Exchange, ensuring contract management and market operations continuity.
- Ensuring transparent operations with a relatively new set-up of the Nigerian Independent System Operator (NISO) would require some time to evolve to a steady State.
- Installing a sophisticated and technology-based system for real-time electricity trading, market clearing, and settlement.
- Investing in the electricity transmission grid to improve its redundancy, stability, and resilience to facilitate the level of trade envisaged across the country.
- Managing the debt overhang of some market participants linked to the current escrow arrangements with CBN and active Nigeria Electricity Market Stabilisation Facility (NEMSF) loans.
- Ensuring payment discipline issues and a transition from sovereign guarantees to market-led guarantees posted by market participants and not by the FGN.

These complexities would be the key concerns to address when implementing the policies to set up and operate the NWEM efficiently.

3.3 Policy Statement for the Nigerian Electricity Supply Market

To enable the development of a robust market governance structure with adequately defined roles and responsibilities and institutional planning and resource allocation, the following initiatives will be undertaken:

i. Investment in electricity transmission infrastructure and technology for systems operations is essential for real-time trading and settlement. Prioritising the digitisation of market operations and procuring ancillary services is crucial for implementing a sustainable evolution towards a steady state wholesale electricity market.

ii. Facilitating private sector participation by creating a proper enabling environment is also necessary. Market rules, codes, regulations, and orders will prioritise facilitating private sector investment.

iii. The development of a holistic, integrated resource plan for the NWEM that will underpin sustained investment in developing demand, supply, and energy resource assets should be prioritised to avoid the mismatch of investments that have been the norm until now.

iv. In addition to fully recovering installed generation capacity, regulatory, technical and commercial frameworks for delivering surpluses from captive generation capacity across the country to the national grid should be prioritised to meet generation demand and provide ancillary services. Necessary regulations will be advocated to enable captive generation owners to sell surplus capacity of a minimum of 10MW to the wholesale electricity market.

v. Electricity transmission should be opened for private investment by licensing Independent Electricity Transmission Network (IETN) operators to build, operate, and own electricity transmission networks at 132kV and 330kV levels.

vi. Electricity transmission assets are to be classified as green investments as they facilitate the phase-out of diesel generators. This would enable access to multiple sources of finance, including green financing, for investment in electricity transmission infrastructure.

vii. The NWEM transition plan should guide a seamless transition with a governance structure that has the representation of relevant stakeholders. This transition process must consider the risks that could emanate from the complexities associated with the set-up of the NWEM as identified, as well as appropriate risk mitigation mechanisms to be integrated into the market rules and operations.

viii. Payment discipline must be strengthened further in the NESI by ensuring that firm contracts are in place and adhered to, starting with the Gas Supply Agreements (GSAs) and continuing through to the service delivery contracts with end users. All regulators (NMDPRA, NERC, State Regulators, and West African Power Pool Regulator) should collaborate to ensure contracts are

adhered to, fail-safe measures are implemented for defaults, and penalties are prescribed and take effect without exception in all appropriate cases.

3.4 State Electricity Markets

3.4.1. Situation of the Proposed State Electricity Markets

The evolution to State electricity markets following the passage of the EA,2023 enables each State to operate its electricity trading mechanisms with greater prospects for enhanced competition, improved efficiency of service delivery, a more effective resolution of local supply-demand mismatches and a more rapid attainment of universal access to electricity supply. The recognition that State authorities may elect to develop legal, policy, and regulatory frameworks for electricity matters within their territories is also the explicit recognition that these laws do not extend to the operation and regulation of the National Wholesale Electricity Market.

3.4.2. Complexities of the Proposed State Electricity Markets

The transition to State electricity markets requires States to develop capabilities and personnel to manage the demands of investor-friendly, climate-sensitive policy-making and regulatory alignment, infrastructure project development and financing, commercial/market dynamics and political and social factors. It also requires NERC to develop, in collaboration with State counterparts, a series of activities and actions that enable both counterparts – State regulators and NERC – to ensure the smoothest possible transition. These demands introduce several complexities, some highlighted below.

- States must learn to manage the demands of enabling investment into State markets that are likely to be two-tiered – urban markets that investors would prefer to immediately address and “rural” markets that such investors would prefer State Ministries of Power or State electrification agencies to address.
- The set-up of a State Electricity Regulatory Commission (SERC) and its population with capable Commissioners and trained staff to make it effective quickly is another critical challenge that States must tackle.
- For most States, a narrow and less diverse customer base limits the options for pricing, restricting the market to the purchasing power available based on the socio-economic status of the State.
- The States must take on new responsibilities, such as developing universal access schemes protecting low-income electricity consumers through targeted subsidies and seeking financing with limited resources for the attainment of capital-intensive universal-access-to-electricity goals.
- States also need to drive behavioural change, especially around payments for services and reversing the culture of energy theft, if their SEMs are to succeed.
- States must also work on developing credible and sustainable market designs that serious investors and operators will find inviting and thus apply for licenses for electricity trading, electricity generation, and electricity distribution, while they also encourage private sector financial agents and intermediaries to take an interest in the fledgling State market.
- States do not have the luxury of providing sovereign guarantees to derisk trade and get their markets started. They must rely on sound policy, credible regulatory action, sustainable subsidy schemes (preferably aimed at reducing tariffs by aggregating public sector and DFI capital to reduce the capex for extending access to so-called unviable communities), ensuring suitable market systems and enabling payment assurance schemes that do not require direct guarantees from the State Government.

These complexities hold in themselves the potential to propel accelerated economic growth in the States if adequately dealt with to achieve the set-up of a vibrant SEM.

3.4.3. Policy Statements for the Proposed State Electricity Markets

Policies for SEMs should focus on creating an enabling framework for attracting investment into the State, interacting effectively with other SEMs and with the National Wholesale Electricity Market. This is vital given the fact that state governments have very limited resources to commit to the considerable investments required to establish effective SEMs. States will be encouraged to address the following initiatives in order to put functional SEMs in place that will drive their socio-economic development.

i. The national regulator, NERC, should collaborate with State governments to develop an action plan to guide the transfer of responsibilities to State regulators, with Orders being made in advance to have Discos adopt corporate structure, technical boundaries and reporting templates along State lines.

ii. There should also be clarity on the body of regulations and orders that are vital to enabling such State markets to start off on the best possible footing.

iii. State governments should enforce policies that promote fair competition, transparency, and consumer protection while ensuring the independence of regulatory agencies to oversee market operations, enforce compliance, and resolve disputes.

iv. NERC and established State regulators should take steps to implement the provisions of Section 230(9), EA, 2023 and set up the recommended intergovernmental body to coordinate the development of principles, standards and rules for the reduction of regulatory risk in the NWEM and SEMs, accelerate the learning curve for new State regulators and help enhance a supportive relationship between the NWEM and State electricity markets.

v. The provisions of Section 229 on the functions of the Power Council should be clarified to first provide for the establishment of the Power Council and for its membership, particularly considering the value that the Power Council will bring to coordinated policymaking between the Federal and State Governments.

vi. States should develop and operationalise Integrated Resource Plans (IRPs) or at least realistic demand studies (pending the completion of their IRPs) as a recommended starting point for the State market. Demand studies and IRPs should be the basis for procuring generation capacities and generators, and licensed suppliers and investors should have access to these plans to align their investments appropriately.

vii. State governments should promote private investments in modernising the grid infrastructure through adequate commercialisation to develop the core infrastructure within the State (generation, transmission and distribution networks).

viii. States should leverage surpluses from captive generation capacity within the State to meet generation demand and ancillary services. Necessary regulation should enable captive generation owners to sell a minimum of 5MW surplus capacity to the SEM.

ix. Electricity trade should be encouraged by licensing Electricity Service Companies (ESCOs) to procure generation, utilise existing distribution (for a fee), and invest in additional assets to deliver electricity supply to end users with a guaranteed quality of service. ESCOs would also be responsible for providing services for demand-side management.

x. State Electricity Regulators should drive competition in electricity trade by adopting open access for electricity distribution networks, allowing multiple electricity traders to utilise the distribution network for a fee. Traders can then purchase generation and sell to consumers for a minimum threshold of generation capacity set by the regulator.

xi. The ownership and representation of States in jointly owned entities in the power sector, including the DisCos and NDPHC, should be made clear, ensuring that each State can identify and benefit from its ownership. The affirmation of State shareholding in the DisCos by the National Economic Council in March 2020 (based on valuations of State Government investments up to 2013) should be updated by a valuation of State Government investments between 2014 and 2024. Responsible MDAs (The National Council on Privatisation/Bureau of Public Enterprises, the National Economic Council, NERC and State Ministries of Power/Energy and Finance) should prioritise this. It will then be up to States to work with DisCos and determine whether they will unbundle the DisCo, create subsidiaries and thereafter divest their equity or retain their holding and ensure proper

representation of all shareholders on the new entities' boards.

xii. The Rural Electrification Strategy and Implementation Plan (RESIP) prepared by the Federal Ministry of Power (FMoP) in 2016 will be reviewed, as well as other rural electrification policies of the Federal Government to recognise their power to make laws for rural electrification in their States and the equally very important role they also play in identifying suitable candidates and funding for interventions aimed at expanding access to unserved and underserved communities of the State.

3.5 Off-grid Markets

3.5.1. Situation of the Off-grid Markets

Chapter 3, NEPP, 2001 explicitly provided that the States would take responsibility for providing electricity access in "off-grid" areas of the State; generally, this term refers to areas of a State regarded as not viable for efficient electricity supply and a cost-effective advancement of universal access to electricity goals. Yet, the goal of universal access will remain unattainable if providing electricity to remote, underserved, and unserved areas is not prioritised. These off-grid markets operate independently of the national grid, using primarily renewable energy sources like solar, wind, and mini-hydropower to deliver electricity to isolated communities.

The national regulator, NERC, regulates operations in such areas and should focus on this aspect of electricity markets as a key transition question in the States where it has licensed functional mini-grids. Thus, mini-grid licensees and their license terms and conditions ought to be identified by the states that would then need to continue to manage and protect such mini-grid operators.

3.5.2 Enabling the Success of Off-grid Markets

Developing cost-effective and sustainable off-grid solutions requires innovative financing models and robust policy and implementation frameworks that encourage broad stakeholder participation, especially from State Governments focused on targeted capex subsidies (as opposed to general tariff subsidies), DFIs, legacy licensees, other private infrastructure investors and consumer acceptance/buy-in. Essentially, the most critical challenge to be addressed arises from the fact that off-grid electricity markets target remote, underserved, and unserved areas, mostly not commercially inclined communities. This makes the business model for such communities challenging concerning cost recovery for the mini-grid operator and affordability for the community.

Policies supporting off-grid markets should, therefore, aim to create a conducive environment for private sector investment, with the primary objective being to develop sustainable ways and means to reduce the capex cost of providing access so that the resulting (significantly reduced) tariff becomes affordable going forward. The raft of policy measures that aid this includes providing capex subsidies, tax incentives and the active pursuit of grants for off-grid projects. These can only be made possible if the right enabling environment is in place through clear regulations, access to reputable data, simplified licensing requirements, transparent mechanisms for directing State funds and DFI/donor grants to deserving communities and projects and the deliberate effort by State Governments to collaborate with the FG/REA and DFIs in undertaking the foundational studies and preparatory work to present credible projects for investment.

