



SPACES FOR CHANGE | S4C

RESEARCH | POLICY | CITIZEN ACTION

ENERGY TRANSITION IN NIGERIA'S OIL-RICH COMMUNITIES

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CONTENTS

Table of Contents
About this study
Methodology
Preface

CHAPTER ONE: FOSSIL FUEL EXTRACTION IN NIGERIA

■ History of fossil fuel extraction in Nigeria.....	10
■ Impact of fossil fuel extraction in Nigeria.....	11

CHAPTER TWO: ENERGY TRANSITION: WHY, WHAT, WHEN?

■ Fossil fuels in Nigeria's energy mix.....	17
■ Greenhouse Gas (GHG) emissions in Nigeria.....	19
■ Transition to cleaner sources of energy: Why now?	21
■ Nigeria's vulnerability to climate change.....	22
■ Legal impetus for energy transition in Nigeria	24
■ Conclusion.....	28

CHAPTER THREE: GAS AS A TRANSITION FUEL IN NIGERIA

■ Why gas as a transition fuel?	32
■ Conclusion: pros and cons of gas as a transition fuel.....	35

CHAPTER FOUR: BUSINESS PERSPECTIVES ON ENERGY TRANSITION IN NIGERIA

■ Shell Petroleum Development Company (SPDC).....	38
■ Total Energies.....	39
■ Chevron.....	40
■ Exxonmobil, Oando, Eni and Conoil.....	40
■ NNPC (Nigerian National Petroleum Corporation) Ltd & NLNG (Nigeria LNG Limited).....	41
■ Shallow commitments to communities prevail.....	41

CHAPTER FIVE: TRANSITION TO NEW ECONOMIES FOR EXTRACTIVE COMMUNITIES

■ Artisanal refining in Nigeria.....	45
■ The spread of illegal oil refining across Niger Delta communities	45
■ Impact of artisanal refining in Niger Delta.....	47
■ Community perspectives on energy transition:.....	50
Those in support of energy transition	50
Those hesitant about energy transition.....	51
■ Local ideas on justice and a just energy transition	53
■ Conclusion.....	54

CHAPTER SIX: SURMOUNTING THE HURDLES

■ Legal and structural impediments.....	57
■ Capacity deficit.....	60
■ Funding gaps and revenue shortages	62
■ Attitudinal constraints.....	64
■ Socio-economic issues	65
■ Conclusion.....	67

CHAPTER SEVEN: POSSIBILITIES FOR CHANGE


■ Elimination of fuel subsidies.....	70
■ An array of climate policy responses.....	70
■ Bridging the energy poverty gap.....	71
■ Abundant renewable energy (RE) resources.....	71
■ Uptake in the use of electric vehicles (EVs).....	72
■ Funding mechanisms are emerging.....	72
■ New jobs will emerge.....	73
■ Rebalancing gender inequalities.....	74
■ Safety nets and guidelines.....	74
■ Reinventing alternatives to artisanal refining	76
■ Conclusion.....	77

METHODOLOGY



The Niger-Delta region of Nigeria is popularly described as the *treasure base of the nation* because of the massive concentration of mineral oil and gas deposits there. Three oil-rich states in the Niger Delta region of Nigeria—Imo, Bayelsa and Rivers State—were selected for this study. Based on a qualitative research design that emphasized literature reviews, interviews and group discussions, researchers captured diverse perspectives on a just transition at the local, state and federal levels including oil and gas businesses operating in Nigeria.

In Imo State, researchers conducted interviews and focus group discussions with traditional chiefs, artisanal refiners, elders’ councils, women and youth leaders in five oil-rich communities in two local government areas, namely, Abaezi, Mmahu, and Opuma communities in Ohaji/Egbema local government area (LGA); and Izombe and Ezi-Orsu community in Oguta LGA on 30th August 2022 and 2nd September 2022 respectively. S4C’s partner, YEAC, coordinated similar field visits and group discussions in Bolo Community in Ogu/Bolo LGA of Rivers State and Otuasega Community in Ogbia LGA of Bayelsa State respectively. These communities are hosts to several oil wells, major pipelines, flow stations and a host of indigenous and international oil companies such as SPDC, AGIP, ADDAX, and Nigerian Petroleum Development Company (NPDC). The SERAC v. Nigeria decision by the African Human and Peoples’ Rights Commission presents a vivid and graphic picture of massive environmental devastation and the age-long suffering of the people living in Niger-Delta communities.



S4C received responses from extractive corporations operating in Nigeria following email requests for information. Across the three states, researchers used structured questions to gather primary data on artisanal refining activities and community perspectives on energy transition. Artisanal refining is illegal in Nigeria and refers to the rupturing of oil pipelines to steal crude oil and the subsequent unlicensed distillation of the stolen crude using indigenous technology to produce usable end-products such as kerosene, fuel, and diesel. As a result of both the licensed oil mineral extraction by extractive corporations and artisanal refining activities going on, all the communities surveyed are severely impacted by the degradation and pollution of the environment. The opinions of corporations, political, traditional and community leaders together with civic actors at the frontlines of the campaign for resource control and environmental justice across the three states, laid the foundation to compare meanings of just transitions among different groups.

Furthermore, researchers received comments from independent experts on the first draft of this report. More specifically, the comments and technical reviews from John Gaventa of the UK-based Institute for Development Studies (IDS) helped to enrich and refine the final analysis and recommendations. We are grateful to all the interviewees comprising government officials, independent experts, company representatives, community leaders, and anonymous contributors who willingly shared information and their opinions on a wide range of issues explored in this report. It is hoped that research findings will not only add to the existing body of knowledge on energy transition, but in particular, facilitate the expansion of spaces and platforms for the inclusion of communities in the deliberative processes for achieving a low-carbon future.

PREFACE

Since independence, revenues from fossil fuels, especially oil and gas minerals have sustained the Nigerian economy. During the COP26 summit in Glasgow, Nigeria's President Muhammadu Buhari pledged that Nigeria will cut its carbon emissions and reach net-zero by 2060 through a gradual plan to phase out the use of fossil fuels. The Niger-Delta region remains the focal point when it comes to fossil fuel (oil) exploration in Nigeria, with vast swathes of the local environment brutally ravaged by decades of fossil fuel extraction. While the national energy transition policy highlights a litany of potential benefits to citizens, it neither makes any specific reference to, nor provision for oil- and gas-dependent communities that will be significantly affected by phasing out fossil fuels. Widespread poverty and unemployment have driven large numbers of people, including women in the region into artisanal refining, popularly known as kpo-fire business. The illegal trade has created massive employment opportunities for local populations.

Should energy transition succeed, what alternatives are placed before communities and non-state-actors whose livelihoods are dependent on crude oil extraction and local refining? Most of the literature on sustainable energy transition in Nigeria have been driven by governments and corporations, limiting opportunities to better understand how oil-rich communities, including those dependent on artisanal refining for their livelihoods perceive 'just energy transitions': whether or not they support it, and how to engage and facilitate their inclusion in national, regional and global transition plans. How will the move to cleaner energy affect oil-producing communities in Nigeria?

Spaces for Change conducted this study under the auspices of the project, ***From Exclusion to Inclusion in National Just Transition Plans***, supported by the Africa Center for Energy Policy (ACEP) as a subgrant from the Extractive Industry and Climate Change Governance Fund (EICCG Fund). This study, conducted in collaboration with local partners, Youth & Environmental Advocacy Center (YEAC) and Extractives 360, gauges the inclusiveness of Nigeria's energy transition agenda, by identifying and understanding the alternatives placed before oil-rich communities and non-state-actors whose livelihoods are dependent on fossil fuels, particularly artisanal refining. The study builds on the findings of a previous study which S4C conducted together with the Institute for Development Studies (IDS) and partners, supported by the British Academy. The initial research examined how citizens and communities in the continent's oil and gas producing regions, particularly Nigeria, Mozambique, and Kenya, are supporting and participating in the deliberations and action on a just transition.

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CHAPTER 1

FOSSIL FUEL EXTRACTION IN NIGERIA

This chapter examines the history of fossil fuel extraction in Nigeria, highlighting the roles played by both foreign investors and national companies in facilitating trade, capital flows and massive revenue generation from fossil fuels. The discussions about the impacts of decades of fossil fuel extraction in Nigeria lay the foundation for the current clamour for transitioning away from fossil fuels.

■ Brief History of Fossil Fuel Extraction in Nigeria

Officially, the search for fossil fuels in Nigeria started during the colonial era mainly to advance imperialist interests and British economic objectives. As of 1903, two companies, Nigeria Properties (Limited) and the Nigeria and West African Development Syndicate (Limited) commenced exploration for bitumen, coal and oil,³ while the Nigerian Bitumen Corporation, searching for bitumen, commenced operations in 1906. Certain foundations were further laid to make the local climate favourable to the advancement of these imperialist agendas. They include the incorporation of several British-owned companies in Nigeria seeking to explore a wide range of mineral resources, the incorporation of the British Colonial Petroleum Corporation and the enactment of the Southern Nigeria Mining Regulation (Oil) Ordinance by the British Colonial Government which made the business of oil exploration in Nigeria the exclusive reserve of the British government. Section 15 of the Ordinance further specified that all members of the directorate of these companies be British subjects.⁴ The British oil monopoly policy was further retained in the Mineral Oils Act/Ordinance of 1914.

In particular, coal extraction can be traced to 1908.⁵ British Mines Engineer Albert Kitson was the first person on record who discovered coal in commercial quantities in 1909 at the Udi Ridge in Enugu, South-East Nigeria. By 1914, coal was first shipped out of Nigeria and exported to the United Kingdom through the new ports in Port Harcourt. Following the discovery of huge coal deposits and the booming exports, coal mines sprang up in the region, especially the popular Ogbete Mine. Although Nigeria's coal deposit is estimated at about 2.8 billion metric tons in 17 identified coalfields and over 600 million tons of proven reserves in Nigeria,⁶ coal mining has steadily declined with many mines now abandoned. Currently, Nigeria has coal in commercial quantities in many states such as Enugu, Benue, Kogi and Plateau States.

As coal mining declined, Nigeria was sustained by its agrarian economy before the discovery and exploration of hydrocarbons in commercial quantity. After some unsuccessful pioneering attempts by some other companies coupled with the First World War-induced setbacks, the D'Arcy Exploration Corporation in collaboration with the Anglo-Dutch consortium, now known as Shell Petroleum Development Company (SPDC) of Nigeria (then called Shell D'Arcy) commenced exploration activities in Nigeria in 1937.⁷ After years of exploration, petroleum was discovered in commercial quantity at Oloibiri in 1956. As of 1958, SPDC started oil production and export from the Oloibiri field in the present Bayelsa


³ Phia Steyn; Oil Exploration in Colonial Nigeria, C.1903-1958. Accessed on 20/06/22 at <https://doi.org/10.1080/03086530903010376>

⁴ Speed, ed., *Laws of the Colony of Southern Nigeria*, 1367.

⁵ Abiodun Baiyewu- Teru; History: The History of Coal In Nigeria. (2015) Heinrich Boell Stiftung. Accessed on August 23, 2022 <https://ng.boell.org/en/2015/12/03/history-history-coal-nigeria#:~:text=Coal%20was%20first%20discovered%20in,created%20ports%20at%20Port%20Harcourt.>

⁶ Vanguard, Nigeria yet to transform 2.8 bn metric tonnes of coal in 17 fields into wealth, (2017) Accessed via <https://www.vanguardngr.com/2017/08/nigeria-yet-transform-2-8-bn-metric-tonnes-coal-17-fields-wealth/#:~:text=According%20to%20reports%20Nigeria's%20present,of%20proven%20reserves%20in%20Nigeria.>

⁷ Charles Udosen, et al; Fifty Years of Oil Exploration in Nigeria: The Paradox of Plenty; Global Journal of Social Sciences VOL 8, NO. 2, 2009: 37-47. ISSN 1596-6216. Accessed on the 20/06/22 at <https://www.proquest.com/openview/4e4283b60d716cf0043a7189efcd8184/1.pdf?pq-origsite=gscholar&cbl=105790>



State at a rate of 5,100 barrels per day, which later spiralled to 2.44 million barrels per day as of January 1979.⁸ This discovery opened up the oil industry in 1961, attracting other multinational oil companies like Mobil, Agip, Safrap (now Elf), Tenneco and Amoseas (Texaco and Chevron respectively) to join the exploration efforts both in the onshore and offshore areas.⁹ In 1959, the huge discoveries and massive oil production outputs informed the revision of the sole concession rights over the whole country granted to Shell/D'Arcy. This revision extended concessionary rights to other companies of other nationalities, ending the British government's monopoly on hydrocarbons in Nigeria and in line with the policy of expanding the country's exploration potentials and energy security.

Hikes in world oil prices at the end of the Biafran Civil War in 1970 presented an opportunity for the country to reap instant riches from oil production. Nigeria joined the Organisation of Petroleum Exporting Countries (OPEC) in 1971 and established the Nigerian National Petroleum Company (NNPC) in 1977, a state-owned company which is a major player in both the upstream and downstream sectors. With the introduction of Nationalization Policy in the late 70s¹⁰ by the military regime, Nigeria began to take steps towards transferring financial ownership, control and takeover of the oil and gas lucrative industry that had been controlled by foreign investors. The recent passage of the Petroleum Industry Act, 2020 laid the foundation for a further restructuring of the governance and operational architecture of the Nigerian oil and gas industry. The dominant role of petroleum production and exports in Nigeria's economy has pushed agriculture—the traditional mainstay of the economy, from the early fifties and sixties—to the background.

■ Impact of Fossil Fuel Extraction in Nigeria

A Chaotic Fuel Subsidy Regime: The retail pump price of petroleum products, especially gasoline, is significantly subsidized. Recognizing that affordable pricing is central to expanding access to essential petroleum products, the government subsidizes them to make prices low and within the reach of 42.8 per cent (91 million) of the population living in want.¹¹ Petroleum subsidy persists as Nigeria's four refineries with total capacity of 445,000 barrels per day function far below their installed capacities while the national oil company, NNPC, still imports refined petroleum products to meet domestic demand. The fuel subsidy regime has ensured stable fuel supply, ending the frequent supply shortages of

⁸ Ibid 3

⁹ NNPC Group: Development of the Petroleum Industry in Nigeria. Accessed on June 13, 2022 <https://nnpcgroup.com/NNPC-Business/Business-Information/Pages/Development-of-the-Industry.aspx>

¹⁰ Ann Genova, Nigeria's Nationalization of British Petroleum, *The International Journal of African Historical Studies*, Vol. 43, No. 1 (2010), pp. 115-136 (22 pages), Published By: Boston University African Studies Center, Accessed via <https://www.jstor.org/stable/25741399>

¹¹ World Bank, Poverty & Equity Brief, https://databankfiles.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/AM2021/Global_POVEQ_NGA.pdf

the past characterized by long queues at fuel stations, hoarding, diversion, proliferation of black markets and fire accidents as a result of mishandling petroleum products.¹²

However, evidence shows a significant lack of accountability in fuel subsidy management in Nigeria. The colossal levels of corruption riddling the subsidy administration process has necessitated several official probes, but with little accountability.¹³ Although subsidies are defended for benefiting the poor and disadvantaged consumers, they create market distortions and inhibit investments in renewable energy substitutes that are more environmental-friendly. Studies that have evaluated the effect of energy (petroleum products) pricing reforms on household welfare find that petroleum subsidy is an ineffective mechanism for protecting the income of poor households.¹⁴ Despite the chaotic subsidy regime, measures that have been taken to reform subsidy on petroleum products in Nigeria have led to higher fuel prices, stirring public anger and massive protests across the country.¹⁵

Oil pollution and environmental devastation: Environmental pollution associated with mineral oil exploration dates to the colonial era when the Nigerian Bitumen Company's exploratory project in the early 1900's in the Lekki Lagoon concession area caused massive environmental damage to the local environment. When these spillages occur, oil flows into farmlands and fishponds, destroying aquatic animals, contaminating water sources and making it unfit for use. Consequently, national regulatory bodies have often unleashed penal action on erring oil and gas corporations. Recently, National Oil Spill, Detection and Response Agency (NOSDRA) fined Mobil Producing Nigeria Unlimited ten million naira for infringing the provisions of the Oil Spill Recovery, Clean Up, Remediation and Damage Assessment Regulations 2011 by failing to clean up an oil spill that occurred at Qua Iboe Terminal in 2015.¹⁶ In the Bonga oil field coast of the Niger Delta where about 40,000 barrels leaked along the coast of the Niger delta, Shell was sanctioned and fined too. At the Chevron North Apoi Gas Rig in Southern Ijaw in Bayelsa state; a blowout took place on January 16, 2012, causing severe gas fires and accidental spillage which continued for over 46 days that damaged the ecosystem.¹⁷ Just recently, another major oil spill in Nembe community, Bayelsa State contaminated water and food sources, destroyed farms and aquatic lives, economic trees and other traditional means of livelihood. Large quantities of oil gushing out of AITEO's facilities and the accompanying inferno started on 5 November 2021 and lasted for several weeks. As a result, water from the local streams were heavily coated with crude

¹² Institute for Development Studies, IDS Policy Briefing 203, Protests and Accountability in Nigeria's Energy Sector (Published on 17 August 2022) <https://www.ids.ac.uk/publications/protests-and-accountability-in-nigerias-energy-sector/>


¹³ Levinus Nwabughio, Vanguard, Repeals probe petrol subsidy regime from 2017 to 2021 (June 30, 2022) <https://www.vanguardngr.com/2022/06/repeals-probe-petrol-subsidy-regime-from-2017-to-2021/>

¹⁴ Spaces for Change, Gender and Fossil Fuel Subsidy Reform in Nigeria: Findings And Recommendations (2020) <https://spacesforchange.org/gender-and-fossil-fuel-subsidy-reform-in-nigeria-findings-and-recommendations-research-report/>

¹⁵ Victoria Ohaeri, Premium Times, Fuel Subsidy Reforms: Moving from Anger to Cooperation (2015) <https://opinion.premiumtimesng.com/2015/05/24/fuel-subsidy-reforms-moving-from-anger-to-cooperation-by-victoria-ohaeri/>

¹⁶ NairaMetrics, Oil Spillage] NOSDRA Fines Mobil Nigeria N10million (November 2015) <https://nairametrics.com/2015/11/05/oil-spillage-nosdra-fines-mobil-nigeria-n10million/>

¹⁷ O. J. Olujobi et al; Oil Spillage in Nigeria's Upstream Petroleum Sector: Beyond the Legal Frameworks; International Journal of Energy Economics and Policy; ISSN: 2146-4553 Accessed on 25/06/22 at <https://www.researchgate.net/publication/322959236>



oil are neither usable nor drinkable. Fishing nets, boats and other hunting wares worth several millions of Naira were damaged beyond repair.¹⁸

Weak enforcement of environmental regulations: Not all incidences of oil spills are adequately investigated, cleaned up and or penalised. The clean-up of the 26 June 2005 oil spillages in the village of Oruma caused by SPDC facilities started in November 2005. Till date, it is alleged that neither the environment near Oruma nor their oil-polluted property have been adequately cleaned by Shell Nigeria.¹⁹ Reports suggest that Shell Petroleum Development Company of Nigeria (“Shell Nigeria”) only closed the hole in the pipeline on 29 June 2005. Similarly, two years dragged by before government agencies began clean-up efforts around Goi, following an initial spill on 10 October 2004, which caused the oil-seeped creek and the surrounding mangrove forests to erupt in flames. By the time the leak was contained, more than 23,000 litres of oil had spilled and nearly 40 acres of mangrove forest had burned, poisoning the land and fishponds that locals depend on for their livelihood.²⁰

Hostilities between corporations and host communities: Because of the intensity and frequency of environmental damage in the region, the Niger-Delta remains a hotbed for hostilities between members of host communities and oil and gas corporations. The power asymmetry in the relations between corporations and their host communities have magnified these tensions.²¹ In more recent investments such as the \$700m Shell/Seplat ANOH Gas Development Project, companies have introduced new strategies and spaces for negotiation with communities over the share of natural resource extraction benefits, but a recent study by Spaces for Change found that the benefit-sharing negotiations between companies and communities failed to meet the internationally-recognized criteria for free, prior and informed consent.²² The widespread perception among host communities that oil corporations are ripping them off without giving back due benefits to the oil-producing areas, lie at the core of these hostilities. Blowing up oil installations by aggrieved youth in the region is a common reprisal for the unjust distribution of natural resource benefits. The federal government’s Amnesty Programme for restive youths succeeded in lessening the spate of hostilities: kidnappings, explosions, oil bunkering, theft and other criminalities.

Rising youth restiveness: Despite its oil-rich status, the level of poverty in the Niger Delta Region of the country is frighteningly high, due to impact of decades of governmental neglect

¹⁸ SPACES FOR CHANGE Press Statement, reported in Vanguard, OML 29: We classify Aiteo’s incident under tier 2 oil spill — NOSDRA (2021) <https://www.vanguardngr.com/2021/12/oml-29-we-classify-aiteos-incident-under-tier-2-oil-spill-nosdra/>

¹⁹Business and Human Rights Resource Centre Accessed on July 1, 2022 <https://www.business-humanrights.org/fr/derni%C3%A9res-actualit%C3%A9s/shell-lawsuit-re-oil-pollution-in-nigeria/#:~:text=The%20Oruma%20lawsuit%20claims%20that,pipeline%20on%2029%20June%202005.>

²⁰Jess Craig: The Village that stood up to big oil –and won. (June 2022) The Guardian Newspapers (UK) Accessed on June 30, 2022. <https://www.theguardian.com/environment/ng-interactive/2022/jun/01/oil-pollution-spill-nigeria-shell-lawsuit>

²¹ Victoria Ibezim-Ohaeri, Osahon Nosayame et al; SPACES FOR CHANGE 2021 publication, Natural Resource and Benefit-sharing Negotiations Between Host Communities and Extractive Companies: A Case Study of Assa North Ohaji South Gas Development Project: <https://spacesforchange.org/new-report-benefit-sharing-negotiations-between-host-communities-and-extractive-companies-a-case-study-of-assa-north-ohaji-south-anoh-gas-development-project/>

²² Victoria Ibezim-Ohaeri, Osahon Nosayame et al; SPACES FOR CHANGE 2021 publication, Natural Resource and Benefit-sharing Negotiations Between Host Communities and Extractive Companies: A Case Study of Assa North Ohaji South Gas Development Project: <https://spacesforchange.org/new-report-benefit-sharing-negotiations-between-host-communities-and-extractive-companies-a-case-study-of-assa-north-ohaji-south-anoh-gas-development-project/>

and the concentration of natural resource benefits in city centers and in the hands of federal authorities. The people of the region are left out of the governance and control of their resources. There is a justified feeling of deprivation among the people of Niger Delta, with the youths being the most productive demography in the population of the region feeling this frustration the most. The restiveness manifests in inter-generational conflict, pitching militant youths against traditional authorities and community elders.²³ These injustices have produced a favourable climate for violence, militancy and youth restiveness.

Feelings of anger, frustration and discontent began with gentle pleas and demand, and later mutated into violent contestations, vandalism, kidnappings, and property destructions. Expression of anger became more organized with the formation of sophisticated pressure groups such as the Movement for the Survival of Ogoni People (MOSOP) championed by Saro-Wiwa and his Ogoni kinsmen, clamouring for the ownership and participation of host communities in the governance of natural resources. Other groups subsequently emerged such as the Niger Delta People's Volunteer Force (NDPVF), Niger Delta Vigilante (NDV), Martyrs Brigade and the Movement for the Emancipation of the Niger Delta (MEND).

Angry protestations by these different pressure groups, including various youth formations across the region often take the form of blockade, sabotaging oil installations and later on, hostage taking.²⁴ In 1997, a gang of armed youths attacked and shut down six flow stations in Delta state, taking 127 personnel hostage and shutting in 10,000 bpd of oil. It took 6 days of negotiations to get the hostages released. Subsequently, 15 contract staff on board a supply convoy were kidnapped and detained for more than 3 weeks.²⁵ Although these actions were originally initiated to draw the attention to environmental and economic injustices in the region, there may be additional economic incentives for these activities in recent times, resulting in some of these groups sponsoring several violent protests and instigating many kidnappings in the region.²⁶

High cost of violence: Income earnings derived from the sales of oil have declined considerably as a result of violence in the oil extraction zones. At various times, the violent conflicts forced oil production shutdowns up to 800,000 barrels per day threatening Nigerian government's liquidity and its plan to increase production to meet its increasing fiscal obligations. The crisis is said to have cost the country an annual loss of 4.4 billion dollars.²⁷ The crisis in the Niger Delta region rippled across energy markets contributing to higher prices and tighter supplies. As insecurity mounted, the regional waterways in the Gulf of Guinea have become increasingly risky for any form of business, including fishing, reducing the frequency of mercantile ship movement. The failure of the government to immediately arrest the situation created a large class of young men who are left with little or no economic power who


²³ Ibid 63

²⁴ Mabro, N. (1997, September 11). *Dangerous liaison* London *Tempo*, p. 8.

