Key contacts

Oghogho Akpata
Managing Partner
oghogho.akpata@templars-law.com

Dayo Okusami
Partner and Co-Head,
Energy and Projects
dayo.okusami@templars-law.com

Yemisi Awonuga
Partner and Co-Head,
Energy and Projects
yemisi.awonuga@templars-law.com

Desmond Ogba
Partner, Finance and
Energy and Projects
desmond.ogba@templars-law.com

Nigeria's Energy Transition Plan: A journey towards equity, fairness and inclusion

Introduction

Climate change and energy poverty are undoubtedly two significant threats to the environmental and socioeconomic viability of Nigeria. As a developing nation with a rapidly rising youth population, Nigeria is especially vulnerable to the effects of climate change. Consequently, it is broadly recognised that accelerated strategic action is required from the Federal Government of Nigeria ("FGN") to mitigate the grave impacts of climate change while fostering sustainable economic development.

As a party to the United Nations Framework Convention on Climate Change (UNFCCC) and other frameworks (such as the Kyoto Protocol, Paris Agreement, and nationally determined contributions (NDCs)) aimed at combating climate change and reducing global greenhouse gas (GHG) emissions, Nigeria participated in the 2021 UN Climate Change Conference (COP26) and committed to achieve net-zero by 2060. Achieving this will require a colossal and unprecedented shift away from fossil fuels to renewable energy sources like wind and solar—as well as the provision of clean, affordable and reliable energy for the nearly 90 million Nigerians currently living without it.

Further to the FGN's commitment at COP 26 and in recognition of the crucial role national legislation and policy play in implementing actions to mitigate and adapt to the climate change crisis, Nigeria enacted the Climate Change Act, 2021 which provides a framework for mainstreaming climate change mitigating actions at a national level.

On the 24th of August 2022, the FGN launched Nigeria's Energy Transition Plan (the "ETP"), a home-grown, data-backed, multipronged strategy designed to simultaneously tackle energy poverty and the climate change crisis. The ETP has been fully approved by the FGN and the Energy Transition Implementation Working Group ("ETWG") chaired by Vice President Yemi Osinbajo, comprising several key ministers and supported by an Energy Transition Office (ETO).

The Nigerian Energy Transition Plan

Generally, the ETP seeks to promote a fair, inclusive and equitable energy transition (which posits gas as a "transitionary fuel") and ensure that Nigeria's poverty eradication and economic development strategies are configured around energy transition initiatives.

The ETP is primarily anchored on the following key objectives:

- poverty eradication through an increase in the standard of living for over 100 million people;
- driving sustainable economic growth in key domestic commercial sectors;
- providing universal electricity access to the entire population;
- mobilizing investments and private sector involvement by creating significant market opportunities in the energy transition process;
- serving as a blueprint to Nigeria's commitment and ambition to achieving carbon neutrality; and
- successfully steering the long-term job loss in the traditional energy sector that will arise from decarbonization.

Role of Natural Gas in Nigeria's Energy Transition Plan

The versatility of natural gas is central to its expected prominent role in the energy transition, serving as an energy source for all sectors including power, heating, cooking and industrial applications. The ETP recognises natural gas as a key tool in the fight against energy poverty, given the rapid scaling-up of energy systems required and Nigeria's abundant gas reserves. Natural gas is the ideal driver of the energy transition in Nigeria because it can provide uninterrupted, flexible energy supply in conjunction with intermittent output from solar and wind, allowing for storage technologies (particularly in the case of hydrogen) to be scaled up and innovative new energy pathways to be explored.

The ETP dimensions energy transition pathways across key sectors of the economy which contribute 65% of Nigeria's total emissions and where investments will be prioritised, namely Power, Oil and Gas, Industry, Transport, and Cooking. The table below summarises the path along the 5 relevant sectors and analyses the viability of each sector's tailored energy transition strategy.

