

Examining Impact of Energy Shortage on Economic Development of Nigeria and South Africa: Comparative Analysis

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ABSTRACT

In comparing the energy shortages of Nigeria and South Africa, this paper examines the relationship between energy shortages and their impact on economic development. Energy shortages/crises have a substantial economic impact on the state, society, and industrial development. In addition, the paper notes that Nigeria and South Africa as leading role players in the African continent based on their economic ambition and developments. Therefore, energy shortages/crises negatively impact prospects for further economic development. The economic development of the African continent is filled with challenges and misfortunes dating back to the scramble/partitioning of Africa, currently servicing debts and poverty. Thus, the paper through qualitative method of research, employs journal articles, books and reports to critically examine the impact of energy shortage of the economic development of South Africa as well as Nigeria. The preliminary findings suggest that energy shortages have dire consequences on the development of these states. Hence, it concludes that the respective states ought to address the energy challenges to witness economic growth and retain their continental economic hegemon.

Keywords: Energy Shortages, Economic Development, Nigeria, and South Africa.

INTRODUCTION

State Owned Entities role in governmental includes revenue collection, energy availability and has a special relationship with the economy, globalisation, technology development, and economic growth. This relationship especially that of economic development of the African continent is filled with challenges and misfortunes dating back to the scramble/partitioning of Africa, currently servicing debts and poverty (Gardner, 2017:249). The retrospective political development of colonialism, apartheid, and civil conflict in some African countries has led to contemporary societal, economic, and infrastructural development, among others, in the African continent. The continent's historical credentials concerning development must be carefully understood. Reliable and sufficient energy provision (security of supply) and economic, social, and infrastructural development are crucial factors at the forefront of human civilization and its progress (Oyedepo, 2014). Noting that energy shortage worsens socioeconomic inequalities, Oyedepo, (2014) further argue that the path to a better-quality lifestyle and economic development depends on the security of supply.

Hence, the role of SOEs in ensuring the security of energy supply is at the centre of debates about energy transition (Trollip et al., 2014:13). The failure of SOEs to ensure the security of supply has led to various economic sectors resorting to self-supply to avoid closing down. Energy shortage worsens unemployment, increases crime rates, and impedes essential public services, which does not bode well for society (Farooq and

Shakoor, 2013). The Fourth Industrial Revolution (4IR) presents an economy that relies heavily on energy availability, meaning that most services are difficult to supply in the era of power cuts (load shedding). This implies that security of supply is indispensable for the modern economy to thrive and support innovation. Hence, this paper aims to understand the full impact on energy poverty in South African and Nigeria especially related to the socioeconomic development these states respectively.

LITERATURE REVIEW

Role of SOEs in Tax Collection in Nigeria and South Africa

SOEs are some of the crucial mechanisms the government implements to ensure development and income generation. SOEs play a leading and strategic role in economic development; hence, in the case of China, SOEs are the pillars of the economy (Putniņš, 2015). Putniņš (2015:815) further mentions that “the special report points out that SOEs are undergoing a revival, with many countries making new investments in SOEs. SOEs continue to play an important role in major industries (the world’s 10 biggest oil-and-gas firms, measured by reserves, are all state-owned and major markets (state-backed companies account for 80% of the value of China’s stock market and 62% of Russia’s).” This attests to the role played by SOEs in China’s political economy. Mukhithi (2015:1) alludes that even in the case of South Africa, SOEs should be seen as the pillars of the political economy, which support the socioeconomic measures of the country.

Similarly, they also have a role in infrastructural development. The government taxes SOEs to ensure that they assist the state in either debt reduction or development. Therefore, SOEs have a responsibility to pay their taxes. Scholars such as Florio and Fecher (2011), Thynne (2011), Florio (2013, 2014), and Bernier (2014) explain the importance of SOEs in contemporary work. The scholars mentioned above contend that in addressing economic and policy crises, SOEs have to become critical instruments driving policy narratives and objectives, as in the case of China.