²⁵ Anderson, B. (1996, November 18-21). *The petroleum industry and the Nigerian environment: Environmental issues and management strategies*. Keynote Address at the International Seminar on the Petroleum Industry and the Nigerian Environment, Hotel Presidentia Port-Harcourt, Nigeria.

²⁶ International Crisis Group. (2006, August 3). *The swamps of insurgency: Nigeria's delta unrest* (Africa Report No. 115). Calabar, Nigeria

²⁷ Ibid 58



became an easy recruit for violence. Politicians have been alleged to exploit the insecurity situation to their political advantage as questions have been raised about their role as financiers of armed groups.²⁸

Impact of the violence on women and children: Women are not spared from the exclusion, brutality, discrimination and violence in the oil extraction zones. Mineral exploitation activities in the Niger Delta have resulted in economic and environmental conflicts, with the female demography being the most negatively-impacted. Arable lands where women farm have been used for installation of oil exploration, extraction and transportation facilities. Contaminated land spaces have further rendered land unusable for farming, creating an acute shortage of arable land for agriculture and the attendant food shortage. The already impoverished women now have to import food from other parts of the country at higher costs.

The continued use of military force to control the oil fields and pipelines - through the specially created Nigerian Military Task Force for the Niger Delta with specific orders to “shoot-to-kill” protesting indigenes, has had devastating impacts on women. The 1999 invasion of Odi Town in retaliation for the murder of 12 policemen by youths in the town is a classic example. This has often brought the people in direct confrontation with the foreign firms, during which military is employed with the major victims being the women and children.²⁹ Several reports have documented different kinds of violence towards women, including sexual violence such as rape, physical violence, as well as destruction of their properties.³⁰

Women are unable to respond or retaliate to attacks especially where their husbands or sons have been killed or maimed in the conflict. The death of male members of the household have forced many women to assume burdensome responsibilities as protector and the sole provider of their households. On January 11th, 1999, Ijaw women were engaged in a peaceful demonstration and marginalization of their people in Port Harcourt and were violently tear-gassed, beaten, stripped and detained by a team of security forces.³¹ Security forces have often responded to protests by communities, including local women, with lethal force, extrajudicial killings and mass murder, torture, rape, the burning of homes and property, and increased military presence.³²

²⁸ Human Rights Watch (2003). *The Warri Crisis: Fuelling Violence*. 15 (18A).

²⁹ *Ibid* 81

³⁰ International Crisis Group. (2006, August 3). *The swamps of insurgency: Nigeria's delta unrest* (Africa Report No. 115). Calabar, Nigeria

³¹ *Ibid* 56

³² Sokari Ekine; *Women's Responses to State Violence in the Niger Delta*



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CHAPTER 2

ENERGY TRANSITION: WHY, WHAT, WHEN?

What role(s) do fossil fuels play in Nigeria's energy mix? Where are the high carbon emissions coming from? Which sectors bear a greater share of carbon emissions? Why does the country want to transition to cleaner sources of energy? Is this a good time for that transition to happen? This chapter examines the why, what and when of energy transition in Nigeria, outlining the country's vulnerabilities, decarbonization plans and the policy responses to achieve a low-carbon future.

Basically, energy transition refers to a switch from a major source of energy to another. Many countries of the world are dependent on fossil fuels—like coal, crude oil and natural gas—to generate power for domestic and industrial use, and to meet the needs of transportation, heating, cooling, lighting, and other purposes. Energy source switches can take place nationally or regionally. For instance, energy consumption in the United States shifted from 70 percent wood in 1870, to 70 percent coal in 1900, to 70 percent oil and gas in 1960.³³ These shifts were accompanied by changes in energy technologies and in the provision of energy services such as heating, cooling, lighting, and mechanical power. Similarly, Nigeria’s reliance on hydro-power generation has gradually moved towards thermal energy powered with natural gas.

Unlike major energy shifts that occurred nationally or regionally, the present clamour for a switch away from fossil fuels tends to assume a global dimension. In short, energy transition from fossil fuel to renewable energy sources—often termed as “low-carbon transition”—is the aim of the future global energy system,³⁴ with a focus on reducing greenhouse gas emissions. The International Renewable Energy Agency defines it as a pathway toward transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century, with the need to reduce energy-related CO₂ emissions to limit climate change.³⁵

The energy transition discourse is predicated on the assumption that high carbon emissions—from the burning of fossil fuels—are causing climate change and the resulting instabilities in temperatures and weather patterns. Joining the global clamour for a low carbon transition, Nigeria has begun to search for investors³⁶ and lay the necessary legal foundations for bolstering climate justice, including scaling up investments in renewable energy infrastructure in preparation for a low carbon future.

■ Fossil Fuels in Nigeria’s Energy Mix

Energy sources in Nigeria vary, ranging from coal, petroleum, natural gas, peat, hydroelectricity, solar and wind. However, energy generation—comprising about twenty-three (23) grid-connected power stations in Nigeria³⁷—is basically derived from two sources namely: hydro and gas. While the Egbin thermal plant is largest gas plant, the Mambilla power plant is the biggest hydroelectric power station. Enabled by the Power Sector Reform Act in 2005, power generation, currently driven by privatised generation companies (GenCos), Independent Power Producers (IPP), and the generation stations under National

³³ Peter A. O’Connor(2010) Energy Transitions; THE PARDEE PAPERS / No. 12/ November 2010

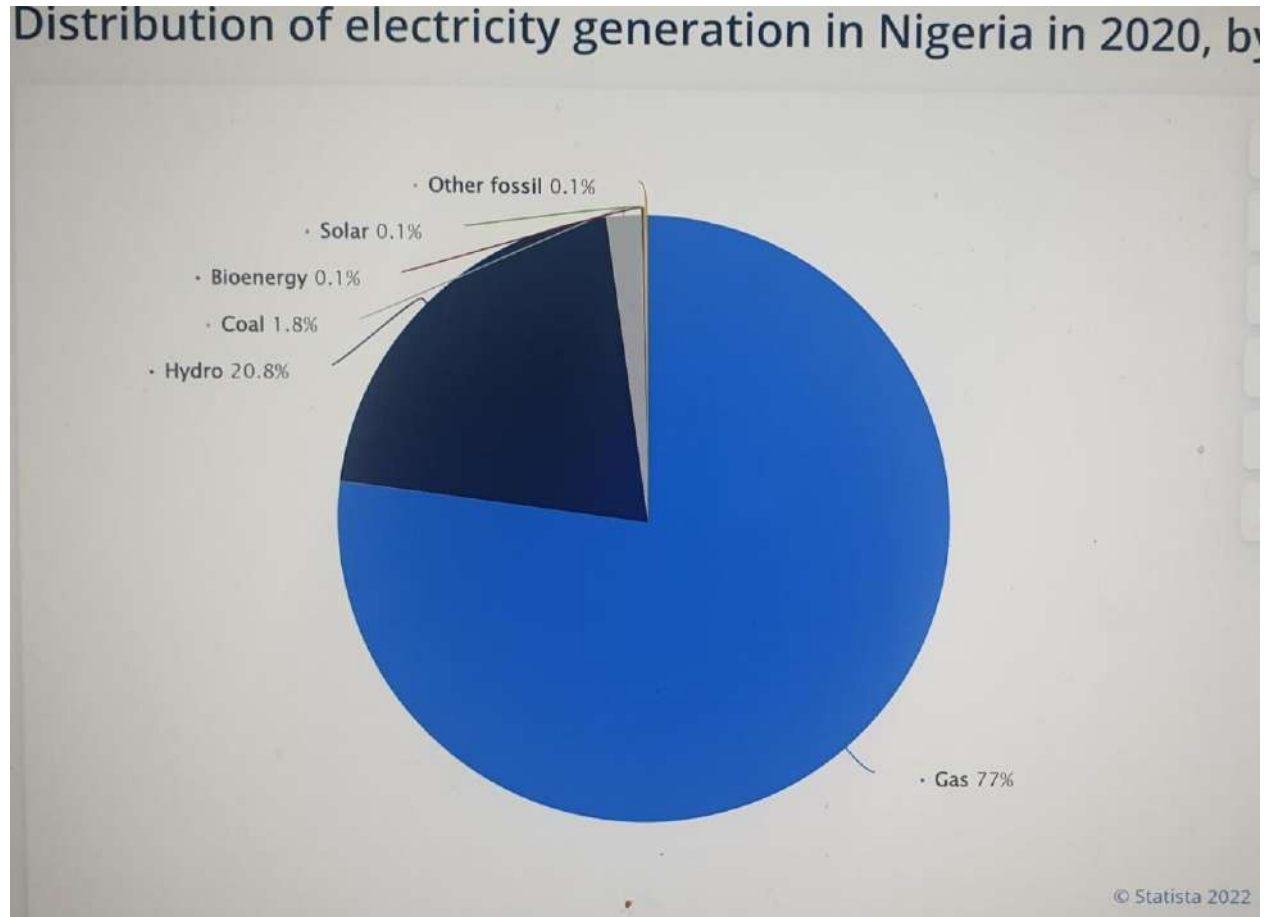
³⁴ Chukwuebuka Okafor et al; (2021) Moving beyond fossil fuel in an oil-exporting and emerging economy: Paradigm shift

³⁵International Renewable Energy Agency (IRENA) <https://www.irena.org/energytransition>

³⁶Anthony Ailemen, US extols Nigeria’s energy transition plans, *Businessday* <https://businessday.ng/news/article/us-extols-nigerias-energy-transition-plans/> (accessed 2 September, 2022)

³⁷ Nigeria Electricity Regulatory Commission, <https://nerc.gov.ng/index.php/home/nesi/403-generation>

Integrated Power Project (NIPP) have a combined installed generating capacity of 10,396 MW with available capacity of 6,056 MW.³⁸ The highest contributions come from the gas-powered plants.



Source: <https://www.statista.com/>

As the image above shows, natural gas is by far the most common energy source in Nigeria, with about 77 percent of the country's electricity generation derived from this source.³⁹ This implies that approximately 8.15kWh of every 10kWh of electric energy generated in Nigeria in the second quarter of 2020 came from gas.⁴⁰ Hydroelectric power ranked second, accounting for about 21 percent of Nigeria's power production. Fossil fuel, solar, bioenergy and coal took insignificant fraction of the percentage of power generation.⁴¹ The estimated demand for electricity in Nigeria is between 8,000-10,000 MW at its peak and a significant

³⁸ NERC, *ibid.*

³⁹ Statista, Power production breakdown in Nigeria 2020, <https://www.statista.com/statistics/1237541/nigeria-distribution-of-electricity-production-by-source/#:~:text=Natural%20gas%20is%20by%20far,was%20derived%20from%20this%20source>.

⁴⁰ Nigerian Electricity Regulatory Commission, NERC Quarterly Report, Q2, 2020

<https://nerc.gov.ng/index.php/library/documents/NERC-Reports/NERC-Quarterly-Reports/NERC-Second-Quarter-Report-2020/>

⁴¹ Accessed on 24/06/22 at <https://www.statista.com/statistics/1237541/nigeria-distribution-of-electricity-production-by-source/>

part of this demand is met by onsite generating sets which are primarily fueled by petrol and diesel.⁴²

■ Greenhouse Gas (GHG) Emissions in Nigeria

The major drivers of energy transition are greenhouse gas emissions (GHG) that are causing climate change and the growing concerns around the finite nature of fossil fuel resources. Carbon dioxide is an example of GHG emissions. These GHG emissions come from gasoline cars, coal-powered heating infrastructure, land and forest clearing, landfills for garbage, energy industry operations, mass transportation, etc. The United Nations have proclaimed that GHG concentrations are at their highest levels in 2 million years,⁴³ which is triggering intense consequences such as intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity.

Nigeria's energy sources derive substantially from fossil fuels, especially natural gas. The combustion of fossil fuels involves the emission of large amounts of carbon dioxide (CO₂), leaving significant concentrates in the atmosphere. Recent studies show that Nigeria's GHG emissions increased by 46% in 18 years.⁴⁴ Increasing carbon emissions in Nigeria and the rest of the world are not unconnected to the rising dependency on fossil fuel-powered energy products and services. Amid skyrocketing energy demand across the globe, energy supply powered by fossil fuels, especially hydrocarbons, are known to be major contributors to global warming. Studies suggest that burning fossil fuels and deforestation have heated earth's surface 1.1 degrees Celsius (°C) above mid-19th century levels.⁴⁵ Determined to put a cap on carbon emissions, governments of the world brokered a climate deal in 2015, known as the 2015 Paris Agreement, where they pledged to cap global warming at "well below" 2C, or 1.5C if possible.

Between 2000 – 2017, emissions from energy increased from 142,674 Gg CO₂-eq (31% of national emissions) in 2000 to 245,918 Gg CO₂-eq (36% of national emissions) in 2017, totalling an increase of 72%. Activities within the energy sector responsible for the high emission levels are energy production, processing for converting primary fuels into secondary fuels, transportation, and storage as well as end products utilization.¹ Other related activities include extraction, refining, transportation and storage of primary and secondary hydrocarbons.


NATIONAL GHG INVENTORY REPORT (2021)

⁴² Diesel Power Generation: Inventories and Black Carbon Emissions in Nigeria. Accessed on the 24/06/22 at <https://openknowledge.worldbank.org/handle/10986/28419>

⁴³ United Nations Climate Action <https://www.un.org/en/climatechange/what-is-climate-change>

⁴⁴ NATIONAL GHG INVENTORY REPORT (2021) <https://unfccc.int/sites/default/files/resource/NIGERIA%20NIR1%20-%20First%20National%20GHG%20Inventory%20Report%20.pdf>

⁴⁵ Intergovernmental Panel on Climate Change (IPCC), Climate Change 2022: Impacts, Adaptation and Vulnerability, IPCC Sixth Assessment Report (2022), Accessed via <https://www.ipcc.ch/report/ar6/wg2/>



Between 2000 – 2017, agriculture, forestry, and other land use are the highest emitters of carbon in Nigeria, followed by the energy sector.⁴⁶ During this period, emissions from energy increased from 142,674 Gg CO₂-eq (31% of national emissions) in 2000 to 245,918 Gg CO₂-eq (36% of national emissions) in 2017, totalling an increase by 72%. Activities within the energy sector responsible for the high emission levels are energy production, processing for converting primary fuels into secondary fuels, transportation and storage as well as end products utilization.⁴⁷ Other related activities include extraction, refining, transportation and storage of primary and secondary hydrocarbons.

Likewise, global CO₂ emissions from energy combustion and industrial processes rebounded in 2021 to reach their highest ever annual level.⁴⁸ Fossil fuels have also proven to be exhaustible in the nearest future mainly due to increasing production and declining discoveries. The world's oil reserves are being depleted three times as fast as they are being discovered.⁴⁹ The oil currently being produced from past discoveries and reserves are being fully replaced, so future supply may be inefficient to meet global demands for energy.

With the above in mind, the Nigeria's ETP asks two major questions: what is required for Nigeria to achieve Net Zero by 2050 and; what would be a realistic timeline that balances emission reductions with economic development imperatives? In answering these questions, The ETP document considers two scenarios namely: i) business as usual (BAU) and ii) energy transition scenario. In the BAU scenario, the GHG emissions is projected to be as high as 322 Mt CO₂e if the country continues on its current pathway without decarbonisation effort for macroeconomic development. Assuming that the energy and industrial sector of the country are going to continue to contribute 65% of the total GHG emission for the country by the year 2030 as it did in the year 2020, it means that the country will be generating GHG emission in the region of 450 to 500 Mt CO₂e by 2030.

To reduce emission levels, net zero focuses on new technologies that will scale up emission reduction across sectors, particularly 5 million new solar connections, the creation of up to 840,000 jobs with the boost of electric vehicles and off-grid solar power.⁵⁰ GHG emission from buildings will estimatedly decrease by 98% by 2050 by shifting to electric and biogas-based cooking. This target is considered attainable by slowly replacing firewood stoves with less emitting technologies such as LPG, efficient firewood, electric and biogas cook stoves. In the oil and gas sector, emission reduction by 87% by the year 2050 will be primarily driven by the reduction in the global demand for fossil fuels which will consequently affect operations and production in the sector. In the transportation sector, uptake of electric

⁴⁶ NATIONAL GHG INVENTORY REPORT (2021) <https://unfccc.int/sites/default/files/resource/NIGERIA%20NIR1%20-%20First%20National%20GHG%20Inventory%20Report%20.pdf>

⁴⁷ NATIONAL GHG INVENTORY REPORT (2021) Section 4.1

⁴⁸ International Energy Agency (IEA), Global Energy Review: CO₂ Emissions in 2021. Accessible at <https://iea.blob.core.windows.net/assets/c3086240-732b-4f6a-89d7-db01be018f5e/GlobalEnergyReviewCO2Emissionsin2021.pdf>

⁴⁹ John Vidal; THE END OF OIL IS CLOSER THAN YOU THINK. Publication of THE GUARDIAN of Thursday 21 Apr 2005. Available at <https://www.theguardian.com/science/2005/apr/21/oilandpetrol.news#:~:text=According%20to%20a%20report%20on,are%20not%20being%20fully%20replaced.>

⁵⁰ Mckinsey &Company, Nigeria Energy Transition Plan, *UN Climate Change Conference UK 2021* (October 2021): 9

vehicles (EVs) in passenger car segment will lead to emission reduction by 97%. In the power sector, 116% increase by 2030 is projected by as gas use increases due to higher electricity demand, but post-2030, solar energy source increase which will start to replace gas, thus leading to 100% emission reduction by 2050.

■ Transition to Cleaner Sources of Energy: Why Now?

Africa has been a minor contributor to global greenhouse gas emissions, with the continent accounting for less than 3% of the world's energy-related carbon emissions to date and has the lowest emissions per capita of any region.⁵¹ As of 2015, Nigeria was the seventeenth largest emitter of greenhouse gases globally due to CO₂ and methane emissions – gas venting and gas flaring – from oil and gas operations⁵² which takes place predominantly in the Niger Delta region of Nigeria. By 2017 alone, GHG emissions accounts for about 68 percent of the total emissions.⁵³ As of 2019, Nigeria's GHG emission was estimated to be 354.33 million tonnes of CO₂ equivalent representing 0.71% of global emissions.⁵⁴ 60% of direct CO₂ emissions are from transportation, mostly powered by hydrocarbon based fuels⁵⁵ while the industrial and electricity sectors are responsible for 13.5% and 1.7% of Nigeria's CO₂ emissions.⁵⁶ The ever-increasing carbon footprints between 2015 to 2019 make a compelling case for decarbonizing the environment through an urgent shift to cleaner energy sources.

Hydrocarbons are major contributors and drivers of air and water pollution. Year 2019 saw 6.7 million deaths globally due to air pollution - a number that could be reduced by shifting to a cleaner energy.⁵⁷ Phasing out fossil fuels would therefore improve air quality and water quality, with enormous benefits to human health. Determined to achieve net zero and reverse the ugly impacts of high carbon emissions in Nigeria, specific legislation on climate change—Climate Change Act—has been enacted,⁵⁸ laying the legal foundation for actualizing the country's commitment to Paris Agreement, Nationally Determined Contributions (NDCs), Kyoto Protocol, the United Nations Framework Convention on Climate Change (UNFCCC) actualizing its commitment to Paris Agreement, Nationally Determined Contributions (NDCs), Kyoto Protocol, the United Nations Framework Convention on Climate Change (UNFCCC).

⁵¹ IEA, Africa Energy Outlook 2022, Key findings, <https://www.iea.org/reports/africa-energy-outlook-2022/key-findings>

⁵² Ashurst, Oil and Gas Update 02 Mar 2022, Nigeria's Energy Transition; Accessed via <https://www.ashurst.com/en/news-and-insights/legal-updates/nigerias-energy-transition/>

⁵³ NATIONAL GHG INVENTORY REPORT (2021) Section 4.1


⁵⁴ https://www.climatewatchdata.org/countries/NGA?end_year=2019&start_year=1990

⁵⁵ CLIMATE TRANSPARENCY REPORT, NIGERIA'S CLIMATE ACTION AND RESPONSES TO THE COVID-19 CRISIS. Accessible at <https://www.climate-transparency.org/wp-content/uploads/2021/01/Nigeria-CT-2020.pdf>

⁵⁶ OECD, Taxing Energy Use for Sustainable Development Accessible at <https://www.oecd.org/tax/tax-policy/taxing-energy-use-nigeria.pdf>

⁵⁷ LIISA ÖUNMAA: What are the socio-economic impacts of an energy transition? United Nations Development Programme (UNDP) Eurasia. <https://www.undp.org/eurasia/blog/what-are-socio-economic-impacts-energy-transition>

⁵⁸ President Muhammadu Buhari signed the Climate Change Act 2021 into law on the 18th of November 2021



Climate change is another major reason why ejecting carbon dioxide or its equivalent from the atmosphere is necessary. Despite being the lowest emitter of CO₂, Africa is disproportionately impacted by climate change. In the Sahel region, recent studies have shown that Lake Chad has reduced in size by over 90 percent since the 1960s. The drying up of the Chad Basins due to the warmer temperatures are negatively affecting about 30 million people in Cameroon, Chad, Niger, and Nigeria who are dependent on the lake for agriculture, fishing, and livestock production.⁵⁹ Consequently, conflict between herders and farmers became common as livelihoods were lost. Families who relied on the lake started migrating to other areas in search of water.

■ Nigeria's Vulnerability to Climate Change

Nigeria's vulnerability to climate change has increased over the years, with significant variations witnessed across geographical lines. The southern part of the country is experiencing intense rainfalls, heavy flooding, depreciating coastal lines due to rising sea levels while drought and desertification is prevalent in the northern part of the country. 2021 projections by the Nigeria Hydrological Services Limited⁶⁰ predict that coastal States, including Delta, Lagos, and Bayelsa are expected to experience coastal flooding due to rise in sea level and tidal surge, which could impact fishing, habitation and coastal transportation.

