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Energy Security and Regional Power Shifts: Dangote Refinery and the Political Economy of Oil in Sub-Saharan Africa

Bisiriyu Abiodun Taleat[1], Muhlya Tshombe Lukamba[2] and Melvin Diedericks[3]

*[1]Department of Public Management and Administration, North-West University, Vanderbijlpark, South Africa
http://orcid.org/0000-0003-4745-095X
[2]Department of Public Management and Administration, North-West University, Vanderbijlpark, South Africa
Email: mt.lukamba@nwu.ac.za
http://orcid.org/0000-0002-2136-6787
[3]Department of Public Management and Governance, North-West University, Potchefstroom, South Africa
Email: melvin.diedericks@nwu.ac.za
http://Orcid.org/0000-0002-1433-4138
*Corresponding Author: 55601170@mynwu.ac.za

ABSTRACT: Energy security remains a critical challenge in Sub-Saharan Africa despite the continent's vast hydrocarbon resources and growing investment in refining infrastructure. The emergence of the Dangote Refinery has generated significant scholarly and policy interest due to its potential to reshape regional fuel supply chains, reduce import dependence, and alter geopolitical power relations within Africa's energy landscape. However, existing studies have paid limited attention to how large-scale private refining investments interact with broader regional energy governance and the strategic responses of other key energy-producing states.

This study examines the impact of the Dangote Refinery and other major energy actors on energy security in Nigeria, South Africa, and Angola. Using a comparative political economy approach and secondary data analysis, the study draws on policy documents, industry reports, and scholarly literature to evaluate refining capacity, supply stability, pricing dynamics, and regional trade implications. Findings indicate that the refinery strengthens Nigeria's strategic energy position while generating competitive and cooperative responses from South Africa and Angola. The study concludes that regional energy security depends not only on infrastructure expansion but also on policy coordination, regulatory stability, and cross-border energy diplomacy. The paper recommends stronger regional energy governance frameworks to enhance sustainable and equitable energy security across Sub-Saharan Africa.

1. INTRODUCTION

Energy security has become one of Sub-Saharan Africa's most pressing development and governance challenges, despite the continent's abundance of crude oil, natural gas, and renewable energy resources. Many African states remain paradoxically dependent on imported refined petroleum products, exposing their economies to external price shocks, supply disruptions, and geopolitical vulnerabilities (International Energy Agency IEA, 2023). This structural contradiction is particularly evident in major oil-producing countries such as Nigeria and Angola, as well as industrialized economies like South Africa, where energy

insecurity continues to affect industrial productivity, inflation, transportation costs, and overall economic stability (African Development Bank (AfDB), 2023). Nigeria, Africa's largest crude oil producer, has historically relied heavily on imported refined petroleum products despite its vast hydrocarbon reserves. Decades of underperforming state-owned refineries, poor maintenance culture, policy inconsistency, subsidy distortions, and weak institutional governance have driven this dependence (Akinola & Adeyemo, 2022). The commissioning of the Dangote Refinery, with a refining capacity of 650,000 barrels per day, represents one of the most significant private-sector interventions in Africa's energy sector. By 2026, the refinery reached full nameplate capacity and began supplying a substantial share of Nigeria's domestic fuel demand while also exporting refined products across West, Central, and East Africa (Reuters, 2026, April 6). This development has the potential to transform Nigeria from a net importer of refined petroleum into a regional refining hub, thereby reshaping continental energy trade patterns.

Beyond Nigeria, South Africa and Angola occupy strategic positions in Africa's energy landscape. South Africa possesses one of the continent's most industrialized economies and a historically strong refining sector, yet it faces severe energy security challenges due to electricity shortages, ageing infrastructure, and refinery shutdowns that have increased dependence on imported fuels (Baker & Phillips, 2021). The operational and governance crises surrounding Eskom have further intensified concerns about national energy resilience and industrial competitiveness (Swilling, Musango, & Wakeford, 2016). Similarly, Angola, although one of Africa's leading crude exporters, has long struggled with limited domestic refining capacity, forcing it to import significant volumes of refined petroleum products. Recent investments in refinery expansion aim to reduce this dependence, but implementation challenges persist (Oliveira & Fortes, 2023).

The rise of the Dangote Refinery introduces a new geopolitical and economic dynamic into this regional context. Its scale, private ownership structure, and export orientation challenge traditional state-led energy models and reposition Nigeria within Africa's political economy of oil. The refinery's growing influence extends beyond domestic supply stabilization to regional market competition, cross-border fuel trade, and strategic diplomacy. Reuters reports that the refinery has exported gasoline to several African countries and helped ease supply shortages across West, Central, and East Africa during recent global market disruptions (Reuters, 2026, April 6). This suggests that refining infrastructure is no longer merely a domestic industrial asset but also a strategic instrument of regional influence. However, infrastructure expansion alone does not automatically guarantee energy security. Despite Dangote's operational success, Nigeria continues to experience high domestic fuel prices due to crude supply constraints, global oil market volatility, and limited strategic reserves (Reuters, 2026, March 30). This demonstrates that energy security is multidimensional, involving not only refining capacity but also governance quality, supply chain coordination, pricing regulation, and regional policy harmonization. Existing scholarship has largely focused on domestic refining inefficiencies or subsidy reforms, with limited comparative attention to how mega-refineries reshape interstate energy relations and regional power structures in Africa (Okonkwo & Eze, 2021).

The problem, therefore, is that while the Dangote Refinery is widely celebrated as a transformative project for Nigeria and Africa, there remains insufficient scholarly understanding of its broader implications for regional energy security and political economy across Sub-Saharan Africa. Specifically, there is limited comparative research examining how Dangote's emergence affects the strategic responses of other major energy players such as South Africa and Angola, and whether such large-scale private refining investments promote cooperation or intensify competition in continental energy governance. This gap weakens policy formulation regarding regional energy integration and sustainable fuel security. This study addresses this problem by examining energy security in Nigeria, South Africa, and Angola, with particular focus on the impact of the Dangote Refinery and other major energy actors.

The study seeks to analyze how refining capacity, fuel supply stability, pricing mechanisms, and regional trade relations are being reconfigured by new investments and shifting geopolitical realities. It also explores whether private-sector-led refining expansion can provide a durable solution to Africa's long-standing energy insecurity. The significance of this study lies in its contribution to debates on African energy transition, regional integration, and development policy. Rather than treating energy security solely as a technical supply issue, the study situates it within the broader political economy of infrastructure, governance, and interstate relations. Understanding the strategic implications of Dangote's refinery is essential for policymakers, regional institutions, and investors seeking to strengthen Africa's energy sovereignty and reduce dependence on external markets. Ultimately, sustainable energy security in Sub-Saharan Africa will depend not only on refinery construction but also on institutional reforms, regulatory coherence, and coordinated regional energy diplomacy.

2. LITERATURE REVIEW

2.1 Energy Security as Development Question

Energy security has increasingly become one of the most critical development questions in both developed and developing economies, particularly in Sub-Saharan Africa, where access to reliable, affordable, and sustainable energy remains highly uneven. Traditionally, energy security was defined as the uninterrupted availability of energy sources at an affordable price (International Energy Agency [IEA], 2023). However, contemporary scholarship has expanded this definition beyond simple supply sufficiency to include affordability, accessibility, governance quality, resilience, environmental sustainability, and geopolitical stability (Cherp & Jewell, 2014). This broader understanding is especially relevant in Africa, where energy insecurity directly affects poverty reduction, industrialization, public service delivery, social stability, and long-term economic transformation. Energy serves as the backbone of economic growth and national development. Industrial production, transportation systems, healthcare delivery, agricultural processing, education infrastructure, and digital transformation all depend on stable and efficient energy access. In countries with weak energy infrastructure, supply disruptions increase production costs, reduce industrial competitiveness, discourage foreign direct investment, and slow economic diversification (African Development Bank [AfDB], 2023). Frequent electricity outages and fuel shortages also intensify inflationary pressures by raising transportation costs, food prices, and the cost of doing business, thereby reducing household welfare and national productivity.