Their capturing of the economy will allow other SOEs with similar economic ambitions to rise and thrive in the same industry. In addition, they will be able to close the privatisation gap and contribute revenue to the economy (Putniņš, 2015). According to the IMF report, SOEs in South Africa account for 34% of GDP; in this composition, Eskom (electricity), Transnet (transportation), and Telkom (communications) represent about 80% of total revenue collected (Simone and Wang, 2022:20). Nigeria’s SOEs have suffered economic misfortunes where the government lost over US\$149.2 billion in government investments between 1975 and 2001. Nigeria had a total of 1,500 SOEs in 1986, which all have fallen victim to corruption, leading to their collapse. Asu (2020), as cited by Arockiasamy et al. (2022:22), mentions, “In 2018, the Nigerian National Petroleum Corporation (NNPC) realised ₦3.4bn in revenues but expended ₦160.13bn.” This is due to the corruption and mismanagement of the entity and lack of accountability.

Putniņš (2015) further argues that most SOEs play a vital role in connecting the private sector and the government's administration as they can provide leadership in internationalisation, as is the case for South Africa and Nigeria. Similarly, they can also provide a public-private partnership (PPP), which is pivotal for development, thus signalling their importance. Hence, when this relationship exists between the two structures, tax collection by the government is made easier, while the SOEs are also held accountable and provide transparency in their finances. That is what the Nigerian Minister of Solid Minerals, Dele Alake, articulates when he says there needs to be more partnership between the sectors. He asserts that this will assist the Nigerian National Petroleum Company Limited in becoming profitable again and contribute more to taxation for government expenditure (Punch Editorial Board, 2023). Therefore, their role is considered a strategic reference point for serving the private and public sectors.

Therefore, entities such as NESCO and Eskom are the pillars of the economy and are supposed to play a strategic economic role. The country's policymakers bind them to be the leaders in economic development and mandate them a strategic role in the economy through the PPP policy. Putniņš (2015) mentions that the energy production sector is integral to the economy as the state can be threatened if or when this sector is occupied by foreign ownership. Due to not having allegiance to the government, the MNC might seek ways to avoid paying taxes, which will impact the government's feasibility plans (Chen, Tang, Wu and Yang, 2021).

The Relevance of SOEs on Governmental Income Generation

Gumede (2016) agrees with Fourie (2001) that South African SOEs play a significant role in the country’s economy. South Africa has a wide variety of SOEs in several industries, such as the airline industry through SAA and broadcasting through the South African Broadcasting Commission (SABC), which should enable the government to monopolise the economy and be involved in the economy's growth overall. However, the ability of the government to monopolise the economy has also come with several challenges, such as burdensome

bureaucracies, a shortage of skilled workers for some high-tech industries, restrictive labour regulations, corruption, and political instability. The high levels of corruption and political instability have led to the mismanagement of SOEs, which has created a disaster for the financial stability of entities such as SAA, which had to be bailed numerous times by the government. Marimuthu (2020) agrees that the government has had to assist most SOEs due to mismanagement and corruption challenges. Some of these include Eskom, SAA, and the SABC, which failed to keep its finances afloat and has had to cut operations to continue functioning (Madonsela, 2019).

Eskom and NESCO can focus their resources on these projects while being taxed, impacting the government in a good manner as revenue collection is less due to social projects which contributes to the wellbeing of the society. However, in another view, electrical units provided at no cost will lessen the economic hardship for most citizens. This dramatically impacts the entity's income and affects the government's tax collection. In addition, these entities have a social responsibility to ensure a stable supply of electricity to society such that people can purchase electricity with complete confidence that they will receive a stable supply. Therefore, failure to do so will cause society to be unable to be productive at total capacity, impacting social lives and economic output. Regardless of the Corporate Social Responsibility (CSR) projects which qualify projects to improve infrastructure and human lives, these projects will not be practical due to a lack of stable energy provision, as the government does not seem to have a sufficient plan for resolving the crisis.

Although all these multinational corporations (MNCs) may also seek to invest in more CSR projects to positively impact the lives of local citizens from where they run their operations, due to a lack of productivity and a lack of stable energy supply, incomes and profit productivity may not be enough. They will seek to invest in their pockets more than development as they operate with a capitalist agenda. Henceforth, the lack of infrastructural development will result in low economic activity in the area.

The contribution of energy in the social spectrum is associated with family structures and improving morale. This is very important as some nations consider electricity a vital resource that ensures societies are civilized and ushered into the dawn of industrialisation. Rosenberg (1998), while studying the role of electricity in industrial development, alluded that electricity was the key driver of the Second Industrial Revolution. Rosenberg (1998) explains that electricity led to the industrialisation of societies, making them more technological. Rosenberg notes that although energy production was not typical then, it most certainly led the way for societal development.