As of 2022, projections showed that 233 Local Government Areas (LGAs) in 32 states of the federation and the FCT fall within the Highly Probable Flood Risks Areas (HPFRA), while 212 LGAs in 35 States of the Federation including Federal Capital Territory (FCT) fall within the Moderately Probable Flood Risks Areas (MPFRA).⁶¹ This is a remarkable rise from 2021 projections where 121 LGAs in 28 States and FCT fall within the highly probable flood risk areas, while 302 LGAs in the 35 States of the Federation including the FCT fall within the moderately probable flood risk areas, and the remaining 351 LGAs falling within the low probable flood risks areas. These intense rainfalls are typically accompanied by heavy fatalities. Between July and October 2012, the National Emergency Management Agency (NEMA) reported that the heavy rains killed 363 people within that period.⁶² Authorities described it as the worst flooding in over 40 years. Continuous heavy rainfall in most parts of South-West Nigeria over a 48-hour period, which claimed lives and destroyed properties between July 9-10, 2022⁶³. In Lagos, Nigeria's most populous city, sea level rise and ocean surge have continued to increase problems of flooding and intrusion of sea water into

⁵⁹Leon Usigbe, African Renewal, Drying Lake Chad Basin gives rise to crisis (2019); Accessed via <https://www.un.org/africarenewal/magazine/december-2019-march-2020/drying-lake-chad-basin-gives-rise-crisis>

⁶⁰NIHSA: 2021 Annual Flood Outlook (May 2021). <https://nihsa.gov.ng/wp-content/uploads/2021/05/2021-AFO.pdf>

⁶¹NIHSA PREDICTS 223 LOCAL GOVERNMENT AREAS (LGAs) IN 32 STATES OF THE FEDERATION AND FCT HIGHLY PROBABLE FLOOD RISK AREAS – Engr. Suleiman H. Adamu, FNSE, FAEng. (May 13, 2022) NIHSA. <https://nihsa.gov.ng/2022/05/13/nihsa-predicts-223-local-government-areas-lgas-in-32-states-of-the-federation-and-fct-highly-probable-flood-risk-areas-engr-suleiman-h-adamu-fnse-faeng/>

⁶²BBC News: Nigeria floods displace two million; kill 363, (Reported Nov 6, 2012). <https://www.bbc.com/news/world-africa-20221451>

⁶³NAN: Lagos flood claims 7 lives – NEMA (July 2022) Business Day. <https://businessday.ng/news/article/lagos-flood-claims-7-lives-nema/>

freshwater sources and ecosystems, thereby heightening the social conflict already prevalent in this area.⁶⁴

In the north, desertification is accompanied by the drying up of the Lake Chad, and other lakes, rising heat and less rain, with loss of the wetlands, and fast reduction in the amount of surface water, flora and fauna resources on land. Eleven (11) out of the thirty-six (36) states of the country fall within the desert prone zones. These are: Adamawa, Borno, Bauchi, Gombe, Jigawa, Kano, Katsina, Kebbi, Sokoto, Yobe and Zamfara. These states have an estimated population of about 43 million people⁶⁵ and occupy about 397,222 Square Kilometre of land.⁶⁶ The incessant farmers/herders conflict in Nigeria is also a direct consequence of the drastic reduction in the size of arable land needed by farmers and herders for cultivation and grazing respectively. Consequently, long-drawn-out ethnic tensions and mass murders characterize the recurrent conflicts between migrating herders and indigenous farming communities in various parts of Nigeria.⁶⁷

In 2009, a study warned that climate change could contribute to increasing resource shortages in the country due to land scarcity from desertification, water shortages, and mounting crop failures.⁶⁸ Corroborating this finding, another report finds that Nigeria's climate is likely to see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century. It was predicted that poor adaptive responses to these shifts could help fuel violent conflict in some areas of the country.⁶⁹ No one listened and as predicted, the poor responses to these climatic shifts have created shortages of resources such as land and water. Shortages are followed by negative secondary impacts, such as more sickness, hunger, and joblessness. Poor responses to these, in turn, opened the door to conflict.⁷⁰ Ample evidence supports these findings. For instance, members of the Maitatsine sect in northern Nigeria –which is some kind of a "forerunner" to Boko Haram⁷¹ --included many victims of ecological disasters leaving them in "a chaotic state of absolute poverty and social dislocation in search of food, water, shelter, jobs, and means of livelihood."⁷² The disparate impacts of climate in the southern and northern parts of the country suggest that the northern, drier regions are more vulnerable than the southern, wetter, coastal zone as a

⁶⁴ Fashae, Olutoyin Adeola; Onafeso, Olumide David; Impact of climate change on sea level rise in Lagos, Nigeria, Accessed via <https://agris.fao.org/agris-search/search.do?recordID=US201400107023>

⁶⁵ Relying on the 2004 Census figures.

⁶⁶ Drought Conditions and Management Strategies in Nigeria.

https://www.ais.unwater.org/ais/pluginfile.php/629/mod_page/content/6/Nigeria_EN.pdf

⁶⁷*C.K Ajaero et al (2015) The Drought - Migration Nexus: Implications for Socio-Ecological Conflicts in

Nigeria. Mediterranean Journal of Social Sciences MCSER Publishing, Rome -Italy Vol 6 No 2 S1


⁶⁸ Nafeez Ahmed; Behind the rise of Boko Haram - ecological disaster, oil crisis, spy games. Guardian publication of 9th May 2014. Accessible at <https://www.theguardian.com/environment/earth-insight/2014/may/09/behind-rise-nigeria-boko-haram-climate-disaster-peak-oil-depletion>

⁶⁹Aaron Sayne, Climate Change Adaptation and Conflict in Nigeria. Accessible at http://www.usip.org/sites/default/files/Climate_Change_Nigeria.pdf

⁷⁰ Ibid 192

⁷¹ Ibid 191

⁷² Ibid 191



result of higher levels of poverty, child dependence burden, low health status, and low levels of educational attainment which impose limits on adaptive capacity.⁷³

■ Legal Impetus for Energy Transition in Nigeria

The plethora of policy and legislative responses in Nigeria predate the recent official commitments to net-zero by 2060. These responses are particularly indicative of the country's longstanding determination to decelerate the pace of climate change and its impacts. Among several others, the following frameworks provide the legal impetus for reducing the country's carbon footprint and achieving a sustainable climate-resilient development.

National Energy Policy: The National Energy Policy was first approved in 2003 and reviewed in 2013. To translate policy commitments into action, the Energy Commission of Nigeria drafted the National Energy Master plan in 2014,⁷⁴ which recognizes oil as a non-renewable resource oil that will continue to play a major role in the national economy, through the expansion of reserves base by means of continuous and intensive exploration activities; conservation of oil resources; wider distribution of oil products to all parts of the country to ensure access to commercial energy for socio-economic activities among others.⁷⁵

Similarly, the Master Plan recognizes the immense benefits that Nigeria stands to gain from the development of natural gas resources and recommends a wide range of activities and programmes to encourage the utilization of natural gas in all sectors of the national economy and for export. It further recommends the accelerated completion of all ongoing gas utilization projects and commencement of proposed ones; and review of existing urban and regional planning regulations with a view towards incorporating gas transmission, distribution and utilization infrastructure etc.⁷⁶ Shale hydrocarbon is also recognized as a potential contributor to Nigeria's energy mix. The Master Plan recommends further research and feasibility studies on the potentials of shale oil and gas; developing and enacting laws to regulate its exploration; and ensuring continuous environmental impact audit of all shale oil and gas projects.⁷⁷

Nigeria's Nationally Determined Contribution (NDC): Nigeria originally developed its NDC in 2015 towards the ratification of the Paris Agreement on Climate Change. Nigeria's NDC⁷⁸ is a statement of its global commitment towards embracing sustainable development measures that limit the rate of global warming and negative impacts of climate change.

⁷³ Ignatius A. Madu (2012); Spatial Vulnerability of Rural Households to Climate Change in Nigeria: Implications for Internal Security

⁷⁴ The Nigerian Energy Masterplan can be accessed at https://rise.esmap.org/data/files/library/nigeria/Clean%20Cooking/Supporting%20Documentation/Nigeria_National%20Energy%20Master%20Plan%20Draft.pdf

⁷⁵ Ibid 26

⁷⁶ Ibid 26

⁷⁷ Ibid 26

⁷⁸ Nigeria submitted its NDC to the Conference of the Parties (COP) to the UNFCCC on the 28th November 2015. See also INDCs as communicated by Parties. Accessed at <https://www4.unfccc.int/sites/submissions/INDC/Submission%20Pages/submissions.aspx>

Nigeria's NDC pledged 45% emission reduction by 2030, and activities to achieve the 45% are centered on renewable energy development and forest improvement. In particular, the NDC targets a significant reduction in gas flaring by 2030, off-grid power generation of 13,000MW from solar energy, introduction of efficient gas-powered generators, 2% per year increase in energy efficiency (30% by 2030), transport shifts from car to bus etc. The costs of actualizing the climate targets and measures set out in the NDC is an estimated \$142b with an estimated National Benefits of \$304b.⁷⁹ These targets are ostensibly ambitious, especially when compared to the pledges by other countries like the EU and its member states which committed to a domestic reduction of 40% by 2030,⁸⁰ the United States' 26%-28% below its 2005 level in 2025,⁸¹ Canada's 30% reduction below 2005 levels by 2030.⁸²

When Nigeria submitted its updated NDC in July 2, 2021, she proposed to mitigate four greenhouse gases (GHG), namely, carbon dioxide (CO₂), Methane (CH₄), nitrous oxide (N₂O) and hydrofluorocarbons (HFCs). The Government has also put together an action plan to reduce Short Lived Climate Pollutants (SLCPs). The major SLCPs are Methane, Tropospheric Ozone, Black Carbon and Hydro fluorocarbons (HFCs). They are the major contributors to global warming after long-lived greenhouse gases, specifically carbon dioxide (CO₂). They are dangerous air pollutants, responsible for various negative impacts on human health, agriculture and ecosystems.

National Climate Change Policy for Nigeria 2021 – 2030: With the vision of achieving a low-carbon, climate-resilient Nigeria, this policy prescribes sectoral and cross-sectoral strategic policy statements and actions for the management of climate change within the country's pursuit for climate resilient sustainable development. Unlike other national policies with a gender-neutral outlook, the National Policy on Climate Change is particularly unique given its commitment to gender-responsive sustainable socio-economic development. It is expected that the application of strategies such as developing an effective climate change communication and information management system that facilitates all stakeholders' access to climate information and mainstreaming gender, children and youth, and other vulnerable groups into all climate change interventions will lead to reduced vulnerability to climate change impacts across all sectors, improved social, cultural, economic and ecological resilience and increased awareness of climate change impacts and adaptation and mitigation measures.


National Energy Transition Plan: McKinsey had supported Nigeria in the development of an Energy Transition Plan (ETP) to define a pathway to Net Zero, with a goal of lifting 100

⁷⁹ World Bank report "Low Carbon Development Opportunities for Nigeria".

⁸⁰ Intended Nationally Determined Contribution of the EU and its Member States (2015). Available at <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20Kingdom%20of%20Great%20Britain%20and%20Northern%20Ireland%20First/LV-03-06-EU%20INDC.pdf>

⁸¹ Intended nationally determined contribution of the United State of America. Available at <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf>

⁸² Canada's 2017 Nationally Determined Contribution Submission to the United Nations Framework Convention on Climate Change. Available at <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Canada%20First/Canada%20First%20NDC-Revised%20submission%202017-05-11.pdf>



million people out of poverty and driving economic growth by bringing modern energy services to the full population and managing the long term job loss in the oil sector that will result from global decarbonization.⁸³ The ETP aims to create 840,000 jobs when Nigeria fully goes green.⁸⁴ Nigeria is the only African country with a robust ETP.

Nigeria has identified natural gas as a transition fuel for achieving net zero in 2060. Determined to translate policy into action, the Ajaokuta-Kaduna-Kano (AKK) pipeline was commissioned in July 2020. The project forms phase one of the Trans-Nigeria Gas Pipeline, which is expected to transport 3,500 million metric standard cubic feet per day of dehydrated wet gas from several gas-gathering projects in the southern part of Nigeria. Upon completion, the AKK project would create a steady gas supply network that reduces the large volume of gas flared annually in Nigeria, along with the resultant environmental impacts.⁸⁵

Climate Change Act 2021: The Climate Change Act provides for a further ambitious framework for mainstreaming climate actions in line with national development priorities and sets a net-zero target for 2050-2070. It provides a legal framework for the attainment of low carbon emissions, promotion of inclusive green growth and sustainable economic development by ensuring that Nigeria develops climate change mitigation and adaptation strategies; ensure the close-out of climate change action and incorporates it into national development priorities. The Act also aims to mobilize finance and other resources necessary to ensure that climate change policies and actions are integrated with other related policies and set a target for the year 2050 – 2070 for the attainment of net-zero emission. The Act codifies national climate actions by mandating the Ministry of Environment to set, among other things: a carbon budget, keeping average increase in global temperature within 2°C and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. It further approves of formulation of a National Climate Change Action Plan in every five-year cycle to ensure that the national emission profile is consistent with the carbon budget goals and prescribes measures for identifying actions for climate adaptation and mitigation.⁸⁶

Associated Gas Re-Injection Act of 1979: This law makes gas flaring illegal and imposes a pre-determined and prorated penalty for gas flaring. It also makes gas flaring only permissible with the approval of the Minister of Petroleum.⁸⁷ 2018 Gas flaring regulations—**Flare Gas (Prevention of Waste and Pollution) Regulation**—made pursuant to Section 5 of the Associated Gas Re-Injection Act of 1979 and Section 9 of the Petroleum Act, seeks to

⁸³The unveiling of Nigeria's Energy Transition Plan at COP26 (Nov 29, 2021) Rural Electrification Agency.

<https://rea.gov.ng/the-unveiling-of-nigerias-energy-transition-plan-at-cop26/>

⁸⁴Terkula Igidi: Nigeria's Transition to Green Energy will create 840,000 Jobs -Ikeazor (March 2022) AllAfrica.

<https://allafrica.com/stories/202203090252.html>

⁸⁵ Ibid

⁸⁶ IUCN (2021) A Review of Nigeria's 2021 Climate Change Act: Potential for Increased Climate Litigation.

Accessible at <https://www.iucn.org/news/commission-environmental-economic-and-social-policy/202203/a-review-nigerias-2021-climate-change-act-potential-increased-climate-litigation#:~:text=The%20Act%20codifies%20national%20climate,C%20above%20pre%20industrial%20levels.>

⁸⁷ Section 2 & 3 of the Associated Gas Re-Injection Act.

reduce the environmental and social impacts of gas flaring, protect the environment, prevent waste of natural resources and create social and economic benefits from gas flare capture.⁸⁸

The National Forest Policy: The National Forest Policy is another important policy response aimed at supporting national climate change mitigation and adaptation response efforts. With the intention of using the forests as a veritable carbon sink for climate change mitigation, this policy aims to promote sustainable forest management practices with a view towards meeting the national target of growing Nigeria's total forest cover from 10 to 25 per cent by 2020.⁸⁹ Other policies of interest to climate change include the National Policy on Drought and Desertification and the National Erosion and Flood Control Policy. Among other things, the National Environmental (Desertification Control and Drought Mitigation) Regulations of 2011⁹⁰ provides a regulatory framework for the sustainable use of all areas already affected by desertification and the protection of vulnerable land; sensitizing the public on the causes and dangers associated with desertification and the attendant land degradation; encourage reforestation, reseedling, afforestation and conservation of areas under desertification or vulnerable to same for the rehabilitation of degraded lands.

The Environmental Impact Assessment (EIA) Act: This Act (formerly Environmental Impact Assessment (EIA) decree No 86 of 1992) makes it compulsory to conduct an environmental impact assessment (EIA) for any major project that may adversely affect the environment.⁹¹ The EIA assess the likely or potential environmental impacts of proposed activities, including their direct or indirect, cumulative, short term and long-term effects, and to identify the measures available to mitigate any adverse environmental impacts. The law empowers the federal and states' environmental protection agencies to enforce the provisions of the law.⁹² In addition, Nigeria has many laws and regulatory measures to promote sustainable environmental management in many sectors of the economy. Some of these laws that may have influence on national climate change responses include:

- i. National Park Service Act - for conservation and protection of natural resources (wildlife and plants) in national parks;
- ii. Endangered Species (Control of International Trade and Traffic) Act – for the conservation of wild life and protection of threatened and endangered species).
- iii. Exclusive Economic Zone Act - Makes it illegal to explore or exploit natural resources within the Exclusive zone without lawful authority.
- iv. Nuclear Safety and Radiation Protection Act - Concerned with the regulation of the use of radioactive substances and equipment emitting and generating ionizing radiation.⁹³

⁸⁸ Paragraph 1 of the Flare Gas (Prevention of Waste and Pollution) Regulation, 2018.

⁸⁹ Premium Times: Climate action under the Buhari administration, By Sharon O. Ikeazor: Reported on April 11, 2022.

<https://www.premiumtimesng.com/opinion/523237-climate-action-under-the-buhari-administration-by-sharon-o-ikeazor.html>

⁹⁰ Available at <https://gazettes.africa/archive/ng/2011/ng-government-gazette-dated-2011-05-03-no-40.pdf>

⁹¹ Peter. C, Impacts and Management of Oil Spill Pollution Along the Nigerian Coastal Areas p16.

⁹² It should be noted the environment is on the concurrent list under the Constitution of the Federal republic of Nigeria, 199 a amended

⁹³ Prof. Ojonigu Friday Ati et al ; Global Climate Change Policies and Politics: Nigeria's Response. FUDMA Journal of Politics and International Affairs (FUJOPIA)



Conclusion

According to the United Nation's (UN's) Intergovernmental Panel on Climate Change (IPCC)⁹⁴, the world must transition to a "net zero" global economy in which almost all energy – not just electricity – comes from non-carbon-polluting sources to keep the Paris temperature targets in play.⁹⁵ The clamour for energy transition therefore means that as countries respond to climate change, carbon emissions will be an increasingly important consideration in the selection of resources to meet the demand for transportation, heating, cooling, lighting, and other needs.⁹⁶ As these response to climate change evolve, expanded attention is given to inequity in climate vulnerability and responses, the role of power and participation in processes of implementation, unequal and differential impacts and climate justice.⁹⁷

Fossil fuel-based energy sources, especially hydrocarbons, are the most utilized resources for the production of energy worldwide, accounting for over 80% of the energy consumption on the planet.⁹⁸ Countries recognized that in order to significantly reduce the risks and impacts of climate change, they must hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.⁹⁹ These commitments have informed the plethora of policy responses to climate change.

Two important revelations emerge when Nigeria's vulnerability to climate change is juxtaposed with the array of policy responses. The first is that collaborations are necessary to enthrone change to a new energy order. Collaborations between government, investors, communities, civil society and the private sector are necessary to accelerate technology development and encourage public support with appropriate framework to intentionally grow the off-grid power and renewables industry taking advantage of foreign financial support and technology transfer. It further encompasses the identification of risks and vulnerabilities, while putting measures in place to ensure that private and public entities abide by stated climate change strategies, targets, and the National Action Plan.¹⁰⁰

⁹⁴ Intergovernmental Panel on Climate Change (IPCC) was created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks. IPCC issues the most authoritative assessments of the state of global warming

⁹⁵ France24, Emissions must peak before 2025 for 'liveable future', UN report says(2022)

<https://www.france24.com/en/environment/20220404-emissions-must-peak-before-2025-for-liveable-future-un-report-says>

⁹⁶ Ibid 90

⁹⁷ IPCC, Technical Summary, Climate Change 2022: Impacts, Adaptation and Vulnerability, IPCC Sixth Assessment Report (2022) at page 41; Accessed via https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_TechnicalSummary.pdf

⁹⁸ ENI, Sustainable use of resources. Accessible at https://www.eniscuola.net/wp-content/uploads/2013/07/pdf_energy_knowledge_31.pdf

⁹⁹ The Economist, What's in the Paris agreement on climate change? (OCT 29TH 2021), Accessed via https://www.economist.com/interactive/paris-climate-agreement-annotated/?fsrc=core-app-economist&gclid=CjwKCAjw6fyXBhBgEiwAhhiZsozLYgPuHZ85-F47w8Q8oWCPONG4qaRcUZIUgDpy-DbAmCOJgS98VxoCV6UQAvD_BwE&gclsrc=aw.ds

¹⁰⁰ KPMG, Climate Change Act 2021: Sectorial Imperative. Accessible at

<https://home.kpmg/content/dam/kpmg/ng/pdf/the-climate-change-act-2022.pdf>

Secondly, Nigeria's energy transition agenda rests on resource mobilization and economic justice for all through job creation and the eradication of energy poverty. If the litany of strategies encoded in numerous policy and legal frameworks are delivered upon, they will certainly bring about improvements in standards of living, promote clean energy access and food and water security for all and make the country more resilient to climate impacts, as well as increase national capacities to contribute to the goal of keeping the global temperature increase well below 20C.¹⁰¹The next critical step for the country is how to translate these sound policy commitments into measurable actions and concrete benefits to citizens.

¹⁰¹ National Climate Change Policy for Nigeria 2021 – 2030 @ page 11



CHAPTER 3

GAS AS A TRANSITION FUEL IN NIGERIA

Amid growing demand for energy for its rapidly increasing population, Nigeria moves towards increasing investments in energy development in ways that cause minimal harm to the local environment. This chapter examines the motivations and ideological undercurrents for embracing gas as a transition fuel in Nigeria, weighing the pros and cons of using natural gas to achieve national emission reduction commitments.

Although natural gas and crude oil are regarded as mixtures of different hydrocarbons,¹⁰² the Nigerian government intends to use gas as a transition fuel to aid the process of global push for energy transition away from hydrocarbons.¹⁰³ Natural gas emits between 45% and 55% lower greenhouse gas emissions than coal when used to generate electricity.¹⁰⁴ Having approximately half the CO₂ polluting element compared to other fossil fuels,¹⁰⁵ natural gas has been considered as a transition fuel that will be used until renewable energy sources attain technological viability to produce secure and sustained energy.¹⁰⁶

Natural gas is the cleanest-burning hydrocarbon,¹⁰⁷ producing around half the carbon dioxide (CO₂) and just one tenth of the air pollutants of coal when burnt to generate electricity. According to the Center for Liquefied Natural Gas, natural gas produces less greenhouse gases than its counterparts. For example, when natural gas is burned, it produces 45 percent less carbon dioxide than coal, 30 percent less than oil and 15 percent less than wood.¹⁰⁸ Energy density of liquefied natural gas (LNG) is 2.4 times greater than that of compressed natural gas (CNG) or 60 % compared to diesel fuel.¹⁰⁹ During combustion, natural gas produces heat, water vapor and carbon dioxide. As such, gas is cleaner than other hydrocarbons, available, and has many qualities that make it an efficient, relatively clean burning, and economical energy source, with the capability to reduce the economic losses caused by environmental pollution from coal and petroleum. It has also been described as the cleanest fossil fuel—and is considered by many to be a key ingredient as the world transitions to a cleaner future.

¹⁰² EIA, Hydrocarbon gas liquids explained. Accessible at <https://www.eia.gov/energyexplained/hydrocarbon-gas-liquids/>

¹⁰³ Okechukwu Nnodim, We'll use Nigeria's vast gas resources as transition fuel – NNPC. Punch Newspaper publication accessible at <https://punchng.com/well-use-nigerias-vast-gas-resources-as-transition-fuel-nnpc/>

¹⁰⁴ Shell: Natural Gas: Providing More and Cleaner Energy. <https://www.shell.com/energy-and-innovation/natural-gas/providing-more-and-cleaner-energy.html>

¹⁰⁵ Stephenson E, Doukas A, Shaw K. "Greenwashing gas: might a 'transition fuel' label legitimize carbon-intensive natural gas development? *Energy Pol* 2012;46: 452–9. <https://doi.org/10.1016/j.enpol.2012.04.010>.

¹⁰⁶ C. Gürsan *, V. de Gooyert (2021), The systemic impact of a transition fuel: Does natural gas help or hinder the energy transition? *Institute for Management Research, Radboud University, Houtlaan 4, 6525 XZ, Nijmegen, the Netherlands, Renewable and Sustainable Energy Reviews* 138 (2021) 110552

¹⁰⁷ Natural Gas And Its Advantages (July 2022) Shell. <https://www.shell.com/energy-and-innovation/natural-gas/natural-gas-and-its-advantages.html>

¹⁰⁸ Energy Matters by Enbridge <https://www.enbridge.com/energy-matters/energy-school/natgas-enviro-friendly> accessed on 27/07/21

¹⁰⁹ (12) (PDF) Introduction, Advantages and Chemistry of Liquefied Natural Gas. Available from: https://www.researchgate.net/publication/332258623_Introduction_Advantages_and_Chemistry_of_Liquefied_Natural_Gas [accessed Jul 13 2021].



■ Why gas as a transition fuel?

Nigeria's 4,000mw daily power generating capacity is unable to meet the energy demands of over 200 million citizens, resulting in about 92 million persons either facing acute shortages, or without access to electricity at all.¹¹⁰ The perennial power problem has stifled the country's industrial growth, limiting commercial ventures' expansion and business profitability. Accordingly, Nigeria's energy transition commitments are conditioned upon ending energy poverty and achieving electricity access for all citizens by the year 2030. Simply put, "any plan to decarbonise Nigeria without first giving the whole nation electricity access would be unjust and unacceptable."¹¹¹

Looking for ways to achieve its electricity access expansion objectives as well as quicker energy transition, Nigeria joined the league of African nations—like Senegal and Ghana—that have also adopted natural gas as a transition fuel. Rejecting "proscriptive one-size-fits-all solutions," African countries have indicated preference for using fossil fuels to accelerate development, build national infrastructures and develop their local economies. This position re-echoes the sentiments expressed in the African Common Position on Energy Access and Just Transition which declares that natural gas, green and low carbon hydrogen and nuclear energy will therefore be expected to play a crucial role in expanding modern energy access in the short to medium term while enhancing the uptake of renewables in the long term for low carbon and climate-resilient trajectory.¹¹²

Recognizing the central role of gas in achieving its long-term energy security objectives, Nigeria's Mckinsey-developed Energy Transition Plan (ETP) unveiled in 2022 projects that with a strong gas uptake, about 80% of vehicles will be powered by compressed natural gas (CNG) and more than 50% of the population will use LPG for cooking by 2050. Nigeria accounts for about 3% of the world's total natural gas reserves of 6,923 tcf¹¹³ and is also the world's fifth-largest exporter of liquefied natural gas (LNG) as of 2018.¹¹⁴ From the foregoing, there are five major reasons why Nigeria embraced natural gas as a transition fuel in its net-zero pathway:

¹¹⁰ International Energy Agency, Tracking SDG 7, Energy Progress Report 2022, <https://www.iea.org/reports/tracking-sdg7-the-energy-progress-report-2022>

¹¹¹ Tofe Ayeni, the Africa Report, Nigeria's Energy Transition Plan needs \$410bn by 2060 to be successful (2022) <https://www.theafricareport.com/235586/nigerias-energy-transition-plan-needs-410bn-by-2060-to-be-successful/>

¹¹² African Union, PRESS RELEASES: Africa Speaks with Unified Voice as AU Executive Council Adopts African Common Position on Energy Access and Just Energy Transition (July 2022) Accessed via <https://au.int/en/pressreleases/20220722/africa-speaks-unified-voice-au-executive-council-adopts-african-common#:~:text=The%20African%20Common%20Position%20encourages,the%20ambitions%20of%20Agenda%202063.>

¹¹³ <https://www.worldometers.info/gas/nigeria-natural-gas/>

¹¹⁴ BP 2019 Statistical Review of World Energy, June 2019.