In the context of Sub-Saharan Africa, energy security extends beyond electricity generation to include petroleum supply chains, refining capacity, fuel storage systems, and cross-border energy trade. While global energy debates increasingly focus on renewable energy transitions and decarbonization, liquid fuels remain central to African economies because transportation, logistics, manufacturing, mining, and backup electricity generation depend heavily on petroleum products (Sovacool, 2011). This makes refining infrastructure a strategic pillar of national energy security. Countries that produce crude oil but lack sufficient domestic refining capacity remain dependent on imported refined products, exposing them to exchange rate volatility, freight disruptions, global supply chain shocks, and geopolitical market instability.

Nigeria represents one of the strongest examples of this structural contradiction. Despite being Africa's largest crude oil producer and one of the world's major petroleum exporters, Nigeria has historically relied heavily on imported refined petroleum products due to the collapse of state-owned refineries, poor maintenance culture, corruption, policy inconsistency, and subsidy distortions (Akinola & Adeyemo, 2022). This paradox has weakened fiscal stability, increased pressure on foreign exchange reserves, and made domestic fuel pricing highly vulnerable to global oil market fluctuations. Fuel subsidy regimes have also created significant governance challenges, often generating political tensions whenever reform attempts are introduced. The commissioning of the Dangote Refinery represents a major turning point in Nigeria's energy landscape and Africa's broader petroleum economy. With a refining capacity of approximately 650,000 barrels per day, it is the largest refinery in Africa and one of the largest single-train refineries globally. Its emergence offers the possibility of transforming Nigeria from a major importer of refined fuel into a regional refining hub capable of supplying West, Central, and Southern African markets. This has important implications for reducing import dependence, improving domestic supply reliability, stabilizing foreign exchange demand, and strengthening Nigeria's strategic influence within Africa's energy market.

Although Angola is one of Africa's leading crude oil exporters, it has long struggled with limited domestic refining capacity, forcing the country to import large volumes of refined petroleum products. This dependence increases fiscal vulnerability and weakens national energy resilience. Recent efforts to expand domestic refinery infrastructure are aimed at reducing import dependence and strengthening downstream value addition (Oliveira & Fortes, 2023). However, implementation challenges, financing constraints, and institutional weaknesses continue to slow progress. South Africa offers a slightly different but equally important case. As one of Africa's most industrialized economies, South Africa depends heavily on energy stability for industrial production and economic competitiveness. However, persistent electricity shortages, refinery shutdowns, and the governance crisis surrounding Eskom have significantly weakened national energy security (Baker & Phillips, 2021).

The decline in domestic refining capacity has increased dependence on imported fuels, while electricity instability has undermined investor confidence and manufacturing growth. This demonstrates that industrial development alone does not guarantee energy security without sustained infrastructure investment and effective institutional governance. The developmental implications of energy insecurity are therefore profound. Unreliable fuel supply constrains manufacturing expansion, weakens

transportation networks, increases logistics costs, and limits the efficiency of essential public institutions such as hospitals, schools, and emergency services. Energy poverty also deepens social inequality because low-income households spend a higher proportion of their income on transport and alternative energy sources. In many African countries, rising fuel prices often trigger social unrest, labor strikes, and political resistance, particularly where subsidy reforms are perceived as unfair or poorly managed (Karl, 1997).

From a governance perspective, energy security is increasingly linked to national sovereignty and regional power relations. Countries with strong refining capacity and strategic fuel reserves gain greater economic resilience and stronger geopolitical influence. Large-scale infrastructure such as the Dangote Refinery demonstrates how domestic industrial investment can reshape regional trade patterns, alter interstate bargaining power, and redefine energy diplomacy across Africa. This shifts energy security from being merely a technical supply issue to a broader political economy concern involving institutions, regulation, private capital, and interstate relations. Ultimately, energy security should be understood as a development question because it determines the capacity of states to achieve industrialization, reduce poverty, strengthen governance, and maintain political stability. Resource abundance alone does not guarantee development; what matters is how effectively energy systems are governed, refined, distributed, and protected. Sustainable development in Africa depends not only on expanding access to energy but also on building resilient institutions capable of transforming natural resource wealth into long-term economic security and regional stability.

2.2 Political Economy of Oil in Africa

The political economy of oil in Africa is shaped by the complex interaction between natural resource wealth, state institutions, private capital, governance structures, and global market forces. Oil has long been viewed as a strategic asset capable of driving industrialization, economic growth, and national development. However, across many African oil-producing states, petroleum wealth has often produced weak institutions, rent-seeking behavior, economic dependence, and persistent underdevelopment rather than broad-based prosperity. This contradiction reflects what scholars describe as the "resource curse," where countries rich in natural resources experience governance failures and developmental stagnation instead of sustainable growth (Karl, 1997; Ross, 2012). Africa's major oil-producing countries, including Nigeria, Angola, Algeria, Libya, and Equatorial Guinea have historically relied heavily on crude oil exports as the foundation of state revenue and foreign exchange earnings. This export-oriented structure has created economies that are highly vulnerable to fluctuations in international oil prices and global demand patterns. In many cases, governments prioritize crude oil exports while neglecting domestic refining capacity, industrial diversification, and long-term institutional development (Watts, 2004). As a result, several oil-rich African countries paradoxically import refined petroleum products despite exporting millions of barrels of crude oil annually.

Nigeria provides one of the strongest illustrations of this contradiction. As Africa's largest crude oil producer, Nigeria has generated substantial petroleum revenues since the 1970s, yet widespread poverty, infrastructure decay, and institutional inefficiency persist. State-owned refineries have suffered chronic underperformance due to corruption, poor maintenance, subsidy distortions, and policy inconsistency, forcing the country to rely heavily on imported refined petroleum products (Akinola & Adeyemo, 2022). This dependence places pressure on foreign exchange reserves and creates recurring political crises around fuel subsidy reforms. Rather than functioning as a developmental asset, oil wealth has often reinforced elite capture and fiscal instability. The concept of rentier state theory helps explain this pattern. Rentier states derive a significant proportion of national revenue from external rents such as oil exports rather than domestic taxation. This reduces government accountability to citizens because state survival depends less on productive taxation and more on control of resource rents (Beblawi & Luciani, 1987). In many African oil economies, this structure encourages centralized political power, patronage networks, and weak democratic institutions. Oil revenues are often distributed through elite bargaining systems rather than developmental planning, limiting institutional transparency and productive investment.

Angola reflects a similar political economy dynamic. As one of Africa's leading crude oil exporters, Angola's economy has been heavily dependent on petroleum revenues for state financing and foreign exchange. Despite high export earnings, the country has struggled with poverty, weak industrial diversification, and limited domestic refining capacity. The dominance of the oil sector has crowded out investment in agriculture, manufacturing, and human capital development, creating structural dependence on a single commodity (Oliveira & Fortes, 2023). This reinforces vulnerability to external oil price shocks and constrains sustainable economic transformation.

South Africa presents a slightly different case because it is not primarily a major crude oil exporter like Nigeria or Angola, but its industrial economy is deeply influenced by petroleum supply security and energy governance. South Africa's refining sector has historically supported industrial competitiveness, but refinery closures, electricity instability, and governance failures within Eskom have created significant energy insecurity (Baker & Phillips, 2021). This demonstrates that the political economy of oil is not limited to oil-producing states; it also affects industrial consumers whose development depends on reliable energy systems and effective institutional coordination. Another critical dimension of Africa's oil political economy is the role of multinational corporations and private capital. Historically, foreign oil companies dominated exploration, production, and export structures across the continent, often shaping national policy priorities and revenue systems. This created external dependency and limited domestic control over strategic energy decisions (Obi, 2010). In recent years, however, large-scale private domestic investments such as the Dangote Refinery have introduced a new dynamic. The refinery represents a shift from state-led downstream failure toward private-sector-led industrial transformation, with significant implications for regional market power and energy sovereignty.

