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# FOSSIL FUEL REFINERY RESUSCITATION POLICY AND THE IMPLICATIONS FOR THE CLEAN ENERGY TRANSITION PLAN IN NIGERIA

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**Abstrak**

Pemerintah Nigeria berencana menghidupkan kembali kilang bahan bakar fosil, dan langkah ini diperkirakan akan memengaruhi rencana transisi energi bersih negara tersebut dengan mempengaruhi penerimaan publik terhadap kebijakan itu. Masih belum jelas bagaimana pemerintah akan menjembatani kesenjangan antara kebangkitan kembali bahan bakar fosil dan komitmen energi bersih. Studi ini menelaah faktor pendorong di balik kebijakan revitalisasi kilang Nigeria serta implikasinya bagi transisi energi bersih nasional. Analisis ini didasarkan pada *Choice Theory*, yang beranggapan bahwa perilaku (termasuk keputusan kebijakan) berasal dari dalam diri dan didorong oleh upaya memenuhi kebutuhan dasar, sehingga pembuat kebijakan memilih tindakan berdasarkan kebutuhan tersebut[1]. Metode penelitian yang digunakan adalah *semi-systematic review* (SSR), dengan 20 artikel jurnal terindeks dan ditinjau sejawat (diterbitkan 2015–2024) yang dipilih secara purposif. Temuan penelitian menunjukkan bahwa beberapa faktor yang mempertahankan penggunaan bahan bakar fosil secara global juga mendorong kebangkitan kembali kilang di Nigeria. Faktor-faktor tersebut mencakup permintaan pasar internasional yang terus berlanjut terhadap bahan bakar fosil, anggapan bahwa bahan bakar fosil tidak dapat sepenuhnya digantikan dalam konteks ekonomi dan militer, kebijakan pemerintah yang mendukung, serta kegagalan negara dalam mengamankan investasi energi bersih yang memadai. Menghidupkan kembali kilang mengimplikasikan keberlanjutan pasokan dan permintaan bahan bakar fosil sebagai sumber energi utama dalam jangka pendek. Studi ini menyimpulkan bahwa setiap negara perlu mengontekstualisasikan strategi transisi energinya sesuai dengan kondisi uniknya.

**kata kunci:** *Energi Bersih, Transisi Energi, Kilang Bahan Bakar Fosil, Tujuan Pembangunan Berkelanjutan, Nigeria.*

**Abstract**

The Nigerian government's planned resuscitation of fossil fuel refineries is expected to impact the country's clean energy transition plan by influencing public acceptance of that policy. It remains unclear how the government will bridge this gap between fossil fuel revival and clean energy commitments. This study examines the drivers behind Nigeria's refinery resuscitation policy and the policy's implications for the nation's clean energy transition. The analysis is grounded in Choice Theory, operating on the premise that behavior (including policy decisions) originates from within and is driven by attempts to satisfy basic needs, meaning policymakers choose their actions based on those needs[1]. The research method is a semi-systematic review (SSR), for which 20

peer-reviewed journal articles (published 2015–2024) were purposively selected. The findings indicate that several factors sustaining fossil fuel use globally are encouraging Nigeria's refinery revival. These factors include the persistent international market demand for fossil fuels, the perceived non-substitutability of fossil fuels in economic and military contexts, supportive government policies, and the state's failure to secure sufficient clean energy investment. Reviving refineries implies a continued supply of and demand for fossil fuels as primary energy sources in the near term. The study concludes that each country should contextualize its energy transition strategy according to its unique circumstances.