Providing further detail, the following policies, if adopted at both Federal and State levels, are expected to drive the set-up of off-grid electricity markets.

i. Develop clear regulatory frameworks to standardise off-grid solutions. These frameworks should focus on ensuring the quality and reliability of off-grid systems. They must outline performance standards, safety regulations, and technical requirements to protect consumers and foster trust in off-grid solutions.

ii. Tariffs must be cost-reflective and implemented transparently and responsibly, and they must be coordinated in consultations with relevant stakeholders and with the approval of the regulator exercising oversight. Subsidies and tax incentives would lower the cost barriers for companies entering the off-grid market. Additionally, grants should be used to fund pilot projects and innovation in off-grid technologies, promoting wider adoption and scaling.

iii. Data must drive investments into off-grid markets and influence the scalability and interconnection with the grid. Hence, data collection, management and access must protect national interests and enhance project delivery or implementation.

iv. State-integrated resource plans should integrate off-grid market development and ensure adequate and optimal utilisation of resources.

v. A more coordinated and collaborative approach in off-grid market development would be utilised to bring stakeholders together to collaborate in project preparation, delivery, and operation to improve ownership and project sustainability. State laws and state regulatory rules should require and empower communities to participate in stakeholder engagements and work closely with distribution licensees to identify and prepare viable projects to qualify for any available funding and be implemented in a timely manner.

vi. States should collaborate with financial institutions to leverage global climate financing opportunities for off-grid market investments in the State.

vii. States should consider regulations allowing communities to contribute equity, such as land, labour and even aggregated capital contributions to off-grid projects to reduce capital costs and make the prices affordable.

viii. The State Government should direct economic development projects (productive use of energy) to remote communities to ensure communities have some form of commercial activities that would make mini-grids even more viable.

ix. State regulators should create and strengthen incentive structures, such as Renewable Energy Feed-In Tariffs (REFIT), Net Metering, and green energy purchase obligations, to attract private investment in the off-grid market.

x. States should consider establishing research and development projects to adapt new technologies to their domestic needs, working with development partners to invest in pilot projects for technologies such as run-of-the-river hydropower to increase communities' resource utilisation potential.

4

Climate Change, Nigeria's Low Carbon Economy and the Energy Transition

4

4.1 Situation of Climate Change, a Low Carbon Economy, and Energy Transition and the Electricity Supply Sector

4.1.1 Policies that are driving Nigeria's climate change agenda and low-carbon economy

Three treaties, put in place by Governments of different nations, have informed Nigeria's policy positions on the climate change and energy transition: The United Nations Framework Convention on Climate Change (UNFCCC), which was adopted in 1992 at the United Nations Conference on Environment and Development held at Rio de Janeiro Brazil. Nigeria became a Party to the UNFCCC in 1992 and ratified the Convention in 1994. The ultimate objective of the Convention (UNFCCC) is "to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system within a time frame sufficient to allow ecosystem adapt naturally to climate change, to ensure that food production is not threatened and to allow economic development sustainably". Nigeria is also a Party to the Kyoto Protocol and a signatory to the Paris Agreement.

The Climate Change Policy and Response Strategy (2012) recognises Nigeria's need to address climatic change in a policy-responsive and strategic way and lays out the national strategy to foster a low-carbon, high-growth economic development path and climate-resilient society in Nigeria. The Policy includes objectives related to climate change mitigation, adaptation, climate science and technology, public awareness, private sector participation, and strengthening national institutions and mechanisms. Other policy initiatives include the National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN) and Nigeria's Nationally Determined Contribution (NDC) under the Paris Agreement.

As a Party to the Paris Agreement, Nigeria submitted its updated NDC in July 2021. To complement this, Nigeria has prepared its NDC Implementation Framework, which summarises the content and context of NDC Implementation and highlights some of the plans and sectoral targets. Across key sectors, Nigeria has committed to reducing its greenhouse gas emissions by 20% unconditionally and 47% with international support by 2030, focusing on a multi-sectoral approach for economy-wide emission reduction objectives.[1] These emissions would be achieved through the identified seven priority sectors: agriculture, power, oil and gas, transport and industry, waste and water, maximising their co-benefits for the nation's interest. Nigeria has developed a Long-Term Low Emission Development Strategy (LT-LEDS) to complement this medium-term strategy to achieve net-zero emissions by 2060, aligning with its Energy Transition Plan (ETP) and other national policies.

The National Climate Change Policy for Nigeria, 2021[2], further provides a framework for guiding the country's response to climate change's development challenges. It highlights the sectoral and cross-sectoral strategic policy statements and actions for managing climate change within the country's efforts for climate-resilient sustainable development. The Climate Change Act 2021[3] establishes a legal framework for climate change governance in Nigeria. The Act created a National Council on Climate Change, providing a framework for achieving the country's long-term climate goals, including net-zero carbon emissions by 2060, adequate financing, and environmental and economic accountability.

The medium-term Economy Recovery Growth Plan 2017-2020 focused on green growth. By promoting renewable energy and energy efficiency by ensuring energy sufficiency (power and petroleum products), the Plan aimed to deliver at least 10 GW of operational renewable energy capacity by 2020, improving the energy mix through greater use of renewable energy and supporting the development of green jobs and industries [4]. The National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015 emphasises low carbon emissions in the power sector to diversify Nigeria's energy mix, focusing on renewable energy sources like solar, wind, and biomass [5]. It also encourages energy efficiency in various sectors. Furthermore, the Nigerian green bonds market development programme was launched to finance projects that mitigate climate change and support investments in renewable energy, energy efficiency, and sustainable agriculture. It references a unique opportunity for Nigeria to be the first oil and gas-based economy in Africa to successfully transition to a low-carbon economy, particularly in the energy sector [6]. The National Renewable Energy and Energy Efficiency Policy (NREEEP) set targets (Hydropower 12,801 MW, Solar 6,831 MW, Wind 3,211 MW) for renewable energy generation and to attain replacement of 40% (by 2020) of old and inefficient appliances in Nigeria with energy-efficient appliances and sustain best energy efficiency practices beyond 2030 [4].

More recently, Nigeria's Energy Transition Plan (ETP), launched in 2023, details specific sub-sector pathways of low-carbon development across five key energy areas: Power, Clean Cooking, Transport, Industry, and Oil and Gas. On the energy sector, which is the most significant contributor to Nigeria's emissions, the ambitious ETP scope seeks to impact over 65% of Nigeria's emissions[2]. Over $1.9 Trillion is required to get Nigeria to net zero by 2060, including $410 Billion above projected usual spending. This additional cost is about $10 billion annually (Energy Transition Plan by 2060).

These policy documents articulate a new transition context promoting the adoption of low-carbon and renewable energy sources to support energy access and transition in Nigeria.

4.1.2 Energy transition - carbon emissions drivers and trends

According to the Nigeria Energy Transition Plan, 27% of carbon emissions within the plan's scope come from power generation or consumption activities. Poor access to electricity from the central grid has resulted in the extensive use of fossil fuel-powered generators. In the net-zero scenario of the ETP projects, Nigeria would need to have 250GW of installed solar generation capacity to achieve its targets. This implies the deployment of decentralised renewable energy for universal electricity access of about 6.3GW by 2030 and a steady growth path with financial resources accordingly. Building on this, the LT-LEDS envisages increasing the renewable energy mix in the power sector to a minimum of 60% by 2060, including 15 GW from concentrated solar power, 45 GW from solar PV, 24 GW from hydropower, 25 GW from wind, 20 GW from biomass, and 20 GW from nuclear sources.

World Bank data shows Nigeria's emissions volume to be 322mt CO2 equivalent (WB GHG 2020 figure). Shifting these emissions and fossil fuel use towards low-carbon development would require coherent actions at the LGA, State, and FG levels. Trends for clean mobility and cooking appliances coming along with an increased level of urbanisation would further pressure investments in a reliable electricity distribution network. Policies under the leadership of FMoP would ultimately influence decisions on the synergies between electrification and multiple SDGs, as well as the pace for just transition.

Nigeria has had some success in the off-grid space through the proper engagement of stakeholders and the implementation of off-grid energy projects under various programs, such as the Nigerian Electrification Project (NEP) and the Nigerian Energy Support Programme

[2] Explore Nigeria's Energy Transition Plan – available here - https://energytransition.gov.ng

(NESP). NEP is a joint initiative between the government, the World Bank, and the African Development Bank. It is a $550 million investment to increase energy access in Nigeria, which is implemented through the Rural Electrification Agency. The initiative aims to improve access to electricity in sectors like education, healthcare, households and micro, small and medium enterprises (MSMEs). The components range from solar hybrid mini-grids, standalone solar home systems, productive use equipment and energising universities. So far, about 11069kw and 46868kw of energy have been installed through mini-grids and solar home systems, respectively. Given the significant differences in electricity access between urban areas (84%) and rural areas (26%), distributed renewable energy can help close the power deficit, especially in Nigeria's rural communities. It is estimated that 40% of primary health centres mainly serve rural areas and lack enough power to conduct standard operating procedures. All these areas might not be economical for grid extension, leaving DRE as the next economically viable option to power them.

In view of this opportunity, the World Bank, to give over 17.5 million Nigerians new or improved access to power using distributed renewable energy solutions, has approved the Nigeria Distributed Access through Renewable Energy Scale-up (DARES) project. This project is funded by an International Development Association (IDA) credit totalling $750 million to leverage over $1 billion from private capital and additional financing from various global partners. DARES will not only focus on rural areas but will also have some components for urban areas and states, such as interconnected mini-grids and electrification of state general hospitals. The Rural Electrification Agency (REA) implements electrification in unserved and underserved areas. To foster grid-based electrification and establish an environment favourable to private investment in the power industry, the FGN's Federal Executive Council approved the Power Sector Recovery Programme in 2017. Improving access to power also included financial, operational, governance, and legislative measures to turn around the distribution sector. The Nigerian Energy Support Programme (NESP), as technical advisor for FMoP, launched the first Mini Grid Regulation with the regulator, NERC, in 2016. It was updated in 2023 and underlines the commitment to private sector-led investments in DRE.

One of the programmes under the NESP is the Interconnected mini-grids acceleration scheme, and the objective is to add 27,600 new connections for 138,000 households across 320 km of distribution network to meet a demand of 7,676MWh annually. The project is across eleven (11) states. In addition, user-friendly processes for regulatory requirements and evidence-based planning tools for grid infrastructure have been established for developers. The minigrid(MG) Portal for NERC and the Central Database Management System for the Federal Ministry of Power have been created to ease project development. With the Interconnected-MG franchise approach, a project supported by REA, a new collaboration between RE developers and DisCos was introduced.