Therefore, from the 19th to the 20th century, the world slowly transitioned from traditional power production methods, such as fossil fuel combustion, to hydro and solar energy. It is now expected that each household be fully electrified and technologised, particularly in South Africa and Nigeria, as they lead the industrial development sector of the African continent. Therefore, the success of most social and economic policies depends on the availability of a sufficient energy supply, especially since industrialisation is the central component of economic security and development.

On another note, most human activities depend on the availability of electricity, for example, news dissemination, information sharing, communication, and household activities, among others. Torriti (2014) supports the above statement by documenting that most European families have increased their electricity consumption. This assertion is based on societies being technologised and increasingly dependent on electricity for daily activities. Torriti (2014) believes that one of the reasons electrical tariffs are increasing is based on the steady increase in residential usage of electricity.

On the other side of economic development, SOEs are essential in developing a country. Most SOEs across the globe are tasked with fostering the economic development and economic implementation of their origin states. However, many expand their operations to neighbouring countries to increase profits or share knowledge and expertise. Chen (2004) alludes to the SOEs that foster the state's economic policies, and the government has also made means to support these entities. Similarly, Chen (2004) argues that China's economic development started seeing real growth in 1997 after the government changed its policies to support the establishment of these entities.

Thus, these organisations can be noted to be the frontline leaders of business operations in China on a local and international scale since they can attract governmental and foreign investments. Wang (2015) explain that the policy driving the economic ambitions of China regards SOEs leading the restructuring of the country to build a better economy. Marimuthu (2020) studied public governance and SOE's development and found that these entities are very much dependent on those in government for assistance regarding revenue generation, exposure, and stability.

Hence, they also take advantage of this discourse and use these entities to foster their own political/governmental policies to attract foreign investments and grow the economy. Similarly, Gumede (2016) agrees with Fouries (2001) regarding the impact of SOEs on the restructuring of the South African economy. Thus, this shows governments' emphasis on the investment of their SOEs towards an economic turnaround and boosting foreign investment. In addition, Nigeria is also not immune to this factor, and the government has

given much thought to the power crisis, such that several policies had to be changed to better facilitate economic emancipation, both at the governmental and social levels.

Particularly for countries such as Nigeria, the new metering system would depend on the 4IR and being able to combat electricity theft. Hence, through the POEs that seek to produce, transmit, and distribute power, Nigeria will invest in much-needed technology, which will also see a growth in technological exposure in the country. In essence, the government will aim to foster their political/governmental policies and grow the economy while ensuring foreign investment attraction for the energy sector.

Therefore, Eskom and NESCO should be leading their countries' economic and social development. With Eskom's current crisis, investors are seeking to understand the crisis and lend a helping hand. Thus, stable power provision is also crucial for the South African economy's growth. Similarly, Nigeria also depends on the availability of energy capacity as it seeks to restructure its economy. Over and above that, the social lives of these countries are dependent on the availability of stable energy as they seek to develop their citizens and ensure that societies are technologised. Thus, stable energy provision by Eskom and NESCO is vital for economic growth and social development. Energy is an essential part of economic development and attraction of MNCs; therefore, a stable energy supply is important for economic growth and development. Hence, as these MNCs grow and are productive, they will also be able to contribute to developing the country's infrastructure, increasing economic activity and thus positively impacting the economy.

The Energy Crisis and Nigeria's Economic Development

Nigeria has the largest GDP on the African continent. However, the quality of its infrastructure and technological advancements does not exceed that of other African countries (Bloch, Makarem, Yunusa, Papachristodoulou and Crighton, 2015:6). Nigeria is a middle-class economic country with mixed economic policies and emerging markets (Handley, 2015:620). Hence, it is developing as the African continent's most significant economic hub, seeking to expand its manufacturing, technology, and telecommunication sectors to be a renowned, established and industrialised state. Nigeria has increased its continental and regional integration ability by overtaking South Africa as the continental frontier in economic growth. The GDP of Nigeria has increased from US\$31 billion in 1990 to US\$522 billion in 2013 due to increased regional integration (Bloch et al., 2015:6). Recently, the GDP of Nigeria has been declining and exhibiting slow growth, for instance, in 2019 it was US\$474.52 billion, with a 12.51% increase from 2018, then in 2020 it was US\$432.20 billion, with an 8.92% decline from 2019. In 2021, it was US\$440.83 billion, with a 2% increase from 2020, and the latest statistics for 2022 was US\$477.39 billion, with an 8.29% increase from 2021 (Galal, 2023). Figure 1.1 shows the variances in Nigeria's GDP from 2013 to 2022.