**Keywords:** *Clean Energy, Energy Transition, Fossil Fuel Refinery, Sustainable Development Goals, Nigeria.*

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## Introduction

There is an apparent contradiction in Nigeria's energy sector: the government is reviving fossil fuel refineries even as it advocates a clean energy transition. This policy inconsistency has created a gap that warrants scrutiny of how the government is managing these competing goals. Cergobozan (2022) observes that modern living and economic growth are fundamentally tied to energy usage, and the interplay between energy policy and economic outcomes continues to attract researcher interest, which provides a backdrop for this study. By way of context, Nigeria established its fossil fuel refineries decades ago in response to rising domestic fuel consumption, increasing investment in the oil sector, and efforts to meet local demand for refined products such as kerosene, diesel, petrol, and jet fuel (Melamid, 1968; Ogbuigwe, 2018). Four public refineries were built for this purpose: Warri Refining and Petrochemical Company, Port Harcourt Refining Company, Kaduna Refining and Petrochemical Company, with a combined installed capacity of about 445,000 barrels per day. However, these refineries have never operated at full capacity. Consequently, Nigeria has become heavily dependent on imported refined fuels, which in turn has spurred interest in clean energy alternatives to address the nation's chronic energy challenges. This dilemma essentially presents a strategic choice between satisfying immediate energy needs and pursuing long-term sustainable solutions, making it an apt scenario to analyze through the lens of Choice Theory.

Between 1980 and 1996, Nigeria's refineries operated at under 58% of their capacity, which meant roughly 41.6% of domestic petroleum product needs had to be met through imports each year (Jesuleye et al., 2007; Ogbuigwe,

2018; Umukoro, 2018). The situation worsened in the late 1990s and early 2000s: from 1997 to 2004, imports accounted for about 78% of Nigeria's fuel consumption, and by 2005 the nation was spending over US$2 billion annually on imported petroleum products (Jesuleye et al., 2007; Ogbuigwe, 2018). Today, the combined capacity of the country's public refineries remains 445,000 barrels per day, but over the past two decades they have operated at only about 15–25% of that capacity on average (Ogbuigwe, 2018). This poor performance has forced Nigeria to import between 70% and 80% of its refined fuel needs, and since 2017 the domestic demand has grown to around 750,000 barrels per day – far exceeding local supply (Ogbuigwe, 2018). Clearly, there is an urgent need for investment in new refineries and the rehabilitation of existing ones to meet local demand. A fully functional domestic refining industry could transform Nigeria from a net importer into a net exporter of refined petroleum products, improving energy self-sufficiency.

The degradation of Nigeria's refining capacity has effectively turned the country from a major crude oil exporter into a net importer of refined fuels, with serious consequences for energy access and government revenue. Analysts have identified numerous factors underlying the refineries' dysfunction: government interference, insufficient operating capital, political indecision, international pressure, mismanagement, insecurity at oil production sites, and an inconsistent supply of feedstock crude (Jesuleye et al., 2007; Adeleke, Igboanugo, & Chime, 2019; Iheukwumere, Moore, & Omotayo, 2021). In response, the government has pursued various remedies. It has put the state-owned refineries on track for possible privatization and issued licenses to encourage private investors to establish new refineries (Jesuleye et al., 2007; Ogbuigwe, 2018). Additionally, artisanal refineries – small illicit refineries especially common in the Niger-Delta – have emerged as a grassroots solution to local fuel shortages (Umukoro, 2018). All of these efforts aim to restore a sustainable supply of petroleum products within Nigeria.

Ironically, Nigeria possesses abundant oil reserves – roughly 33.5 billion barrels of mainly light, low-sulfur crude – making it one of the world's top six crude exporters (Melamid, 1968; Jesuleye et al., 2007; Omoregie, 2019). Yet the petroleum sector contributes less than 10% to Nigeria's GDP, largely because the country lacks domestic refining capacity to add value to its crude (Omoregie, 2019; Iheukwumere et al., 2021). Ahmed and Usman (2023) warn that without functional refineries, Nigeria's balance of payments deficit will keep worsening. Indeed, the refineries' failure has directly led to Nigeria's heavy reliance on

imported fuel (Ogbuigwe, 2018; Omoregie, 2019; Iheukwumere et al., 2021; Ahmed & Usman, 2023). Conversely, restoring sufficient refinery capacity would allow Nigeria to substitute imports with local products, improve its balance of payments, strengthen the naira by reducing dollar outflows, and perhaps even become a fuel exporter (Ahmed & Usman, 2023). In short, refinery operations are crucial for Nigeria's socio-economic development because of their revenue-generating potential and broad economic impact.