4.2 Complexities of Climate Change, a Low Carbon Economy, and Energy Transition and the Electricity Supply Sector

4.2.1 The Dual Challenge of Off-Grid Diesel Dependence and the Urgency for Expanded Energy Access

Nigeria has twenty-three (23) power plants that can produce 11,165.4 MW of electricity connected to the national grid. With an installed capacity of roughly 13,000 MW, thermal and hydropower produce most of the nation's electricity. However, Nigeria can only distribute about 4,200 MW on most days, which is insufficient for a nation with over 200 million people. Nigeria also has one of the highest rates of genset usage globally, driven by the significant lack of access to reliable grid electricity. With approximately 45% of Nigeria's 200 million population still lacking access to electricity and 161 million people without access to clean cooking fuels and technologies, this dependency on generator sets adversely affects economic growth, increases operational costs for businesses, and contributes to severe environmental pollution due to high emissions from fossil fuel generator sets. The country's generator set capacity stands at 45GW compared to 13GW of grid-connected power generation capacity, of which only 4GW is delivered due to maintenance, system, and fuel constraints. Emissions from these off-grid diesel and petrol generator sets significantly outweigh those from natural gas power plants connected to the grid. Three sizable hydropower facilities provide 14% of Nigeria's on-grid power generation capacity, while natural gas power stations account for 86% of the total.

Reduced reliance on diesel power could be facilitated by pursuing Sustainable Development Goal 7 (SDG7) - to ensure access to affordable, reliable, sustainable, and modern energy. Applying low-carbon and renewable energy solutions in Nigeria could benefit millions of Nigerians significantly through new economic opportunities and jobs. Progress on SDG 7 can also empower women, children, and young people, improve access to education and healthcare, promote sustainable, equitable and inclusive communities, and enhance resilience to climate change impact. Nigeria's vibrant policy context on climate change and energy transition is firmly rooted in the pursuit of SDG7, ensuring that sustainable energy is a fundamental driver of other essential development aspirations, including job creation, education, gender equality and climate action.

4.2.2 Maximising cross-sector synergies: The role of power in electrifying and advancing other economic sectors

Transport

About 21 million registered vehicles in Nigeria are considered to be used for passenger and freight transportation. The transport sector is the greatest CO2 emitter in Nigeria, accounting for about 60% of total national emissions (IEA, 2020a), making the transition in this sector a high-impact goal. Road-based transport is the primary mode of transport used to move people and commodities around the nation. It also makes up a sizable portion of the country's GDP (2.7%) and other subsectors. Internal combustion engine (ICE) vehicles fueled by petrol and diesel dominate Nigeria's transportation industry. With the removal of the fuel subsidy, the National Automotive Design and Development Council (NADDC) intends to reshape Nigeria's automotive landscape. Approximately 400,000 used cars are imported annually, and alternative engine fuels shall be introduced with a CNG initiative. Privately owned automobiles and light commercial vehicles comprise most of the vehicular activity involved in road transport, mainly passenger transit. In 2018, the percentage of road vehicles was 40.98% private, 1.32% government and diplomatic, and 57.70% commercial.

Currently, in Nigeria, some states like Lagos and Oyo have started making efforts to introduce EV charging stations and adopt e-buses on a scale, with many private institutions engendering the electric mobility revolution in the country. Even though ICE buses only contribute 5% of all transportation-related emissions, implementing e-buses is predicted to provide a 75% potential reduction in emissions for the transportation sector by replacing 20–30 private and passenger cars per bus. A key policy move that would aid the acceleration of clean public transport in Nigeria would be incentivising private sector participation. This could be done by providing duty waivers for electric vehicle importation or creating a special-purpose vehicle financing scheme to accelerate the local assembling of e-buses in the country.

Clean Cooking

Approximately 161 million Nigerians lack access to clean cooking solutions, significantly affecting gender equality, health, and environmental sustainability. The World Health Organisation estimates that 94,300 Nigerians die prematurely each year from illnesses associated with smoke exposure from polluting, open fires, or inefficient stoves. This makes it the third most significant contributor to mortality in Nigeria, behind malaria and HIV/AIDS. Between 2000 and 2010, more than half of Nigeria's primary forests were destroyed due to 70% of the population using firewood for cooking needs. This amplifies the importance of clean cooking for combating global climate change and reducing deforestation.

The decarbonisation strategy of Nigeria's Energy Transition Plan (ETP) prioritises a shift from traditional cooking methods to cleaner alternatives, such as electric cooking. Transitioning to clean cooking can reduce emissions by 30% compared to business-as-usual scenarios, prevent 11,500 illnesses and 524 deaths annually, and save 6.6 billion kilograms of forest from biomass collection.

4.2.3 The Carbon Markets Opportunity

The Africa Carbon Market Initiative (ACMI) has made significant strides over the past year in advancing carbon market regulations and fostering investment in high-integrity carbon credits across Africa. ACMI has successfully engaged seven countries, with Nigeria being one of them, in developing comprehensive carbon market regulations in Africa. A major milestone achieved was securing approximately $1 billion in signed intent from companies committed to purchasing African carbon credits by 2030. This includes about $250 million for specific projects, highlighting the growing confidence and investment in Africa's carbon market potential.

Nigeria has been included in the cohort of countries receiving technical assistance from ACMI. Notable developments include the constitution of an intergovernmental carbon market activation committee approved by President Bola Ahmed Tinubu and the presidential high-level announcement of the National Carbon Market Activation Plan (NCMAP) at the 28th meeting of the Conference of the Parties (COP28). This involves initial briefings to key Nigerian stakeholders, organising training sessions and stakeholder consultations, and updating the carbon market framework. This allows Nigeria to develop its energy transition strategy further and could provide a pathway to a proper framework for carbon taxes.

4.2.4 Emissions Management in the Oil and Gas Sector

In 2022, the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) developed guidelines for managing fugitive methane and greenhouse gas emissions in the upstream oil and gas sector. This includes the Leak Detection and Repair (LDAR) policy, which mandates companies to detect and repair leaks in their infrastructure. The World Bank's Global Gas Flaring Reduction Partnership (GGFRP) collaborated with Nigeria to develop a system for gas flaring and methane emissions. In September 2023, the Nigerian Ministry of Environment launched a National Methane Emissions Reduction Strategy, incorporating MRV components. Key agencies involved in methane management in Nigeria include the Nigerian National Petroleum Corporation (NNPC), the Ministry of Environment, and the Ministry of Petroleum

Resources. The oil and gas industry is responsible for emissions caused by fugitives, venting, flaring, and upstream energy consumption (fuel use).

Also, the nation's proactive measures to manage emissions in the oil and gas sector through guidelines and policies, like the Leak Detection and Repair (LDAR) policy and the National Methane Emissions Reduction Strategy, highlight its dedication to reducing greenhouse gas emissions and improving environmental health.

4.3 Policy Statements for Climate Change, a Low Carbon Economy, the Energy Transition and the Electricity Supply Sector

(1) Access to energy is a fundamental human right, and it is crucial to adopt a people-centred approach in Nigeria's energy transition efforts and close the gap in energy access across the country. This means:

a. By supporting electricity access, especially in underserved/unserved rural and urban areas, the transition can spur industrial growth in a manner that harnesses synergies across multiple development areas. For example, electrification increases agricultural productivity through reliable irrigation and storage and boosts productivity across critical socio-economic sectors, ensuring uninterrupted operations for businesses and healthcare facilities. Additionally, the energy transition will empower small and medium enterprises (SMEs) and households, reducing reliance on costly diesel generators and improving overall quality of life. As per the Energy Transition Plan, Nigeria's energy transition can lift 100 million Nigerians out of poverty and drive economic growth by bringing modern energy services to the entire population.

b. Ensuring that expanded energy access equally contributes to the decarbonization of the power sector. This demands upfront investment in RE and other low-carbon technologies and solutions to be pursued and promoted at national and State levels.

c. Ensuring collaborative decision-making between federal and state authorities to align policy priorities and investment decisions in the power sector. The Electricity Act 2023 contains provisions to progress Nigeria's NDC commitments and promote power investment enabling environment through energy

markets at the subnational level. Therefore, achieving harmony in planning and coordination for all climate action initiatives focusing on the power sector is critical.

d. Assessing and addressing the current state of infrastructure and upgrading and maintaining infrastructure to support the efficient delivery and distribution of energy.

e. Placing the needs and welfare of people at the core of energy policies, ensuring equitable access to energy, and focusing on marginalized and underserved communities to eradicate energy poverty.

f. Encouraging the adoption of renewable energy sources and creating favourable conditions for investment in both on-grid and off-grid sectors. This also means facilitating access to grant and concessional finance (including technical assistance) to address critical investment barriers across policy and technological dimensions, setting the much-needed runway for private sector finance to flow into the sector.

(2) Nigeria's efforts towards driving a low-carbon economy are already evident in critical strategies and plans (outlined in Section 4.1.) that promote renewable energy and low-carbon development to support Nigeria's green growth. Implementing these policies will be critical, ensuring they support and align with Nigeria's economic development priorities. This means:

a. a. Efforts to transition businesses and commercial activities from using diesel generators must seamlessly avoid adverse socio-economic effects from revenue or job losses.

b. A low-carbon economy in Nigeria needs to promote access to electricity and clean cooking for both households and businesses, accelerating industrialization so that the economy can organically fund a transition to clean energy for electricity supply.

(3) The Nigerian power sector is at a pivotal point, with significant national government shareholding in Distribution Companies (DisCos) – currently at 40%. Corporate governance that addresses climate change will be critical to realizing Nigeria's energy transition targets and climate commitments. This means:

a. Enhancing State representation on the Boards of DisCos to ensure inclusive decision-making that reflects State-level priorities in the power sector.

b. Ensuring coherence across the various energy transition policies and plans and supporting the Sustainable Energy for All (SEforALL) agenda, aiming for 30GW of power with 30% renewable energy by 2030.

c. Applying lessons from the Rural Electrification Agency's Nigerian Electrification Program (NEP) initiated in 2019.

d. Enhancing data management platforms to monitor emission reductions in the power sector and comparing against NDC targets.

e. Supporting the scale-up of climate-resilient renewable energy infrastructure while respecting the principles of federalism in the conservation and use of natural resources such as water bodies and land for Variable Renewable Energy (VRE) projects, particularly solar power development.

(4) The autonomy of State Governments to shape their energy transition, as mandated under the Electricity Act 2023, offers significant scope to accelerate clean energy development across the entire electricity value chain, leveraging the cross-sectoral opportunity of electrification across key sectors end-uses, including transportation and clean cooking. This means:

a. State Governments should work with FMoP programs and their DP initiatives, like the Presidential Power Initiative, to prepare for investment-ready or turnkey stage projects.

b. Regulations that enable grid flexibility and facilitate the integration of renewable energy would be critical. These must come simultaneously with the digital transition, e.g., smart metering and data security measures.

(5) The use of decentralised solar technologies, including solar PV mini-grids, is emerging as a strategic option for achieving higher levels of electrification. With dramatic cost reductions in sight and increased attention from government, development partners, and the private sector, decentralized energy access technologies

are poised to proliferate at breakneck speed. However, for Nigeria, this means:

a. These projects are accompanied by business models that electrify agricultural productive uses—failing to do so may compromise project economics and longevity.

b. Pairing productive use and rural electrification with an effective deployment strategy will unlock local economic development and serve as a springboard toward realizing the full potential of rural electrification.

c. Developing efficient recycling infrastructure for renewable energy waste can be challenging, especially in developing countries like Nigeria. Recycling renewable energy waste can be economically challenging, as the value of the recovered materials may not always justify the processing costs.

d. Extended producer responsibility (EPR): Implementing EPR policies can incentivize manufacturers and importers to take responsibility for the end-of-life management of their products.