1. **Availability:** Firstly, natural gas is available, and an easy-to-store and lower-carbon-energy fuel option. These characteristics position natural gas as a reliable, affordable energy source that can enable innovation. International Energy Agency (IEA) estimates there are enough recoverable natural gas resources to last around 230 years.¹¹⁵ Natural gas deposits are found around the world, making it easier for extraction and supply, potentially keeping prices low as long as the adequate infrastructure is present.¹¹⁶ Nigeria is the holder of the largest natural gas reserves on the continent¹¹⁷ and accounts for about 3% of the world's total natural gas reserves of 6,923 tcf.¹¹⁸ If all the natural gas reserves are consumed domestically, there is an assurance that the country should be able to survive on natural gas as its energy fuel for the next 200 years at the least. Its abundance and the availability of technology for immediate deployment makes it attractive.¹¹⁹
2. **Flexibility:** A gas-fired power station takes much less time to start and stop, than a coal-fired plant. This flexibility makes natural gas an effective substitute for other energy sources. The environmental value of natural gas stems from the fact that it is a clean energy substitute for coal and petroleum. Coal and petroleum production, transportation and usage cause serious environmental pollution, and result in tremendous direct and indirect external economic losses.
3. **Bridging ingredient in the hydrogen revolution:** Natural gas acts as a bridging ingredient in the hydrogen revolution because of its central role in the scaling up (production and transportation) of hydrogen. While the long-term plan is to phase out natural gas, it will continue to play a role in hydrogen production in the short and medium term, in combination with accelerated deployment of CCUS until hydrogen produced from renewables or nuclear is economically viable as a fuel. Ultimately, natural gas can contribute to climate targets, and serves as a bridge to overcoming technology gaps.¹²⁰

¹¹⁵ Siddharth Singh(2015), How long will fossil fuels last? BUSINESS STANDARD publication of September 23, 2015. Accessible at https://www.business-standard.com/article/punditry/how-long-will-fossil-fuels-last-115092201397_1.html


¹¹⁶ Energy Tracker Asia, What Are the Advantages and Disadvantages of Natural Gas? <https://energytracker.asia/advantages-and-disadvantages-of-natural-gas/>

¹¹⁷ OPEC Annual Statistical Bulletin 2020.

¹¹⁸ <https://www.worldometers.info/gas/nigeria-natural-gas/>

¹¹⁹ EIA, Natural gas explained. Accessible at <https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php>

¹²⁰ IEF (2021), 4 Reasons Natural Gas Is a Critical Part of the Energy Transition. <https://www.ief.org/news/4-reasons-natural-gas-is-a-critical-part-of-the-energy-transition>

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4. **Complementarity:** A combination of renewables and other cleaner fuels like natural gas can help in fast-tracking the energy transition on a continent heavily reliant on traditional biomass, coal and oil. This sort of combination makes natural gas a key tool in the fight against energy poverty in the continent.¹²¹ In the short- to medium-term, new natural gas developments in conjunction with renewables and carbon capture, utilization, and storage (CCUS) can complement the decarbonisation process of the energy sector. It will also help to address the problem of how to cope with the hard-to-abate emissions from heavy industry, notably steel, cement and petrochemicals.
 5. **Ease of transportation:** Finally, natural gas is easily transportable to longer distances. When natural gas is cooled to $-161.5\text{ }^{\circ}\text{C}$, it becomes a liquid (LNG), filling only 1/600th of its original volume. As a gas or as LNG, it can power electrical grids, heating systems, home cooking appliances, and some vehicles. This makes natural gas easier to store and transport long distances. Natural gas supply chains are well established, with supply routes by sea and land serving several major hubs. The Nigerian Gas Master Plan¹²² conceives the delivery of gas to high-value export markets and in industrial applications in the following ways:
 - i. **Gas to Power-** Natural gas was to be deployed for power generation, with an immediate objective of attaining at least a five-fold increase in generation capacity from about 3GW to 15GW by 2018;¹²³
 - ii. **Gas-based Industrialization** – Positioning the country as the African regional hub for gas-based industries; i.e Industries such as fertilizer, petrochemicals, methane, CNG etc that use natural gas as feedstock, in addition to the environmental benefit, will displace PMS as the preferred fuel for transportation, reducing the nation’s spending on petroleum subsidy whilst improving the net disposable income of transport owners;¹²⁴

¹²¹ African Business Forum; Natural gas: Africa’s energy transition accelerator; UN Economic Commission for Africa. https://www.uneca.org/sites/default/files/keymessageanddocuments/technical_background_paper-phasing_out_coal_and_the_role_of_the_natural_gas.pdf

¹²² Accessible at <https://aldg.org.ng/wp-content/uploads/2021/05/NIGERIA-GAS-MASTER-PLAN.pdf>

¹²³ Though, the target was not achieved, but gas has become the major energy source for Nigeria, replacing hydro-sources.

¹²⁴ According to the Nigerian Electricity Regulatory Commission (NERC), The generation sub-sector presently includes 23 grid-connected generating plants in operation with a total installed capacity of 10,396 MW (available capacity of 6,056 MW) with thermal based generation having an installed capacity of 8,457.6MW (available capacity of 4,996 MW) and hydropower having 1,938.4 MW of total installed capacity with an available capacity of 1,060 MW. This comprises of the privatized GenCos, Independent Power Producers (IPPs) and the generating stations under the National Integrated Power Project (NIPP). See <https://nerc.gov.ng/index.php/home/nesi/403-generation>. This constitute an increment in power generation capacity in the country since the National Gas Road Map was made into a policy.

- iii. **High-value Export** – In addition to investing in high-value export through LNG and regional gas pipelines, the country plans to protect about 10% of global market share of traded LNG and also leverage its natural gas for regional economic influence. Matching intentions with action, the country has built more than 70 percent of all gas distribution systems, and is currently executing half of the Ajaokuta-Kaduna-Kano Pipeline measuring 40 inches by 614 km.

Conclusion: Pros and Cons of Gas as a Transition Fuel

Gas as a transition fuel obviously offers several advantages to Nigeria, prompting a constant comparison between renewable and non-renewable energy sources. Whether natural gas has more advantages over other renewable energy sources, and vice versa, has been a subject of intense academic and policy debates. Both sides of the debate contain some merit. Studies suggest that renewable wind and solar technologies provide intermittent energy¹²⁵ and are dependent on the unpredictable natural sources. For instance, solar panels can only generate electricity when exposed to an adequate amount of sun and the level of solar ray required may not be guaranteed in some environments. This makes this energy source somewhat unreliable, and not always commercially, technologically, or environmentally viable.¹²⁶ Though this problem has been addressed by storing energy in carriers such as rechargeable batteries and electricity grid innovations, it is argued that natural gas offers a stable alternative that can provide uninterrupted and flexible energy supply while renewable energy storage technologies are scaled up and innovative new energy pathways are being explored.


RE technology also requires huge start-up capital and expert knowledge compared to other conventional energy alternatives, a situation compounded by investors facing problems of restricted access to capital in the absence of specialized funds for investment.¹²⁷ Likewise, the use of natural gas as an energy source requires massive infrastructure investments mainly consisting of pipelines, fuel processing facilities, and storage. These infrastructures enable natural gas to be processed into gaseous forms that are easily transportable such as LNG. In recent times, Nigeria has scaled up investments in the gas development infrastructure especially for power generation, fertilizer production, iron and steel plants among other industries, with the consequence that domestic gas utilization has significantly increased. The power sector is currently the largest single consumer of natural gas accounting for about 70% of the gas consumed domestically by privately and publicly owned power plants.¹²⁸

¹²⁵ Ahmed NA, Cameron M. The challenges and possible solutions of horizontal axis wind turbines as a clean energy solution for the future. *Renew Sustain Energy Rev* 2014;38:439–60. <https://doi.org/10.1016/j.rser.2014.06.004>.

¹²⁶ Ibid 169

¹²⁷ Gbadebo C. A. et al (2020) Exploring the potentials, barriers and option for support in the Nigeria renewable energy industry. Accessible at <https://link.springer.com/article/10.1007/s43621-020-00008-5>

¹²⁸ Ukpohor, Excel Theophilus O., NIGERIAN GAS MASTER PLAN: STRENGTHENING THE NIGERIA GAS INFRASTRUCTURE BLUEPRINT AS A BASE FOR EXPANDING REGIONAL GAS MARKET



With official adoption of gas as the transition fuel, Nigeria leans towards heavy reliance on a single source for power generation. High dependence on a single power source can endanger the supply security of the country, necessitating the diversification of the energy generation mix by increasing the share of renewables.¹²⁹ Violent conflicts and disruptions that have frequently erupted in communities hosting gas projects can trigger major supply disruptions which can affect the energy security and stability. For instance, mounting insecurity accompanies the high level of restiveness and hostilities between corporations and their host communities in the Niger Delta region. These frequent incidents, rooted in unequal access to the opportunities and benefits of natural gas resources, often end in violent confrontations, shutdowns, picketing, kidnaps and militancy.

Finally, Nigeria's ETP projects the year 2030 as the medium-term target for the country to achieve net zero, followed by full realization pathway by 2050. To achieve Net Zero by 2050 (that is, to be aligned on 1.5°C pathway), Nigeria wants to transit to full electrification of the economy by 2050, with 250 GW of installed electricity generation capacity, comprising 90% of generating capacity from renewable sources, electric vehicles making up 80% of fleet, and clean cooking for more than 80% of the population. Within Nigeria's thermal power in 2020, 97.6% is attributable to gas-fired generation, while oil and coal-fired represent 2.2% and 0.2% respectively.¹³⁰ This means that natural gas already dominates Nigeria's energy mix, and therefore, embracing it as a transition fuel adds nothing new to its energy transition agenda. In essence, recent climate commitments favoring gas-based power generation merely imply a transition from natural gas to more natural gas.

It can however be deduced that energy transition is widely perceived as requiring a gradual process and not a spontaneous shift. That will mean taking gradual steps to strengthen national capacities to adapt to and mitigate climate change and involve all sectors of society, including the poor as well as other vulnerable groups (women, youth etc.) within the overall context of advancing sustainable socio-economic development. Graduality also signifies that aligning transition plans and climate target-setting to the socio-economic realities and configurations in the country is imperative.¹³¹

¹²⁹ ESI AFRICA, *ibid.*

¹³⁰ ESI AFRICA, Gas-fired thermal generation dominates Nigeria energy mix, RE makes little impact (2021) <https://www.esi-africa.com/industry-sectors/generation/gas-fired-thermal-generation-dominates-nigeria-energy-mix-re-makes-little-impact/#:~:text=Within%20Nigeria's%20thermal%20power%20in,in%20Nigeria%20is%20gas%2Dfired.>


¹³¹ IRENA (2018) *Global energy transformation: A roadmap to 2050*. International Renewable Energy Agency, Abu Dhabi. 1–76. ISBN 978-92-9260-059-4.



CHAPTER 4

BUSINESS PERSPECTIVES ON ENERGY TRANSITION IN NIGERIA

Activities within the energy sector contribute significantly to the country's high emission levels. To align their business operations with Nigeria's net zero commitments, diverse businesses in Nigeria, particularly oil and gas corporations, have made public pledges that key into the national emission reduction strategies. These corporations whose oil wells, pipelines, flowstations, flowlines, gas plants etc., are situated mainly in the Niger Delta region of Nigeria aspire to become net-zero emissions energy businesses by the stipulated deadline. The communities in the Niger Delta region have borne the brunt of the environmental devastation, health harms and massive human rights abuses associated with energy production in Nigeria. To what extent do oil and gas corporations prioritise communities in their energy transition agendas?



Crude oil and natural gas from the Niger Delta region account for about 90 percent of total exports and national oil revenues.¹³² Rivers State's oil production of 21.43% (about 344,000 BPD) and Bayelsa States' 18.07% (290,000 BPD) make them two of the largest oil-producing states in Nigeria.¹³³ Imo State contributes 1.06 % (17,000 BPD).¹³⁴ Assa community in Imo State is the host community of OML 53 and major flow stations of oil companies. In particular, the Assa North and Ohaji South (ANOH) gas development project in Imo State is set to be one of the largest greenfield gas condensate development projects in Nigeria to date, with the expectation that future gas production from the project will supply the domestic market.

Energy production activities detailed above have been accompanied by massive environmental damage in the form of oil spills, gas flaring, youth restiveness, gas leaks and fires, equipment failures, pipeline vandalization, and sabotage. Oil spills destroy agricultural land and aquatic lives while reducing the nutrient value of the soil— things that support livelihood for farmers and fishermen. Loss of the mainstay of the local economy often precipitates other psychological and social problems including displacements from ancestral homes, familiar surroundings, religious and other cultural artefacts.¹³⁵ Gas flares also diminish agricultural productivity, with evidence showing that crops planted about 200 metres from flare sites lose 100 percent of their yield.¹³⁶

Carbon emissions from exploration, mining and all related activities supporting the extraction processes are among the highest contributors to Nigeria's carbon footprints. Other significant contributors are emissions from flaring, cracking of crude oil into component fractions and any fuel combustion to support these activities. According to national statistics,¹³⁷ the main contributor in the oil industry was production and upgrading with 60460 Gg CO₂- which represented 92.98% of this activity while flaring and venting emitted respectively 6.7% and 0.05%. On a GHG basis, CH₄ topped the emissions with 95.06% followed by CO₂ with almost all the remaining 4.93% and N₂O with 0.02%. The high emission levels from the energy sector lays the foundation for understanding the perspectives of businesses on energy transition, and the plans in place to restore or placate communities impacted by decades of fossil fuel extraction.

■ SHELL PETROLEUM DEVELOPMENT COMPANY (SPDC)

SPDC's strategy document, released in 2021, expressed support for energy transition and commits to becoming a net-zero energy business by 2050.¹³⁸ SPDC's target is to become a net-zero emissions energy business by 2050, in step with society's

¹³² Organization of the Petroleum Exporting Countries: https://www.opec.org/opec_web/en/about_us/167.htm

¹³³ Udemé Akpan, Vangaurd, Bayelsa woos oil, gas, other investors, April 23, 2019, <https://www.vanguardngr.com/2019/04/bayelsa-woos-oil-gas-other-investors/>

¹³⁴ Nigerian Bureau of Statistics 2017

¹³⁵ Peter C. Nwilo et al; Oil Spill Problems and Management in the Niger Delta; Article in International Oil Spill Conference Proceedings · May 2005. Accessed on 25/06/22 at https://www.researchgate.net/publication/273866088_Oil_Spill_Problems_and_Management_in_the_Niger_Delta

¹³⁶ Baasey Enya Ndem (Ph.D) Et Al; Effect Of Niger Delta Crisis on Crude Oil Production In Nigeria; European Journal of Accounting, Finance And Investment Vol. 5, No. 9; September-2019; Issn (3466 – 7037); P –Issn 4242 – 405x Impact Factor: 4.17

¹³⁷ First National Inventory Report (NIR1) of the Federal Republic of Nigeria Page 59 <https://unfccc.int/sites/default/files/resource/NIGERIA%20NIR1%20-%20First%20National%20GHG%20Inventory%20Report%20.pdf>

progress in achieving the goal of the UN Paris Agreement on climate change. With this target, SPDC intends to contribute to a net-zero world, where society stops adding to the total amount of greenhouse gases (GHGs) in the atmosphere. “Becoming a net-zero emissions energy business means that we are reducing emissions from our operations, and from the fuels and other energy products we sell to our customers. It also means capturing and storing any remaining emissions using technology or balancing them with offsets.”¹³⁹

On its path to energy transition, it launched the Powering Progress Strategy, which entails collaborating with governments to accelerate the company's transition to net-zero emissions, including targets to reduce the carbon intensity of energy products sold by 6-8% by 2023, 20% by 2030, 45% by 2035, and 100% by 2050.¹⁴⁰ Partnerships with companies such as Microsoft, Rolls Royce and Clean Skies for Tomorrow have been established to help reduce their carbon footprints, establish engines that run on 100% sustainable aviation fuel and establish means to accelerate the transition to climate neutrality.¹⁴¹

Also, SPDC’s 2021 Powering Progress Strategy has four main goals. One of these goals seeks to support livelihoods, communities, and an inclusive society in light of the energy transition, promising to continue to partner with communities, provide jobs, and encourage local businesses to be part of their supply chain, promote entrepreneurship, and offer skills training in communities of operation. Other provisions include managing and enlightening communities close to its operations about the impact of oil activities.¹⁴²

■ TOTAL ENERGIES

Total transformed into TotalEnergies in 2021 in demonstration of its resolve to be an energy company committed to the production and provision of clean and affordable energy.¹⁴³ TotalEnergies targets to reduce emissions by 40% before 2030 and then to have net-zero emissions from all operations by 2050, in line with the Paris Agreement. The company has also announced its plans to establish major wind and solar power developments within the next five years.¹⁴⁴ In order to meet its aim of achieving net-carbon neutrality by 2050, TotalEnergies has established a Corporate Social Responsibility (CSR) that is based on four pillars: climate and sustainable energy, people’s well-being, care for the environment and

¹³⁸ SHELL ENERGY TRANSITION STRATEGY, Shell BVCX <https://www.shell.com/energy-and-innovation/the-energy-future/shell-energy-transition-strategy.html> (accessed 8 September, 2022)

¹³⁹ SPDC’s replies to S4C request for information


¹⁴⁰ Royal Dutch Shell Plc, SHELL ENERGY TRANSITION 2021, [2021]:4

¹⁴¹ Ibid.,14

¹⁴² Ibid.26

¹⁴³ Total is transforming and becoming TotalEnergies, *TotalEnergies*, Total is Transforming and Becoming TotalEnergies <https://totalenergies.com/media/news/press-releases/total-transforming-and-becoming-totalenergies> (accessed 8 September,2022)

¹⁴⁴ GlobalData Energy, TotalSE transitions to TotalEnergies, an all-encompassing energy company, <https://www.offshore-technology.com/comment/total-se-totalenergies-company/> (accessed 8 September, 2022)



creating value for society.¹⁴⁵ In the process of creating value for society, the company aims to be a driver of positive change in communities through the provision of economic opportunities while also getting involved in host regions through the TotalEnergies Foundation.

■ CHEVRON

Chevron has been vocal about its support for energy transition and the need for a lower-carbon energy future. In its 2021 Corporate Responsibility Report, Chevron announced that its operations will now focus on methane, flaring and energy management. To back up this resolve, the company claims it is gradually eliminating the use of natural gas as inert flare purge gas in its Escravos Gas-to-Liquid (EGTL) project operations; it has also increased focus on identifying and addressing hydrocarbon leaks using the leak detection and repair (LDAR). Determined to achieve 95 percent reduction in gas flaring, previously flared gas will be gathered for commercialization purposes in communities. The Niger Delta Partnership initiative (NDPI), created to address socioeconomic challenges in the region, was stated as one of the initiatives set up by Chevron to enable a peaceful environment characterized by growth and human capacity building initiatives in communities.¹⁴⁶

■ EXXONMOBIL, OANDO, ENI¹⁴⁷ AND CONOIL

On the 18th of January 2022, ExxonMobil announced its ambition to play a lead role in the energy transition process, highlighting its actions carried out to reduce greenhouse gases. The actions include investing in lower-emission technologies—more than \$15 billion by 2027—and supporting customers to reduce their greenhouse gas emissions.¹⁴⁸ On the other hand, Oando has established Oando Energy Resources and its subsidiary, Oando Clean Energy. Oando Clean Energy has been created with the mission to meet Africa’s energy demand through sustainable energy resources and the vision of becoming Africa’s largest integrated green energy company.¹⁴⁹

ENI’s goal is to offer decarbonized products and services to its customers in order to guarantee access to efficient and sustainable energy by achieving the goal of net zero emissions by 2050. By this approach, the company intends to share social and economic benefits with workers, communities and customers in an inclusive and socially equitable manner.¹⁵⁰ Unlike Exxon Mobil and Oando whose energy transition plans do not make any

¹⁴⁵ TotalEnergies <https://totalenergies.com/sustainability/our-approach> (accessed 8 September, 2022)

¹⁴⁶ Chevron Nigeria restates commitment to nation’s zero emission goal, *Environews* <https://www.environewsnigeria.com/chevron-nigeria-restates-commitment-to-nations-zero-emission-goal/> (accessed 8 September, 2022)

¹⁴⁷ Eni S.p.A. is an Italian multinational energy company headquartered in Rome

¹⁴⁸ ExxonMobil announces ambition for net zero greenhouse gas emissions by 2050, *ExxonMobil* <https://corporate.exxonmobil.com/News/Newsroom/News-releases/2022/0118-ExxonMobil-announces-ambition-for-net-zero-greenhouse-gas-emissions-by-2050> (accessed 9 September,

¹⁴⁹ Eyo Nsima, Energy Transition: How gas will play a key role in Africa — Oando, *The Daily*, <https://www.thedaily-ng.com/how-gas-will-play-a-key-role-in-africa-oando/> (accessed 14 September, 2022)

¹⁵⁰ ENI FOR 2021, A JUST TRANSITION, Eni, <https://www.eni.com/assets/documents/eng/just-transition/2021/eni-for-2021-just-transition-eng.pdf> (accessed 14 September, 2022)

reference to communities, ENI proposes to respect the environment while carrying out its activities. In addition, it seeks to better understand and manage the impacts on rights, focusing on vulnerable groups, and promoting innovation. ConOil's position on energy transition is not publicly available.

■ NIGERIAN NATIONAL PETROLEUM CORPORATION LTD (NNPC) & NIGERIA LNG LIMITED (NLNG)

Keying into the federal government's agenda to address energy poverty situation and improve livelihoods, while also improving the well-being of the people, the NNPC has taken a firm position on the transition to renewable energy, focused on deepening natural gas utilization.¹⁵¹ It has established a Renewable Energy Division, following its transition to a limited liability company in July 2022. On the other part, NLNG is already carrying out studies on carbon capture, usage and hydrogen electrification. The company is already playing a lead role in the gas utilization and commercialization chain and has been transporting over 5400 cargoes of liquefied natural gas (LNG) since 2001.¹⁵² Like Chevron, NLNG targets the elimination of dirty fuels and the reduction of flares. Its expansion programme, the Train 7 project, is expected to create over 12,000 new jobs, increase the supply of liquefied natural gas and promote sustainable development.¹⁵³

Fully embracing Nigeria's energy transition plan, NLNG wants to be a globally competitive energy company whose projects can provide employment and skill acquisition opportunities to Bonny Island inhabitants in the Niger Delta while also providing food, supplies, and economic benefits to local communities. Of particular significance is the plan to use the Train 7 project to address the environmental issues in affected communities¹⁵⁴ as a result of oil operations while also increasing liquefied natural gas emissions.