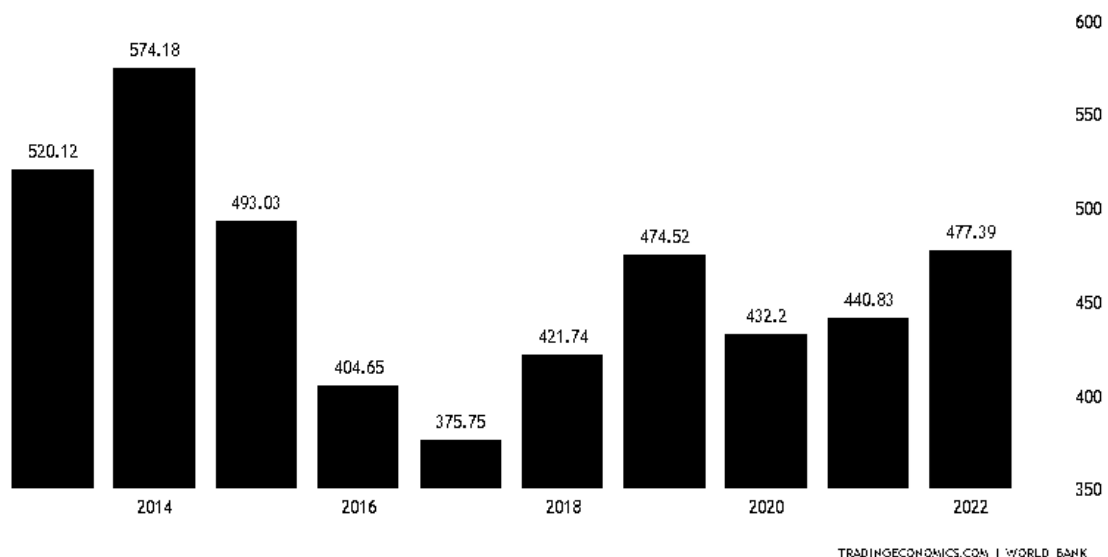


Figure 1.1: Nigeria's GDP (Source: Trading Economics)

Nigeria has enjoyed immense economic dominance over the African continent, especially among the Economic Community of West African States (ECOWAS), which has also enjoyed the benefits of this economic growth, accounting for 43% of the flow of goods in the region in 2013. For instance, Hon. Awajim Abiante, cited by Ojeme (2022), alludes to how Nigeria's GDP growth allows it to continue supporting neighbouring countries, particularly members of ECOWAS, by supplying them with power, medical intervention and, if or when needed, peacekeeping intervention. Torres and van Seters (2016:3) allude that 73.5% of the total exports from ECOWAS are due to its large economy and the petroleum sector at its exposure.

Bloch et al., (2015) further argue that although Nigeria has seen the benefits of economic growth over the years, the country is still experiencing a high energy crisis despite being a significant gas and oil producer on the continent. Policymakers in Nigeria resorted to redeveloping and changing the policy plans of the country to revitalise its economic downturn (Bloch et al., 2015:52). These included the privatisation of the energy supply, which would see more collaboration between the public and private sectors. Scholars such as Idoko and Abu (2020) and Bloch et al. (2015) have asserted that despite the country's vast economic potential and policies, Nigeria faces honest criticism from world rankings on poverty, unemployment, and lack of economic growth. These rankings make the case that Nigeria is underdeveloped and among those countries regarded as third-world (Jack, 2016:206). Nigeria's economy is struggling to be revived because of its energy shortages. On the 14th of September 2023, the country faced a total system collapse where Nigeria's electricity distribution companies announced the system failure due to a technical failure (Jeremiah and Musa, 2023).