The Dangote Refinery challenges the traditional political economy of oil by reducing dependence on imported refined fuel and repositioning Nigeria as a potential regional refining hub. Its scale and export capacity strengthen Nigeria's strategic influence across West, Central, and Southern Africa. However, it also raises concerns about market concentration, regulatory capture, and the risks of private monopoly in strategic sectors. This reflects a broader political economy question: whether private capital can deliver public energy security without reproducing new forms of dependency and unequal access. Oil politics in Africa are also deeply connected to conflict, environmental degradation, and community resistance. In Nigeria's Niger Delta, oil extraction has generated decades of environmental damage, displacement, and violent conflict over resource control and revenue distribution (Watts, 2004).

Communities often experience the negative externalities of extraction without receiving proportional developmental benefits. This highlights how oil wealth can generate insecurity rather than stability when governance systems fail to manage resource distribution equitably. Ultimately, the political economy of oil in Africa demonstrates that resource abundance alone does not guarantee development. The critical issue is how institutions manage ownership, refining capacity, revenue distribution, and long-term economic planning. Countries that remain trapped in crude export dependence without downstream industrialization face recurring fiscal crises and energy insecurity. Sustainable development requires moving beyond extraction toward refining capacity, regulatory reform, industrial diversification, and stronger governance institutions. Oil must be treated not merely as a source of revenue, but as a strategic instrument for inclusive development, national resilience, and regional economic transformation.

2.3 Refining Capacity and Import Dependency

Refining capacity and import dependency are central issues in the study of energy security, particularly in oil-producing economies where the paradox of crude oil abundance coexists with dependence on imported refined petroleum products. Refining capacity refers to a country's ability to process crude oil into usable petroleum products such as petrol, diesel, aviation fuel, kerosene, and liquefied petroleum gas. Import dependency occurs when a country relies heavily on foreign suppliers for these refined products due to insufficient domestic refining infrastructure. In many African countries, especially Nigeria and Angola, weak refining capacity has created structural vulnerabilities that undermine economic stability, industrial productivity, and national energy security (International Energy Agency (IEA, 2023). The relationship between refining capacity and import dependency is strongly linked to energy sovereignty. Countries that possess abundant crude oil reserves but lack functional domestic refineries remain vulnerable to global supply disruptions, exchange rate volatility, and freight cost increases. This paradox reflects a major weakness in the political economy of oil across Africa, where export-oriented crude production often takes precedence over domestic downstream industrialization (Karl, 1997). As a result, governments earn revenue from crude exports while spending significant foreign exchange importing refined petroleum products, creating fiscal contradictions and developmental inefficiencies.

Nigeria represents one of the most prominent examples of this contradiction. As Africa's largest crude oil producer, Nigeria has historically exported large volumes of crude oil while importing most of its refined petroleum products. This situation emerged because the country's state-owned refineries in Port Harcourt, Warri, and Kaduna have operated far below capacity for decades due to poor maintenance, corruption, subsidy distortions, pipeline vandalism, and weak institutional governance (Akinola & Adeyemo, 2022). The collapse of domestic refining created dependence on imported fuel, placing enormous

pressure on foreign exchange reserves and exposing the economy to global oil price volatility. Fuel import dependency in Nigeria also intensified political tensions surrounding petroleum subsidy reforms. Because imported refined products were expensive and domestic fuel prices politically sensitive, governments maintained large subsidy regimes to protect consumers. However, these subsidies became fiscally unsustainable, often consuming a significant share of national revenue and encouraging rent-seeking and corruption (Ross, 2012). This demonstrates that weak refining capacity not only affects energy supply but also shapes fiscal governance, public trust, and political stability.

The commissioning of the Dangote Refinery represents a major structural intervention in Nigeria's refining sector. With a refining capacity of approximately 650,000 barrels per day, it is the largest refinery in Africa and one of the largest single-train refineries globally. Its emergence offers the possibility of significantly reducing Nigeria's dependence on imported refined products, improving domestic fuel supply reliability, and transforming the country into a regional refining hub. By reducing freight costs and strengthening domestic supply chains, the refinery has the potential to improve both energy security and macroeconomic stability. However, refining capacity alone does not automatically eliminate import dependency. Domestic crude supply arrangements, foreign exchange stability, infrastructure distribution networks, and regulatory consistency remain critical factors. Nigeria has continued to face high domestic fuel prices despite increased refining capacity because of exchange rate pressures, global crude price fluctuations, and broader macroeconomic instability. This shows that availability of refined products does not necessarily translate into affordability or equitable access (Cherp & Jewell, 2014).

Angola presents a similar case of crude export strength combined with domestic refining weakness. As one of Africa's leading crude exporters, Angola has long depended on imported refined products because of limited downstream infrastructure. This dependence has increased fiscal pressure and weakened national energy resilience, particularly during periods of international market volatility. The government has therefore prioritized new refinery projects to reduce import dependence and strengthen domestic value addition (Oliveira & Fortes, 2023). Expanding refining capacity is seen as a strategic step toward economic diversification and reduced vulnerability to external shocks. South Africa offers a different but equally important perspective. Although it is not primarily a major crude oil exporter like Nigeria or Angola, its industrial economy depends heavily on stable petroleum supply. Historically, South Africa maintained significant refining capacity to support manufacturing, mining, and transport systems. However, refinery closures, ageing infrastructure, and operational disruptions have increased fuel import dependency in recent years (Baker & Phillips, 2021). Combined with the electricity crisis linked to Eskom, these refinery challenges have weakened industrial competitiveness and investor confidence. This demonstrates that refining decline can create energy insecurity even in relatively industrialized economies.

Import dependency also has broader regional implications. African countries that rely heavily on imported fuel are exposed not only to international market volatility but also to geopolitical supply risks involving shipping routes, currency fluctuations, and global crises such as pandemics or conflicts. During global supply disruptions, countries without strong refining capacity face shortages, inflation, and social unrest. This reinforces the argument that refining infrastructure is a strategic security asset rather than merely an industrial facility (Sovacool, 2011). At the regional level, the rise of mega-refineries such as Dangote may transform trade patterns across West, Central, and Southern Africa. Countries with limited refining capacity may increasingly depend on regional suppliers rather than overseas imports, potentially reducing transport costs and improving supply reliability. However, this also raises concerns about market concentration and regional power imbalances if one refinery gains excessive influence over fuel pricing and distribution. Ultimately, refining capacity and import dependency are not simply technical energy issues; they are deeply political and developmental concerns. Strong domestic refining capacity improves energy sovereignty, reduces fiscal vulnerability, strengthens industrial growth, and enhances national resilience. Conversely, dependence on imported refined products creates structural fragility, economic inefficiency, and policy instability. For African economies seeking sustainable development, investment in refining infrastructure must be accompanied by institutional reform, regulatory transparency, and regional cooperation. Energy security depends not only on producing crude oil, but on controlling the full value chain from extraction to domestic consumption and regional distribution.

2.4 Regional Energy Integration

Regional energy integration refers to the process through which neighboring countries coordinate energy production, infrastructure, trade, regulation, and policy frameworks to improve collective energy security, economic efficiency, and sustainable development. In Sub-Saharan Africa, regional energy integration has become increasingly important because many countries face similar challenges of inadequate refining capacity, weak electricity infrastructure, fuel import dependence, and

fragmented policy systems. Rather than managing these challenges in isolation, regional cooperation offers opportunities for shared resilience, lower energy costs, improved market efficiency, and stronger geopolitical stability (International Energy Agency [IEA, 2023). Energy security in Africa is deeply interconnected across borders. Fuel shortages, electricity disruptions, and refinery failures in one country often affect neighboring states through transport networks, trade routes, and pricing systems. This reflects the principles of Regional Security Complex Theory, which argues that security vulnerabilities are geographically clustered and cannot be effectively addressed through purely national strategies (Buzan & Wæver, 2003).