■ SHALLOW COMMITMENTS TO COMMUNITIES PREVAIL


CSRs or handouts? Oil and gas corporations have unveiled energy transition agendas that make veiled reference to communities, but a deep scanning reveals shallow commitments that require little, if any, deviation from current corporate behavior and practices. While business perspectives on energy transition make bold promises of emission reduction, accompanied by ambitious blueprints for achieving them, the tradition of relegating communities to mere spectators and beneficiaries of social programmes has been staunchly retained. For instance, corporations like SPDC, Chevron, TotalEnergies and NLNG have retained the same asymmetrical arrangements of the fossil-fuel era for delivering social goods and services to communities commonly packaged as Corporate Social Responsibility (CSR). In short, CSR

¹⁵¹ Kyari: NNPC positioned to lead Africa in energy transition, *TheCable* <https://www.thecable.ng/kyari-nnpc-positioned-to-lead-africa-in-energy-transition> (accessed 8 September, 2022)

¹⁵² Ediri Ejoh, Energy Transition: LNG delivers 5400 cargoes in 21 years, *Vanguard*, <https://www.vanguardngr.com/2022/09/energy-transition-lng-delivers-5400-cargoes-in-21yrs/> (accessed 13 September, 2022)

¹⁵³ NLNG Train 7: The Future is Gas, *NigeriaLNG* <https://www.nigeriaLNG.com/Train7-Project/Pages/Background.aspx> (accessed 14 September, 2022)

¹⁵⁴ ENVIRONMENTAL, SOCIAL AND HEALTH IMPACT ASSESSMENT (ESHIA) FOR THE TRAIN 7 PROJECT, *Final NLNG Train 7 Project Environmental, Social and Health Impact Assessment*, 1(2019):1-26



initiatives represent the philanthropic contributions of extractive corporations to the communities where they operate. In the Niger Delta region of Nigeria, these philanthropic commitments are usually codified into poorly negotiated contracts called “general memorandum of understanding” (GMOU) executed between corporations and communities.

As one study established, communities neither make any inputs into the drafting of the GMOUs nor receive expert guidance to negotiate better deals and benefits.¹⁵⁵ Not only that, GMOUs are largely uncoordinated, and are neither monitored by state departments nor independent third parties for implementation and verification. As part of the necessary ingredients of a just transition, there is need for enforceable legal standards prescribing the modalities and the precise oil company contributions to community development, which empowers communities to hold multi-nationals accountable for non-adherence to negotiated agreements. It also represents a departure from the current practice of giving communities handouts in the name of CSR.¹⁵⁶

Absence of meaningful community participation: Another evidence of relegation can be deduced from community exclusion in the collaborative arrangements for sharing economic risks and rewards in a green economy. SPDC favors a just transition that rides on extensive collaboration between governments, investors, non-governmental organisations, industrial emitters and oil and gas companies, to help unlock financing, accelerate technology development and encourage public support, with appropriate framework to intentionally grow the off-grid power and renewables industry taking advantage of foreign financial support and technology transfer.¹⁵⁷ Though communities were excluded from the company’s preferred list of collaborators, SPDC however promises *to continue to partner with communities, provide jobs, and encourage local businesses to be part of their supply chain*. This language is consistent with the corporations’ longstanding perception of communities, not as participants that can exert influence on energy resource management, but as passive beneficiaries of development initiatives.

Environmental accountability lags behind: The uniform silence of businesses on environmental restoration, clean up and remediation is deafening. In Nigeria's Niger Delta, gas flares are killing crops, polluting water and damaging human health, ¹⁵⁸ occasioning harms to the local environment and massive poverty in the region. Chevron and NLNG’s energy transition agendas appear solidly committed to ending routine gas flaring but silent on how they intend to reverse and repair the environmental damage caused by decades of gas flaring, the resulting poverty and massive harms to human health foisted on local communities. Widespread poverty in the resource-rich locales have driven large swathes of local populations into the artisanal refining trade. Increasing popularity of this trade rolls back Nigeria’s efforts to transition to net-zero emissions. Interviews with oil-rich

¹⁵⁵ Victoria Ibezim-Ohaeri, Osahon Nosayame et al; (Ibid)

¹⁵⁶ Focus group discussion with Eleme community leaders

¹⁵⁷ SPDC response to S4C information requests dated 8 February 2022

¹⁵⁸ DW, Gas flaring continues scorching Niger Delta (published 14/11/2018), <https://www.dw.com/en/gas-flaring-continues-scorching-niger-delta/a-46088235#:~:text=In%20Nigeria's%20Niger%20Delta%2C%20gas,Ebedei%2C%20in%20Nigeria's%20Niger%20Delta>.

communities in Imo, Rivers and Bayelsa reveal that environmental injustices endured by host and impacted communities of extractive activities must be resolved first before major shifts away from oil are implemented.

One thing is clear, the missing elements of meaningful community participation and environmental accountability regurgitate the flaws associated with fossil fuel economies into the plans for a low-carbon future. As with the national energy transition plans, corporate sector-led transition proposals ostensibly pay lip service towards communities. It is evident that these plans were characteristically developed in formal spaces that traditionally exclude local voices and community participation. Official communication and engagement strategies to advance a just transition have therefore, been elitist - formulated and propagated by various elite groups in the government and corporate circles - with little scope for integrating the priorities of communities whose livelihoods are dependent and intertwined with the extraction and production of fossil fuels.



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CHAPTER 5

TRANSITION TO NEW ECONOMIES FOR EXTRACTIVE COMMUNITIES

With the adoption of gas as a transition fuel, including the long-term energy production proposals that are heavily anchored on the use of natural gas, how much have gas-rich communities like Assa, Ohaji/Egbema LGA contributed to Nigeria's national transition plan (NTP)? Are host communities like Assa even aware of the NTP? What are the guarantees that these plans will work for them? Should energy transitions succeed, what alternatives are placed before communities? Put differently, what are the ways energy transition can be more beneficial to local communities? What are the opportunities and mechanisms for including local communities (where oil and gas have been exploited for decades) in this new conversation so that they can also benefit from the new green economy?

■ Artisanal Refining in Nigeria

Artisanal refining—popularly known as **kpo-fire**—refers to the illegal diversion and processing of crude oil. Leveraging their proximity and access to the crude oil pipelines that crisscrossed or crisscrossing the entire oil-rich Niger Delta region of Nigeria, illegal operators navigate through the maze of creeks, rivers and mangroves to siphon crude oil from pipelines that had been punctured with a hacksaw or other sophisticated fracturing equipment.

When punctured, they apply indigenous technology, beginning with attaching plastic hoses to wellheads or manifold points to divert the oil directly into barges, ships or canoes,¹⁵⁹ from where they are transported to the refining points located in bushes, forests and local villages.

The stolen crude is either refined locally or sold internationally. For local refining, crude siphoned from punctured pipes is channeled into tanks where it undergoes subsistent distillation by boiling and then cooling, collecting and condensing it in tanks. Local refiners make use of buckets, drums, pots and pipes. Crude oil is fed into the drums through the openings constructed at the top while by-products are disposed into a hole through a pipe protruding at the bottom. A burner placed under large metal drums heats/boils the crude oil. The vapor is then cooled and condensed, with diverse petroleum products emerging at different stages like petrol, kerosene and diesel, to be used locally for lighting, energy or transport. The end-products are funneled into containers for transport and sale.¹⁶⁰ The refined products are sold locally. On the other hand, large volumes of stolen crude are often sold internationally. International sales involve the unauthorized transfer of stolen oil from broken pipes in the creeks into vessels that offload them into large tankers or mother ships in the high seas. License holders lift the excess crude oil and falsify bill of lading records to cover up the actual quantity of oil being shipped out of the country.¹⁶¹

Artisanal refining is a highly dangerous process because the extracts are highly flammable. Within minutes of a trigger, the fire can leave a large number of charred bodies, burnt vehicles and wildfires. Early days of artisanal refining can be traced to the height of militancy when militants operating in the Niger Delta's riverine communities needed fuel for their boats and to raise funds for their activities. They resorted to this method of refining to meet their own energy needs while the surpluses were supplied to the local market. It was then called "Asari fuel", named after Alhaji Mujahid Asari Dokubo, the leader of a major armed group demanding resource control, called the Niger Delta Peoples Volunteer Force [NDPVF].

■ The Spread of Illegal Oil Refining Across Niger Delta Communities

What started as oil theft by militant groups to provide energy and security for their militancy operations have gradually blossomed into a lucrative industry for self-enrichment and the procurement of weapons, leading to the escalation of bunkering and local refining across the region.¹⁶² Interviews with residents of communities¹⁶³ where artisanal operations take place


¹⁵⁹ Ibid 136

¹⁶⁰ Emodi, Okereke, Diemuodeke: Three things that can go wrong at an illegal oil refinery in Nigeria. The Conversation (2022) <https://theconversation.com/three-things-that-can-go-wrong-at-an-illegal-oil-refinery-in-nigeria-182459#:~:text=The%20illegal%20refinery%20process%20involves,refineries%20killed%20about%20100%20people.>

¹⁶¹ Ibid 135

¹⁶² Ikelegbe Augustine, (2005) The Economy of Conflict in the Oil Rich Niger Delta Region of Nigeria, Nordic Journal of African Studies 14(2): 208–234.

¹⁶³ Interviews with community and women leaders in Bolo, Rivers State and Otuasega, Bayelsa State, August 28, 2022



and across borders. The trade is popularly justified by the widespread disgust for the activities of multinationals and the strong consensus among communities that natural resource benefits rarely trickle down to the communities that bear the consequences of oil extraction.¹⁶⁴

Quick financial returns and economic benefits associated with the trade have attracted the entry of diverse participants ranging from local youths, community leaders, security agents, oil company executives,¹⁶⁵ regulators, top politicians, women, retired military officers, including an array of international players that buy off the stolen crude and facilitate smuggling operations on the high seas. These players include the nationals of countries in Eastern Europe, Russia, Australia, Lebanon, Netherlands, France, Senegal, etc.¹⁶⁶ This illegal market continues to expand amid growing concerns regarding the tacit connivance of oil company executives and military chiefs in oil theft. On the one hand, oil company employees orchestrate damage to oil pipelines—by recruiting local youth to sabotage the pipelines—with a view to profiting from the money spent on clean-up operations.¹⁶⁷ On the other hand, military officials turn a blind eye to illegal activity and protect oil thieves’ access to extraction points from rivals – in exchange for financial bribes.¹⁶⁸

Widespread poverty and unemployment are the major drivers of kpo-fire business in Niger Delta communities, with the illegal trade creating massive employment opportunities for local youth. Locals who own refining sites build the “pot” for boiling the oil, and each pot can produce between 50 to 80 drums of petroleum products.¹⁶⁹ Site owners become employers of labour and “even graduates become managers at the artisanal refining sites”, a community leader told Spaces for Change.¹⁷⁰ The huge number of local youths engaged in this trade raises grave fears that the annihilation of the business would push the youth further into crime, creating an opportunity for a full-blown security crisis in the region. For this reason, artisanal refining has been linked to the low crime rates in the region as well as the significant reduction of militancy activities.

There is evidence of increasing involvement of women in the kpo-fire business. In local parlance, the refining sites are called ‘dump’.¹⁷¹ Women are particularly involved in cooking and selling food at the dump while some others sell sachet (alcoholic) drinks to the operators. Because food prices cost twice higher at the dump, women also benefit from the economic gains of the trade. In addition to partaking in menial jobs at the dump, women also

¹⁶⁴Gideon Fakamogbon: Nigeria’s Illegal Oil Refineries: What to Know About How They’re Harming People & Planet (July 2022) *Global Citizen*. <https://www.globalcitizen.org/en/content/illegal-oil-refineries-nigeria-health-environment/>

¹⁶⁵ Bart H. Meijer, Anthony Deutsch (Reuters) Nigerian Shell employees orchestrated oil spills for own profit-Dutch TV (DECEMBER 10, 2020) accessed via <https://www.reuters.com/article/shell-nigeria-spills-idINL8N2IP4F7>

¹⁶⁶ Maclean Monam Goodnews & Steve .A. Wordu (PhD) (2019); Analysis of Trend and Emergent Factors of Artisanal Refining In the Niger Delta Region of Nigeria, *International Journal of Innovative Human Ecology & Nature Studies* 7(1):43-55, Jan.-Mar., 2019 SEAHI PUBLICATIONS, 2019 www.seahipaj.org ISSN: 2467-849X

¹⁶⁷ Bart H. Meijer, Anthony Deutsch (Reuters) Nigerian Shell employees orchestrated oil spills for own profit-Dutch TV (DECEMBER 10, 2020) accessed via <https://www.reuters.com/article/shell-nigeria-spills-idINL8N2IP4F7>

¹⁶⁸ Transparency International, MILITARY INVOLVEMENT IN OIL THEFT IN THE NIGER DELTA (2019) https://ti-defence.org/wp-content/uploads/2019/05/Military-Involvement-Oil-Theft-Niger-Delta_WEB.pdf

¹⁶⁹ Interview with an artisanal refiner, Bayelsa State.

¹⁷⁰ Interview with community chief, Bolo, Rivers State

¹⁷¹ Interview with an artisanal refiner, Bayelsa State

buy and sell the illegal refined products while others transport the products to local markets.¹⁷² Affirming women's involvement in this trade, a local resident disclosed: *"My wife lives in Port Harcourt in the house I built with money from artisanal refining and she is also into buying the product from the Bonny area and selling in Port Harcourt."*

Not only that, the scarcity of commonly used petroleum products like kerosene (for cooking) have paved the way for artisanal refiners to bridge the supply gap with their own locally refined products. Currently, kpo-fire kerosene is predominantly used, and dominates the market share of petroleum products in the riverine communities. Access to cheap kerosene adds to the list of reasons artisanal refining enjoys the support of local women.

■ Impacts of Artisanal Refining in Niger Delta

Outbreak of the black soot: The black soot is the most recent epidemic associated with crude oil refining in the oil-rich Niger Delta region of Nigeria. Soot is black particulate matter made up of carbon resulting from the incomplete combustion of fossil fuels allegedly caused by illegal crude oil operations.¹⁷³ Independent investigations¹⁷⁴ show that the rising soot problem is caused by illegal refining of fossil fuel through crude methods, which affects both soil and air quality negatively. The effects of the soot on human health can also cause DNA mutation in the skin leading to the development of skin cancers like squamous cell carcinoma, pigmented spots on the skin, increased skin wrinkles, and extrinsic skin ageing. Studies conducted in Rivers State not only found that long-time exposure to soot can cause pneumonias, but also, the air pollution in Rivers State is higher than the World Health Organization's standard, accounting for the high morbidities and mortalities. The research further revealed that cerebrospinal meningitis (CSM), chronic bronchitis, pertussis, pulmonary tuberculosis, pneumonia, and hyper respiratory tract infection were the most prevalent in the area.¹⁷⁵

Revenue losses from crude oil theft: Illegal oil refining activity has caused massive revenue losses both to the corporations and the government. S4C's interviews establish that Shell and Agip flowlines are the most-fractured.¹⁷⁶ Shell Petroleum Development Company (SPDC) saw a 41% rise in the number of crude oil spills due to theft or pipeline sabotage in 2019, with 157 out of 164 SPDC spills caused by theft and sabotage.¹⁷⁷ Similarly, Nigerian Agip Oil Company (NAOC) reported an increase in number of oil theft points between 2007 and 2014, with the upsurge of artisanal refiners leading to production loss and suspension

¹⁷² Interview with community chief, Otuasega, Bayelsa State, August 29, 2020

¹⁷³ Black Soot in Rivers State: Government has failed to protect citizens: <https://republic.com.ng/news/black-soot-rivers-state/>

¹⁷⁴ Muhammed Akinyemi, HumAngle, All Die na Die: At the heart of Nigeria's soot problem (May 2022) Humangle Media <https://interactive.humanglemedia.com/hq/all-die-na-die-at-the-heart-of-nigerias-soot-problem/>

¹⁷⁵ Nwachukwu, A.N., Chukwuocha, E.O. and Igbudu, O. A survey of the effects of air pollution on diseases of the people of Rivers State, Nigeria. African Journal of Environmental Science and Technology. 6(10): 371-379. 2012.

¹⁷⁶ Interviews with community and women leaders in Bolo, Rivers State and Otuasega, Bayelsa State, August 28, 2022

¹⁷⁷ Reuters, Shell reports 41% rise in onshore Nigeria oil spills due to sabotage, March 2020, Accessed via <https://www.reuters.com/article/uk-shell-nigeria-spills-idUKKBN20Z1FG>

of all onshore production activities in the swamp area in March 21, 2013.¹⁷⁸ The Group Managing Director of the Nigerian National Petroleum Cooperation (NNPC), confirmed that the country loses an average of 200,000 barrels of crude per day to oil thieves, translating to 73 million barrels in a year.¹⁷⁹ As of March 2022, the Federal Government of Nigeria announced that the rising rate of crude oil theft in the Niger Delta cost the country revenue, as about \$3.27 billion worth of oil has been lost to vandalism in 14 months.¹⁸⁰

Environmental damage from oil spills: Artisanal refining begins with the process of rupturing oil pipelines, which often leaves spills that damage the physical environment, destroy food chains, contaminate water sources, harm aquatic animals and generally exterminate traditional livelihoods. In fact, illegal refinery activities significantly impact nature, plant regeneration, loss of natural wildlife habitats, disruption of water cycles, and loss of medicinal plant species. Apart from inherent toxicity of spilled oil in seas, enhanced toxicity has been reported due to ultraviolet (U.V) radiation. For instance, Prudhoe Bay crude oil was found to be one hundred times more toxic to shrimps and bivalve embryos after exposure to U.V light.¹⁸¹

Diseases and high mortality rates: Research has shown that communities where AR takes place are characterized by high rates of respiratory diseases such as bronchitis, acute bronchitis, and heightened asthma.¹⁹ Women are disproportionately impacted by the health harms induced by illegal refining and face higher risks of respiratory diseases such as aggravated asthma and bronchitis. In Abaezi community in Ohaji/Egbema LGA where artisanal refining claimed over 100 lives in April 2022, natives told S4C that oil vapors inhaled have caused blindness, cough, headache, infertility to some women and men in the community.¹⁸² The generated air pollutants — such as soot (which has been an ongoing problem in Nigerian cities like Port Harcourt) and smog can heighten the risk of death from stroke, heart disease, lung cancer, and respiratory illness among those exposed.¹⁸³



¹⁸² Focus group discussions in Abaezi community, 30th August 2022

¹⁸³ Gideon Fakomogbon, *Global Citizens*, Nigeria's Illegal Oil Refineries: What to Know About How They're Harming People & Planet <https://www.globalcitizen.org/en/content/illegal-oil-refineries-nigeria-health-environment/>

¹⁷⁸ Maclean Monam Goodnews & Steve .A. Wordu (PhD) (2019); *ibid* 136

¹⁷⁹ Queen Esther Iroanus (2021) What Buhari said while signing Nigeria's 2022 budget. Premium Times Newspaper published on December 31, 2021. <https://www.premiumtimesng.com/news/top-news/503336-what-buhari-said-while-signing-nigerias-2022-budget-full-text.html>

¹⁸⁰ \$3.27bn lost to oil thieves in 14 months, FG cries out; <https://www.vanguardngr.com/2022/03/3-27bn-lost-to-oil-thieves-in-14-months-fg-cries-out/#:~:text=By%20Obas%20Esiedesa%2C%20Abuja,in%20the%20past%2014%20months.>

¹⁸¹ Onwurah, I. N. E. et al (2007); Crude Oil Spills in the Environment, Effects and Some Innovative Clean-up Biotechnologies. *Int. J. Environ. Res.*, 1(4): 307-320, Autumn 2007 ISSN: 1735-6865. Accessible at <https://www.researchgate.net/publication/27794350>

Fires, explosions and deaths: Whether legally or illegally, oil refining still remains a very dangerous process because the extracts are highly flammable. An explosion at an illegal refinery in Abaezi community which straddles the border of the Ohaji-Egbema Local Government Area of Imo state with Rivers State left behind more than 100



charred bodies of men, women and children.¹⁸⁴ Over a hundred persons also sustained burns of varying degrees. This incident, described by Nigeria's president as a "national disaster" occurred 6 months after a prior explosion at another site in Rivers State claimed 25 lives, casting a further spotlight on both the human and environmental cost of illegal refineries. Incidents like the Abaezi disaster denies the country billions of dollars in oil revenue as well as damage the environment almost irreparably, prompting calls for strengthening surveillance on oil infrastructure in local communities.¹⁸⁵ Worried about the high fatalities, authorities have started a crackdown to try put a stop to illegal refining of stolen crude with about 128 of 142 illegal refining sites identified in the area destroyed.¹⁸⁶

Impact on women and children: Women selling food or doing menial jobs at the artisanal refining sites sustain injuries, including deaths whenever there is a fire outbreak or explosion at the 'dump'. Apart from the explosions and mass deaths that occur frequently at the artisanal refining sites, kerosene explosions linked to the use of locally refined petroleum products have been documented, with women and children being the worst hit.¹⁸⁷ Women also bear the brunt of domestic fires caused by the storage of locally refined products in homes. During the field visits to Otusega, Ogbia local government area (LGA) in Bayelsa State, researchers identified several women with burn injuries sustained from handling and storage of locally refined products in homes and other locations. They also observed some houses with the walls either drenched in crude oil or bearing thick oil stains, suggesting that crude oil or artisanally refined products are stored there. The storage of such product in private homes increases the susceptibility of these houses to fires and other explosions that harm women and children. The quest for cheap kerosene used for cooking particularly draws women to the artisanal refining trade and products.¹⁸⁸

¹⁸⁴ Tife Owolabi, Reuters, Blast at illegal Nigerian oil refinery kills more than 100 people, <https://www.reuters.com/world/africa/explosion-illegal-oil-refining-depot-nigeria-kills-over-100-2022-04-23/>

¹⁸⁵ Spaces for Change, Guardian, Group urges more surveillance on oil infrastructure (April 2022) <https://guardian.ng/news/group-urges-more-surveillance-on-oil-infrastructure/>

¹⁸⁶ Tife Owolabi: Nigeria goes after illegal oil refineries to curb pollution (June 2022) Reuters. <https://www.reuters.com/business/energy/nigeria-goes-after-illegal-oil-refineries-curb-pollution-2022-02-08/>

¹⁸⁷ Thisday, PUTTING AN END TO KEROSENE EXPLOSIONS, <https://www.thisdaylive.com/index.php/2020/05/08/putting-an-end-to-kerosene-explosions/>

¹⁸⁸ Interviews with women in Abaezi community, Ohaji/Egbema LGA August 30, 2022



COMMUNITY PERSPECTIVES ON ENERGY TRANSITION

■ Those in favor of energy transition

During this research, interviews were conducted in two categories of oil-rich communities: (a) communities where oil and gas extractions take place, which include communities near oil exploration and production; and (b) oil-rich locales where artisanal refining takes place. Both categories share uniform characteristics of governmental neglect and underdevelopment, except that no artisanal refining takes place in the first category. Other than that, they are both endowed with, or situated near huge oil and gas deposits, and as such, are hosts to major installations and operation sites of several multinational corporations such as Shell, Mobil, Chevron and their indigenous counterparts like Seplat. Secondly, they are heavily impacted by oil mineral extraction, particularly the degradation and pollution of the environment. The SERAC v. Nigeria decision by the African Human and Peoples' Rights Commission presents a vivid and graphic picture of age-long suffering of the people of the Niger-Delta.¹⁸⁹



¹⁸⁹ Communication 155/96 : Social and Economic Rights Action Center (SERAC) and Center for Economic and Social Rights (CESR) / Nigeria: https://www.achpr.org/public/Document/file/English/achpr30_155_96_eng.pdf

¹⁹⁰ Interview with community chief, Bolo, Rivers State



A major reason why oil mineral resource benefits rarely reach communities is because of the restrictions imposed by national land use regulations, which vest ownership of land and minerals in the state governor and the federal government respectively. The restrictions on land use and the state's grip on natural resources are codified in numerous national laws and regulations such as the 1999 Constitution of the Federal Republic of Nigeria, the Land Use Act 1978, and a host of petroleum legislations. To make matters worse, various oil blocs in the region are usually awarded to foreigners and Nigerians from other non-oil-producing regions, sparking agitations for a new oil bloc allocation that would ensure the federal character principle.¹⁹¹ Oil blocs awarded at the discretion of the president through the petroleum minister without any transparent process have mainly benefitted past public officials, particularly military generals from the northern region of the country where there is no drop of oil.¹⁹² Local discontent and anger have surged, and inform the seemingly widespread community support for a just transition. While communities deride continued oil and gas exploration, the government is singled out as the biggest beneficiary of fossil fuels. The government holds a larger share of the joint venture with nearly all the multinationals.¹⁹³

Within the civil society community in Nigeria—whether operating within or outside the extractive regions—support for energy transition often derives inspiration from the inequities and the multitude of challenges associated with oil and gas exploration in Nigeria. For this reason, civil society stakeholders often take sides with communities, deploying a variety of approaches—ranging from research, street demonstrations, litigation, policy engagements, media action etc.—to push for environmental protection, including a just transition. Civil society-led protests in the wake of the November 2021 oil spillage in Nembe (Bayelsa State)¹⁹⁴, research investigations into the sharing of costs and benefits between communities and corporations¹⁹⁵, and litigations challenging environmental damage by corporations¹⁹⁶ are examples of initiatives designed to promote and preserve the rights of local populations to a clean environment.