The government's failure negatively impacts the economy as many people and businesses must rely on themselves for energy use. Hence, Business (2023) mentions that more than 40% of Nigerians use generators for personal or business use, costing around US\$14 billion annually. Jeremiah and Musa (2023) further allude that this was the case, as the grid collapsed four times in 2022. This had dire consequences on the economy, resulting in negative GDP growth, unemployment and business costs (Business, 2023). This grid collapse comes after about US\$7.5 billion was invested to ensure the security of supply in the sector, and this depicts images of corruption and mismanagement as the investment did not solve the crisis (Jeremiah and Musa, 2023). In addition, the lack of accounting and oversight in the sector for the invested money can also attest to corruption and mismanagement.

The Energy Crisis and South Africa's Economic Development

Like Nigeria, South Africa is also experiencing economic challenges because of economic imbalances and the retrospect factors of racial difference, which dictated access to economic opportunities, which are still a reality to the state's socioeconomic development. South Africa's economic development is noted to be upper-middle-income, meaning that it is a developing economy with the most developed industries (Burger, Venter, Wearne & Krause, 2023:25). The GDP of South Africa increased from US\$126.05 billion in 1990 to US\$400.89 billion in 2013 due to growth in various sectors such as mining and the stability of energy supply at the time (Galal, 2023). Figure 1.2. below is a variation of the South African GDP between 2013 and 2022.

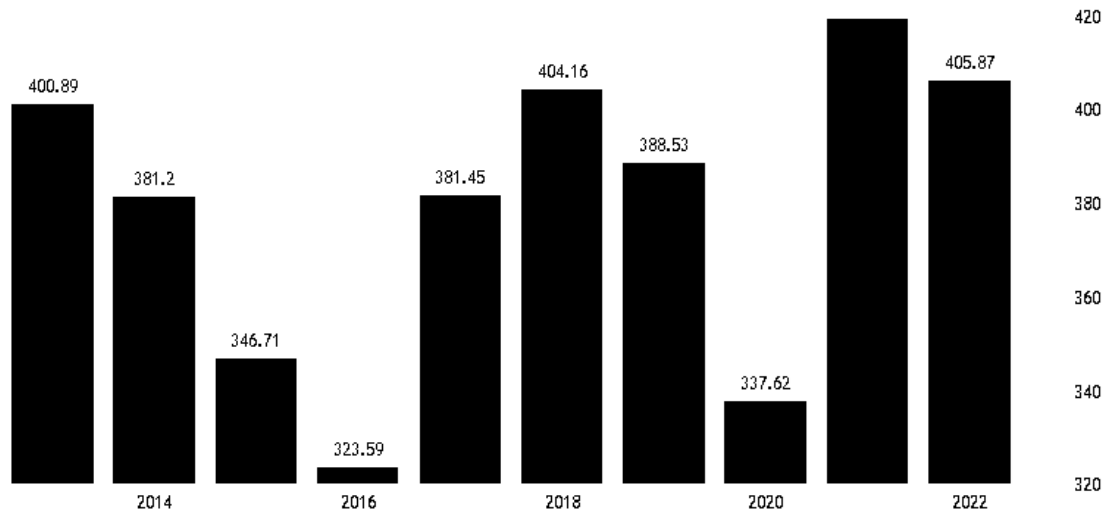


Figure 1.2. South Africa's GDP (Source: Trading Economics)

Although energy shortages date back to as early as 2008, load shedding was not yet severe. For instance, Carnie (2010) reports that Eskom asserted that there would be no load shedding. South Africa is the second largest economy in Africa despite being better than Nigeria in technological advancements, industries, and diversified economy (Adebajo, 2023). Kirsten, Botha, Biyase and Pretorius (2023:2) argue that South Africa's economy is one of the world's most unequal economies because of the racialised political dispensation that afforded Whites more economic benefits than Blacks. The gap between the rich and the poor widens each financial year (IMF, 2020). Thus, this negativity has led to most citizens relying on the government for social grants (Bronstein and Olivier, 2015), and the lack of energy availability has negatively impacted the economy's growth, resulting in more people relying on the government.

Principal/Agents' Interest in Eskom and NESCO- Theory

The paper believes the governments' interest in Eskom and NESCO is to establish power utilities to cement their economic dominance in their respective regions. Nigeria and South Africa hold regional hegemonic status in their respective regions, and the constant power cuts threaten this status. Similarly, besides national power supply stability, these nations would be better positioned to sell their energy to their neighbours. Thus, this will ensure they increase their dominance in the region as the most prominent energy producers, contributing significantly to their GDP growth.