(6) Accelerating the adoption of clean cooking technologies across all tiers to reduce household emissions, improve air quality, protect forests, and enhance sustainability. This means:

a. Clean cooking is a critical part of electrification planning, prioritising access to modern cooking fuels and technologies – specifically, electric cooking in the context of the power sector – at both state and national levels. This also means that clean cooking needs to be adequately reflected and harmonized across crucial policy documents and processes, including the ongoing NDC revision and implementation processes.

(7) Digitization is unfolding alongside Nigeria's Energy transition – and enhancing the benefits and synergies of both transitions will require integrative and proactive management supported by appropriate incentives. This means:

a. Recognizing that the private sector would primarily drive the digital transition, mechanisms for private sector engagement and innovation to harness the benefits of digitization for advancing clean energy solutions will be critical

b. Limit any potential negative impacts of the digital transition on the energy sector by fostering collaboration between the private sector, state governments, and civil society to ensure a balanced approach that maximises benefits and minimizes risks.

(8) Nigeria's Energy Transition will require managing the expected long-term job loss in the oil sector due to reduced global fossil-fuel demand. This means:

a. Promoting financial incentives, regulatory support, and capacity-building initiatives to create new job opportunities and foster sustainable economic development.

b. Promoting a fair, inclusive, and equitable energy transition that promotes integrating renewable energy and clean energy solutions while considering gas as a critical "transitionary fuel" in the short and medium term.

4.4 Other areas/opportunities:

Initial steps have been taken towards establishing a Nigerian Carbon Market. In April 2024, NCCC introduced a draft carbon market manual procedure. A carbon market office should be set up to pursue an activation plan.

Human Resource Capability Development of the Nigerian Electricity Supply Industry

5

5.1 Situation of Human Resource Capability Development of the Nigerian Electricity Supply Industry

The human resources landscape in the Nigerian power sector aspires to be at the forefront of serving the Nigerian Electricity Supply Industry (NESI), where growth and reliability hinge on the workforce's specialised knowledge and skills.

However, the sector is fraught with several challenges that impede its development. These challenges can be broadly categorised into various factors, ranging from technical, non-technical, and funding issues to legal and regulatory issues.

The National Power Training Institute of Nigeria (NAPTIN) aims to build a skilled and motivated workforce to meet the country's energy needs. Further empowered under the New Electricity Act 2023, it is well-equipped to lead this transition and transformation.

However, this vision will require strategic human resource investments, technological advancements, sector player alignment, and sustainable solutions to achieve a workforce supporting the Nigerian Electricity Supply Industry (NESI).

5.2 Complexities of Human Resource Capability Development of the Nigerian Electricity Supply Industry

The Nigerian Electricity Supply Industry (NESI) is experiencing significant human resources capability development challenges, which have hindered its competitiveness and overall growth. One of several factors limiting human resource capabilities has been the lack of a comprehensive Capacity Development Framework, coupled with inadequate funding, among other things.

Addressing these complexities is essential for the sector to realize its full potential and contribute to the growth of the NESI. Intentional investment in workforce development, policy formulation, and creating an enabling environment are crucial steps to addressing the complexities in the NESI and optimizing human resource capabilities to guarantee a skilled and motivated workforce for the Nigerian power sector.

Therefore, to resolve these complexities and improve the sector's capabilities and capacities, a holistic, strategic, and sustainable alignment between stakeholders on human capability development is imperative.

5.3 Policy Statements for Human Resource Capability Development of the Nigerian Electricity Supply Industry

Addressing the sector's complexities requires implementing policy statements designed to close gaps and create an enabling environment for the development and optimisation of human resources capability.

These policy statements, which target mitigating the factors impeding human resource capability, aim to facilitate the enabling environment for the deployment of an integrated Capacity Development Plan for the sector and, consequently, a skilled and motivated workforce that supports the growth and development of the Nigerian Electricity Supply Industry (NESI).

5.3.1 Technical Skills Development and Enhancement

- Power sector institutions must implement continuous professional development and specialised training programs to ensure employees possess multi-skill competencies for optimal performance for all categories and grade levels.
- The Federal Ministry of Power should develop and commission an integrated Capacity development program that includes formalising on-the-job training as a means of skills acquisition and certification for the power sector, emphasising gender equality and barriers to career advancement for women.
- State Electricity Markets should be key to the Capacity Building Framework for alignment and standardisation compliances.
- Development, deployment, and monitoring of knowledge transfer and mentorship programs are critical to aid knowledge transfer and the transfer of expertise from experienced professionals to the younger workforce. This will facilitate the preservation of institutional knowledge and accelerate the learning curve for new entrants in the industry.
- Creating a Power Industry Research and Incubation Centre to serve as a hub for research, innovation, and capacity development in the electricity industry is critical for continuous innovation and improvement of operations in the NESI.
- Power industry platforms must be created and deployed to integrate learning programs.
- Develop and expand training facilities and programs, focusing on current and future industry needs.
- Implement continuous professional development programs to ensure the workforce remains current with technological advancements and industry best practices.
- Integrate relevant educational and research institutions into the sector's Human Capital Development program to develop courses and programs aligning with sector needs.

5.3.2 Non-Technical Skills Development and Enhancement

- Relevant incentive programs, career advancement opportunities, and competitive compensation packages must be introduced to attract and retain top talent within the industry.
- Foster a culture of continuous learning through workshops, webinars, and e-learning platforms, emphasising the development of soft skills such as leadership, communication, and teamwork.

5.3.3 Legal and Regulatory Compliance

- Alignment of human resource development initiatives with regulatory requirements and national energy policies is imperative for creating a cohesive and supportive environment for workforce development.
- Implementing a robust monitoring and evaluation mechanism will facilitate the assessment of the impact of training programs, the effectiveness of training initiatives, and alignment with industry needs.
- Regulatory authorities at the federal and state levels aligned to Power sector initiatives/objectives must ensure that policies and regulations support human capital development and incentivise private sector investments.
- Deploy a Robust Regulatory Framework for Certification that establishes criteria for certification of power sector employees and sets standards for skills and competency requirements for various roles.

5.3.4 Stakeholder Engagement and Strategic Partnerships

- Establish working partnerships/collaborations between the industry and academia to align educational programs with the needs of the electricity market. This can involve curriculum development, research partnerships, and internships to provide students with practical experience and industry-relevant skills.
- Establish strategic partnerships with international power sector organizations and educational institutions to transfer knowledge and develop collaborative training programs that leverage global expertise and facilitate the development of a world-class workforce at the national and sub-national levels.
- Engage stakeholders in human resource development initiatives, including government agencies, private sector partners, and the public.
- Encourage Public-Private Partnerships (PPPs) for collaboration between government, private sector, and international partners to fund and implement capacity development programs.

5.3.5 Workforce Planning and Capacity Building

- The Sector must develop and deploy a comprehensive workforce planning framework that anticipates future skills needs and addresses current gaps to ensure NESI has a pipeline of skilled professionals ready to meet evolving industry demands.
- Capacity-building initiatives must include technical and non-technical staff to develop a well-rounded workforce that addresses diverse challenges within NESI.
- A power sector mentorship scheme must support key employee development and succession planning.
- Predictive analytics must be deployed to anticipate future skill needs, establish a centralised talent management system, and create succession planning programs.
- Continuous professional development programs must be established to ensure the workforce remains current with technological advancements and industry best practices.
- Investment in state-of-the-art training facilities and simulation technologies at NAPTIN is critical.

5.3.6 Gender Equality and Inclusivity

- Capacity development programs must promote gender equality by encouraging and facilitating programs that showcase equal opportunities for women and marginalised groups.
- Gender sensitivity training, mentorship programs for women, and set targets for female representation in leadership roles are critical for equality and inclusivity.

5.3.7 Sustainable Practices and Environmental Stewardship

- Capacity development programs must showcase and emphasise the need for sustainable practices and environmental stewardship along the power sector value chain.

5.3.8 Information and Communication Technology (ICT) and Technology

- The use of technology should be an essential requirement for work and capacity building within the NESI. By leveraging technological advancements, the sector can streamline processes, optimise operations, and deliver an efficient operation system.
- Investment in state-of-the-art training facilities and simulation technologies at NAPTIN and other accredited training centres is critical for fostering technological Integration.

5.3.9 Funding and Financing

- The government must prioritise funding for continuous capacity development in the sector.

5.3.10 Monitoring and evaluation (M and E)

- A systematic approach must be adopted for performance assessment, impact evaluation, policy compliance, investment decision-making, and stakeholder engagement.

6

Gender Equality, Poverty and Social Inclusion for The Nigerian Power Sector

6

6.1 Situation of Gender Equality, Poverty and Social Inclusion for the Nigerian Power Sector

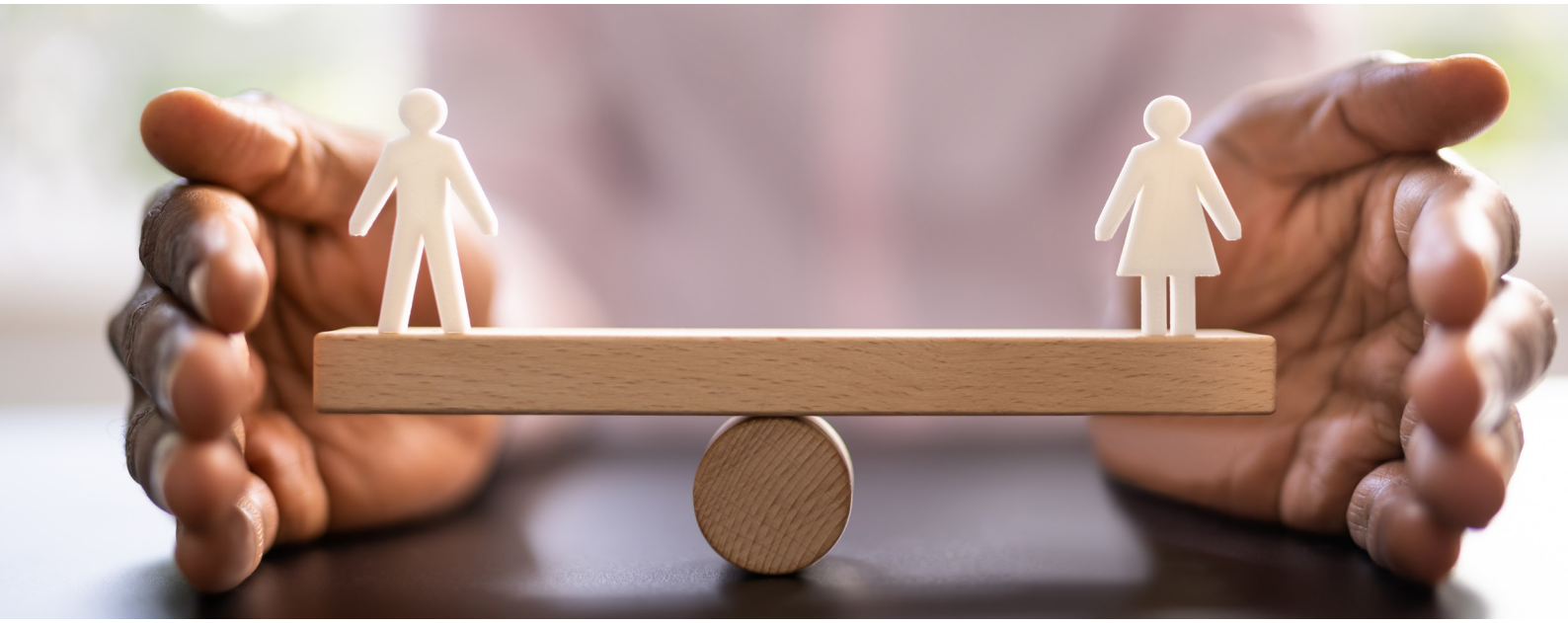
Understanding gender equality, poverty, and social inclusion in Nigeria's power sector, it is necessary to explore the broader societal perceptions and attitudes regarding gender norms and the inequalities that characterise how women, men, girls, and boys of different backgrounds, social groups, geographies, and abilities access opportunities, resources, decision-making roles, and their capability to determine their life outcomes. Socio-cultural norms in Nigeria influence how women and men of different groups exercise agency and access education, career opportunities and participation in public life. The power sector is not immune to these often unwritten but widely adhered-to rules.