■ Those hesitant about energy transition

The second category of communities where illegal refining takes place have been seen to express veiled support for this money-spinning business while also criticizing the negative effects on the environment and on human health. There also seems to be a reluctant support

¹⁹¹ Premium Times, 3% of Nigeria oil blocs owned by Northerners — Senate Committee chair (March 6, 2013)

<https://www.premiumtimesng.com/news/123398-83-of-nigeria-oil-blocs-owned-by-northerners-senate-committee-chair.html>

¹⁹² Premium Times, 2013, *ibid*.


¹⁹³ Meeting with CSO leaders in Rivers State (January 25, 2022)

¹⁹⁴ ThisDayLive, Nembe Communities Protest Continuous Oil Spill, 31 Days after Blowout (December 7, 2021)

<https://www.thisdaylive.com/index.php/2021/12/07/nembe-communities-protest-continuous-oil-spill-31-days-after-blowout/>

¹⁹⁵ Victoria Ibezim-Ohaeri, Osahon Nosayame et al (*ibid*.)

¹⁹⁶ 155/96 : Social and Economic Rights Action Center (SERAC) and CESR (*ibid*)



for energy transition in this category of communities. Here, the reluctant support is conditioned on the provision of employment alternatives for local youth and other stakeholders that depend on artisanal refining for survival. There is prevalence of restiveness and criminality, especially illegal refining, in the Niger-Delta region. High levels of illiteracy combined with high unemployment rates are springboards for criminal behaviour. It is almost impossible to get employment in the nearby refineries because federal authorities conduct the recruitment in Abuja, far away from the oil extraction zones. Tons of graduates recruited every year hardly ever come from the oil -rich areas that bear the brunt of environmental degradation, water contamination, and acid rains. Because of these trends, communities feel short-changed by the oil and gas industry.

Communities have become so accustomed to government's inattention to their plight and have accordingly resorted to self-help. The feeling of entitlement is pervasive while there seems to be a lack of care for environmental damage caused by artisanal refining. According to one community leader, "*oil and gas are blessings from above. We're only taking what is on our land.*" Explaining how the decades of governmental neglect for oil-rich communities have created room for such illegalities to escalate, a community leader told SPACES FOR CHANGE that the "*government don't care for the people. This is making us to go into this business of artisanal refining.... Artisanal refining has continued because we are looking for a means of survival*". Despite significant investments in awareness creation on environmental protection and the dangers of artisanal refining, the trade has persisted because of poverty and lack of alternative means of livelihoods. According to one local source:¹⁹⁷

"The community does not support it but as individuals, we go into it because of the benefits involved. There is little that the community can do to stop the youths. What we do is to educate them. We talk to them on the dangers of the artisanal refining and the dangers that the entire community is facing like the black soot. While the community is against it, we can't stop the youths. They have to survive."

In Imo and Rivers States, youth restiveness is on the rise due to loss of farmlands and lack of employment in the extractive companies. Communities are aggrieved because they are not benefitting from their huge oil and gas deposits exploited by governments in collaboration with extractive corporations. Women are hardly considered in employment opportunities. Positions for unskilled workers, are only reserved for a few men. Corporations look for intangible excuses to disqualify skilled workers from the community. Rather, skilled workers are brought from other parts of the country.

¹⁹² Premium Times, 2013, *ibid*.

¹⁹³ Meeting with CSO leaders in Rivers State (January 25, 2022)

¹⁹⁴ ThisDayLive, Nembe Communities Protest Continuous Oil Spill, 31 Days after Blowout (December 7, 2021)

<https://www.thisdaylive.com/index.php/2021/12/07/nembe-communities-protest-continuous-oil-spill-31-days-after-blowout/>

¹⁹⁵ Victoria Ibezim-Ohaeri, Osahon Nosayame et al (*ibid*.)

¹⁹⁶ 155/96 : Social and Economic Rights Action Center (SERAC) and CESR (*ibid*)

¹⁹⁷ Interview with Bolo community leader, Rivers State, August 28, 2022

■ Local ideas on justice and a just energy transition

Ample evidence shows that it is indeed possible to reverse the growing scepticism within host communities into strong acceptance of energy transition. Discussions with representatives of oil and gas-rich communities in Imo, Rivers and Bayelsa, attest to the huge differentials in the meanings and constructs of a just transition across contexts, tribes and ethnic groups. While Bayelsa and Rivers communities want to play an active role in the future green economy, Imo communities yearn to return to their agrarian lifestyles. Overall, communities in Rivers, Bayelsa and Imo argue against continued fossil fuel production due to their longstanding deprivation from oil resource benefits. The shared disgust for the activities of multinationals and the strong consensus among communities that natural resource benefits rarely trickle down are the primary reasons behind the prevailing community support for a just transition.


A just transition for gas-rich Imo communities means leaving local farmlands in a fertile, farmable state during the post-oil era.¹⁹⁸ That way, locals can return to farming to feed their families. It is widely perceived that indigenous and multinational majors regard oil-rich communities as treasure mines where they tap mineral oil wealth and repatriate humongous profits to other jurisdictions. The least they can do to pacify aggrieved inhabitants is to restore the environment to the state it was prior to mineral extraction. Instead of postponing the fossil-end date to 2060, women in Ohaji communities wish the date can be brought closer to 2022. Locals desire a closer date for three reasons: First, they doubt whether a long lifespan up to 2060 is guaranteed in light of the massive damage to the immediate environment. Secondly, by the clock of nature, large numbers of natives may have died by 2060, leaving them out of the benefits of a low-carbon future. Thirdly, corporations would have maximally exploited the environment and possibly abandoned project sites by 2060, leaving sites largely devastated and possibly beyond repair.

For women in the gas-endowed communities, a just transition means recognizing the gender-differentiated impacts of hydrocarbons and the availability of adequate remedies for these impacts. Women bear primary responsibility for domestic chores such as fetching water, firewood, washing, cleaning, fishing and farming. Many studies have established that pollution from hydrocarbons expose women and children to greater risks of economic and health harms considering the variety of daily interactions they have with the environment.¹⁹⁹ UNEP finds that fishing activities by fishmongers, predominantly carried out by women, have essentially ceased in Ogoni areas polluted by oil. (2011:27) Women suffer an additional share of environmental and economic burdens when spillages that are not immediately cleaned up destroy homes, natural vegetation and contaminate food, fishing and water sources on which women depend for their daily sustenance. A study found that rural women coped with high fuel prices associated with fuel subsidy reforms by switching to less-clean fuels especially firewood, natural vegetation and contaminate food, fishing and water sources on which women depend for their daily sustenance. A study found that rural women coped with high fuel prices

¹⁹⁷ Interview with Bolo community leader, Rivers State, August 28, 2022

¹⁹⁸ Interview with Assa community leaders (January 24, 2022)

¹⁹⁹ National Energy Policy 2003, p.32.



associated with fuel subsidy reforms by switching to less-clean fuels especially firewood, charcoal, and sawdust.²⁰⁰ This suggests that while access to cleaner cooking fuels frees up the time women spend on drudgery and manual labour, high prices associated with renewables could force women to switch to firewood and other carbon-emitting fuels. Women's health suffers particularly from impact to smoke from woodfires. This is aggravated if the cooking takes place inside with insufficient ventilation.²⁰¹

Women in oil- and gas-rich communities further insist that a just transition program must be accompanied by sustainable alternatives to the so-called Corporate Social Responsibility (CSR) initiatives of oil and gas corporations. Last December, Shell Petroleum Development Company, one of the corporations operating in their community, shared rice to local women. Up to 10 women shared one paint (5 litres) of rice. This gives rise to the need for strong legal frameworks that obligate corporations to carry communities along or undertake meaningful consultations with communities to negotiate costs and benefits.

Women are hardly considered in employment opportunities. Positions for unskilled workers, are only reserved for a few men. Corporations look for intangible excuses to disqualify skilled workers from the community. Rather, skilled workers are brought in from Warri, Rivers and other parts of the country. Military forces are always on ground to provide additional security to oil and gas personnel. Some of the security forces have been linked to human right atrocities such as assaults, battery and grievous bodily harm. It can be deduced from the lamentations of local women that state and federal government have historically neglected their responsibility to provide social security, welfare programmes and basic amenities to rural populations. As a result, the people look to the entities that are most present within their communities, which are the oil companies.

Conclusion

Although the benefits of energy transition to cleaner fuels are well described in global energy discourse and literature, the impacts and benefits to communities in the oil and gas producing regions are yet to be captured and adequately reflected in the ensuing energy transition plans. A scanning of Nigeria's latest energy transition plan (ETP) developed by McKinsey makes no reference to communities or their situations ravaged by decades of fossil fuel extraction in these localities. There is scant evidence that communities contributed to the creation of the ETP. Likewise, other private sector-driven proposals for decarbonizing Nigeria's economy make no reference to communities at all.²⁰² They rather emphasise poverty alleviation for over a 100 million through driving economic growth, connecting the population to modern energy services, and managing the potential job losses in the oil sector.

²⁰⁰ IISD & SPACES FOR CHANGE: Gender and Fossil Fuel Subsidy Reform in Nigeria: Findings and recommendations (2020)

<https://spacesforchange.org/gender-and-fossil-fuel-subsidy-reform-in-nigeria-findings-and-recommendations-research-report/>

²⁰¹ IISD & SPACES FOR CHANGE (ibid)

²⁰² PWC, Decarbonising Nigeria's Economy,

It is safe to conclude that the perspectives and priorities of oil-rich communities and local stakeholders like women, artisanal refiners and the restive youths in the oil and gas-producing regions have never been sought, considered or integrated in national transitional plans. The non-inclusion of community perspectives and priorities in both national and corporate energy transition plans further attests to the historical and systematic contempt for communities by governments and corporations. The exclusion of local voices and real needs of the people is equally responsible for the huge disconnect between policy formulation and implementation.

Community exclusion further highlights how transition agendas are developed and framed in alignment with internationally driven norms while neglecting local realities. These methods make domestic acceptability and public support for such plans quite difficult. For energy transition to be just, it must prioritize the involvement of local communities in the green economy powered by renewable natural resources. This is one way of balancing the lopsided relations between communities and corporations and ending the notorious climate of hostilities. Local participation is also the antidote for dismantling the concentration of natural resource management in the hands of national oil companies and multinational corporations.




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CHAPTER 6

SURMOUNTING THE HURDLES

In Nigeria, the benefits of energy transition are known while the decarbonization strategies are well-articulated in a litany of policy documents. These positive strides exist side-by-side with numerous challenges slowing down the capacity of the government to match commitments with action. Fast-tracking the transition to renewable energy is realizable when the array of hurdles slowing down progress are surmounted. These hurdles are broadly categorised into five: (a) legal/structural; (b) funding gaps; (c) capacity deficits (d) attitudinal; and (e) socio-economic issues.



Legal and structural barriers hold enormous potential to roll back the progress that has been made to decarbonize the economy and expand modern energy access using renewable resources. Legal and structural barriers take the form of exclusion of certain groups—like communities—in the design of energy transition policy, centralization of natural resource governance, capacity deficits in translating sound policy into practice as well as tackling complex social policy issues. On the other hand, legal barriers comprise both policy gaps and flawed policy prescriptions that have entrenched long-standing inequalities while incapacity encompasses disruptions to national import/export capacities as well as human and technological deficits needed to enhance the uptake of renewables in the long term. Some of these challenges are discussed below:

1. LEGAL AND STRUCTURAL IMPEDIMENTS

National transition plans are silent on communities: The number one red flag on the numerous private and public proposals and initiatives to decarbonise the economy is that they make little to no reference to communities, and as such, make no provisions to cater to the needs of communities most impacted by the decades of fossil fuel exploration and use.

What birthed the militancy in the region, including the present resort to artisanal refining, is poor governance and poor responses to the environmental damage in the region by both the government and oil multinationals. The centralized management of oil wealth, combined with the widespread environmental degradation and loss of traditional livelihoods have pushed locals deeper into poverty, fuelling agitations for resource control and improved benefits. Community agitations have led to facility shutdowns and revenue losses and have frequently been repressed with force, resulting in widespread human rights abuses.

After decades of exploration and production of hydrocarbons in the region, which has sustained Nigeria's economy for too long, the region has been left in ruins, poorer, heavily polluted and politically marginalized. National transition plans and policies neither made arrangements for cleanup, remediation, compensation, rehabilitation nor for addressing the massive environmental damage that has accompanied the country's protracted dependence on fossil fuels. In the same way, corporate agendas and private sector-driven proposals towards decarbonization toe similar lines. Nigeria passed the Petroleum Industry Act (PIA) in August 2021 which created mechanism for the delivery of natural resource benefits to the host communities. The lopsided benefit-sharing mechanisms coupled with the weak legal protection for communities in the PIA are proofs that benefits of natural resources will remain skewed in favour of governments and corporations.

Gaps between policy and practice: Significant gaps exist between the climate change commitments and the policies put in place to foster energy transition in Nigeria. The Petroleum Industries Act (PIA 2021), Nigeria's comprehensive oil and gas legal regime passed into law in August 2021, is one major law that tests the government's commitment to energy transition. Nothing tests that commitment more than the PIA's provision for 30%

Frontier Exploration Fund (FEF)²⁰³ to be derived from national oil company's (NNPC's) profit from oil and gas. The national oil company is obligated to transfer the 30% of profit oil and profit gas to the FEF escrow account dedicated to fund exploration of oil and gas in the frontier basins annually and for the development of frontier acreages. Officials have justified the FEF provision this way:

The Department of Petroleum Resources (DPR) has said that Nigeria's crude oil stands at roughly 37 billion barrels in reserves in 2020. Without the discovery of fresh hydrocarbons in some parts of the country, the current 37 billion barrels in reserves will dry up in 30 years, given a projection of 2.3 million barrels per day by 2023.²⁰⁴

This (future exploration) involves seismic operations... geological analysis and to some extent, sub-exploration to convince investors that Nigeria has oil in commercial quantity in those places. The more we have oil, the better for us. In fact, the wish of the people of Niger Delta is, let oil be found in every community in Nigeria. If it is benefits that the people of Niger Delta are enjoying, let everyone enjoy it.²⁰⁵

While the plans to boost crude oil reserves and increase national oil production capacities are well-intentioned, they also expose the contradictions in the proposed transition from fossil fuels. Sinking a large chunk of oil and gas profits into the search for more fossil fuels casts a shadow of doubt on the country's commitments to increase reliance on cleaner energy fuels.²⁰⁶

Centralization of natural resource governance: The governance and management of natural resources, especially, oil mineral development, is in the exclusive grip of the central government. This stronghold is backed by numerous legislations like the Land Use Act of 1978 which vests all the land in a state in the Governor of the state,²⁰⁷ and the Petroleum Act vests the exclusive control, ownership, and management of oil and gas minerals in the Federal Government.²⁰⁸ Consequently, oil and gas sit on the exclusive legislative list of the government, which removes rulemaking regarding oil minerals from the legislative competence of state governments either by way of laws passed by the state legislature or by

²⁰³ PIA, Section 9, subsection 4,

²⁰⁴ Engineers Forum: Does Nigeria Need 30% Frontier Exploration Or Renewable Energy Fund?

<https://engineersforum.com.ng/2021/09/23/does-nigeria-need-30-frontier-exploration-or-renewable-energy-fund/>

²⁰⁵ Bakare Majeed, Premium Times, PIB: Why we recommended frontier basins exploration fund – Rep (July 3, 2021).


<https://www.premiumtimesng.com/news/more-news/471459-pib-why-we-recommended-frontier-basins-exploration-fund-rep.html>

²⁰⁶ Victoria Ibezim-Ohaeri, Premium Times, Re-PIB Passage: The Sink Hole Called Frontier Basin Development,

<https://www.premiumtimesng.com/opinion/471970-re-pib-passage-the-sink-hole-called-frontier-basin-development-by-victoria-ibezim-ohaeri.html>

²⁰⁷ The Land Use Decree (now an Act) was a Military Law promulgated to take effect from the 29th March, 1978. The Decree, now an Act of the Federal Legislature, is the national land policy on land.

²⁰⁸ Section 1 of the Act states that "the entire ownership and all petroleum in, under or upon any land in Nigeria is vested in the State" which is the Federal Government of Nigeria. Section 1(2) also provides that the ownership applies to all land (including land covered by water), which is in Nigeria under the Nigerian territorial waters, forms part of the continental shelf, or forms part of the economic zone of Nigeria.



way of subsidiary legislation by the executive.²⁰⁹ In this way, states, as well as communities, are excluded from the management of natural resource wealth domiciled in their territories.

The federal government, headquartered in the nation's capital (Abuja), is perceived to be far from local communities both during decision-making and the sharing of benefits of natural resources. Consequently, direct cooperation between local communities and federal government is obstructed both by distance and the constitutionally-enabled incapacitation of the states on oil and gas matters.²¹⁰

Nothing illustrates the incapacitation of states more than the inability to address environmental damage associated with natural resource extraction and production. Rivers State government could not successfully implement eco-friendly initiatives designed to circumvent the dangers associated with black soot arising from artisanal refining activities. One such initiative is the proposed petroleum products' passport and the seal scheme, which aims to use technology to control artisanal refining.²¹¹ Leaving the illegal diesel refiners and their truckdriver-patrons unregulated for too long is one of the reasons why black soot has festered, with devastating health implications for local residents.

According to experts, soot contains harmful chemical substances that can cause cancer and respiratory disorders.²¹² While use of the app will significantly assure a cleaner and low-carbon atmosphere by curtailing roadside sale of diesel to transporters to reduce the soot in the state, the state could not fully implement the initiative without the cooperation of the federal government. The Rivers State government can neither compel filling stations to key into the program nor can they impose sanctions for non-compliance. The only alternative is to solicit the cooperation of federal regulators like the Department of Petroleum Resources (DPR) to endorse the initiative and enforce compliance. This illustrates how the federal government's exclusive grip on natural resource management constrains inclusive deliberation on a just transition.

The same way constitutional prohibitions disempower subnational governments from seeking eco-friendly solutions to black soot is the same way certain national legislative

²⁰⁹ See Section 4(1) of the 1999 Constitution. They include accounts of the government of the federation; arms, ammunition, and explosives; aviation (including airports); banks, banking; census; citizenship, naturalization, and aliens; currency, coinage, and legal tender; customs and excise duties; defence; diplomatic, consular, and trade representation; extradition; immigration and emigration; implementation of treaties; insurance; maritime shipping and navigation; military (army, navy, and air force); mines and minerals; nuclear energy; passports and visas; powers of the federal National Assembly and the privileges and immunities of its members; prisons; public debts; public holidays; railways; regulation of political parties etc.

²¹⁰ Interview with Rivers State Commissioner for Energy

²¹¹ Interview with Sir Peter Mendee, Fmr. Commissioner for Energy and Natural Resources, Rivers State (January 2022)

²¹² The Cable Investigation: Black soot and public health of Rumuolumeni residents in Port Harcourt, Nigeria, July 21, 2021, <https://www.thecable.ng/investigation-rivers-residents-dying-slowly-as-illegal-oil-refining-worsens-soot-pollution>

prescriptions inhibit communities from exploring cleaner alternatives to energy production due to the lack of reliable, regular electricity supply from the national grid. Companies like the Indorama Eleme Petrochemicals Limited are leveraging on General Electric Power's technology to fire its plants.²¹³ Taking a cue from the companies operating in the area, Indorama community's plans to leverage on idle gas turbines to generate own electricity was aborted by federal electricity authorities. Community requests to the National Electricity Power Authority (NEPA) now Power Holding Company of Nigeria (PHCN) to remove them from the national grid was resisted on the basis of centralized electricity distribution and regulation codified in the 2005 [Electric Power Sector Reform Act](#), and centrally regulated by the Nigerian Electricity Regulatory Commission.²¹⁴ Because the sources of energy generation, transmission and distribution are not decentralized, communities like Indorama cannot freely harness power generation alternatives that produce *low* levels of greenhouse gas (GHG) *emissions* because of national policy and legislative prohibitions.

Regulatory setbacks: To invest in renewable energy, there is a mountainous amount of legal and regulatory requirements to be fulfilled, which makes it harder for new investors to navigate the regulatory space. Most official processes for simple things such as trademark, patent and even company registration are for the most part bogged down by bureaucratic bottlenecks and lengthy processing times. This situation is compounded by unstable macro-economic environment, political instability, corruption and clash of interests, political commitment and lack of transparency. Policy risks, especially lack of continuity that may accompany change of government, cannot be quantified financially, thus the reason why investors rarely invest in countries with unstable policies.


2. CAPACITY DEFICIT:

Shortage of technical expertise: Renewable energy (RE) technology is relatively new, with developed nations taking the lead in its research and development. Consequently, RE technologies require highly skilled workforce from the initial planning, installation up to post installation maintenance. The technical knowledge for major production is not locally available. This has the potential to create energy resource dependency on other countries. Compared to other energy sources, technical knowledge for energy production using hydrocarbons are available, affordable and readily accessible.

Low levels of technology, innovation and infrastructure deficit have hindered the rapid the roll-out of, and penetration of clean energy products and services within urban and rural settings. Limited investments in science, technology, renewable energy engineering and

²¹³ <https://businessday.ng/energy/article/nigerias-indorama-eleme-petrochemicals-leverages-ge-technology-to-boost-power-output/>

²¹⁴ Power Sector Reform Act was enacted in 2005, transferring the public monopoly of NEPA to Power Holding Company of Nigeria (PHCN) which was unbundled into 18 Business Units (BU); viz eleven (11) Distribution companies: - six (6) Generation companies and one (1) Transmission company



entrepreneurship have led to a skills gap and low export capacities, exacerbating the barriers to access and opportunities. Therefore, a skills and technological revolution would be necessary to rescale the workforce and bridge the skills and technology gap, especially between the global north and south in order to reduce dependence on foreign technologies, expertise and labour.

Is energy transition a western agenda? One issue that dominated discussions with community leaders, officials and academics across the three oil-rich states relates to the timeliness of energy transition, especially at a time when huge income, industrialization and infrastructural inequalities between countries and societies in the developing and developed countries. At the base of this interrogation is the widespread notion that energy transition is a foreign agenda pushed by the West. The powerful economies in the world have extensively used fossil fuels, even the dirtiest form of fossil fuels, to industrialize and grow their economy. Asking African countries to decarbonize at a time the continent is leveraging on its vast oil and gas mineral deposits to unlock manufacturing potential and facilitate industrialization, is perceived as ill-timed.

Some commentators insist that Africa is responsible for only 2-3 per cent of global greenhouse gas emissions, which pales into insignificance when compared to the emissions from other industrialized nations.²¹⁵ This means that developing countries contribute a lot less to atmospheric greenhouse gas concentrations than their developed country counterparts. Many developed countries with high emission records – like US and China – continue to subsidise fossil fuel production. Even in advanced economies, no other energy source has successfully displaced fossil fuels.²¹⁶ As such, there is no moral or legal basis for developing countries to take the lead in abandoning fossil fuels. Perception is particularly growing that persuading developing countries to defund fossil fuels smacks of eco-hypocrisy.