The general interest of agents in SOEs is mainly derived from the understanding that they seek enrichment for themselves and those in their circle. Thus, to create a web-like circle that will ensure that they monopolise the entity to ensure that they can keep on looting the resources. Henceforth, in the case of Eskom and NESCO, the paper believes that agents deployed within these entities seek to enrich themselves and those around them. In addition, they are not interested in rewarding those within their circle based on merit but instead focus on protecting their interests. Their interest in Eskom and NESCO may include managerial positions as they want to work with people they trust by awarding contracts or tenders that work in favour of the agent and not the entity. Similarly, they will also seek financial resources which will be used for personal matters.

METHODOLOGY: RESEARCH APPROACH AND DESIGN

The research followed a qualitative method for in-depth analysis of the energy crisis in Nigeria and South Africa. Qualitative research helps understand experiences, attitudes, and opinions that can improve the efficiency of SOEs in the global environment of energy transition (Pathak et al., 2013). The paper employed a case study design focusing on South Africa and Nigeria's energy sector SOEs. A case study design approach ensures the paper focuses on its context. Furthermore, a case study research design generates a rich, in-depth understanding of a complex issue to bring it into a tangible everyday life context. Therefore, a case study design helped validate the principal-agent relationship, explain the impact of the energy crisis on the economy of Nigeria and South Africa.

Empirical Research Methods

The paper used document reviews as the primary data source to explain SOEs' responses to the energy crisis in Nigeria and South Africa. This process systematically provides rich insights into the comparative analysis of South Africa and Nigeria with specific reference to the SOEs and energy crises. This paper dealt with qualitative and non-numerical material, which helped provide a narrative and in-depth understanding of principal-agent relations in SOEs. These materials are available from the North-West University library repository, Google Scholar, LibGenesis, Science Direct, the NERSA website, Eskom's website, and the NESCO website, allowing for a reliable comparative analysis of the response of SOEs in South Africa and Nigeria regarding the energy crisis. Descriptive content analysis of the energy crisis in South Africa and Nigeria, including the responses by SOEs in their respective countries, will assist in generating solutions. A descriptive analysis focuses on the characteristics of phenomena. Hence, this paper focused on a) the characteristics of the energy crisis, b) the SOEs' roles in energy security and their impact on economic growth.

Population and Choice of Study Material

The purposive sampling of SOEs responsible for power generation in Nigeria and South Africa guided this research. Selecting South Africa and Nigeria, being significant economies in Africa, helped to understand the energy crisis and its impact on economic development, hence their selection for the case study. A purposeful sampling of case studies (SOEs responsible for energy supply in Nigeria and South Africa) was used due to its strength in identifying and selecting information-rich literature on comparative analysis of Nigeria and South Africa. A document review process also does not present ethical concerns as it relies on public documents and reports.

DISCUSSIONS OF FINDINGS

Gross Domestic Product vs Energy Availability

The GDP of South Africa shows vast growth, especially after the uplifting of sanctions as the country was heading into a democratic dispensation. Figure 1.3 below shows the variation of electricity generation in South Africa between 2013 and 2023 with a downward trend.