In the energy sector, this means that national energy policies are often shaped by regional supply conditions, infrastructure interdependence, and political cooperation among neighboring states. One of the major drivers of regional energy integration is the imbalance between crude oil production and refining capacity across Africa. Several countries, such as Nigeria and Angola, are major crude oil exporters but have historically lacked sufficient domestic refining infrastructure, forcing them to import refined petroleum products. At the same time, industrialized economies such as South Africa depend heavily on stable fuel imports to support manufacturing, mining, and transport systems (Baker & Phillips, 2021). This creates a natural basis for regional trade integration, where refining hubs can supply neighboring markets more efficiently than overseas imports.

The emergence of the Dangote Refinery in Nigeria has significantly strengthened discussions around regional energy integration. With a refining capacity of approximately 650,000 barrels per day, the refinery has the potential to supply refined petroleum products across West, Central, and Southern Africa. This reduces dependence on European and Asian imports, lowers freight costs, shortens supply chains, and strengthens Africa's internal energy market. The refinery therefore represents not only a national industrial project but also a strategic regional asset capable of reshaping fuel trade patterns across the continent. Regional energy integration also extends beyond petroleum refining to include electricity cooperation through power pools and cross-border transmission systems. Examples include the Southern African Power Pool (SAPP), the West African Power Pool (WAPP), and the Eastern Africa Power Pool (EAPP), which aim to coordinate electricity generation and transmission among member states (African Development Bank [AfDB], 2023).

These initiatives are designed to improve supply reliability, reduce infrastructure duplication, and promote cost-effective energy access. However, implementation challenges such as weak financing, regulatory inconsistencies, and political mistrust often limit their effectiveness. In the petroleum sector, policy fragmentation remains a major obstacle to regional integration. Fuel pricing systems, subsidy regimes, taxation structures, and import regulations differ significantly across African countries, making cross-border trade inefficient and politically sensitive. For example, fuel subsidy reforms in Nigeria often create spillover effects in neighboring countries through smuggling and informal trade networks. Without coordinated pricing policies and regulatory harmonization, regional fuel markets remain unstable and vulnerable to arbitrage and supply distortions (Akinola & Adeyemo, 2022).

South Africa provides an important case in understanding the importance of regional integration. The country's industrial economy requires stable fuel and electricity supply to sustain manufacturing competitiveness and investment confidence. However, refinery shutdowns and Eskom's electricity crisis have increased dependence on imported fuels and regional power cooperation (Baker & Phillips, 2021). South Africa's energy future increasingly depends on both domestic reform and stronger regional partnerships capable of stabilizing supply networks across Southern Africa. Similarly, Angola's efforts to expand domestic refining capacity reflect both national and regional strategic calculations. While refinery investment can reduce domestic import dependence, Angola also seeks to strengthen its role within regional energy markets by supplying neighboring states and improving downstream value addition (Oliveira & Fortes, 2023). This demonstrates that regional integration is not simply about dependence, but also about strategic positioning and market influence.

A major benefit of regional energy integration is improved resilience during global crises. Events such as the COVID-19 pandemic, the Russia–Ukraine conflict, and global shipping disruptions demonstrated how external supply shocks can rapidly destabilize African fuel markets. Countries with stronger regional supply networks are better positioned to manage shortages and stabilize domestic prices. Strategic reserves, coordinated procurement, and shared infrastructure can significantly reduce vulnerability to international disruptions (Sovacool, 2011). However, regional integration also raises concerns about market concentration and unequal power relations. Mega-refineries such as Dangote may strengthen continental supply security, but they can also create dependency if smaller economies become overly reliant on a single supplier. This may shift vulnerability from overseas markets to regional dominance by stronger states or private actors. Effective governance therefore requires

balancing efficiency with equity, ensuring that regional integration does not produce new forms of dependency or political leverage.

Institutional coordination remains essential for successful regional integration. Regional blocs such as the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), and the African Continental Free Trade Area (AfCFTA) provide important platforms for harmonizing trade rules, investment frameworks, and energy diplomacy. Yet implementation often remains weak because national political priorities override collective commitments. Stronger enforcement mechanisms and political trust are necessary to transform formal agreements into practical energy cooperation. Ultimately, regional energy integration is a strategic pathway toward energy security, economic resilience, and sustainable development in Africa. No country can achieve full energy sovereignty in isolation because fuel markets, electricity systems, and infrastructure vulnerabilities are inherently interconnected. Refining hubs, power pools, strategic reserves, and policy harmonization must be treated as collective regional priorities rather than isolated national projects. Sustainable energy security depends not only on expanding infrastructure, but also on building institutions capable of managing cooperation, competition, and shared prosperity across borders.

2.5 Research Gap

Existing scholarship on energy security in Sub-Saharan Africa has extensively examined issues such as crude oil production, fuel subsidy reforms, electricity shortages, and the persistent inefficiency of state-owned refineries. Studies on Nigeria have largely focused on petroleum subsidy removal, governance failures in the downstream oil sector, and the collapse of public refineries (Akinola & Adeyemo, 2022). Similarly, research on South Africa has concentrated on electricity instability, the governance crisis of Eskom, and the declining performance of domestic refining infrastructure (Baker & Phillips, 2021). In Angola, existing studies primarily emphasize crude oil export dependence and recent efforts toward domestic refinery expansion (Oliveira & Fortes, 2023). While these studies provide important national-level insights, they remain largely fragmented and country-specific.

A major gap in the literature is the limited comparative analysis of how large-scale private refining investments reshape regional energy security across multiple African states. Most existing studies treat refining capacity as a domestic industrial issue rather than a regional geopolitical factor. There is insufficient scholarly attention to how mega-refineries such as the Dangote Refinery influence interstate relations, cross-border fuel trade, and strategic competition among major energy players in Africa. The refinery is often discussed in relation to Nigeria's domestic fuel supply, but its broader implications for regional market power and continental energy diplomacy remain underexplored. Another significant gap is the limited integration of political economy and regional security perspectives in the study of Africa's petroleum sector. Much of the literature approaches energy security from a technical or economic perspective, focusing on supply availability, infrastructure deficits, and pricing mechanisms. Less attention is given to how refining infrastructure redistributes political influence, strengthens bargaining power, and shapes regional security interdependence. This creates a theoretical gap because energy security in Africa is not only about access to fuel, but also about who controls refining capacity, trade routes, and pricing systems.

Furthermore, previous studies have not sufficiently examined the strategic responses of other major energy actors such as South Africa and Angola to the rise of the Dangote Refinery. There is limited understanding of whether the refinery promotes regional cooperation through improved supply access or intensifies competition by concentrating market power in Nigeria. Questions relating to regional dependency, pricing dominance, and private-sector influence remain largely unanswered. This study addresses these gaps by adopting a comparative political economy approach to examine energy security in Nigeria, South Africa, and Angola, with a specific focus on the impact of the Dangote Refinery and other major energy players. It moves beyond domestic analysis to investigate how refining capacity influences regional power shifts, interstate relations, and energy governance across Sub-Saharan Africa. By combining Political Economy Theory and Regional Security Complex Theory, the study contributes both empirical and theoretical insights into the evolving political economy of oil and regional energy security in Africa.

3. THEORETICAL FRAMEWORK

This study is guided by the Political Economy Theory, with support from Regional Security Complex Theory (RSCT). These theories provide a comprehensive explanation of how energy infrastructure influences power relations, state behavior, and regional security outcomes.