A crucial concern raised upon the enactment of the Electricity Act 2023 (the Act) by the incumbent administration, led by Mr Bola Ahmed Tinubu, is the extent to which the EA and governmental policies ensure that gender, poverty, and social inclusion are considered in the energy sector workforce, as well as in access to energy. This is critical because sufficient supply and equitable electricity consumption indicate a country's economic progress.

The Power Africa Nigeria Power Sector Program's 2021 landmark research on social inclusion and diversity in Nigeria's electricity sector revealed critical findings about disability perceptions. For instance, historically, in the power sector in Nigeria, like in many other male-dominated science, technology, engineering, and mathematics sectors, women are underrepresented in technical and leadership roles. This underrepresentation can be attributed to various factors, including limited access to education and training opportunities and cultural norms and stereotypes. This means the sector misses vital perspectives crucial for inclusive decision-making on energy needs, uses, priorities and intervention deployment.

Additionally, the study found that disability was not considered a diversity factor within the workplace. These and other barriers also contribute to their exclusion from information and employment opportunities. Where employment is available, persons with disabilities often experience lower wages than non-disabled peers, their work environments are often inaccessible and not conducive to productivity, and they are typically relegated to "invisible" positions in the organization.

Although power is critical for socio-economic growth and enhanced quality of life, almost half of Nigeria's population is without electricity, despite the country's impressive energy potential. Statista records that, as of 2019, only slightly over fifty-five per cent (55%) of Nigerians had access to electricity, while only thirty per cent (30%) of



those who live in rural communities had access. Frequent power outages and high costs of self-generated electricity burden those with access, and underserved areas rely on costly petrol generators or kerosene lamps, exacerbating energy poverty.

The unreliable national grid, with 564 partial or complete collapses between 2000 and 2022, further disrupts business activities and deters investors. The energy challenges, combined with gender, poverty, and exclusion, increase vulnerabilities for women and marginalized groups. Women and girls in rural areas bear the double burden of energy poverty and unremunerated labour, such as collecting fuelwood, and are more exposed to the harmful impacts of greenhouse gases (OECD, 2018).

6.1.1 Low Access to Electricity and its Significant Contribution to Poverty in Nigeria

The World Economic Forum defines "energy poverty" as the lack of access to sustainable modern energy services and products. At the nexus of energy, gender, and poverty in Nigeria is the lack of access to sustainable energy. This inability to afford public electricity often affects women and marginalized groups. It leads to a lack of reliable energy supply, as well as exclusions and inequity in micro-level decision-making regarding energy needs and priorities.

6.1.2 The lack of a reliable energy supply causes energy poverty.

Statista records that, as of 2020, the total electricity demand rate in Nigeria was over twenty-nine terawatt hours (29TWh), while the level of production was around thirty-seven thousand gigawatt hours (37GWh), which is significantly low compared to the level of demand. The amount of energy supplied within the period reflects that only thirty-five-gigawatt hours (35GWh) were supplied of the amount generated.

6.1.3 Energy poverty is caused by the inability to afford public electricity services

The World Bank recorded in 2023 that the poverty rate in Nigeria had increased to forty-six per cent (46%), representing about one hundred and four million (104,000,000) Nigerians. This reflects that a significant number (almost half) of the country's over two hundred and twenty-three million eight hundred thousand (223,800,000) inhabitants are poor, suggesting that a sizeable number of the Nigerian population may not be able to afford electricity.

6.1.4 Impact of energy poverty on lives, businesses, industries, and the overall economic development of Nigeria

Energy poverty in Nigeria has undoubtedly significantly affected the lives of its citizens, including rising mortality rates. The poor and vulnerable are often affected by the erratic power supply in hospitals.[4] The unreliability of electricity supply has also significantly affected business growth and development in Nigeria.

As of 2020, micro, small and medium enterprises (MSMEs) accounted for about ninety-six per cent (96%) of all businesses in Nigeria, contributed forty-nine per cent (49%) to the National Gross Domestic Product (GDP), and employed eighty-four per cent (84%) of the country's working force. Unfortunately, these MSMEs are also experiencing the impact of poor electricity supply on their respective businesses. The Manufacturers Association of Nigeria in 2023 noted that MSMEs in the country spend between thirty to forty per cent of their income on electricity. By resorting to expensive alternative energy sources, particularly diesel and gas, production overheads increased while production output declined by 9.7 per cent in the sector in 2022. This puts pressure on profit margins, requiring manufacturers to pass the cost on to customers through price rises that cause a decline in product demand.

6.2 Complexities of Gender Equality, Poverty and Social Inclusion for the Nigerian Power Sector

Nigeria has committed and contributed to gender equality and social inclusion (GESI) through various international agreements and national policies. Nigeria is a signatory to the Sustainable Development Goals (SDGs), including Goal 5, which aims to achieve gender equality as a human right and as a precondition for achieving all goals in the 2030 Sustainable Development Agenda. Under Goal 7, the country has also committed to ensuring access to 'affordable, reliable, sustainable and modern energy'.

There have been efforts to promote GESI in Nigeria's power sector. These include initiatives focused on increasing women's participation in decision-making processes, promoting women's entrepreneurship in the energy sector, and integrating gender considerations into energy planning and programming. There have

also been attempts to improve energy access for last-mile customers by ramping up renewable energy initiatives through the Rural Electrification Agency. Despite these efforts, looming challenges remain in mainstreaming GESI in the sector. These include limited awareness and ownership of GESI policies among power sector stakeholders, non-implementation of proposed low-income user subsidies, and inadequate and non-disaggregation of data along gender, disability and age lines in the sector. These and other gaps highlight the importance of stronger policy enforcement and institutional mechanisms to promote GESI effectively.

6.2.1 Global and regional policies

Nigeria has adopted policies, including the United Nations Convention on the Rights of Persons with Disabilities, that ensure the rights of persons with disabilities on an equal basis with others, including access to the physical environment and to information and communications as well as to other services open or provided to the public.

As a member of the African Network of Centres of Excellence in Electricity (ANCEE), launched by the Association of Power Utilities in Africa, Nigeria has committed to improving the performance of the power sector in Africa by providing technical skills for young entrants into the sector and boosting managerial capabilities and representation of women in decision-making positions. Through its power-related educational institutions, Nigeria commits to reserving 33 per cent of training courses for women and 50 per cent for vulnerable people.

Furthermore, through a Supplementary Act amending the ECOWAS Treaty, Nigeria is a signatory to the ECOWAS Policy for Gender Mainstreaming in Energy Access. Through the design of the 5-year National Action Plan on Gender Mainstreaming in Energy Access, Nigeria is poised to address barriers to the equal participation of women and men in expanding energy access within its borders and West Africa as a whole. However, the Nigerian government has not officially launched the policy.

6.2.2 National Policies

Nigeria has signed into law Nigeria's Discrimination Against Persons with Disabilities (Prohibition) Act, 2018. However, it has yet to announce an action plan for the modification of all public buildings and structures to be made accessible for persons with disabilities, despite the lapse of the transitory five years stipulated for such actions to be completed. Some implications of this delay for the power sector value chain are that the current non-inclusive transportation system and built environment barriers, coupled with shortages in prepaid electricity metering, make it difficult for persons with disabilities to visit offices and pay their electricity bills. Furthermore, though the Act mandates that persons with disabilities must have an unfettered right to inclusive and accessible education across all tiers of public education, PA-NPSP's Social Inclusion and Diversity in Nigeria's Power Sector research found that state-level training institutions are not graduating persons with disabilities.

The Revised National Gender Policy, 2021-2026, is guided by seven strategic objectives: bridging gender and social inclusion gaps, achieving parity in all sectors and spheres of life, and advancing women's participation and representation in leadership and governance. (See 2.4[xi].) However, the policy does not consider perspectives related to women's energy needs and priorities, as the power sector is not considered a critical institution in Nigeria's social sector.

The National Development Plan (NDP) 2021-2025 traces the historically low remuneration of women as compared to men for the same work and higher numbers of women in Nigeria who are unemployed or underemployed. It identifies strategies (including mainstreaming gender issues in existing policies, tracking gender-related data, and access to training) for women's empowerment as drivers for reducing the vulnerabilities women face and improving women's participation in productive and economic activities.

6.3 GESI and Key Institutions Under The Electricity Act, 2023

6.3.1 Federal Ministry of Power

The Electricity Act of 2023 charges the Minister of Power with promoting gender mainstreaming in electricity projects and programmes. As the policy-making arm coordinating Nigeria's power sector, the Federal Ministry of Power is responsible for driving gender and social inclusion and delivering affordable, equitable, and reliable power. The Federal Ministry of Power has also led the drafting of the Gender Mainstreaming in Access (GMEA) and the National Action Plan, which has yet to be operationalised.

6.3.2 The Nigerian Electricity Regulatory Commission

Under the Electricity Act 2023, the Nigerian Electricity Regulatory Commission (NERC), the apex regulator, is tasked with promoting gender mainstreaming and local content in the electricity sector. It administers the Power Consumer Assistance Fund (PCAF), designed to subsidize electricity for underprivileged consumers. However, unclear eligibility criteria hinder its effectiveness, leaving many without affordable electricity. The potential removal of subsidies due to their unsustainability could worsen economic conditions.

6.3.3 The Rural Electrification Agency

The Rural Electrification Agency (REA) focuses on electrifying unserved and underserved rural areas through off-grid solutions to bridge the rural-urban divide. The REA oversees the Rural Electrification Fund, which manages funds for rural electrification and aims to develop cleaner, more affordable energy solutions. The Act mandates REA to foster gender mainstreaming in rural electrification activities and to encourage the economic growth of rural, unserved and underserved communities through rural electrification projects. However, there exist gaps in implementing comprehensive power-source-specific economic policies, including incentives, waivers, and subsidies that would stimulate the development and adoption of cleaner and more affordable energy to boost the accessibility of electricity to rural and off-grid areas, targeting the inclusion of unserved populations.