Continued dependence on imported fuels has several negative implications for Nigeria: domestic fuel availability is subject to volatile international prices, refinery sector jobs are lost, the sector's contribution to the economy remains low, and the refineries themselves fall further into disrepair. To address these issues, the government is pressing ahead with plans to resuscitate its fossil fuel refineries. One key step has been reforming the longstanding fuel subsidy policy. Itumo and Onyejiuba (2019) argue that Nigeria's former fuel subsidy not only discouraged investment in local refineries but also allowed importers (often foreign-controlled) to dominate the downstream market. The removal of subsidies is intended to create a more competitive market; indeed, since the reform, new private refinery projects have been initiated. These efforts are expected to replace imports with domestic production and earn foreign exchange. However, a potential unintended consequence of pouring investments into fossil fuel infrastructure is the undermining of Nigeria's clean energy transition commitments under the Sustainable Development Goals (SDGs). In other words, aggressively reviving refineries may distort or delay the country's clean energy plans.

Globally, the launch of the UN Sustainable Development Goals (SDGs) has intensified campaigns against fossil fuels and galvanized support for clean energy adoption. Reflecting this trend, Nigeria announced in 2021 a national Energy Transition Plan that sets 2060 as the target for achieving net-zero emissions. The government has demonstrated its commitment by ratifying major international climate agreements (including the Kyoto Protocol and the Paris Agreement) and by making specific pledges such as banning new fossil fuel investments by 2050 (Adeniyi & Isah, 2023; Umeodinka, 2024). To catalyze the transition, Nigerian authorities have rolled out various measures: public awareness campaigns promoting cleaner fuels, deregulation of fuel prices (to remove distortive subsidies), and initiatives like the introduction of electric vehicles (EVs). These efforts are designed to accelerate the shift to clean energy. At the same time, policymakers recognize the need to consider affordability and

energy access—without viable and affordable alternatives, high costs could push people to continue relying on fossil fuels. Thus, the transition measures attempt to strike a balance, promoting clean energy while managing the risk that expensive new technologies might otherwise entrench fossil fuel use among the population.

Nigeria's clean energy transition agenda aligns with SDG 7, which targets universal access to affordable, sustainable, and reliable energy by 2030. However, there is currently a substantial gap between Nigeria's stated clean energy ambitions and the reality of implementation (Nwazor, Oshewolo, Owoeye, & Okidu, 2021). Several obstacles hinder progress: the economy remains heavily dependent on natural gas and oil (which are key sources of government revenue), data on greenhouse gas emissions is poor, and environmental policies are inadequate (Anwadike, 2017). As Nwazor et al. (2021) point out, despite lofty pledges, Nigeria has yet to truly embark on its energy transition journey. Contributing factors include lukewarm commitment from important stakeholders, policy inconsistencies, difficulties in attracting investment and technology for clean energy, and various structural issues. In this context, the push to revive fossil fuel refineries could further complicate the transition by potentially reducing public acceptance of clean energy policies. It is unclear how the government intends to reconcile the refinery resuscitation initiative with its clean energy goals, leaving a strategic gap in the transition plan. Previous studies have examined pieces of this puzzle, but none have synthesized the full picture or answered the overarching policy questions. This study addresses that need by exploring the drivers of Nigeria's fossil fuel refinery resuscitation policy and analyzing its implications for the clean energy transition in Nigeria, explicitly through the lens of Choice Theory.

The study, in attaining its stated objectives, has three sections. The first section introduced the study, and it presented the existing knowledge and the gap in the literature on the subject matter of the study. Section two presented the materials and methodology of the study and which consists of the concept of energy transition, the theoretical framework, and the method of study. Section three presented data, a discussion of findings, and a conclusion, respectively.

## Materials and Method

The section conceptualised the concept of energy transition, which is central to the understanding of the study. The theoretical framework was discussed, and the method of data collection was analysed.