Political Economy Theory explains the interaction between state institutions, private capital, economic resources, and power relations in shaping development outcomes (Gilpin, 2001). In the context of this study, oil and refining infrastructure are not treated merely as economic assets but as strategic instruments of political control, market influence, and national development. The theory assumes that access to and control over energy resources determine economic stability, fiscal strength, and geopolitical relevance. The Dangote Refinery reflects this theory because it represents a major shift from state-led downstream petroleum management toward private-sector dominance in a strategically important industry. Nigeria's state-owned refineries failed for decades due to corruption, weak institutional governance, poor maintenance, and subsidy distortions, resulting in high import dependence despite large crude oil reserves (Akinola & Adeyemo, 2022). The emergence of Dangote Refinery changes this structure by increasing domestic refining capacity, reducing reliance on imported fuel, and strengthening Nigeria's economic bargaining power. Political Economy Theory helps explain how this transformation affects government policy, subsidy reforms, foreign exchange management, and regional trade competitiveness. It also reveals how private capital can alter traditional state-market relations by shifting strategic control over fuel supply chains. The theory is further applied to Angola and South Africa, where policy responses to Dangote's expansion reflect concerns over market competition, industrial protection, and downstream investment decisions. Thus, the theory explains how refining capacity becomes a source of economic power and strategic influence rather than simply an industrial facility.

Regional Security Complex Theory, developed by Barry Buzan and Ole Wæver (2003), argues that security interdependence is strongest among neighboring states because threats and vulnerabilities are geographically concentrated. This means that the security of one state cannot be fully understood in isolation from the security conditions of surrounding states. In the context of energy security, RSCT explains how fuel shortages, refinery failures, supply disruptions, and pricing instability in one African country affect neighboring countries through regional trade networks and market linkages. For example, Nigeria's increased refining capacity through the Dangote Refinery influences fuel supply patterns across West, Central, and Southern Africa. Similarly, South Africa's refinery decline and Angola's efforts to expand refining infrastructure create spillover effects that shape regional market stability. The theory is applied to show that energy security in Sub-Saharan Africa is a regional issue rather than a purely national concern. Nigeria's ability to export refined products creates both opportunities for regional cooperation and risks of dependency if neighboring countries become overly reliant on a single supplier. South Africa and Angola must therefore respond strategically to protect national energy resilience while participating in regional energy integration. RSCT also helps explain the role of regional institutions such as ECOWAS, SADC, and the African Continental Free Trade Area (AfCFTA) in managing energy diplomacy, fuel trade coordination, and strategic reserves. It supports the argument that regional governance frameworks are necessary for sustainable energy security because no country can achieve full energy sovereignty in isolation.

3.1 Theoretical Application

The application of Political Economy Theory and Regional Security Complex Theory (RSCT) provides a strong analytical foundation for understanding how the Dangote Refinery influences energy security and regional power relations in Nigeria, South Africa, and Angola. These theories help explain both the domestic institutional dynamics of refining capacity and the broader regional implications of energy infrastructure in Sub-Saharan Africa.

Political Economy Theory explains the interaction between state institutions, private capital, economic resources, and power relations in shaping development outcomes (Gilpin, 200]1). In the context of this study, oil and refining infrastructure are not treated merely as economic assets but as strategic instruments of political control, market influence, and national development. The theory assumes that access to and control over energy resources determine economic stability, fiscal strength, and geopolitical relevance. The Dangote Refinery reflects this theory because it represents a major shift from state-led downstream petroleum management toward private-sector dominance in a strategically important industry. Nigeria's state-owned refineries failed for decades due to corruption, weak institutional governance, poor maintenance, and subsidy distortions, resulting in high import dependence despite large crude oil reserves (Akinola & Adeyemo, 2022). The emergence of Dangote Refinery changes this structure by increasing domestic refining capacity, reducing reliance on imported fuel, and strengthening Nigeria's economic bargaining power. Political Economy Theory helps explain how this transformation affects government policy, subsidy reforms, foreign exchange management, and regional trade competitiveness. It also reveals how private capital can alter traditional state-market relations by shifting strategic control over fuel supply chains. The theory is further applied to Angola and South Africa, where policy responses to Dangote's expansion reflect concerns over market competition, industrial

protection, and downstream investment decisions. Thus, the theory explains how refining capacity becomes a source of economic power and strategic influence rather than simply an industrial facility.

Regional Security Complex Theory, developed by Barry Buzan and Ole Wæver (2003), argues that security interdependence is strongest among neighboring states because threats and vulnerabilities are geographically concentrated. This means that the security of one state cannot be fully understood in isolation from the security conditions of surrounding states. In the context of energy security, RSCT explains how fuel shortages, refinery failures, supply disruptions, and pricing instability in one African country affect neighboring countries through regional trade networks and market linkages. For example, Nigeria's increased refining capacity through the Dangote Refinery influences fuel supply patterns across West, Central, and Southern Africa. Similarly, South Africa's refinery decline and Angola's efforts to expand refining infrastructure create spillover effects that shape regional market stability. The theory is applied to show that energy security in Sub-Saharan Africa is a regional issue rather than a purely national concern. Nigeria's ability to export refined products creates both opportunities for regional cooperation and risks of dependency if neighboring countries become overly reliant on a single supplier. South Africa and Angola must therefore respond strategically to protect national energy resilience while participating in regional energy integration. RSCT also helps explain the role of regional institutions such as ECOWAS, SADC, and the African Continental Free Trade Area (AfCFTA) in managing energy diplomacy, fuel trade coordination, and strategic reserves. It supports the argument that regional governance frameworks are necessary for sustainable energy security because no country can achieve full energy sovereignty in isolation.

The integration of Political Economy Theory and RSCT strengthens the analytical depth of this study. Political Economy Theory explains how domestic institutions, governance quality, private investment, and market control shape national refining capacity and fuel security. RSCT explains how these domestic developments generate cross-border consequences that influence regional power relations and interstate cooperation. The theories demonstrate that the Dangote Refinery is both a domestic industrial project and a regional geopolitical actor. It changes Nigeria's internal energy structure while simultaneously reshaping Africa's regional fuel trade system. This combined application allows the study to examine how refining infrastructure influences not only economic outcomes but also strategic competition, regional dependency, and continental energy governance. Therefore, the two theories provide a comprehensive framework for analyzing how energy security, refining capacity, and political power interact across Nigeria, South Africa, and Angola in the evolving political economy of oil in Sub-Saharan Africa.

4. METHODOLOGY

This study adopts a comparative qualitative case study design to examine how the Dangote Refinery and other major energy actors influence energy security and regional power shifts in Nigeria, South Africa, and Angola. The comparative case study approach is appropriate because it enables an in-depth analysis of country-specific energy dynamics while identifying broader regional patterns (Yin, 2018). These three countries were selected because they represent interconnected but distinct positions within Sub-Saharan Africa's oil economy: Nigeria as a major crude producer and emerging refining hub, South Africa as an industrialized economy facing refinery decline and electricity instability, and Angola as a major oil exporter pursuing downstream expansion. The study is grounded in an interpretivist research philosophy, which emphasizes understanding policy decisions, institutional behavior, and geopolitical interactions within their socio-economic context (Creswell & Creswell, 2018). This is relevant because energy security is not only a technical issue of supply and demand but also a political economy issue shaped by governance structures and interstate relations. Secondary data serve as the primary source of evidence. Data were collected from peer-reviewed journal articles, policy documents, government publications, energy sector reports, IEA and AfDB reports, OPEC publications, Reuters industry reports, and company disclosures. This multi-source strategy improves reliability through triangulation. The analysis focuses on four key indicators of energy security: refining capacity, fuel import dependence, pricing stability, and regional trade implications. Qualitative comparative analysis and thematic content analysis were used to examine recurring themes such as subsidy reforms, private-sector investment, market concentration, and regional energy diplomacy through the lens of Political Economy Theory and Regional Security Complex Theory. Validity was strengthened through source triangulation and consistent comparison across cases. Although reliance on secondary data limits access to confidential industry information, the use of recent institutional reports improves reliability.