6.3.4 National Power Training Institute of Nigeria

The National Power Training Institute of Nigeria (NAPTIN) provides training for power sector personnel and coordinates sector training activities. The Act mandates NAPTIN to establish a gender unit to track gender mainstreaming indicators in its programs. Supported by the African Development Bank (AfDB), NAPTIN has developed a draft Gender Action Plan focusing on training, oversight of projects, and gender-sensitive recruitment. However, this action plan is yet to be adopted and mainstreamed.

The National Renewable Energy Action Plan (2015-2030) places within the remit of states and local governments the responsibility for driving the increase in the deployment of renewable energy in their states and playing an active role in meeting the overall national renewable energy target.

The Electricity Act of 2023 grants States the power to develop their electricity market frameworks and generate, distribute, and transmit electricity specific to their capacity and realities. This allows subnational governments to mainstream GESI while developing their regulatory frameworks and infrastructure.

This significant act comes on the heels of several state governments that have designed policies to develop their off-grid electricity markets to cater to the needs of rural dwellers and areas not covered by the grid. Specifically, Lagos and Kaduna States' off-grid sectors electrify unserved and underserved areas via clean energy products and provide improved electric power to primary health centres in the state, respectively.

The decentralization of the electricity market promotes localized opportunities for investments that could connect women-led households and businesses to stable electricity. It further promotes opportunities for the state-level attraction, hiring and retention of skilled women and persons with disabilities as power sector professionals. Furthermore, in developing the electricity value chain and roll-out infrastructure, states can now more actively mainstream disability inclusion and address financial obstacles that hamper women and marginalized populations from participating in power-related enterprises. However, due to the high capital cost, low internal revenue generation, and low technical capacity of operationalizing subnational power organizations, many states are hesitant to implement the provisions of the Electricity Act.

6.4 Policy Statements for Gender Equality, Poverty and Social Inclusion for the Nigerian Power Sector

The Nigerian government is committed to building the technical capacities of power sector organizations to develop, implement, track, and report on power sector policies, programs, initiatives, and plans that are responsive to the needs and priorities of women, persons with disabilities, marginalized groups, and rural, and low-income populations. It is also committed to boosting the participation of these groups in the Nigerian Electricity Supply Industry (NESI) workforce and promoting affordable and equitable energy access.

6.4.1 Inclusive Policy Formulation and Oversight:

The Federal Ministry of Power shall:

- Promote gender mainstreaming by strengthening the scope, authority and capacity of the ministry's Gender Focal Unit to coordinate gender representatives at power sector agencies and departments.
- Engage with the National Assembly to advocate for increased gender equality and social inclusion in the power sector, including applying a GESI-responsive framework in power capital project appropriation and appointments to power sector management boards.
- Collaborate with relevant government agencies and organizations to conduct periodic gender audits of power sector institutions responsible for mainstreaming gender and social inclusion.
- Provide technical advisory support to boost institutional capacity to champion diversity in the sector.
- Facilitate activities and implement measures to expand energy access to low-income electricity users.

6.4.2 Gender-Responsive Monitoring & Evaluation:

- Develop an overall GESI mainstreaming framework for the NESI, including indicators and monitoring tools.

6.4.3 Inclusive Skill Building and Training:

- Develop and design initiatives to strengthen public institutional cultures that attract and retain women and promote and empower women's participation and leadership.
- Conduct a comprehensive assessment of technical curricula at power sector training institutes to develop gender-sensitive training strategies and plans.
- Implement affirmative action quotas for the participation of women and vulnerable groups in training events, including business acumen development to access finance, licensing processes, and professional skills to attain decision-making roles.
- Partner with international and national donor agencies to provide grants for technical training to women to increase their skills and competencies for better-paying jobs in the energy transition.

6.4.4 Improve Electricity Access and Decentralize Value Chain Entry Points:

- Build on existing community-based initiatives, such as electricity committees and cooperatives, to collaborate with state and local governments and development agencies to design and execute projects that improve access to electricity, particularly in rural and peri-urban underserved communities.
- Enlist the support of power companies, including DisSCos and GenCos, to create community capacity development programs as part of their corporate social responsibility and environmental, social, and governance goals, targeting women and youth groups as beneficiaries while ensuring appropriate remuneration and avoiding exploitation. This includes involving them in data collection, system maintenance, meter installation, and neighbourhood watch against electricity theft across communities.

7

Enhancing Local Content Management, Research and Development in the Electricity Sector

7

7.1 The Status of Local Content, Research and Development in the Electricity Sector

Local Content Management, Research, and Development have evolved in Nigeria's power sector from the privatisation era, where foreign interests dominated across the value chain, to where it is now with the reform plans, programs, and actions to grow, strengthen, and further enhance local contribution to the Nigeria Electricity Supply Industry (NESI). The Electricity Act of 2023 outlines under Section 228, which mandates the Commission to monitor and ensure compliance with local content requirements as provided under the Commission's Regulations on National Content Development for the Power Sector, 2014. This regulation makes specific objective provisions, including ensuring the deliberate use of Nigerian human and material resources, goods, and services in the NESI; opening the NESI at all levels to involve Nigerian people and experts; building capabilities in the country to support increased investment into the NESI; and leveraging existing and future investment in the NESI to stimulate the growth of Nigerian and Nigeria-located enterprises.

The regulations provide minimum specification requirements for implementing local content in the value chain of the power sector from generation to transmission and distribution, as well as for maintaining the labour force across those sectors. This covers Employment, contracts (goods and services), and technology transfer and capacity building. The expectation is that these interventions will target and ensure a greater and more inclusive contribution of local content capacity in the growth and development of the NESI. However, only the off-grid sector of the NESI has experienced the most growth and development following these interventions.

7.2 Complexities of Enhancing Local Content, Research and Development in the Electricity Sector

The NESI continues to experience several challenges and issues that are part of the complexities towards ensuring enhanced local content, research, and development in Nigeria. The situation has become worse as foreign entities are almost entirely responsible for the provision of technology, project implementation, and equipment for large-scale power projects in Nigeria. Notably, these foreign interests have invested time, resources, and energy across the sector in project planning, development, and implementation in Nigeria's power sector without substantial impact on the local communities where these entities feature. These complexities include:

- The high impact of FX in the Multi-Year Tariff Order (MYTO) drives inflation upwards. This overt exposure to foreign exchange is of concern as most project developers are not Indigenous. Hence, the need to repatriate funds in FX and tariff fluctuations affect competitiveness and return on investment.

- Potential revenue and economic growth lost from redirecting funds to purchase equipment, technology, and a skilled workforce hamper investments in building local capacity and competitiveness.
- The vulnerability of the nation's economy to shocks, market forces, and global activities unfavourably impacts Nigeria's position.
- Poor sensitisation and engagement of the local communities in the project planning, development, and implementation of critical infrastructure that covers the NESI to take ownership, build their capacity, transfer knowledge and expertise, and empower them on their importance for national security and the need to protect such to ensure economic development. This has adversely impacted the sector and manifested in the vandalisation of project sites, sabotage, and poor maintenance of critical power infrastructure.
- Weak regulatory enforcement mechanisms or measures that provide adequate incentives and penalties for local content development. This manifests in limited technology transfer, poor education and knowledge enrichment activities, inefficient or unproductive partnership arrangements, and poor business development incentives to grow the sector.

7.3 Policy Statements for Enhancing Local Content, Research and Development in the Electricity Sector

There is a need to create a vibrant and sustainable market through more effective regulation, strategic investments, and other policy activities or considerations that enhance local content, research, and development in the electricity sector of Nigeria that deliver value for money, produce impact, and build competitiveness. Policy statements to consider to achieve this include:

- Regulation should define local content, which includes specific parameters to be covered, priority for items manufactured in Nigeria, and measurable indices for the local content in each product and material used within the electricity space. These measures should include mandating a minimum percentage of locally sourced materials, equipment, and services, along with incentives like tax breaks and duty exemptions. Tax credits must be result-based, and the criterion for benefiting must be spelt out. Also includes reducing duties and tariffs on imports that enable local manufacturing in the electricity sector.
- Effective and efficient monitoring of local content compliance and regular policy assessments is necessary to advance the shared expectations of regulatory reforms. Hence, the establishment of the NESI Nigerian Content Consultative Forum (NNCCF) is outlined and recommended in the 2014 Regulation on National Content Development for the Power Sector.
- Build and develop a strong focus on facilitating and enhancing Technology and Knowledge transfer through collaborations between research institutions and industries, partnerships with international firms, and agreements. For example, technology transfer in contracts with foreign companies should be captured and enforced. The Nigerian Investment Promotion Commission (NIPC) and the National Office for Technology Acquisition and Promotion (NOTAP) Acts should serve as a reference and guide for implementing such measures. The sub-nationals should be consulted and worked with to achieve the shared interests and expectations.
- Launch a "Self-Reliant and Made in Nigeria" initiative led by relevant entities in the power sector. The initiative will focus on building capacity and competitiveness in the manufacture of electrical equipment, transformers, and renewable energy components locally and promoting local production. This will reduce dependency on imported power equipment such as solar panels, wind turbines, and batteries. Government-backed financing will support this initiative.
- Integrate, Adopt, and Implement the contents of NERC Regulation on National Content Development for the Power Sector 2014 as recommended in Section 227 of the EA.
- Nigerian companies / independent operators / local vendors should be given first consideration in the award of electricity contracts and projects in the procurement process (similar to the Oil & Gas sector) in the NESI subject to conditions as may be prescribed by the Minister in a regulation.
- Create Production Incentives and Export-Linked Incentives for increased production and export capacity, respectively. These incentives should cover key areas like renewable energy and power generation,

transmission, and distribution collaboration with the Ministry of Trade and Investment.

- In the award of any project in the NESI, all operators or project promoters shall consider Nigerian content when evaluating any bid in the NESI, and the bid with the highest level of Nigerian content, while meeting technical requirements, shall be selected.
- Implement a “Digital Nigeria” program to boost digital infrastructure and smart grid technology by investing in smart grid infrastructure and supporting local content in the digital energy space.
- Develop a 10-year strategic roadmap for Nigerian Content in the NESI similar to the Nigerian content strategy and R&D roadmap for the oil and gas sector.
- Foreign Companies operating in the NESI should be required to submit a Nigerian Content Plan to the NERC for approval. NERC must publicly publish these annual reports with information on compliance with local content, including sufficient details on any enforcement action taken by the Commission and reports of complaints.
- Establish a dedicated fund for local content development managed through a public-private partnership.
- Investments to improve and enhance infrastructure linked or connected to local manufacturing and assembly of equipment to increase or enhance their competitive advantage.
- Direct communities to form electricity supply infrastructure management committees led by youth and women. This should foster community ownership and accountability for electricity infrastructure. Community structures are to be renumerated from proceeds levied on whistleblowing, reporting, and resolution of faults at the community level.
- Investments should be directed towards technology parks/clusters that will bring en masse manufacturers of power equipment and providers of ancillary services to the same location, facilitating collaboration, resource sharing, and collective problem-solving. This will accelerate technology advancement and provision for vertically integrated goods and services along the manufacturing value chain and reduce manufacturing equipment costs.