For instance, world leaders leading the fight against climate change attended the UN's climate change summit, also known as COP26, in more than 400 private planes which spewed over 13,000 tonnes of carbon into the air.²¹⁷

Export capacities from oil-based foreign exchange earnings: The oil sector contributed 5.19% to total real gross domestic product (GDP) in Q4 2021 and 9.11% in the Q1 of the year 2022 while the non-oil sector increased to 92.76 per cent in 2021 from 91.84 per cent in 2020.²¹⁸ Although the oil sector's contribution to the GDP in Nigeria has shrunk significantly,

²¹⁵ Victoria Ibezim-Ohaeri, Premium Times, Fuel Subsidy Reforms: Moving from Anger to Cooperation (March 2015)

<https://opinion.premiumtimesng.com/2015/05/24/fuel-subsidy-reforms-moving-from-anger-to-cooperation-by-victoria-ohaeri/>

²¹⁶ Ohaeri, *ibid.* n

²¹⁷ Wion: 'Eco-hypocrite': Leaders, businessmen arrive in fuel-guzzling private jets at COP26; Published: Nov 01, 2021;

<https://www.wionews.com/world/eco-hypocrite-leaders-businessmen-arrive-in-fuel-guzzling-private-jets-at-cop26-425903>

²¹⁸ National Bureau of Statistics, NBS; Nigerian Gross Domestic Product report, Q1, 2022. Accessed on 27/06/22 at

[https://nigerianstat.gov.ng/elibrary/read/1241175#:~:text=Gross%20Domestic%20Product%20\(GDP\)%20grew,two%20and%20three%20of%202020](https://nigerianstat.gov.ng/elibrary/read/1241175#:~:text=Gross%20Domestic%20Product%20(GDP)%20grew,two%20and%20three%20of%202020)

[https://nigerianstat.gov.ng/elibrary/read/1241175#:~:text=Gross%20Domestic%20Product%20\(GDP\)%20grew,two%20and%20three%20of%202020](https://nigerianstat.gov.ng/elibrary/read/1241175#:~:text=Gross%20Domestic%20Product%20(GDP)%20grew,two%20and%20three%20of%202020)

the sector remains a key pathway for national foreign exchange earnings and fiscal security. The country's export is still oil-based as crude oil exports amounted to N4.26 trillion and accounted for 74.04 per cent of total exports while non-crude oil products contributed N1.49 trillion or 25.96 per cent to total exports.²¹⁹ Oil is not simply the main export of many petrostates, but “the central factor around which domestic economies and domestic politics have become established.”²²⁰ This has prompted analysts to describe the clean energy transition as “an existential threat for many of these countries.”²²¹

It has also been argued that cutting funding for fossil fuel projects especially at a time the country is witnessing its second recession in five years, both triggered by a depression in oil prices, will exacerbate currently high poverty levels.²²² Forecasts show that decarbonizing along the trajectory of the International Energy Agency's Sustainable Development Scenario with a long-term oil price of \$40 a barrel could lead to global losses of \$13trn over the next two decades compared with a business-as-usual scenario of continually growing oil demand.²²³ Declining outputs and falling revenues will hit petrostates really hard: 50% in Europe, 58% in sub-Saharan Africa, 66% in Latin America and the Caribbean, 57% in Asia and 77% in North America. Overall, a global energy transition will mean less demand for the Nigerian oil, which translates to a major loss of export capacity for the country especially in the immediate period. The major consequence is that Nigeria will likely lose a majority of its foreign exchange earnings and revenues for both the federal and subnational governments.²²⁴

3. FUNDING GAPS AND REVENUE SHORTAGES

Transition to renewable energy is capital-intensive: Energy transition requires high initial capital cost, which is a major barrier to its implementation. In other words, renewable energy production involves high operating costs and overheads resulting from the costs of connection, construction, upgrading of transmission/distribution lines, substations, and associated equipment²²⁵ The fiscal cost required to develop and deploy renewable energy

²¹⁹ NBS, Q4 2021 Trade Statistics: <https://nigerianstat.gov.ng/elibrary/read/1241147>

²²⁰ Energy Monitor, Oil nations face perilous future without energy transition support, <https://www.energymonitor.ai/policy/just-transition/oil-nations-facing-a-perilous-future-without-energy-transition-support>

²²¹ Energy Monitor, *ibid.*


²²² The World Bank, Nigeria releases new report on poverty and inequality in country (May 28, 2020) Accessed via <https://www.worldbank.org/en/programs/lsm/brief/nigeria-releases-new-report-on-poverty-and-inequality-in-country>.

Records show that 40% of the country's population — 83 million people — live below the poverty line.

²²³ Energy Monitor, Oil nations face perilous future without energy transition support, <https://www.energymonitor.ai/policy/just-transition/oil-nations-facing-a-perilous-future-without-energy-transition-support>

²²⁴ Elizabeth Osayande (2022); Nigeria's dependence on fossil fuel could cause loss of foreign earnings, revenue; Vanguard Newspaper, May 31, 2022. Accessed at <https://www.vanguardngr.com/2022/05/nigerias-dependence-on-fossil-fuel-could-cause-loss-of-foreign-earnings-revenue/>

²²⁵ Victoria Ibezim-Ohaeri, Policy Brief: Commentary on the Renewable Energy Feed-in Tariff (REFIT) Regulations (2015) <https://spacesforchange.org/download/policy-brief-commentary-on-the-renewable-energy-feed-in-tariff-refit-regulations/>



infrastructure usually depends on the technology, size, output, environmental impact and connection type.²²⁶ An independent country-focused study projects that reaching Net Zero by 2060 would require a substantial increase in grid electrification to replace 40-60 GW of diesel and petrol generators in Nigeria, accounting for 12 per cent of the country's emissions.²²⁷ The capital requirements equally associated with replacing conventional energy sources to renewables is capital intensive, with high potential to cause fiscal challenges.

Paucity of funding: Lack of funding is a major hurdle slowing down efforts to transit to a greener energy future. annually by 2020 to address the needs of developing countries.²²⁸ Study findings show that Nigeria might find it difficult to transit to its new energy given paucity of funds and labor. ²²⁹ Nigeria needs “more than \$400 billion to meet its energy requirements and achieve zero emissions from fossil fuel”. ²³⁰ \$310 billion of that sum is needed to generate electricity and for transmission and distribution infrastructure. The Nigerian government also noted that up to \$41 billion is needed to support funding for industry and transport facilities.

Although RE makes up for the higher start-up costs in other ways, especially in terms of operational and maintenance costs, ²³¹ RE is not an attractive investment for credit houses when compared to hydrocarbon projects that easily attract the required financing. The huge initial investment with a relatively unfamiliar market terrain with uncertainty as to returns on investment will make the accessibility to credit facilities difficult. Cheaper energy, particularly for electricity generation and transportation sourced from fossil fuels (i.e. natural oil and gas) remains a threat to deploying alternative energy sources.

High costs of clean energy: It has been argued that RE is costlier than other sources of energy. This high cost is determined by the total life-cycle cost which comprises the initial capital costs, future fuel cost, future operations and maintenance costs, decommissioning costs, and equipment lifetime. The sunny, tropical climate in Nigeria provides a good source of solar energy. Having too much of sunlight has neither translated to the profusion of solar farms nor lower prices for solar PV panels. Overall, solar energy is too expensive for an average household. This means that outright resistance or low patronage for solar energy has persisted despite widespread awareness of its clean attributes. Because renewable energy alternatives are capital intensive, low-income communities in the oil producing regions cannot achieve energy transition without the support of the big spenders, corporations, donor agencies and governments.

²²⁶ Ibid 104

²²⁷ McKinsey & Company: The Future of African Oil & Gas: Positioning for the energy transition (June 2022) <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-future-of-african-oil-and-gas-positioning-for-the-energy-transition>

²²⁸ Nature.com, The broken \$100-billion promise of climate finance — and how to fix it, <https://www.nature.com/articles/d41586-021-02846-3>

²²⁹ McKinsey & Company: The Future of African Oil & Gas: Positioning for the energy transition (June 2022) <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-future-of-african-oil-and-gas-positioning-for-the-energy-transition>

²³⁰ Emele Onu: Bloomberg Energy News. Reported on September 25, 2021. Accessed on June 20, 2022 <https://www.bloomberg.com/news/articles/2021-09-25/nigeria-needs-400-billion-to-bridge-energy-deficits>

²³¹ Efurumibe EL. Barriers to the development of renewable energy in Nigeria. Scholarly J Biotechnol. 2013;2:11–3.

Fear of revenue losses: More than half of African oil and gas producing countries rely on oil and gas exports for more than 50 percent of their total export revenues.²³² Oil revenues into the Federation Account comprises crude oil and gas exports, petroleum profit tax (ppt)/royalties, and domestic oil and gas sales. Nigeria produced a total of 440.774 million barrels of crude oil valued at about N12.4tn between January and November 2021 and raked in about N12.4tn from crude oil alone sales during the review period.²³³ With about 194 oil and gas extraction companies (local and multinational) operating in Nigeria,²³⁴ oil majors like Shell alone paid Nigeria \$3,243,223,518 as taxes/royalties in 2020.²³⁵ This high dependency on crude oil means that energy transition will be more disruptive to oil-exporting economies such as Nigeria, which depend heavily on oil for its economic growth.

4. ATTITUDINAL CONSTRAINTS

Heavy reliance on fossil fuel-powered products and services: In Lagos State, Nigeria's most populous city with over 20 million population, the transportation sector is the largest emitter, accounting for over 60 per cent of greenhouse gas emissions in the state.²³⁶ There are more than 5 million cars and more than 200,000 commercial vehicles in Lagos alone.²³⁷ The reality on the ground is that the numbers are likely to be much higher, especially when Lagos daily records an average of 227 vehicles per every kilometer of road. Accordingly, high emission rates in Lagos are as a direct result of high dependence on petrol-powered vehicles and other machineries that use internal combustible engines (ICE) which makes use of petrol or diesel. In August 2021, Climate Scorecard—a global organisation that tracks the progress made by leading greenhouse gas emitting countries to implement the UN Paris Agreement—recognized over-dependency on oil products as a significant obstacle to Nigeria's race to carbon neutrality.²³⁸

²³² McKinsey and Company, The future of African oil and gas: Positioning for the energy transition, https://www.mckinsey.com/za/~/_media/mckinsey/industries/oil%20and%20gas/our%20insights/the%20future%20of%20africa%20oil%20and%20gas%20positioning%20for%20the%20energy%20transition/the-future-of-african-oil-and-gas-positioning-for-the-energy-transition.pdf

²³³ Nigerian Upstream Petroleum Regulatory Commission, Crude Oil and Condensate Production for 2021, January 2022; <https://www.nuprc.gov.ng/oil-production-status-report/>


²³⁴ Dun & BradStreet, Oil And Gas Extraction Companies In Nigeria https://www.dnb.com/business-directory/company-information.oil_and_gas_extraction.ng.html

²³⁵ SHELL: Payment to Governments; <https://www.shell.com/sustainability/transparency-and-sustainability-reporting/payments-to-governments>

²³⁶ ThisDayLive, Transportation Sector: Largest Emitter of Greenhouse Gases, Lagos Govt Laments (23rd August, 2022) Accessed via <https://www.thisdaylive.com/index.php/2022/05/17/transportation-sector-largest-emitter-of-greenhouse-gases-lagos-govt-laments/>

²³⁷ LAGOS AND MOTOR VEHICLE ADMINISTRATION <https://lagosstate.gov.ng/blog/2017/07/05/lagos-and-motor-vehicle-administration/>

²³⁸ Climate Score Card, Nigeria News Brief and Action Alert: Nigeria's Government Failure to Follow Through on Important Climate Goals and Its Economic Dependence on Fossil Fuel Exports (August 2021) Accessed via <https://www.climatescorecard.org/2021/08/nigerias-government-failure-to-follow-through-on-important-climate-goals-and-its-economic-dependence-on-fossil-fuel-exports/>



Use of petrol- or diesel-powered generators is commonplace in the country due to power supply shortages. Burning these fuels for long hours by large swathes of the population, coupled with the attendant noise pollution, puts a clog in the wheel of efforts to reduce carbon emissions. Continuing high resource allocations to the purchase and maintenance of generators show signs that reliance on fossil fuel-powered machinery will persist for some time. The federal government earmarked \$252m to fund maintenance and purchases of generators for its ministries, departments, and agencies while Nigerian businesses and households spend a whopping \$22 billion (about N9.053 trillion) annually to fuel their generators powering offices and homes.²³⁹

The fear of job losses: Increased investment in the new global energy order is expected to engender a vibrant renewable energy industry but that would cause a decline in the current oil exploration and production activities in Nigeria. Declines in oil exploration and production activities translates to imminent job losses in a sector reputed for high income earnings and fast-paced career development. The Nigeria's oil industry employs about 65,000 direct staff and 250,000 indirect staff²⁴⁰ working mainly oil exploration companies, oil service firms, and other sectors that are linked to industry operations. If this happens in Nigeria, the economy will experience low spending, reduced taxes and high borrowing.²⁴¹ Further job losses will worsen the already record-high low employment and underemployment rates. With the relentless push for energy transition to renewable sources, the oil sector is expected to contract further, around 20 percent over the next decade and by 95 percent between 2031 and 2050.²⁴²

5. SOCIO-ECONOMIC ISSUES

Widespread energy poverty: Across the country, power supply is epileptic, with almost 80% of those with access to power getting less than 12 hours a day, and about 47% of the population without access to power at all.²⁴³ For the second quarter of the year 2021, the average generation capacity and total generation during the quarter were 5,472.1 MW and 8,909,911.6 MWh respectively in Nigeria.²⁴⁴ Because current power generation capacities are significantly below the energy requirement of the country, recent investments in gas-to-power infrastructure have been stepped up to fill the gap, with the result that nearly all the privately-owned and operated- Independent Power Plant (IPP) are powered by natural gas.

²³⁹ Energy Commission of Nigeria (ECN), Investment Climate and Exceptions to National Treatment' reported in The Sun, Generator economy: Nigerians spend \$22bn yearly on fuel –Report (April 2021) Accessed via

²⁴⁰ International Labour Organization: Industrial Relations in the Oil Industry in Nigeria, Working paper 237, Accessed via https://www.ilo.org/sector/Resources/publications/WCMS_161189/lang--en/index.htm

²⁴¹ Omoniyi Emmanuel Oluwafemi: Energy Transition and Its Potential Impact on the Nigerian Economy. International Association for Energy Economics 4th quarter Journal

²⁴² Felicity Bradstock (2021), What Will Happen To Oil And Gas Workers After The Energy Transition? Accessible at <https://oilprice.com/Energy/General/What-Will-Happen-To-Oil-And-Gas-Workers-After-The-Energy-Transition.html>

²⁴³ See ThisDayLive, Transportation Sector: Largest Emitter of Greenhouse Gases, Lagos Govt Laments (23rd August, 2022) Accessed via <https://www.thisdaylive.com/index.php/2022/05/17/transportation-sector-largest-emitter-of-greenhouse-gases-lagos-govt-laments/>

²⁴⁴ NERC Quarterly Report, Q2, 2021

Phasing out natural gas at a time the country just launched series of gas-powered initiatives to bolster energy sufficiency will definitely portend serious consequences for national energy security plans. Concerns around adequate timing for transiting to other energy sources is already sparking resistance in some quarters. An example is the parliamentary rejection of a bill to phase out petrol cars and replace them with electric cars.²⁴⁵

Disproportionate energy poverty burden on women and girls: Because affordability is a major barrier to clean energy, dependence on wood fuels is high, culminating in high levels of deforestation. A study by the World Health Organization (WHO) finds that smoke from firewood and traditional biomass stoves during cooking is the third highest killer of women in Nigeria, after malaria.²⁴⁶ Most energy products and services do not pay serious attention to the gendered differentials in energy consumption and demand. Likewise, energy policies appear to be gender blind and implementation appears not to adopt gender approaches limiting gender equality in the energy transition. Most definitely, gender-responsive energy policy assesses gender gaps, identifies actions to close them and promotes women's engagement in the energy sector, including in decision-making processes. Barriers that women face in the energy sector include: female-headed households are often poorer and may suffer more from rapid tariff increases than male-headed households; men often have power over household budgets and decision-making; and women may not be included in policy consultations and decision making due to discriminatory gender norms.

Artisanal refining business boom: Will artisanal refiners let go of oil bunkering as a means of survival? This question was the subject of an op-ed published by the CABLE newspaper publication of April, 26, 2022.²⁴⁷ Illegal refining has created overnight billionaires in the creeks, who steal crude oil for sales on the international waters and also and locally refine petroleum products. These ventures have also created jobs for former militants who would have otherwise picked up arms in the name of fighting for resource control for the Niger Delta Region. Particularly aggravating is the state complicity and connivance of security agencies and government officials in the illegal trade. According to Mr. Nyesom Wike, the Governor of Rivers State:

“You know this bunkering cannot stop; let’s be serious about it, everybody is involved. The military is involved. Police is involved. The Nigeria Civil Defence Corps is involved. If not, there is no way bunkering can continue. It’s a terrible thing.”²⁴⁸


²⁴⁵ Anthony Ogbonna, Vanguard, Breaking: Senate rejects bill to phase out petrol cars, adopt electric ones, (April 2019) Accessed via

<https://www.vanguardngr.com/2019/04/breaking-senate-rejects-bill-to-phase-out-petrol-cars-adopt-electric-ones/>

²⁴⁶ World Health Organization, Global Health Risks Report, Part 2, p.23

²⁴⁷ See <https://www.thecable.ng/can-nigeria-completely-get-rid-of-illegal-bunkering-and-refineries>

²⁴⁸ Why oil bunkering can't stop — Wike. Publication of the Vanguard Newspaper for November 23, 2021 Accessible at <https://www.vanguardngr.com/2021/11/why-oil-bunkering-cant-stop-wike/>



In another Op-ed by the Guardian Newspaper,²⁴⁹ the author lamented that “the people of the Niger Delta are restless, nearer revolt; the low-level insurgency is gone. The original militants have been compromised and their leaders even more so.” This compromise has come in form of the government turning a blind eye to the bunkering business in the region. This indulgence has somewhat taken away the restiveness and frustration of the youth.²⁵⁰ There are fears that halting this business will resurrect the seemingly hibernated violent struggles for resource control in the Niger Delta region.

The Nigerian government has stated its desire to end illegal refining, publicizing strategies put in place such as the deployment of security agents to the Niger Delta region to dismantle refining camps. However, the business is still rampant today, with more refining camps opening up. Oil theft has become so rampant to the extent that Nigeria loses \$4 billion to oil theft at the rate of 200,000 barrels per day, translating to losing about 95 per cent of oil production to thieves at Bonny Terminal, Rivers State. To tackle this menace, the awarded a multi-billion-naira pipelines surveillance contracts to a private security outfit, manned by a former militant. This arrangement has provoked debates regarding the propriety as well as the socio-economic implications of outsourcing national security responsibilities to private agents²⁵¹

Conclusion

The array of challenges detailed in this chapter, though surmountable, illuminate the stark disparities between theorising about low carbon emissions and the practical steps that can be taken to ensure that such targets are realised. How to surmount these challenges and meet set targets will be the focus of the next chapter. No doubt, renewable sources of energy for electricity/heat generation do not pollute the environment,²⁵² but the decarbonization of energy systems is associated with high technical and economic costs.²⁵³ In other words, investments in renewable energy infrastructure cost money and take time. The availability and affordability of alternative cleaner fuels for substantially reducing global greenhouse gas emissions: Renewable energy like solar, wind and others are beginning to take prominence, but the cost is still very high. How many community members can afford solar panels to power their homes?

For the above reasons, the global discourse regarding energy transitions must be anchored on justice and equity. Equity for those needing support to access cleaner energy systems and justice for communities that have borne the brunt of fossil fuel production for many decades as nations industrialized and progressed. Transition plans must make provisions for palliatives

²⁴⁹ Patrick Dele Cole, The cost of militancy in the Niger Delta. Publication of the Guardian Newspaper for the 8th February, 2021. Accessible at <https://guardian.ng/opinion/the-cost-of-militancy-in-the-niger-delta/>

²⁵⁰ Ibid 63

²⁵¹ Leadership Editorial, That Pipeline Surveillance Contract, <https://leadership.ng/that-pipeline-surveillance-contract/#:~:text=That%20Pipeline%20Surveillance%20Contract>

²⁵² Dario Maradin (2021) Advantages and Disadvantages of Renewable Energy Sources Utilization; International Journal of Energy Economics and Policy ISSN: 2146-4553 pg176-183

²⁵³ C. Kost, S. Shammugam, V. Julch, H-T Nguyen, and T. Schlegl, “Levelized Cost of Electricity Renewable Energy Technologies,” Fraunhofer ISE, Germany, March 2018.

to cushion the effects of environmental despoliation. Palliatives could take the form of skills development, good water supply, good roads, stable electricity supply, mechanized farming, guaranteed employment placements in the green companies of the future and favorable local content considerations. A just transition depends on the development of coherent implementation strategies for building diversified, sustainable and resilient economies in a post-oil era. It is unclear whether national authorities will eventually introduce legal regimes that preserve governmental grip on renewable natural resources, with the attendant centralized resource governance and management systems.



CHAPTER 7

POSSIBILITIES FOR CHANGE

Despite the setbacks discussed in the preceding chapter, the good news is that these challenges to a low carbon future are surmountable with sustained effort, resources and action to achieve set targets. The following are some of the emerging opportunities that offer prospects for accelerating the transition process.


The quest to reduce greenhouse gas (GHG) emissions continues to spur creativity in the exploration of carbon-free technological solutions beyond traditional frontiers. Nowhere is this creativity witnessed more than the development of a wide range of renewable energy sources. The transition is expected to usher in several benefits for developing countries like Nigeria such as a diversified economic base, improved competitiveness, reduced dependency on imported energy imports with an associated reduction in energy costs, elimination of petroleum subsidies, protection against economic susceptibility to fluctuations in energy prices, greater energy efficiency, lower carbon emissions, new opportunities for companies in the region and local job creation. Despite the challenges slowing down progress, the opportunities below offer a glimmer of hope for a smooth transition to cleaner energy.

Elimination of fuel subsidies: Petroleum subsidies have been a contentious and emotive policy issue for decades. Petrol is used for fuelling most vehicles and generators for private and commercial use in the country. Nigeria depends on imported refined petroleum products because of inadequate domestic refining capacity. Because importation increases often results in high landing costs. Subsidies—to keep petrol cheap—have always been reinstated after violent protests erupt in the wake of the reforms.

Knowledge has now increased about how energy subsidies benefit low-income households a lot less; impose deep cuts on national budgets; discourage investments in renewable energy development; increase atmospheric greenhouse gas concentrations, while increasing countries' vulnerability to the volatility of energy prices in the international market.²⁵⁴ Faced with a debt crisis and shrinking revenues, shifting to renewable energy presents an opportunity for Nigeria to end the subsidies on petroleum products that are responsible for high carbon emissions and in turn meet its climate commitments. As with many countries of the world, the lack of political will to eliminate subsidies has been the greatest setback to effective subsidy reforms and climate responses around the globe. Such shifts will usher an end to cheap petrol and saving from subsidies channelled towards the development of with lower-cost and cleaner energy options.

An array of climate policy responses: Nigeria's 2021 Climate Change Act provides an ambitious framework for mainstreaming climate actions in line with national development priorities and sets a net-zero target for 2050-2070. The Act applies to both public and private entities within Nigeria's territory and issues directives for fostering a low-carbon emission, environmentally sustainable, and climate resilient society. Among other things, the Act imposes reporting obligations on private entities with employees numbering 50, ministries, departments, and agencies to submit annual reports to the National Climate Change Secretariats in

²⁵⁴ Victoria Ibezim-Ohaeri, Premium Times, Fuel Subsidy Reforms: Moving from Anger to Cooperation (March 2015)
<https://opinion.premiumtimesng.com/2015/05/24/fuel-subsidy-reforms-moving-from-anger-to-cooperation-by-victoria-ohaeri/>



order to ensure compliance with National Climate Change Action Plan. Legislative oversight is enabled through the Secretariat's obligation to partner with civil society organizations, promote climate education, report annually to the National Legislative Assembly on the state of the nation's climate change activities, and evaluate reports on the performance of climate change duties by private and public entities in Nigeria.²⁵⁵

Bridging the energy poverty gap: 85 million Nigerians—representing 43% percent of the country's population—don't have access to grid electricity, making Nigeria the country with the largest energy access deficit in the world.²⁵⁶ The national utility grid comprises of hydro power plants and thermal generating stations with total installed capacity of 5048 MW.²⁵⁷ Although the country has the potential to generate 12,522 MW of electric power from over 38 existing power plants, it is only able to dispatch around 4,000 MW, which is obviously insufficient for a country of over 195 million people.²⁵⁸ With only about 12 GW installed, and typically just one-third of that delivered, Nigerian power production falls far short of demand which requires immediate action. Renewable energy has an important role to play in meeting future energy needs and achieving sustainability in the Nigerian energy sector.²⁵⁹

Abundant renewable energy (RE) resources: Nigeria is a tropical country blessed with abundant RE sources ranging from solar and wind capacity in the northern part of the country to the hydro-energy generation capacity in the south among other many untapped RE potentials. The abundance of sun light in the northern part of the country can be harnessed for the solar energy generation. Evidence suggests that these resources are already being explored, but can be scaled up. For instance, power generation companies in Nigeria such as Afam Power Plc, Sapele Power Plc, Egbin Power Plc, Ughelli Power Plc, Kainji Power Plant, Jebba Power Plant and Shiroro Power Plc are mostly thermal, with only Jebba and Kainji being hydro plants.²⁶⁰ New energy sources will be renewable, inexhaustible, clean and do not generate difficult and costly-to-treat waste. It will essentially reduce emissions of CO₂ and other pollutant gases, thus contributing to the fight on climate change. It will also lead to an improvement in ecosystem, especially in oil producing communities. It has also been said that the transition will foster the sustainable development of communities.²⁶¹

²⁵⁵ Muhammed Tawfiq Ladan, A Review of Nigeria's 2021 Climate Change Act: Potential for Increased Climate Litigation. IUCN. Available at <https://www.iucn.org/news/commission-environmental-economic-and-social-policy/202203/a-review-nigerias-2021-climate-change-act-potential-increased-climate-litigation>

²⁵⁶ THE WORLD BANK, Nigeria to Improve Electricity Access and Services to Citizens. February 5, 2021

²⁵⁷ See <https://nerc.gov.ng/index.php/home/nesi/403-generation>

²⁵⁸ USAID, NIGERIA POWER AFRICA FACT SHEET. Accessible at <https://www.usaid.gov/powerafrica/nigeria>

²⁵⁹ Hui SCM (1997) From renewable energy to sustainability: the challenge for Honk Kong'. Hong Kong Institution of Engineers :351–358 Accessible at <http://ibse.hk/cmhui/polmet97.pdf>

²⁶⁰ NERC, Power Generation in Nigeria. Accessible at <https://nerc.gov.ng/index.php/home/nesi/403-generation>

²⁶¹ Energy Transition Hub: Advantages of the energy transition. Accessed on 1/7/22 at <https://naturklima.eus/hte-advantages-of-the-energy-transition.htm#:~:text=A%20significant%20reduction%20in%20energy,Greater%20energy%20efficiency>.