## Conceptualisation of Energy Transition

Energy transition is the central concept of this study because moving to clean energy from fossil fuel sources formed the focus of the study. Energy transition has been explained as a necessity in the reduction of fossil fuel utilisation (Nizetic, Arici, & Hoang, 2023). However, defining energy transition remains difficult, and this is occasioned by the different definitions from scholars. Energy transition has been described as a complex, multidimensional, non-linear, uncertain phenomenon, non-deterministic and with difficulty in characterisation (Blazquez, Fuentes, & Manzano, 2020). The complexity in the definition of the term has been demonstrated in the explanation that the current energy transition in the countries is driven by policies rather than technological improvements (Blazquez et al, 2020). Kovac, Paranos, and Marcius (2020) have corroborated the above definition in their explanation that energy transition is a process featuring the implementation of Renewable Energy Sources (RES) as a replacement for fossil fuels. Thus, the implication of driving energy transition through policy is that the current technologies and technological perspectives are going to be incomplete because policies, rather than technology, drive the process (Blazquez et al, 2020). Thus, the explanation with regard to energy transition implies that the process should be natural rather than policy-driven. In another dimension, York and Bell (2019) explained the term as a genuine reduction in the use of established sources of energy. This implies that the society intentionally moves away from one source to another, but not adding to established energy sources and such movement is not conditioned by expansion in the other sources of energy (York & Bell, 2019). Hence, energy transition is defined in the study as the process and condition in which a society moves from one energy source to another but not in response to expansion and policies on other sources, but wilfully.

## Theoretical Framework

Choice theory, developed by William Glasser, is the theoretical framework of analysis for the study, and it is applied from the perspective that while the reason for all our behaviour emanates from within us, and is driven by our quest to satisfy our basic needs, we choose what we do, hence the key component is choice (Peterson, 2000). The choice made by a nation, just like an individual, over others is influenced by five fundamental needs, which are power, survival, love and belonging, freedom, and fun (Peterson, 2000). Survival implies the function required for use to continue existing, and energy is significant in this direction. Power is required for recognition and a feeling of importance. The

resuscitation policy will allow energy accessibility, and clean energy transition plans will propel the recognition of a country as complying with global provisions in the comity of nations. Freedom implies the liberty to control things that affect our living. Energy accessibility has remained problematic in the country, and through the plans, it is expected that greater freedom will be available to the people in their choice between energy sources. Concerning this study, the significance of energy cannot be overemphasised, and this informed the resuscitation of fossil fuel refineries in the country while at the same time encouraging the growth of the clean energy industry. Hence, the plan to resuscitate fossil fuel refineries and ensure transition to clean energy is the purpose of choice making to fulfil the essence of choice making.

The study adopted a semi-systematic review, SSR, also known as a narrative review. The reason for the adoption in this study is due to its adequacy for topics that have been conceptualised differently and studied by researchers across different disciplines (Synder, 2019). A total of 20 journal articles were purposely selected from a total of 50 peer-reviewed journal articles downloaded from Google Scholar (scholar.google.com) after setting the custom date range between 2015 and 2024, and screening based on the relevance of the abstract to the study. The methods of analysis in the SSR are thematic and content analyses (Snyder, 2019). The study purposely selects the thematic analysis.

**Factors Sustaining the Global Fossil Fuel Products Market**

Fossil fuels have been identified as a major fuel or energy source globally (Achaw & Danso-Boateng, 2021), and they account for 80 per cent of global basic energy consumption, which remains significant for global energy requirements (Wang, Fan, & Zhou, 2022). Though there is projected replacement of fossil fuel-based energy with clean and renewable energy sources, there will be a continuous requirement for fuel and chemicals manufactured in oil refineries (Vogt & Weckhuysen, 2024). The request will emerge and be sustained by several factors, including government policies, demand by households, industries, and the refusal of oil-producing states to adopt renewable sources. For instance, Cakmak and Acar (2022) have argued from oil oil-producing countries' perspective and acknowledge that despite the known impact of fossil fuel on global warming, countries possessing oil have refused to transition their energy sources to renewable sources out of commercial concerns. It implies that the clean energy transition will affect their revenue, and this will in turn affect their social and political bases. This exposed that energy transition

implementation in specific economies is a complex task with economic, political, technological, and social dimensions (Nizetic et al., 2023).