5. EMPIRICAL ANALYSIS

5.1 Nigeria: From Import Dependency to Strategic Repositioning

Nigeria presents one of the strongest examples of the paradox of oil wealth and energy insecurity in Sub-Saharan Africa. Despite being Africa's largest crude oil producer and one of the world's major petroleum exporters, the country has historically depended heavily on imported refined petroleum products. This contradiction emerged from decades of underperforming state-owned refineries, weak institutional governance, corruption, subsidy distortions, pipeline vandalism, and poor maintenance culture (Akinola & Adeyemo, 2022). The Port Harcourt, Warri, and Kaduna refineries consistently operated below installed capacity, forcing Nigeria to rely on costly fuel imports to meet domestic demand. This dependence created severe fiscal and macroeconomic pressures. Large volumes of foreign exchange were spent on importing petrol, diesel, and aviation fuel, increasing pressure on Nigeria's external reserves and exchange rate stability. Fuel subsidy regimes were introduced to cushion consumers from high international prices, but these subsidies became fiscally unsustainable and politically sensitive. According to Ross (2012), subsidy-driven oil economies often experience governance inefficiencies because rent distribution becomes politically prioritized over productive investment. In Nigeria, subsidy management frequently generated corruption scandals, public protests, and policy instability. The commissioning of the Dangote Refinery marks a major structural turning point in Nigeria's downstream petroleum sector. With a refining capacity of approximately 650,000 barrels per day, the refinery is the largest in Africa and one of the largest single-train refineries globally. Its operation significantly improves domestic refining capacity, reduces dependence on imported refined products, and strengthens supply reliability. The refinery also supports Nigeria's broader industrial strategy by reducing freight costs, improving local value addition, and easing pressure on foreign exchange demand.

Beyond domestic supply stabilization, Dangote Refinery repositions Nigeria strategically within regional energy markets. The refinery's export capacity enables Nigeria to supply refined petroleum products to West, Central, and Southern African countries that face similar refining deficits. This transforms Nigeria from a net importer of refined fuel into a potential regional refining hub and strengthens its geopolitical influence within Africa's political economy of oil. Regional fuel trade now increasingly reflects Nigeria's refining strength rather than exclusive dependence on European and Asian imports. However, increased refining capacity has not automatically translated into fuel affordability. Domestic petrol prices remain high due to exchange rate volatility, global crude oil price fluctuations, crude supply constraints, and broader macroeconomic instability. This confirms the argument by Cherp and Jewell (2014) that energy security must be understood beyond supply availability to include affordability, accessibility, and governance quality. Availability of refined products alone does not guarantee equitable access for households and industries. Furthermore, the rise of private-sector dominance in refining introduces new political economy questions. While Dangote Refinery addresses many inefficiencies associated with failed state-owned refineries, it also raises concerns about market concentration and pricing influence. Heavy reliance on a single private mega-refinery may create new forms of dependency if regulatory institutions remain weak. Effective governance therefore becomes essential to ensure that private efficiency translates into public energy security rather than monopoly control. Nigeria's transition from import dependence to strategic repositioning demonstrates that refining infrastructure is both an economic and geopolitical asset. The Dangote Refinery has improved national supply resilience and strengthened regional market influence, but sustainable energy security still depends on regulatory transparency, institutional reform, and coordinated policy management. Nigeria's case shows that refinery expansion can shift national power, yet long-term energy sovereignty requires governance systems capable of managing both domestic affordability and regional strategic responsibility.

5.2 South Africa: Industrial Strength under Energy Pressure.

South Africa represents one of Africa's most industrialized economies, with a strong dependence on stable energy supply for manufacturing, mining, transportation, and broader economic productivity. Unlike Nigeria and Angola, South Africa is not primarily a major crude oil exporter; however, its industrial strength makes energy security a critical determinant of national competitiveness and economic stability. The country's energy system has historically relied on a combination of domestic refining capacity, coal-based electricity generation, and imported crude oil to sustain industrial operations. In recent years, however, persistent electricity shortages, refinery shutdowns, and governance failures have significantly weakened national energy security (Baker & Phillips, 2021).

One of the most serious challenges has been the prolonged crisis of Eskom, the state-owned electricity utility responsible for the majority of national power generation. Aging infrastructure, operational inefficiencies, financial mismanagement, and corruption have contributed to recurring load shedding, which has disrupted industrial production and reduced investor confidence. Frequent power outages have increased production costs across sectors, particularly in mining and manufacturing,

which are highly energy-intensive. This has weakened South Africa's economic competitiveness and constrained long-term industrial growth. In addition to electricity instability, South Africa's domestic refining sector has experienced significant decline. Several refineries have been shut down due to ageing infrastructure, high maintenance costs, safety concerns, and reduced investment in modernization. The temporary and permanent closure of major facilities such as the Sapref refinery and the challenges facing the Astron Energy refinery have increased dependence on imported refined petroleum products. This shift has exposed the country to international supply risks, freight costs, and exchange rate volatility, creating new vulnerabilities within the downstream petroleum sector. The decline in refining capacity has important implications for fuel pricing and industrial resilience. As import dependence increases, domestic fuel prices become more sensitive to global oil market fluctuations and shipping disruptions. Rising transport and logistics costs affect food prices, manufacturing inputs, and household welfare. This demonstrates that refining capacity remains a strategic pillar of energy security even in relatively advanced industrial economies.

The emergence of the Dangote Refinery introduces a new regional dynamic for South Africa. On one hand, increased Nigerian refining capacity offers opportunities for more reliable fuel imports from within Africa, reducing dependence on overseas suppliers and potentially lowering freight costs. This could strengthen regional energy integration and improve supply security across the continent. On the other hand, it creates strategic concerns regarding regional market competition and industrial autonomy. Dependence on Nigerian refined products may reduce South Africa's control over its downstream energy market and weaken incentives for domestic refinery revitalization. This creates a policy dilemma between economic efficiency and strategic sovereignty. Importing cheaper refined products from Nigeria may provide short-term supply relief, but long-term overdependence on external regional suppliers could weaken national resilience. South Africa must therefore balance regional cooperation with domestic industrial protection by investing in refinery modernization, energy diversification, and stronger institutional governance.

South Africa's response also reflects broader political economy tensions between state-led energy management and market reform. The crisis surrounding Eskom and refinery decline has intensified debates over privatization, regulatory reform, and the role of private investment in restoring energy stability. Unlike Nigeria, where private refining expansion through Dangote has become a dominant solution, South Africa continues to struggle with balancing public utility control and market efficiency. Ultimately, South Africa's case demonstrates that industrial strength alone does not guarantee energy security. Without sustained investment in infrastructure, regulatory consistency, and strategic regional engagement, even advanced industrial economies remain vulnerable to energy disruptions. The country's experience highlights the importance of combining domestic energy reform with regional integration strategies to maintain competitiveness and long-term economic resilience in Africa's changing political economy of oil.

5.3 Angola: Regional Fuel Trade Dynamics

Angola occupies a strategic position in Africa's petroleum economy as one of the continent's leading crude oil exporters and a major source of foreign exchange earnings through hydrocarbon exports. Despite this strong upstream performance, Angola has historically faced significant downstream weaknesses, particularly limited domestic refining capacity and high dependence on imported refined petroleum products. This contradiction reflects a common pattern in African oil-producing states where crude oil wealth does not automatically translate into domestic energy security or industrial resilience (Karl, 1997). For many years, Angola exported large volumes of crude oil while importing petrol, diesel, aviation fuel, and other refined products to meet domestic demand. This dependence exposed the country to global supply disruptions, exchange rate volatility, and high transportation costs, creating fiscal pressure and weakening national energy security. The dominance of crude exports also contributed to economic concentration around the oil sector, reducing investment in domestic industrialization and limiting downstream value addition (Oliveira & Fortes, 2023). As a result, Angola remained vulnerable to international oil price fluctuations despite its resource wealth. Recognizing these structural weaknesses, the Angolan government has increasingly prioritized refinery expansion as part of its broader economic diversification strategy. Investments in projects such as the Cabinda Refinery, Lobito Refinery, and the modernization of the Luanda Refinery aim to reduce fuel import dependence, improve domestic supply stability, and strengthen national control over the petroleum value chain. These projects are intended not only to satisfy local demand but also to position Angola as a stronger player in regional fuel trade within Southern and Central Africa.