The Commercial, Legal and Regulatory Framework for Implementing the Integrated National Integrated Electricity Policy and Strategic Implementation Plan

8

8.1 Institutional Arrangements Under the Electricity Act 2023: The National Wholesale Electricity Market

The key feature of the Act is that it is primarily a codification of all existing electricity sector laws. In addition, the Act provides legislative mandates on several current front-burner issues, including climate resilience and the energy transition, GESI (gender, equity and social inclusion) and the transition to regulation of all electricity distribution and State-based generation and transmission by the States of the Federation. Furthermore, it is noted that the direct consequence of creating State electricity markets as the other tier of the NESI is to re-focus the Federal Government, and therefore the Federal Ministry of Power, on enabling the rise of the National Wholesale Electricity Market (NWEM).

Under this National Integrated Electricity Policy and Plan and the EA, 2023 or any re-enactment or amendment thereof, the Federal Government's key task will be establishing a strong National Wholesale Electricity Market (NWEM). The success of the NWEM rests on NERC playing its pivotal role effectively in executing its principal function under Section 34(1)(a), EA, 2023, in active collaboration and coordination with NESI stakeholders. A viable and successful NWEM will have the following key features:

- A match between the short-term market used to dispatch generation units and the physical operation of the electricity network;
- Effective regulatory and market mechanisms to ensure long-term generation adequacy and
- Appropriate mechanisms to mitigate local market power.

Therefore, FG policy initiatives in this regard will focus on (i) a market-driven, commercially viable and economically efficient regulatory and commercial framework; (ii) the full utilisation of gas within an energy mix; (iii) a comprehensive energy transition strategy that recognises the importance of transiting rapidly to renewable energy sources; (iv) financial stability and market development; and (v) encouraging and supporting States to take responsibility for consumer protection and credible electricity distribution market operations.

Several hurdles and risks are anticipated when focusing on establishing the NWEM. Therefore, a robust risk management process will be required to ensure that the establishment of the wholesale market is not stalled. To achieve this, a Steering Committee will be established to drive the transition process, establish conditions precedent for declaring the effectiveness of the NWEM, identify risks along the transition path and recommend feasible mitigation measures. Membership of the Steering Committee will include representatives of FMoP, NERC, NBET, the ISO, TSP, Disco, Gencos, State Regulators

and State Commissioners responsible for Power/Energy. It is envisaged that this Steering Committee will be active for 1 – 2 years until the NWEM is formally declared effective.

Significant need-based infrastructure enhancements should be made to enhance the transition to the NWEM, particularly in the distribution and transmission segments, and private sector participation should be facilitated to make this happen. Achieving this will require partnerships between public and private actors, with appropriate signalling from the Federal Government and NERC to boost investor confidence.

It is noted that the Electricity Act 2023 provides for private investments in the transmission sub-sector of the electricity value chain. This is a major boost for mobilising financing into both public (PPPs) and private sector (project finance) transmission and distribution assets. For the Federal Government, the Transmission Company of Nigeria (TCN) will assess its current Performance Improvement Plan (PIP) and develop a bankable capex plan that outlines the scope of investment required, estimated costs, and expected outcomes from projects in the various transmission regions of the country.

TCN will be incentivised to engage domestic and international financial institutions, including private investors, to develop innovative financing mechanisms for the funding of existing projects. These mechanisms will provide clear guidelines, incentives, and risk-sharing mechanisms to attract serious investors. In addition, all new projects will be discouraged, except the benefit-to-cost ratio is very high, and it is urgently needed to relieve a well-documented constraint. This will ensure that the focus is on completing existing projects that are critical to relieving the line/transformation limitations across the country.

Historically, two key challenges in developing wholesale (generation and transmission) electricity projects have been the absence of bankability and the perception of high regulatory uncertainty. Bankability will be enhanced by providing clear guidelines for cost recovery and by offering guarantees and innovative project insurance instruments rather than resorting to traditional sovereign guarantees for private investments. At the same time, regulatory risk will be addressed by proper risk allocation and mitigation measures, including active collaboration and stakeholder engagement between government agencies, regulatory bodies, financial institutions, and private sector entities to address regulatory and governance challenges.

The growth of grid-connected generation capacity has always been challenged by poor gas supply due to lack of/late payment for gas invoices and inadequate gas supply infrastructure. Payment discipline must be strengthened further in the NESI by ensuring that firm contracts are in place and adhered to, starting with the Gas Supply Agreements (GSAs) and going to the service delivery contracts with end users. Relevant regulators (NUPRC, NMDPRA, NERC, State Regulators, and West African Power Pool Regulator) will be encouraged to collaborate to ensure that industry contracts are adhered to, effective business continuity measures are put in place to cater to defaults and penalties prescribed to sanction unacceptable behaviour.

Resetting its underlying energy value chain is a non-negotiable condition for a sustainable, market-driven NWEM. This will start the NWEM on a near-clean slate and incentivise the entry of high-quality capital, management, and governance capacity. The accumulated liabilities will be negotiated, net sums settled, and a mechanism will be established to ensure that all payment obligations are met as they fall due, with the Nigerian Electricity Liability Management Company (NELMCO) playing a pivotal role in managing and resolving these financial obligations.

The second vital element in creating a market-driven NWEM is gas supply optimisation. This objective will be achieved by establishing a mechanism that enhances gas payment assurance and thereby ensures a voluntary supply with appropriate pricing and the implementation of long-term gas supply contracts. This will be enhanced by decoupling gas pricing so that locally sourced components are priced in Naira and not indexed to the US dollar. A working group comprising NERC, the Ministry of Power, the Ministry of Petroleum Resources, and the Ministry of Finance will be established to develop the principles and mechanisms for equitably achieving this objective.

The final critical element of a sustainable NWEM is the integration of renewable energy (RE) generation capacity to create a diverse and sustainable energy mix. However, considering the reality that the transmission grid is currently incapable of wheeling intermittent renewable energy without a functioning SCADA/EMS, there needs to be a clear plan for full liberalisation of the ongoing SCADA/EMS project.

8.2 Institutional Arrangements Under the Electricity Act 2023: State Electricity Markets

The Electricity Act of 2023 provides for the creation of State Electricity Markets as the other element, along with the NWEM, of a two-tier Nigerian Electricity Supply Industry (NESI). As mandated by the Electricity Act 2023, NERC will collaborate with relevant State Government agencies to develop an action plan for the implementation of the Act regarding the set-up of State Electricity Markets (SEM) across the country. This action plan will serve as a guide to help stakeholders navigate the SEM creation process. Such a Plan would seek to address such critical questions as:

- Autonomy and responsible leadership from the State Governments;
- State electricity market designs and regulatory frameworks that learn from existing regulatory experience and meet the peculiar features/conditions of the State;
- NERC issuing preparatory orders for State electricity markets, including resetting Discos' corporate structure, balance sheets and profit and loss accounts; requiring Discos' performance reporting and NERC's internal databases and dashboards; establishing definitive technical boundaries between the transmission grid and Disco's State networks; resetting regulatory asset registers and disaggregating Discos' tariff orders; all along State lines
- Developing State Integrated Resource Plans (IRP) supported by data mining aligned with State development plans and directly connected with the National IRP management environment;
- Developing capacity in State regulators to undertake consumer protection and engagement activity and
- Developing State electricity market transition plans that incorporate the issues noted above and encourage environmental sustainability, energy security and affordability.

In keeping with the Act, all States are to communicate their stance to fully take over regulation of the electricity market within their State. Whatever the case may be, it is desirable that States clearly communicate their choices and timelines to the NERC to enable proper planning and avoid disruption. This would enable NERC to better determine where to focus available resources and how to structure its operations to respond to the rapidly evolving electricity landscape and, most importantly, to avoid interruptions in service delivery. It is vital that in this transition, there are no gaps and assumptions with respect to critical roles and responsibilities.

Where a State chooses to begin the transition to its own electricity market, four critical responsibilities that must be managed without ambiguities are (i) the empowerment of State Governments; (ii) market design, tariff setting and market development; (iii) security of assets and infrastructure; and (iv) human capacity development for policymaking and regulation.

(i) The empowerment of State Governments: State governments should be enabled and equipped with the necessary information and guidance to ensure their electricity market plans align effectively with their development goals. This will be facilitated by the immediate establishment of an EA 2023 Transition Forum that will be made up of representatives of the 36 States commissioners of energy and relevant government institutions and the private sector to foster collaboration and exchange knowledge, best practices, and lessons learned. This will be fostered and facilitated by the Federal Ministry of Power, along with the establishment of an online repository that facilitates information sharing and updates state governments on the national electricity access goals and the progress of other states in setting up their markets to attract investment.

(ii) Tariffs, Market Design and Market Development: Tariff setting/management and market development should be done with the full involvement of state governments. This responsibility is integral to the customer protection and engagement function that State Governments will assume as part of the transition to State markets. Each State has a unique socioeconomic makeup that must be recognised and considered in its market design and tariff methodology/tariff-setting approach. For example, it may be cheaper for some States to have their distribution entities buy electricity from neighbouring States if local generation resources are relatively more expensive.

(iii) Furthermore, tariffs are currently set based on franchise areas that group States together, except in Lagos State. With the transition to SEM and the establishment of the Additional Successor Companies envisaged by the EA in 2023, this will be phased out. To facilitate trading in and between State Markets, NERC will activate the process of updating the Grid Code to clearly delineate the technical boundaries of all 37 potential State market boundaries (including the Federal Capital Territory). With these, the key features of each State market will become apparent to investors interested in a particular SEM. These are the dynamics that will influence each state's approach to market development.

(iv) Security and Infrastructure: The Federal Ministry of Power will initiate a process to formally declare all electricity supply infrastructure as critical national infrastructure. This shift will entail both the National and State Legislatures making these declarations with clear responsibilities and sanctions for breach of the laws. Also, all service providers installing infrastructure will be mandated to embed in surveillance sensors that enable monitoring by relevant law enforcement agencies. Enact laws that are led by the state governments backed by a wide sensitisation of the citizenry to understand the collective responsibility required of everyone to safeguard critical infrastructure and curb vandalism, meter bypass and electricity theft and meter bypass. Systems and processes to support reporting and prompt response by law enforcement should be implemented.

(v) Human Capacity Development: This policy dedicates a full chapter to this subject, but suffice to say that State Governments must recognise that this issue is just as important as the physical development of markets, financing, market development, etc., if not even more so.

The creation and operation of a credible, modern electricity market hinged on the availability of a detailed Integrated Resource Plan (IRP) setting out how resources will be identified, prioritised and utilised to provide electricity supply to meet demand. The National IRP, now nearing completion, ought to be completed by various State IRPs that should be developed, institutionalised and regularly reviewed and updated. The National and State IRPs should be connected and used to guide all future licensing in the Nigerian Electricity Supply Industry, ensuring that investments are best coordinated and channelled to areas of need. Similarly, just as the National IRP will form the basis for the development of the Strategic Implementation Plan (SIP) that will accompany this Policy, so are the States encouraged to do the same with their individual IRPs. To this end, the FMoP will work with the States, particularly through the Nigeria Governors' Forum, to encourage States to develop and operationalise IRPs as early and as quickly as possible, a recommended starting point for the state market. The Federal Ministry of Power could work with the NGF to coordinate support for the States to achieve this by working with development partners.