The politics of clean energy transition plans affect their adoption for use, and it is a major determining factor. Breetz, Mildenberger, and Stokes (2018) have identified politics as the conditioning factor influencing the deployment of renewable sources. With analysis of the North American and European cases, it was revealed that the political institution and conditions that catalysed the emergence, growth, and acceptance of new technologies differs from those that drive the reduction in use and reliance of incumbent ones (Breetz et al., 2018). This implies that while new technologies are promoted through policies, extant ones are protected through the same measures. The reality is that there is a difference of purpose and interest across countries on the sources of energy to be adopted and implemented in the economy. This provides insight into the reason for the sustained use of fossil fuels by oil-producing states and the demand for refineries within the states to avoid economic implications.

The continuous need for refined fossil fuel products emphasises the continued relevance of fossil fuel refineries and products. It has been argued that the peaks, declines, and depletion in fossil fuel production are attributable to proven reserves, exploration, and consumption rate (Abas, Kalair, & Khan, 2015). These realities sustain the fossil fuel market in the contemporary period and encourage the continuous use of fossil fuel products. The current use of fossil fuel products is attributable to notable growth, which started since the late 18$^{th}$ century when the use started growing, spread of the product to countries in the 19$^{th}$ century, and the great global acceleration since 1945 (Hogselius, 2023). In the aftermath of the 1970s oil crisis experienced across the globe and which stimulated the adoption of multi-energy transition relationships between the dominant and hegemonic energy sources (Ediger, 2019), fossil fuel demand is sustained. It has been reported that with the over 12 billion tons of global energy demand, oil, gas, and coal reserves are increasing at the rate of 600 million barrels, 400 billion cubic feet, and 19.2 gigatons of oil equivalents annually (Abas et al., 2015). The consumption rate has been stated at 1.4Mb, 4.5BBC, and 3.1 million tons (Abas et al., 2015). It is evident that fossil fuel remains a major source of energy across the world, and major economies rely on it and ensure its accessibility in their local energy market as a means of attaining energy security.

The means through which countries requiring fossil fuel obtain it is international trade (Zhong, An, Shen, Dai, Fang, Gao, & Dong, 2017; Wang, Fan,

& Zhou, 2022; Ostadzadeh, Elshorbagy, Tuninetti, Laio, & Abdelkader, 2023). Energy supply is ensured through trade relationships with oil-producing states (Wang et al., 2022). This sustains the established oil market. Ostadzadeh et al (2023), in their analysis of possible countries that will dominate fossil fuel trade across the globe, noted that because fossil fuels are unevenly distributed, countries secure their supply through international trade. While it is observed that trade in fossil fuel between countries ranges between 538 and 215 EJ, the projected countries expected to dominate the global trade network are the United States of America, Canada, China, and Venezuela, and of which Canada-USA remains the most dominant till the year 2050 (Ostadzadeh et al., 2023).

It is evident that major economies globally are still reliant on fossil fuels, and this sustains the market for the product. The extant knowledge justified the sustained relevance of fossil fuels across the world. While there is a global position or stance on energy transition to clean energy, it is not clear how the big economies are leading in the transition, especially with their reliance on fossil fuels.

**Investment in Energy Transition in Nigeria**

Nigeria is a country possessing clean and unclean sources of energy, despite which energy remains inaccessible to its teeming population (Somoye, 2023). The country has the opportunity to source fossil fuels and clean energy products through international trade. The issues with the 'unclean' or fossil fuel refinery in Nigeria have been identified to include the interference from government, political indecision, issues with funding, increasing cost of spare parts, vandalism of the pipeline, increased oil theft practice, and issues with maintenance (Iheukwumere, Moore, & Omotayo, 2023). Similarly, the clean energy policy has also been marked with challenges, inclusive of financial, technical, energy market, policy support, infrastructural support, ecological and environmental, and the regulatory requirements (Oruwari & Ogbuike, 2023). Specifically, Chanchangi, Adu, Ghosh, Sundaram, and Mallick (2023) have examined the potential and penetration of solar energy in Nigeria and argued that the photovoltaic device remains the most appropriate technology to provide a solution to the gap between demand and supply of energy, especially as a clean and renewable means in the country. Pan, Yao, Wang, and Zhu (2019) acknowledge the role played by solar power in addressing climate change and ensuring sustainable development. However, the government invests in renewable energy industries while ensuring economic growth, and also engages in trade disputes as a means of protecting local producers (Meckling & Hughes,

2017). The protection in the energy sector becomes necessary because of the implications of the continuous reliance on importation instead of homegrown approaches.