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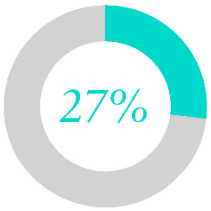
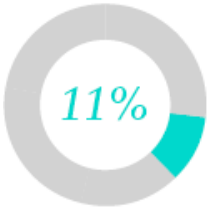
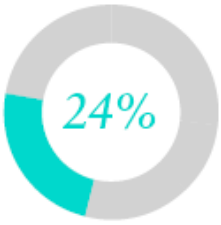
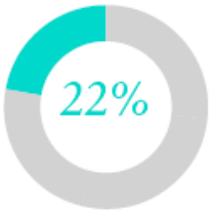
Sector	Emissions breakdown	ETP decarbonization strategy	Critical enablers
Power	Emissions are driven largely by off-grid diesel/petrol generator use and on-grid gas combustion in power plants. Represents about 27% of in-scope emissions and includes electricity generation, both on and off grid. 	Complete elimination of diesel/petrol generators. Expansion of generation capacity[1] via renewable sources, primarily solar. Expansion of transmission and distribution networks. Deployment of decentralised renewable energy (RE). An initial ramp-up of gas generation prior to 2030 to facilitate the integration of renewables. Post 2030, deployment of centralized RE - solar PV and corresponding storage with hydrogen starting in 2040.	• **Coordinated Investment in Gas Infrastructure:** Gas Infrastructure is capital intensive and interdependent across the value chain. Nigeria provides a number of support schemes and tax benefits tailored towards encouraging foreign and local investment in the natural gas sector as well as harnessing local participation within the various value chains. Investors in gas pipelines are granted a tax-free total period of 10 years. • **Strengthening transmission and distribution systems:** Infrastructure deficit, coupled with poor maintenance culture has contributed significantly to the lack of universal electricity access to Nigerians. Generation capacity must evolve in line with the necessary transmission and distribution infrastructure and regional interconnections.
Oil and Gas	Emissions in the sector are driven by upstream energy consumption (fuel/use), venting and gas flaring, fugitive emissions from pressurised containments. Represents about 11% of in-scope emissions. 	Upstream energy consumption: Equipment optimization through artificial intelligence (AI), and increased run time of key equipment. Fugitive emissions: Vapour recovery units on storage tanks, use of leak detection technology, scheduled maintenance and repair. Venting and Flaring: Improved flaring efficiency, exporting/repurposing gas. Emissions from refining activities can be abated by the adoption of carbon capture utilisation and storage (CCUS).	• **Enforceable Environmental, Social and Governance (ESG) Framework:** Legal and regulatory mandates must be in place to ensure that the impact of upstream activities on the environment are pre-assessed and provisioning is made for adverse effects on the environment during the development and operational phases. • **Technology exchange:** To ensure effective capture of carbon that will be emitted in refining activities, a range of modern technologies (that are under early stages of practice in industrialised countries) currently not available in developing countries like Nigeria are certainly required and their supporting infrastructure needs to be localised urgently to scale CCUS.
Industry	Cement production, ammonia production and industrial heating account for 93% of the energy-related emissions from industry in Nigeria. Represents about 16% of in-scope emissions. 	For cements and ammonia production: Shift to lower carbon processes such as the application of bioenergy with carbon capture and storage (BECCS) in cement production, the replacement of grey hydrogen with green and blue hydrogen in ammonia production. Industrial heating: the adoption of zero emissions fuels such as clean electricity and hydrogen for heating instead of natural gas and biomass.	• Technologies like CCUS, carbon cured concrete, or hydrogen production and their supporting infrastructure need to be localised urgently to meet the goals under the ETP.

1 The ETP analysis indicates that capacity on average needs to grow about **6.7 times** to match the expected growth in electricity demand.

Sector	Emissions breakdown	ETP decarbonization strategy	Critical enablers
Transport	Emissions are driven by gasoline/diesel passenger cars which accounted for ~72% of transport emissions in 2020. Emissions in this sector account for about 24% of in-scope emissions. 	ETP proposes the reduction of transport emissions by switching to low-emissions transport technology and mode-shifting (i.e., from gasoline/diesel and hybrid vehicles to electric buses/2-3 wheelers). Biofuels will be deployed as an interim decarbonization measure in the transition to an electric-based system given that electric vehicles (EV) are considered only realistic post-2030. Post-2030, ETP proposes the deployment of EV charging infrastructure and development of EV cars market.	• **Significant Up-front Investment:** Nigeria cannot bridge the infrastructure financing gaps for the adoption of EVs solely through tax revenue and development assistance. Extensive engagement with the private sector and a favourable business environment is required to congregate investment at scale. • **Innovative business models and fiscal incentives:** the FGN may adopt experiences from the business models used to catalyse mini-grid development in the country to make EV charging infrastructure investments more attractive. Furthermore, low vehicle ownership in the country is driven by exorbitant import duties. Fiscal incentives such as removal of the import duty and value added tax could incentivize the adoption of EVs by Nigerians. • **Entrenchment of a comprehensive EV policy:** To achieve the ETP's goal of switching from fossil-fuelled transport to EVs, political will immune to election cycles is required to sustain the plan across the current decade. A well-defined framework backed by legislation such as the Climate Change Act is required to accelerate the deployment of EV's in Nigeria.
Cooking	Emissions in this sector are mainly from cooking with traditional fuels such as firewood, charcoal and kerosene. This sector represents about 22% of in-scope emissions. 	Key decarbonization strategy is a move from traditional firewood, charcoal and kerosene to liquefied petroleum gas (LPG) (until 2030), electric cookstove and biogas (particularly in rural areas) post 2030. ETP proposes that LPG will play a significant role up to 2030 as a stepping-stone in Nigeria's net zero strategy due to the urgency of the achievement of universal access to clean cooking and Nigeria's natural gas endowment. Biogas and electric cookstoves are prioritized for deployment post 2030 since they are carbon neutral.	• **Sensitization of the public:** In order to foster wider acceptance and adoption of cleaner cooking sources, intentional education and awareness campaigns targeted towards the population (particularly the rural communities) is required to prevent potential anxiety around sub-optimal benefits of using LPG, electric cookstoves and biogas.

Financing Nigeria's Energy Transition Plan

Laudable as the ETP may be, funding the ETP will require Nigeria to step up efforts to de-risk private investment in clean energy solutions to close the viability gap for deploying clean energy services. A shared understanding between the public and private sector of the risks and opportunities of the energy transition is critical to agreeing on an implementable strategy.

Conclusion

The ETP is an ambitious statement by the FGN and demonstrates the seriousness with which the country is approaching climate action. Achieving the ETP's stated goals requires strong commitments and consistent policy and regulatory frameworks. The ETP recognises that Nigeria must take ownership of its transition pathways to design climate sensitive policies that are equitable and just, bearing in mind the nation's resources and state of industrialisation. Ultimately, Nigeria's energy transition will depend on its leadership and sustenance of the will to prioritise clean energy even as the country welcomes a new administration in 2023.

For more information, please contact EnergyTransition@templars-law.com