Recent studies suggest that the concentrated solar thermal power potential in Nigeria is over 427,000MW.²⁶² Nigeria is blessed with vast land and abundant sunlight energy which serve as fuel for solar energy production. Nigeria receives an average solar radiation of about 7.0kWh/m² (25.2MJ/m² per-day). This is equivalent to about 258.62million barrels of oil produced annually and about 4.2×10⁵ GWh of electricity production annually, in the country.

According to a research, given an average solar radiation level of about 5.5KWh (m² per day), if the prevailing efficiencies of commercial solar-electric generators are deployed, and if solar collectors or modules were used to cover only 0.1% of Nigeria's land area of 923,773km², it is possible to generate 1850x10³ GWh of solar electricity per year, which is over one hundred times the current grid electricity consumption level in the country.²⁶³

Uptake in the use of electric vehicles (EVs): Nigeria's plan is that by 2040-2060, Nigeria will fully transit from fossil fuels to renewable energy. These plans are already beginning to attract massive buy-in from individuals and corporate actors. In April 2021, the first electricity vehicle charging station was commissioned in Sokoto. Two months later in June 2021, Stallion Motors launched Nigeria's first locally assembled electric vehicle (EV), Hyundai Kona, demonstrating the seeming acceptance of Nigerians to EVs²⁶⁴. While EVs are becoming increasingly popular in Nigeria and its neighbouring countries, the commercial deployment of electricity-powered motors is hampered primarily by epileptic power supply. 60% (80M) of the country's 200 million population have access to electricity and 10% with access to clean cooking fuels as of 2018.²⁶⁵ Nigeria is also one of the largest users of back-up generators on the continent.

Funding mechanisms are emerging: The issue of funding is so critical that it has provoked specific legislative and policy responses. The Climate Change Act establishes a Climate Change Fund,²⁶⁶ to be drawn from on a variety of sources including sums appropriated by the federal legislature, subventions, grants and donations. Another category of funding will come from sources like (1) international organizations and funds that Nigeria gets for attaining National Determined Contributions (2) fines and charges because of private and public entities that do not comply with their obligations concerning climate change mitigation and adaptation (3) carbon tax and emissions trading. Furthermore, the 2018 Climate Finance Accelerator recommends enhancing "local capacity to access green finance in both public and private sectors" in Nigeria.²⁶⁷ Amid concerns about high interest rates, the

²⁶² IIED, Renewable Energy Potential in Nigeria Low-carbon approaches to tackling Nigeria's energy poverty. EU and The SunGas Project. Accessible at

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiLgNzYoZv5AhUTX_EDHUSiD1AQFnoECAYQAQ&url=https%3A%2F%2Fpubs.iied.org%2Fsites%2Fdefault%2Ffiles%2Fpdfs%2Fmigrate%2FG03512.pdf&usg=AOvVaw1Xi30sAkBkcx9KgaNxF-F4


²⁶³ Ibid 276

²⁶⁴ NairaMetrics, Is there a future for Electric Vehicles in Nigeria? <https://nairametrics.com/2021/06/22/is-there-a-future-for-electric-vehicles-in-nigeria/>

²⁶⁵ International Energy Agency's Africa Energy Outlook 2019

²⁶⁶ Section 15 of the Act

²⁶⁷ Ricardo, NDCI Global, & Climate Advisers Network: The UK-Nigeria Climate Accelerator (2018) <https://ee.ricardo.com/climate-change/climate-finance/climate-finance-accelerator-nigeria>



Central Bank of Nigeria has directly intervened to provide a framework for the implementation of the Solar Connection Facility.²⁶⁸

According to the National Energy Masterplan (2014), this finance gap will be bridged by the establishment of a renewable energy fund, the provision of fiscal and financial incentives, introduction of tariffs that guarantee a good rate of return on investment, introduction of concessionary feed-in tariff for renewable-based energy supply, the attraction of long-term financing from local and international institutions, provision of adequate security facilities and the implementation of favorable economic policies. These practical measures can support efforts to secure green finance.²⁶⁹

Investors can also leverage other funding opportunities for renewable energy projects in Africa such as the Energy and Environment Partnership Trust Fund (EEP Africa) - Clean Energy Financing. EEP Africa's current portfolio consists of 67 projects approved for financing from 2018 to 2020. These diverse projects cover 9 technologies in 14 countries and represent a total investment of EUR 26 million in committed grants and repayable grants.²⁷⁰ Another funding opportunity is the Sustainable Energy for Africa, with a portfolio of 95 USD million multi-donor facility funded by the governments of Denmark, Italy, United Kingdom and the United States. It supports the sustainable energy agenda in Africa.²⁷¹ REACT Sub-Saharan Africa (REACT SSA) is also a US\$61 million project funded by the Swedish International Development Authority (SIDA) to support renewable energy in Sub-Saharan Africa, with a dedicated funding of US\$ 8.5 million for Federal Government of Somalia (FGS) and Somaliland. The programme seeks to reduce poverty through a transformational increase in the use of renewable energy by off-grid households in the FGS and Somaliland. Its outcome will be private sector investment and innovation in low cost clean energy and climate change catalysed at scale.²⁷²

New jobs will emerge: Energy transition requires huge investment in renewable energy technologies, decarbonization technologies, electric vehicle batteries, and technologies to bolster energy efficiency. This will involve the establishment of training centers where young Nigerians (secondary school leavers, engineering and technical university/polytechnic students, etc) will be trained on installation and construction of RE technologies—solar PV, biomass composting technologies, etc. Such trainings can leverage existing platforms such as the National Directorate for Employment programme. In addition, the availability of seed

²⁶⁸Central Bank of Nigeria Approved Lending rates for DMBs (June 29) 2018.

<https://www.cbn.gov.ng/Out/2018/BSW/Weekly%20Deposit%20and%20Lending%20Rates%20in%20banking%20Industry%20as%20at%20June%202029,%202018.pdf>

²⁶⁹National Energy Masterplan 2014: Energy Commission of Nigeria, Federal Ministry of Science and Technology

https://rise.esmap.org/data/files/library/nigeria/Clean%20Cooking/Supporting%20Documentation/Nigeria_National%20Energy%20Master%20Plan%20Draft.pdf

²⁷⁰ See <https://eepafrica.org/>

²⁷¹ See <https://www.se4all-africa.org/seforall-in-africa/financing-opportunities/sustainable-energy-fund-for-africa/>

²⁷² See <https://www.africanpowerplatform.org/financing/grants.html>

capital, grants and soft loans can help trainees launch startups to hone their skills and transfer knowledge. Indigenous and local construction will likely reduce the cost, increase its use, and build a niche form of development.²⁷³ With these investments, the traditional energy sector jobs, especially in the oil and gas sector, will experience significant declines while new ones will be created in the renewable energy sector. Economic growth is inevitable where the totality of new investments is greater than the entire divestments in oil exploration and production activities.

Rebalancing gender inequalities: Energy transition offers an opportunity to close the gap between climate commitments on gender equity at the national and international levels. The Paris Agreement, the Convention on Biological Diversity, and the Convention to Combat Desertification as well as a number of other multilateral environmental agreements espouse commitments to achieving gender equality and empowerment of women and recognition of the importance of women's engagement in climate change responses, biodiversity conservation and sustainable use, and land preservation.²⁷⁴ In contrast, the mitigation approaches at the national levels are beset with equity challenges. Most national policies to limit emissions are insensitive to specific patterns of energy consumption as well as impact that vary across households and individuals in terms of income, urban/rural locations, gender and age. These policy trends reflect the structural inequalities that disadvantage women economically and politically.²⁷⁵


As primary users of household energy-consuming appliances (refrigerators, microwave, blenders, cookers etc), biomass and traditional cooking fuels, women are key stakeholders in energy-efficiency and environmental sustainability initiatives. Failure to incorporate gendered perspectives relegates inclusiveness and equality to the backseat of the deliberative processes, with the potential to roll back past gains made in helping rural and low-income women to transit to clean cooking fuels.

Safety nets and guidelines: Transition-induced job losses will precipitate diverse impacts cutting across supply chains, people, formal and informal workers, consumers, businesses, communities, taxpayers etc. Agencies like the International Labour Organisation (ILO) has designed guidelines to help governments cushion the effects of energy transition, especially those relating to easing the workforce affected by the transition to renewable energy. According to the Guidelines, the greening of economies in the context of sustainable development and poverty eradication will require a country-specific mix of macroeconomic, industrial, sectoral and labour policies that create an enabling environment for sustainable

²⁷³ Ibid 132

²⁷⁴ Ohchr (Un), Human Rights, The Environment and Gender Equality. Accessible at https://www.ohchr.org/sites/default/files/2022-03/Final_HumanRightsEnvironmentGenderEqualityKM.pdf

²⁷⁵ Katherine Richardson et al (2016) SYNTHESIS REPORT - CLIMAT ECHANGE Global Risks, Challenges & Decisions Accessible at https://www.researchgate.net/publication/293172719_Climate_Change_Global_Risk_Challenges_and_Decisions_-_Synthesis



enterprises to prosper and create decent work opportunities by mobilizing and directing public and private investment towards environmentally sustainable activities. The aim should be to generate decent jobs all along the supply chain, in dynamic, high value added sectors which stimulate the upgrading of jobs and skills as well as job creation and improved productivity in more labour-intensive industries that offer employment opportunities on a wide scale.²⁷⁶

Alternatives to artisanal refining? When asked to suggest alternatives to artisanal refining, discussions with local communities demonstrate that localized ideas and proposals for a green economy are not in short supply. According to one proposal:

The diversification of energy sources using biotechnology is one option to consider. This involves growing ethanol-generating plants such as corn, sugar cane etc. We can take the seeds to Institute of Agriculture to distribute to the communities to plant. When the seeds are harvested and crushed, they are fermented and processed to generate clean energy for cooking. Local people will earn money from the sales of ethanol plants. In those days, people planted cocoa and sold it to the government, who then exported it and earned foreign exchange. Both the people and the government earned local money from cocoa sales. Returning to this sort of resource-sharing arrangement is more empowering and beneficial to communities. The only drawback is that biofuels might raise concerns about the use of crops for food versus for fuel production.²⁷⁷

The local imaginations of a green economy expressed above find support in the policy prescriptions of the National Renewable Energy Action Plan 2016 which discloses official plans to possibly launch a Green Equity Fund and Green Fund to provide individuals, communities and businesses with opportunities to invest in the infrastructure needed to support the growing renewable energy market in Nigeria. The rural electrification strategy equally empowers communities to host renewable energy projects and to keep the additional business rates they generate as part of these schemes.²⁷⁸ This way, local people will benefit from the opportunities within the renewable energy space in the form of the local energy resources they are harnessing and the power they are producing. It will also incensitize local youth engaged in artisanal refining to explore other legitimate income-generating alternatives such as vendors of solar home systems, producers of portable energy solutions for micro businesses who need a limited amount of electricity to run their trades.

²⁷⁶ https://www.ilo.org/wcmsp5/groups/public/@ed_emp/@emp_ent/documents/publication/wcms_432859.pdf

²⁷⁷ Focus group discussion with Eleme community leaders in Rivers State

²⁷⁸ National Renewable Energy Action Plan 2016, page 7: https://www.se4all-africa.org/fileadmin/uploads/se4all/Documents/Country_PANER/Nigeria_National_Renewable_Energy_Action_Plans_.pdf

Because states and communities lack powers to negotiate with prospective oil and gas investors, their ability to extract eco-friendly commitments or integrate sustainability practices and low-carbon obligations in contractual agreements is constrained. The inclusion of local communities in the national transition plan is difficult to achieve without decentralizing the current political and fiscal governance systems. This implies that extensive constitutional and legislative reviews are necessary to bolster the inclusion of community voices in the transition agenda. This entails a comprehensive review of land ownership, constitutional reviews giving states a large measure of fiscal and regulatory autonomy and the calibration of governance arrangements in ways that facilitate an effective interplay between the local community, the state government and the federal government.

National land use policies produce the same incapacitating effects just the same way as oil mineral legislations. The Land Use Act of 1978 vests the ownership of all land in the state governor. The governor's stronghold on land incapacitates local communities from having the final say over land alienation and transfers for extractive projects. The most prominent contradiction in policy prescriptions governing land use and oil mineral development is that one federal law vests full ownership of all land in the on the state governor, while another federal legislation restrains state governors from exercising executive powers over extractive activities on land within their state territories. Either way, communities are left out of the power tussle between state and federal authorities, relegating them to the backseat of land and climate decision-making. This disconnects illuminates some of the practical realities confronting energy transition.


Reinventing alternatives to artisanal refining: Calls to legalise artisanal refining stem from the growing concern regarding massive revenue losses coupled with the grave health and environmental implications. Persistent fuel scarcity regularly experienced in the country further sparked renewed calls for the legalization of artisanal refining in order to make petroleum products available and affordable in the country.²⁷⁹ Amid the growing clamour to grant licenses to artisanal refiners to establish modular refineries,²⁸⁰ it has been argued that if the illegal refineries are legalized, standardized and monitored, it could be a win-win situation for all. Licensing would enable artisanal operators to engage in lawful and controlled production of petroleum products, and also curb environmental pollution, including black soot.²⁸¹ The government has resisted these calls as doing so would not only sanction criminality,²⁸² but also sharply contrasts with the Federal Government's introduction of modular refineries as an antidote to illegal refining as well as the eradication of soot pollution.

²⁷⁹ThisDay Newspaper: Reported on July 11, 2021 <https://www.thisdaylive.com/index.php/2022/07/11/group-advocates-artisanal-refineries-legalisation-to-check-fuel-scarcity/>

²⁸⁰Mkpoikana Udoma: 'Give modular license to artisanal refiners' (Jun 2022) SweetCrude. <https://sweetcrudereports.com/give-modular-refinery-license-to-artisanal-refiners/>

²⁸¹William Ukpe: Illegal refinery explosion: Lawmaker calls for legalization of artisanal refineries (July 2022) Nairametrics. <https://nairametrics.com/2022/04/25/oil-bunkering-explosion-rep-calls-for-legalizing-artisanal-refineries/>

²⁸²Alexander Onukwue: Fatal Extraction: Nigeria's oil refineries keep killing people (July 2022) QuartzAfrica <https://sweetcrudereports.com/well-not-legalize-artisanal-refinery-fg/>



The modular refinery guidelines were recently revised to accommodate the establishment of hydrocarbon processing plants of not more than thirty thousand barrels per day (30,000BPD). These guidelines detail mandatory requirements, processes and procedures that will significantly simplify compliance.²⁸³ Registered local cooperative societies are included in the list of private sector stakeholders that can participate in this program. Although communities welcome these policy responses, there are concerns that setting up modular refineries is capital intensive, and far beyond the reach of communities who depend on illegal refining for a livelihood. To mitigate the high costs, local leaders are canvassing for special considerations to be given to the host communities, such as access to specific wellheads to extract crude rather than buying at the prevailing market rates of crude.²⁸⁴

As we have seen above, private and public sector driven proposals and initiatives to decarbonize the economy neither highlight the role of communities nor provide alternatives to communities that may be adversely impacted by energy transition plans and processes. The recent launching of a world-class Integrated Energy Planning Tool may offer some hope.²⁸⁵ The tool is a geospatial platform which seeks to provide low-cost, dynamic and data-driven intelligence for a range of stakeholders, including the Government and private sector, to identify the mix of technologies and spending required to achieve universal energy access. Again, while the tool makes no specific mention of host communities of extractive projects, this platform creates an opportunity for stakeholders at the grassroots to articulate their own priorities, express their own concerns and get clarifications on issues that affect them in the energy transition process.

Conclusion

The litany of opportunities chronicled in this chapter unpack the steps that are underway to remove the legal, structural and socio-cultural impediments to achieving a net-zero world where society stops adding to the total amount of greenhouse gases (GHGs) in the atmosphere. The National Policy on Climate Change Policy (NPCC) [Revised in June 2021²⁸⁶]2013²⁸⁷ is a strategic policy response to climate change that aims to foster low carbon, high growth economic development path and build a climate-resilient society through the attainment of set targets. The plan clearly identifies climate change as one of the major threats to economic development goals and food security. To meet these challenges, the plan includes concrete targets in the areas of climate change adaptation, afforestation, and energy supply.

²⁸³ Federal Ministry of Petroleum Resources; GENERAL REQUIREMENTS AND GUIDANCE INFORMATION FOR THE ESTABLISHMENT OF MODULAR REFINERIES IN NIGERIA. Accessible at <https://www.nmdpra.gov.ng/wp-content/uploads/2021/12/general-requirements-and-guidance-information-for-the-establishment-of-modular-refineries-in-nigeria.pdf>

²⁸⁴ Interview with community chief, Bolo, Rivers State

²⁸⁵ REA; Nigeria's VP H.E. Prof. Yemi Osinbajo launches world-class Integrated Energy Planning Tool. The Nigeria Integrated Energy Planning Tool which was launched collaboration with Sustainable Energy for All (SEforALL) on 3rd of February, 2022. Available at <https://rea.gov.ng/nigerias-vp-h-e-prof-yemi-osinbajo-launches-world-class-integrated-energy-planning-tool/>

²⁸⁶ Accessible at https://climatechange.gov.ng/wp-content/uploads/2021/08/NCCP_NIGERIA_REVISIED_2-JUNE-2021.pdf

²⁸⁷ Accessible at https://www.all-on.com/media/publications/simplified-guides-to-nigerias-energy-access-policies-and-regulations/_jcr_content/par/textimage.stream/1595008849973/dc8fea0b5aef03ead699def51ac37ec5be56b8e1/national-policy-on-climate-change-npcc.pdf

Plans to protect the environment by eliminating greenhouse gases must equally align with the plans to protect communities from want and deprivation. The OECD created an international network of case studies to assess the impact of renewable energy on regional economies, especially rural communities, exploring the link between renewable energy production and rural development in terms of economic development and job creation, human capital and infrastructure, and empowerment of local communities.²⁸⁸ Some of the benefits to communities identified include new sources of revenue to support key public services and infrastructure; active contribution to the development of new products, new technologies, and new policy approaches; capacity building and community empowerment; affordable and reliable energy for remote rural communities and reduction of air pollution, which is estimated to be the fourth leading risk factor for early death globally. Achieving such results in the Nigerian context will entail a comprehensive review of land ownership, constitutional reviews giving states and communities a large measure of fiscal and regulatory autonomy and the calibration of governance arrangements in the green economy in ways that facilitate an effective interplay between the local community, the state government and the federal government.



²⁸⁸Linking Renewable Energy to Rural Development: Organisation for Economic Co-operation and Development (OECD) <https://www.oecd.org/regional/regional-policy/Renewable-rural-energy-summary.pdf>



RECOMMENDATIONS

1. Interviews with oil-rich communities in Imo, Rivers and Bayelsa reveal that environmental injustices endured by host and impacted communities of extractive activities must be resolved first before major shifts away of oil are implemented. Community support for energy transition is conditioned on the presentation of a clear and predictable roadmap for righting the wrongs which fossil fuels have done to extractive communities. Without such concrete and targeted measures being put in place, energy transition would remain a one-sided agenda that favours largely the corporations from western countries that perpetuated these injustices.
2. The centralized management of oil wealth, combined with the widespread environmental degradation and loss of traditional livelihoods have pushed locals deeper into poverty, fuelling agitations for resource control and improved benefits. National and corporate-led energy transition agendas can become more forward-looking and meaningful when they address the flaws of the fossil-fuel economy, especially host communities' concerns around inclusion, participation, gendered impacts of business harms and environmental accountability.
3. The exclusion of local voices and real needs of people is equally responsible for the huge disconnect between policy formulation and implementation. For energy transition to be just, it must prioritize the involvement of local communities in the green economy powered by renewable natural resources. This is one way of balancing the lopsided relations between communities and corporations and ending the notorious climate of hostilities. Local participation is also the antidote for dismantling the concentration of natural resource management in the hands of national oil companies and multinational corporations.
4. National and subnational authorities must take immediate steps to expand spaces for engagement and debate on the energy transition models proposed. The use of direct dialogue, community technical committees, townhalls, consultative forums, indigenous community organizations, are some of the popular platforms for engaging the participation of communities in development. The use of less direct methods such as toll free-lines, radio and television phone-in programs, and the like should also be considered.
5. Targeted investments in alternative livelihood schemes are necessary in locations that would have the greatest impact on reversing growth of the artisanal oil refining industry. This, together with improved coordination between livelihood projects implemented by NGOs in the region, would support stabilization and development of alternative livelihood options for those working in the artisanal oil refining industry.

6. Faced with a debt crisis and shrinking revenues, shifting to renewable energy presents an opportunity for Nigeria to end the subsidies on petroleum products that are responsible for high carbon emissions and in turn meet its climate commitments. Removing subsidies on petroleum products will usher an end to cheap petrol and saving from subsidies channeled towards the development of with lower-cost and cleaner energy options.
7. As primary users of household energy-consuming appliances (refrigerators, microwave, blenders, cookers etc), biomass and traditional cooking fuels, women are key stakeholders in energy-efficiency and environmental sustainability initiatives. Energy transition offers an opportunity to close the gap between climate commitments on gender equity at the national and international levels.
8. In policy, academic and corporate circles, energy transition is widely perceived as requiring a gradual process and not a spontaneous shift. That will mean taking gradual steps to strengthen national capacities to adapt to and mitigate climate change and involve all sectors of society, including the poor as well as other vulnerable groups (women, youth etc.) within the overall context of advancing sustainable socio-economic development. Graduality also signifies that aligning transition plans and climate target-setting to the socio-economic realities and configurations in the country is imperative.²⁸⁹
9. With the official adoption of gas as the transition fuel, Nigeria leans towards heavy reliance on a single source for power generation. High dependence on a single power source can endanger the supply security of the country, necessitating the diversification of the energy generation mix by increasing the share of renewables.²⁹⁰
10. The government needs to put in place safety nets to cushion the effects of transition-induced job losses in order to minimize the diverse impacts cutting across supply chains, people, formal and informal workers, consumers, businesses, communities, taxpayers etc. A skills and technological revolution would also be necessary to rescale the workforce and bridge the skills and technology gap, especially between the global north and south in order to reduce dependence on foreign technologies, expertise and labour.

²⁸⁹ IRENA (2018) Global energy transformation: A roadmap to 2050. International Renewable Energy Agency, Abu Dhabi. 1–76. ISBN 978-92-9260-059-4.

²⁹⁰ ESI AFRICA, *ibid.*

10. The greening of economies in the context of sustainable development and poverty eradication will require a country-specific mix of macroeconomic, industrial, sectoral and labour policies that create an enabling environment for sustainable enterprises to prosper and create decent work opportunities by mobilizing and directing public and private investment towards environmentally sustainable activities. In other words, aligning transition plans and climate target-setting to the socio-economic realities and configurations in the country is imperative.²⁹¹
11. Communities need empowerment to leverage rural electrification initiatives to benefit from the opportunities within the renewable energy space. Local youths need incentives to explore other legitimate income-generating alternatives such as vendors of solar home systems, producers of portable energy solutions for micro businesses who need a limited amount of electricity to run their trades.



²⁹¹ IRENA (2018) Global energy transformation: A roadmap to 2050. International Renewable Energy Agency, Abu Dhabi. 1–76. ISBN 978-92-9260-059-4.

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