The accessibility of energy through clean and renewable sources requires investment, and the government is expected to play a major role in securing and encouraging it. Umeodinka (2024) has explained that the state has a role to play in ensuring and achieving investment in clean energy. Despite the aspired and promised advantages of the adoption of clean and renewable technology as outlined through scientific studies, the challenges have been detailed to include the poor efficiency of the technology, which is undergoing studies for improvement across the world (Chanchangi et al., 2023). Other issues with the adoption of the technology have been systematically outlined to include cases of vandalism and theft, inadequate government policy, possible loss of jobs in the energy sector, and affordability (Chanchangi et al., 2023). It contains the effect of informed government intervention. The questions have continued to be asked on the suitability and substitutability of the renewable/clean energy sources for fossil fuels in an economy.

The clean or renewable energy sources are expected to have their defects to include their durability and adaptability. Albert (2022) has added the non-substitutability hypothesis and argued that renewable energy will not be able to substitute for most of the services provided by fossil fuels in economies and militaries. It implies that the current development in renewable technology has constituted a hindrance to its deployment in a country like Nigeria. Hence, while the world is aiming for transition and the current level of renewable energy does not seem completely substitutable, there is continuous use of fossil fuels. The use compelled a request for availability and the need for revival of the fossil fuel refinery. It can be deduced that clean energy is yet to attain the aspired position of an alternative to fossil fuels. Hence, there is a request for sustained use of fossil fuel, which is demanding the resuscitation of refineries in economies like Nigeria.

Refinery remains crucial to the economy of Nigeria in that it will enhance import substitution, promote the value of the country's currency, and redefine the status of the country as an exporter of fossil fuel products (Ogbuigwe, 2018; Omoregie, 2019; Iheukwumere et al., 2021; Ahmed & Usman, 2023). Despite the identified benefit, fossil fuel refinery is the acclaimed third largest stationary emitter of carbon, and the contribution of about 34.1 gigatons by the sector between 2000 and 2021 (Ma, Lei, Meng, Liang, & Guan, 2022). The refining

sector generates carbon, and the increase results in global warming (Florides & Christodoulides, 2009). Barker and Ross (1999) have claimed that global warming is the outcome of introducing large quantities of greenhouse gases such as carbon dioxide, methane, and nitrous oxide, which are naturally occurring greenhouse gases, into the atmosphere from sources from refineries. This is the attribute of fossil fuel refineries. However, there is the resuscitation of existing refineries in the country. Worth mentioning is the introduction of modular, private, and artisanal refineries in the country (Ogbon, Otanocha, & Rim-Rukeh, 2018; Umukoro, 2018). Hence, while the private and modular are considered legal and approved by the government, the artisanal refinery is considered illegal, but it has continued to operate in the country.

## Conclusion

The motivation for the study is the increasing interest in the relationship between energy and economic growth, and this informed the discussion of the factors that propel the resuscitation of fossil fuel refineries in Nigeria, pointing out the implications of the resuscitation policy for clean energy transition in Nigeria. To analyse the objective of the study, the choice theory was adopted as the theoretical framework. It was noted in the study that fossil fuel products remain in use in both the developed and the developing economies. It accounts for 80 per cent of the global energy needs, and while there are efforts to ensure energy transition, fossil fuel products will continue to be required by households, the transport sector, and economies. The reason for the requirement has included its non-substitutability hypothesis (Albert, 2022) and the protection of the sector by the government through policies (Breetz et al., 2018). Thus, while the energy transition is conceived as a deliberate choice of alternative sources of energy, government policies can be added to the choice theory as a factor influencing the selection of basic needs. The study concluded that energy transition, remaining an equivocal concept, should be treated with country specificity rather than a global perspective.

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