The rise of the Dangote Refinery has significantly altered Angola's strategic calculations. Nigeria's growing refining capacity and expanding export reach introduce both opportunities and competitive pressures for Angola. On one hand, access to refined products from Nigeria could improve regional supply reliability and reduce dependence on overseas imports from Europe and Asia. This would support broader African energy integration and lower transportation costs for importing states. On the other hand, Nigeria's emergence as a dominant regional refining hub creates market competition that may reduce Angola's future influence in regional downstream petroleum trade. This creates a strategic dilemma for Angola: whether to rely on regional imports from Nigeria for short-term supply efficiency or to accelerate domestic refinery investment for long-term energy sovereignty. From a political economy perspective, relying excessively on imported refined products even from within Africa could reproduce dependency and limit Angola's industrial autonomy. Building domestic refining capacity, although capital-intensive, offers stronger long-term benefits through job creation, industrial diversification, and greater fiscal resilience. Regional fuel trade dynamics also shape Angola's geopolitical positioning. As Southern Africa's fuel demand continues to rise, countries with strong refining infrastructure gain greater bargaining power and strategic influence. Angola's ability to compete in this environment depends on how quickly refinery projects become operational and how effectively governance institutions manage investment, regulation, and pricing structures. Delays in implementation could allow Nigeria to consolidate regional dominance, while successful downstream expansion could position Angola as a complementary refining hub rather than a dependent importer.

Another important issue is pricing stability. Like Nigeria and South Africa, Angola faces challenges in ensuring that increased refining capacity translates into affordable domestic fuel prices. Global crude price volatility, foreign exchange constraints, and subsidy pressures continue to affect consumer access and industrial competitiveness. This supports the argument by Cherp and Jewell (2014) that energy security involves not only availability but also affordability, accessibility, and institutional stability. Ultimately, Angola's experience demonstrates that regional fuel trade is shaped by both cooperation and competition. The country must navigate a complex environment where regional integration offers supply advantages, but strategic dependence remains a major concern. Angola's refinery expansion strategy reflects a broader continental shift from crude export dependence toward downstream industrialization and energy sovereignty. The case of Angola shows that regional fuel trade dynamics are not simply about supply chains but about power, resilience, and long-term development. Strengthening domestic refining capacity while participating in regional energy integration will determine whether Angola remains vulnerable to external market shocks or emerges as a stronger and more autonomous actor in Africa's evolving political economy of oil.

6. DISCUSSION

The findings of this study demonstrate that energy security in Sub-Saharan Africa is not merely a question of resource availability but a broader issue of refining capacity, institutional governance, and regional power relations. The cases of Nigeria, South Africa, and Angola reveal that crude oil abundance does not automatically translate into domestic fuel security or economic resilience. Instead, the ability to control refining infrastructure and downstream petroleum systems determines national competitiveness, fiscal stability, and geopolitical influence. This supports the argument of Political Economy Theory that economic resources become meaningful only when supported by effective institutions and strategic control (Gilpin, 2001).

Nigeria's experience illustrates how the Dangote Refinery has transformed refining capacity into a strategic instrument of national repositioning. The refinery has reduced dependence on imported petroleum products, strengthened domestic supply reliability, and expanded Nigeria's influence in regional fuel markets. This confirms that private-sector investment can succeed where state-owned refinery systems failed due to corruption, subsidy distortions, and weak governance (Akinola & Adeyemo, 2022). However, the study also shows that refining expansion alone does not guarantee affordability or equitable access. High domestic fuel prices persist because exchange rate instability, crude supply constraints, and weak regulatory structures continue to affect the downstream sector. This finding challenges the assumption that infrastructure expansion automatically produces energy security.

South Africa's case highlights the vulnerability of industrial economies when energy governance weakens. Despite having a relatively advanced industrial base, persistent electricity shortages, refinery closures, and the governance crisis surrounding Eskom have undermined national competitiveness and increased import dependence (Baker & Phillips, 2021). The decline of domestic refining capacity demonstrates that industrial strength alone cannot guarantee resilience without continuous infrastructure investment and institutional reform. South Africa's response to Dangote also reflects a strategic dilemma between relying on regional imports for efficiency and preserving domestic industrial autonomy through refinery revitalization.

Angola's experience reinforces the broader regional pattern of crude export dependence without downstream security. Although the country remains a major oil exporter, limited refining capacity has sustained fuel import dependence and fiscal vulnerability. The government's refinery expansion strategy reflects an attempt to move beyond upstream dependence toward domestic value addition and regional market participation (Oliveira & Fortes, 2023). However, the rise of Dangote introduces competitive pressure that may either accelerate Angola's industrial transformation or deepen dependency if domestic projects remain delayed.

These findings strongly support Regional Security Complex Theory (RSCT), which argues that security interdependence is geographically concentrated among neighboring states (Barry Buzan & Ole Wæver, 2003). Fuel shortages, refinery decline, and pricing instability in one African country increasingly affect others through trade networks and market linkages. Nigeria's emergence as a regional refining hub demonstrates that energy security is no longer a purely national issue but a shared regional concern. South Africa and Angola must adjust their domestic strategies in response to Nigeria's growing influence, confirming that refinery infrastructure has become a regional security issue. A major contradiction identified in the study is that refining capacity improves availability but does not necessarily improve affordability. This aligns with Cherp and Jewell's (2014) argument that energy security must be understood through multiple dimensions: availability, affordability, accessibility, and governance.

The Dangote Refinery improves supply resilience, yet domestic fuel prices remain politically sensitive. Similarly, Angola's refinery expansion may strengthen supply without immediately reducing consumer costs. This suggests that governance quality remains as important as infrastructure expansion. The study also reveals a tension between regional integration and market concentration. While the Dangote Refinery strengthens continental fuel supply and reduces dependence on overseas imports, it also creates concerns about monopoly power and strategic dependency on a single dominant supplier. This raises important policy questions about how African regional institutions such as ECOWAS, SADC, and AfCFTA can manage energy cooperation without reproducing new forms of inequality and dependence. Overall, the discussion shows that energy security in Africa is fundamentally a political economy issue rather than a purely technical supply challenge. Sustainable solutions require a combination of refining infrastructure, institutional reform, regional cooperation, and regulatory transparency. The future of Africa's petroleum security will depend not only on who produces crude oil, but on who controls refining capacity, fuel pricing systems, and cross-border energy diplomacy.

7. POLICY IMPLICATIONS

The findings of this study have significant policy implications for energy governance, refining infrastructure, and regional cooperation in Sub-Saharan Africa. The evidence from Nigeria, South Africa, and Angola shows that sustainable energy security depends not only on crude oil production but also on refining capacity, institutional effectiveness, and coordinated regional strategies. Policymakers must therefore move beyond short-term fuel supply interventions and adopt long-term structural reforms that strengthen both domestic resilience and continental energy integration.

First, governments should prioritize investment in domestic refining infrastructure as a strategic component of national energy security. Countries such as Nigeria and Angola demonstrate that crude oil abundance without downstream refining capacity creates fiscal vulnerability, foreign exchange pressure, and dependence on imported petroleum products. Expanding local refining capacity reduces freight costs, improves supply reliability, strengthens industrial productivity, and enhances energy sovereignty. However, infrastructure expansion must be supported by transparent regulation and efficient operational management to avoid the repeated failures associated with state-owned refineries.

Second, stronger regulatory frameworks are necessary to manage the growing role of private-sector actors such as the Dangote Refinery. While private investment can improve efficiency and reduce import dependence, overreliance on a single dominant refinery may create monopoly risks, pricing manipulation, and unequal market access. Governments must therefore strengthen competition policy, pricing oversight, and supply accountability to ensure that private refining capacity serves public energy security rather than concentrated corporate power.