The evolution of the NESI from a single to a multi-tier market means that the electricity distribution sub-sector will be wholly regulated by the States as such, and considering that consumer protection, being a matter on the Residual Legislative List, is a matter exclusively for the States to legislate upon and manage. It will, therefore, be necessary for NERC to transfer consumer protection responsibilities to State regulators along with the responsibility of making policy for and regulating State electricity markets. States, on their part, should pay serious attention to the consumer protection and engagement function as one of the earliest elements of their SEMs. This will be done by making laws and regulations and seeking consumer engagement, protection, and education actions. These include transparency and ease in billing and payments, collaboration in service delivery to the customers where customers have options for service delivery, the creation and dissemination of a consumer bill of rights, awareness campaigns, transparent reporting and facilitated feedback provision. Consumers must also be directly involved in asset monitoring and protection to improve collective ownership and eliminate energy theft.

The following actions are recommended to States and, where relevant, will be implemented by NERC to be considered critical early actions they may mandate to their electricity distribution licensees. They include:

- Commission a comprehensive review of the metering gap within their jurisdictions and develop a plan to close it in collaboration with DisCos, end-users, local manufacturers, other metering vendors, and financial institutions.
- To reduce collection losses, encourage cost recovery for energy delivered to rural/off-grid communities, and enhance electrification efforts, regulators and licensees should deliberately encourage payment discipline through the deployment of technology-driven payment systems.
- All electricity service providers, whether regulated by NERC or by State regulators, are to publish monthly reports on their websites and other media platforms, showing operating and customer engagement performance against established indices.
- State Governments should consider enacting laws that mandate every community to have a community group responsible for managing electricity supply issues within the community, including representation in interacting with service providers, billing, and infrastructure monitoring to prevent vandalism and electricity theft.
- State regulators should consider mandating all electricity supply service providers within the State to undertake awareness creation activities as frequently as weekly, targeting every aspect of consumer protection such as billing, payments, planned outages, supply delivery schedule,

In working with States to ensure that the transition to State Markets is as seamless and as minimally disruptive as possible, NERC has an obligation to take the lead in engaging with States to develop an electricity market regulation and transition framework that supports the multi-tiered electricity market in Nigeria. The lessons so far learned by NERC, through more than a decade of regulating a private sector-led electricity supply industry in Nigeria, should be collated and used to support transiting States to minimise or even avoid repeating the same mistakes as before, thus giving them the head start that NERC did not have. Also, whilst alignment with global electricity market regulation standards is key, electricity markets across the world are unique. Nigeria's electricity supply industry is quite peculiar and unique, so the regulatory frameworks to be created must be relevant to Nigeria.

Accordingly, the Federal Ministry of Power will consult with NERC and the States and subsequently issue appropriate policy directives:

- Convening the intergovernmental electricity regulatory working group constituted under the Electricity Act to serve as an interactive body for managing the relationship between NERC and State Regulators and ensuring reliability and stability and establishing reference standards in the NESI regulatory, market design and governance structures; and
- Initiate engagement with the Nigeria Governors' Forum to endorse the National Power Council and the intergovernmental electricity regulatory working group as the institutional bodies focused on working with stakeholders for the standardisation of electricity policymaking and regulation in Nigeria, considering that standardisation is vital to establishing a viable, sustainable and reliable NESI.

Finally, it is understood that some States may wish to establish joint/regional markets in the medium- to long term. To achieve this, proper plans must be developed to ensure a seamless transition. In this regard, it is imperative to ensure a proper plan supports the successful transition from the NBET/ single-buyer model towards the wholesale electricity market, including the simulation of bilateral contracts around ISO and TSP. It is also imperative that a mechanism – in this case, the National Power Council – is formally established immediately for the management of interfaces between State electricity markets and to carry out the functions defined in the Electricity Act of 2023.

8.3 Periodic Policy Reviews and Consequential Amendments of Federal Legislation

The evolution of this National Integrated Electricity Policy and the Strategic Implementation Plan (National Electricity Policy and Plan) has adopted an unorthodox method out of necessity. Although the National Electric Power Policy of 2001 required reviews and necessary re-enactments every half-decade, no formal policy review process was initiated until September 2023, when the process leading to the production of this NIEP-SIP started. This was partly because there was no compulsory mandate for Ministers to take responsibility for the policymaking process and partly because successive Ministers were consumed with oversight of a sector that seemed to always be in crisis. Thus, the relegation of policymaking to the backburner

was eliminated by Section 3(1) of the Electricity Act, which requires the Federal Government, through the Ministry responsible for power, to initiate, within one year from the commencement of the Act, the process for the preparation and publication of a National Integrated Electricity Policy and Strategic Implementation Plan.

While it is understood that the usual practice is for policy to be formulated to guide the legislative process and promote alignment with wide-ranging government objectives before enacting an implementing law, it is also understood that the passage of the Electricity Act, 2023 itself was necessitated by two imperatives. First, there was a need to codify various electricity sector policy initiatives and legislation in a single piece of legislation enacted since 2005. Second was the need to give statutory effect to the constitutional amendment (the 5th Alteration to the Constitution of the Federal Republic of Nigeria, 1999) that removed the constraints against States exercising their concurrent power to establish State-focused electricity markets.

With the establishment of this Integrated National Electricity Policy and Strategic Implementation Plan (INEP-SIP), it is expected that the complementary roles of all stakeholders in the National and State electricity markets will be clarified and specific initiatives developed to focus on attaining the strategic objectives established by this Policy. In addition, given Nigeria's dynamic and evolving socio-economy generally, particularly the electricity sector, it is important that policies such as this go through regular reviews to address evolving challenges, opportunities and demands. These periodic policy reviews are a fundamental attribute of effective governance, and this one will not be an exception.

8.4 The Theoretical Framework for Periodic Policy Reviews

The theoretical framework for periodic policy reviews is multidimensional, integrating as many as ten different perspectives and methodologies. This approach ensures that the following institutionalised concepts will inform the future process for reviewing the National Electricity Policy and Plan:

- **Systems Theory:** Emphasising policy and policymaking as part of a broader socio-political system, interconnected and influenced by various internal and external factors.
- **Evidence-Based Feedback:** Emphasising a systematic, rigorous assessment of policies using empirical research, data analysis, and evaluation techniques. Feedback loops are vital in developing future policies, compelling the inclusion of perspectives from various societal actors across all demographics and strata to examine the long-term effects of policies and unintended consequences.
- **Institutional Analysis:** Highlighting the importance of effective, efficient, and accountable established industry institutions in policy formulation and implementation, aligned with Nigeria's overarching economic development objectives such as sustainable growth, poverty reduction, and equitable resource distribution.
- **Policy Cycle Model:** Providing a structured framework for policy development, implementation, and evaluation. It involves comparing and benchmarking policies and practices across different jurisdictions to identify best practices, lessons learned, and potential improvements.
- **Sustainable Development Goals (SDGs):** Serving as globally recognised reference points for assessing policy impacts, identifying gaps, and aligning policies with global targets.
- **Governance Approach:** Emphasising transparency and accountability in the policy review process and evaluating the effectiveness of governance mechanisms for coordination, consultation, monitoring, evaluation, and learning.
- **Rational Choice Theory:** Advocating for policymakers to critically review the outcomes and impacts of existing policies, carefully weigh the costs and benefits of various policy options, and make rational decisions.
- **Institutional Capacity Building:** Strengthening the technical expertise and institutional capacity of governmental and non-governmental organisations and individuals involved in policy formulation and evaluation to ensure sustained improvement in response to societal dynamism and evolving challenges.
- **Advocacy Coalition Framework:** Suggesting that policy change occurs through long-term competition and cooperation between different coalitions of actors with shared beliefs, values, and interests, especially during periodic policy reviews.

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- **Adaptive Governance:** Recognising that policies must evolve to remain relevant in a dynamic world. Policymakers must be flexible, build resilience to withstand and recover from unexpected shocks, and adopt iterative learning for continuous feedback and adjustment.

The Federal Ministry of Power will ensure the full implementation of Section 4(1) of the Electricity Act, stipulating that the National Electricity Policy and Plan should be reviewed or revised no later than every five years. At each quintennial review, stakeholders, under the sponsorship of the Minister, will evaluate the relevance and effectiveness of the Policy and Plan, identify implementation gaps, and propose necessary adjustments. The completion of each review process will enumerate desirable policy initiatives and, where necessary, accompanying legislative proposals to mandate funding and execution.

To institutionalise quintennial policy reviews, the Federal Ministry of Power will enhance its Department of Planning, Research, and Statistics (DPRS) with the following capacities:

- **Stakeholder Engagement:** Engaging with citizens, State Government entities, civil society organisations, academia, industry experts, donor partners, and development institutions to establish inclusive dialogue platforms incorporating diverse perspectives representing Nigerians' needs and aspirations.
- **Capacity Building:** Training policymakers in evaluation methods, data analysis, and evidence synthesis to enhance their analytical skills for rigorous assessments and informed advice during the review process.
- **Monitoring and Evaluation:** Supporting the Minister in establishing SMART key performance indicators across the sector, particularly for FGN entities, conducting performance evaluations, and tracking progress towards policy objectives to identify issues requiring adjustment.
- **Documentation and Knowledge Management:** Establishing a knowledge and learning platform to serve as a repository of experiences and learning for policymakers and industry practitioners, ensuring lessons learned to inform future policy initiatives.

By integrating these theoretical frameworks and institutional capacities, the periodic review process will ensure that the National Electricity Policy and Plan remains relevant, effective, and aligned with Nigeria's evolving energy needs and development goals.

Conclusion

Conclusion

The INEP-SIP presents a comprehensive framework for transforming Nigeria's electricity sector. It outlines the required interventions needed to implement the objectives of the new Electricity Act 2023.

The Policy Plan begins by contextualizing the significant changes introduced by the Act, juxtaposing it with the previous Electricity Power Sector Reform Act of 2005. It underscores the need for a coordinated policy response, given Nigeria's evolving demographic and energy landscape.

In summary, the INEP-SIP provides detailed policy directives required for the transformation of Nigeria's electricity sector. It highlights the collaborative effort required among federal and state governments, regulatory bodies, industry stakeholders, and consumers. The document underscores the necessity of a well-coordinated approach to achieve energy security, environmental sustainability, and economic growth.

Through meticulous planning and coordinated implementation by all stakeholders, the Federal Ministry of Power will aim to lead the NESI in creating conditions that deliver a resilient and efficient electricity market that meets the diverse needs of Nigeria's population.

FEDERAL MINISTRY OF POWER

The Federal Ministry of Power is responsible for making policy, overseeing and reporting on the implementation of the policy in the Nigerian Electricity Supply Industry on behalf of the of the Federal Government. In discharging this mandate, the Ministry is guided by the provision of this policy and the provisions of Electricity Act 2003.

POWER HOUSE, Plot 14, Zambezi Crescent, Maitama, Abuja.

info@power.gov.ng

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