Third, regional energy governance should be strengthened through institutional coordination among African regional blocs such as ECOWAS, SADC, and the African Continental Free Trade Area (AfCFTA). Fuel supply chains are increasingly interconnected across borders, and disruptions in one country often create regional consequences. Strategic fuel reserves, harmonized fuel pricing frameworks, emergency supply coordination, and cross-border trade agreements are necessary to

improve collective resilience. Regional cooperation should reduce dependence on overseas imports while preventing excessive dependence on a single African supplier.

Fourth, subsidy reforms must be approached with broader social and industrial policy considerations. In countries like Nigeria, fuel subsidies have historically protected consumers from price shocks but also created major fiscal distortions and governance failures. Removing subsidies without strengthening refining capacity, transport alternatives, and targeted social protection increases political instability and public resistance. Effective reform requires a gradual transition supported by transparent communication, welfare protection, and reinvestment in productive sectors.

Fifth, countries such as South Africa should balance regional import opportunities with domestic industrial revitalization. While importing refined products from regional suppliers like Nigeria may improve short-term supply stability, excessive dependence may weaken domestic refining sectors and reduce strategic autonomy. Policies should therefore combine refinery modernization, energy diversification, and regional trade partnerships to maintain long-term industrial competitiveness.

Lastly, energy diplomacy should become a central pillar of African foreign policy. Refining infrastructure now shapes interstate bargaining power and regional influence in ways traditionally associated with crude oil exports. Governments should integrate energy cooperation into broader diplomatic and trade strategies to support sustainable development, reduce geopolitical vulnerability, and strengthen Africa's collective energy sovereignty. Ultimately, effective policy must recognize that energy security is not simply a technical issue of supply, but a strategic issue of governance, market control, and regional power. Sustainable solutions require coordinated reforms that align refining infrastructure, institutional accountability, and cross-border cooperation across the continent.

8. CONCLUSION

This study examined energy security and regional power shifts in Sub-Saharan Africa through the lens of the Dangote Refinery and the broader political economy of oil in Nigeria, South Africa, and Angola. The study was motivated by the persistent paradox that many African oil-producing countries remain heavily dependent on imported refined petroleum products despite possessing vast crude oil reserves. This contradiction has weakened economic resilience, increased fiscal vulnerability, and limited sustainable industrial development across the continent. The findings show that refining capacity is a critical determinant of energy security because it directly influences fuel availability, pricing stability, foreign exchange management, and regional trade competitiveness. Nigeria's transition from import dependence to strategic repositioning through the Dangote Refinery demonstrates how large-scale refining infrastructure can transform national energy security and strengthen geopolitical influence. The refinery has improved domestic supply reliability and positioned Nigeria as a potential regional refining hub capable of reshaping fuel trade across Africa. In contrast, South Africa's experience reveals that industrial strength alone does not guarantee energy security. Persistent electricity shortages, refinery closures, and governance failures within Eskom have increased fuel import dependency and weakened industrial competitiveness. Angola similarly illustrates the challenge of crude export dependence without sufficient downstream capacity. Although it remains a major oil exporter, limited refining infrastructure has sustained vulnerability to imported fuel and external market shocks. Its refinery expansion strategy reflects an effort to move toward greater energy sovereignty and regional competitiveness.

The study further demonstrates that energy security is not only a domestic issue but also a regional one. The rise of the Dangote Refinery has altered fuel trade dynamics across West, Central, and Southern Africa, creating both opportunities for regional integration and concerns about market concentration and strategic dependency. This supports the argument that refining infrastructure functions as both an economic asset and a geopolitical instrument of regional influence. Theoretically, the study contributes by integrating Political Economy Theory and Regional Security Complex Theory to explain how refining capacity shapes both national governance outcomes and cross-border security interdependence. The analysis confirms that energy security depends not only on resource abundance, but on who controls refining infrastructure, pricing systems, and fuel distribution networks. Finally, sustainable energy security in Africa requires more than refinery construction. It depends on institutional reform, regulatory transparency, effective subsidy management, and stronger regional energy diplomacy. African governments must move beyond crude export dependence and prioritize downstream industrialization, policy coordination, and collective regional resilience. The future of Africa's energy sovereignty will be determined not by the volume of crude oil produced, but by the capacity to govern, refine, and strategically manage energy resources for long-term development and stability.

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AUTHOR CONTRIBUTIONS

Lukamba, T. Muhlya: Conceptualization, drafting, revision and editing.

Taleat, A. Bisiriyu: Content Structure, Data acquisition and wrote the final manuscript

Diedericks Melvin: Revised and approved the final version.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICS STATEMENT

Not Applicable

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DATA AVAILABILITY STATEMENT

Data supporting the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

[1] African Development Bank. (2023). African economic outlook 2023: Mobilizing private sector financing for climate and green growth in Africa. African Development Bank Group.
[2] Akinola, A. O., & Adeyemo, D. O. (2022). Oil governance, institutional failures, and petroleum subsidy reforms in Nigeria. African Journal of Public Affairs, 13(1), 45–62.
[3] Baker, L., & Phillips, J. (2021). Tensions in the transition: The politics of electricity planning in South Africa. Environment and Planning C: Politics and Space, 39(4), 655–673.
[4] Barry Buzan, & Ole Wæver. (2003). Regions and powers: The structure of international security. Cambridge University Press.
[5] Beblawi, H., & Luciani, G. (1987). The rentier state. Croom Helm.
[6] Cherp, A., & Jewell, J. (2014). The concept of energy security: Beyond the four As. Energy Policy, 75, 415–421.
[7] Gilpin, R. (2001). Global political economy: Understanding the international economic order. Princeton University Press.
[8] International Energy Agency. (2023). Africa energy outlook 2023. International Energy Agency.
[9] Karl, T. L. (1997). The paradox of plenty: Oil booms and petro-states. University of California Press.
[10] kinola, A. O., & Adeyemo, D. O. (2022). Oil governance, institutional failures, and petroleum subsidy reforms in Nigeria. African Journal of Public Affairs, 13(1), 45–62.
[11] Obi, C. (2010). Oil extraction, dispossession, resistance, and conflict in Nigeria's oil-rich Niger Delta. Canadian Journal of Development Studies / Revue canadienne d'études du développement, 30(1–2), 219–236.
[12] Okonkwo, C., & Eze, M. (2021). Refining capacity, fuel import dependence, and energy security in Nigeria. Energy Policy Review, 9(2), 88–103.
[13] Oliveira, R., & Fortes, P. (2023). Refining capacity and energy diversification in Angola's petroleum sector. Journal of African Energy Studies, 7(1), 22–39.
[14] Reuters. (2026, April 6). Nigeria's Dangote refinery boosts exports to ease Africa's fuel supply crunch. Reuters. – Source at https://www.reuters.com/business/energy/nigerias-dangote-refinery-boosts-exports-ease-africas-supply-crunch-2026-04-06/?utm
[15] Reuters. (2026, March 30). Nigeria's giant oil refinery fails to prevent record gasoline prices. Reuters. – Source at https://www.reuters.com/sustainability/boards-policy-regulation/nigerias-giant-oil-refinery-fails-prevent-record-gasoline-prices-2026-03-30/?utm
[16] Ross, M. L. (2012). The oil curse: How petroleum wealth shapes the development of nations. Princeton University Press.

[17] Sovacool, B. K. (2011). The seven suppositions of energy security. Energy, 36(2), 747–752. https://doi.org/10.1016/j.energy.2010.12.039
[18] Swilling, M., Musango, J., & Wakeford, J. (2016). Developmental states and sustainability transitions: Prospects of a just transition in South Africa. Journal of Environmental Policy & Planning, 18(5), 650–672. https://doi.org/10.1080/1523908X.2015.1107716
[19] Watts, M. (2004). Resource curse? Governmentality, oil and power in the Niger Delta, Nigeria. Geopolitics, 9(1), 50–80. https://doi.org/10.1080/14650040412331307832