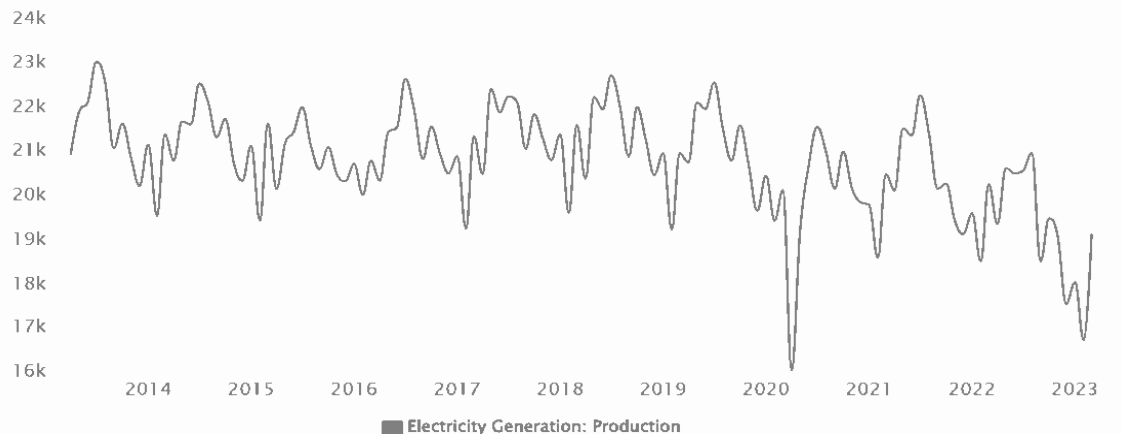


Figure 1.3: South Africa's electricity generation between 2013 and 2023
(Source: <https://www.ceicdata.com/en/indicator/south-africa/electricity-production>)

For critical comparison, Figure 1.4 below juxtaposes Figures 1.2 and 1.3, showing the electricity generation trends versus the GDP between 2013 and 2022. It follows that the rise and fall of electricity generation is relatively similar to the rise and fall of the GDP in South Africa. Considerations of self-generation can explain inconsistencies between a low electricity output versus a higher GDP through generators and other power sources. However, GDP increase is not only dependent on the electricity output.

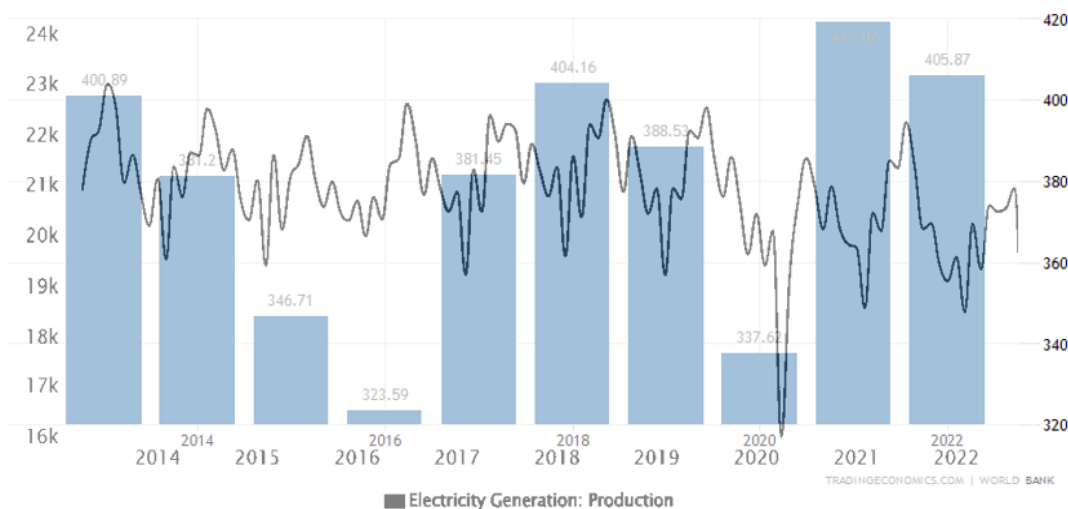


Figure 1.4: The Juxtaposition of GDP Versus Electricity Generation in South Africa between 2013 and 2022 (Own Construction)

Looking at the GDP growth of South Africa from 1960 to 2022 (Mactrotrends South Africa, 1960-2023), South Africa's GDP has been steadily growing, especially after the uplifting of global sanctions due to apartheid in the 1994/1995 period. This peak shows South Africa grew from US\$8.75 billion in 1960 to US\$405.87 billion in 2022. However, the period of 2007/2008 shows a decline in GDP growth as the challenges of load shedding in South Africa started in 2008. Hence, the 2008 financial year dropped from US\$333.08 billion in 2007 to US\$316.13 billion in 2008. This depicts the relationship between GDP growth and energy availability. In addition, 2022 is also the worst year in terms of load shedding, and the GDP subsequently declined from US\$419.02 billion in 2021, with a growth of 4.91%, to US\$405.87 billion in 2022, with a growth of 2.04%. Therefore, there is a relationship between GDP growth and energy availability.

Figure 1.5 below shows the electricity generation in Nigeria between 2013 and 2022, with a clear downward trend between 2013 and 2015. After that, it was punctured by a steep but brief increase in production, followed by an immediate steep decline in 2016.

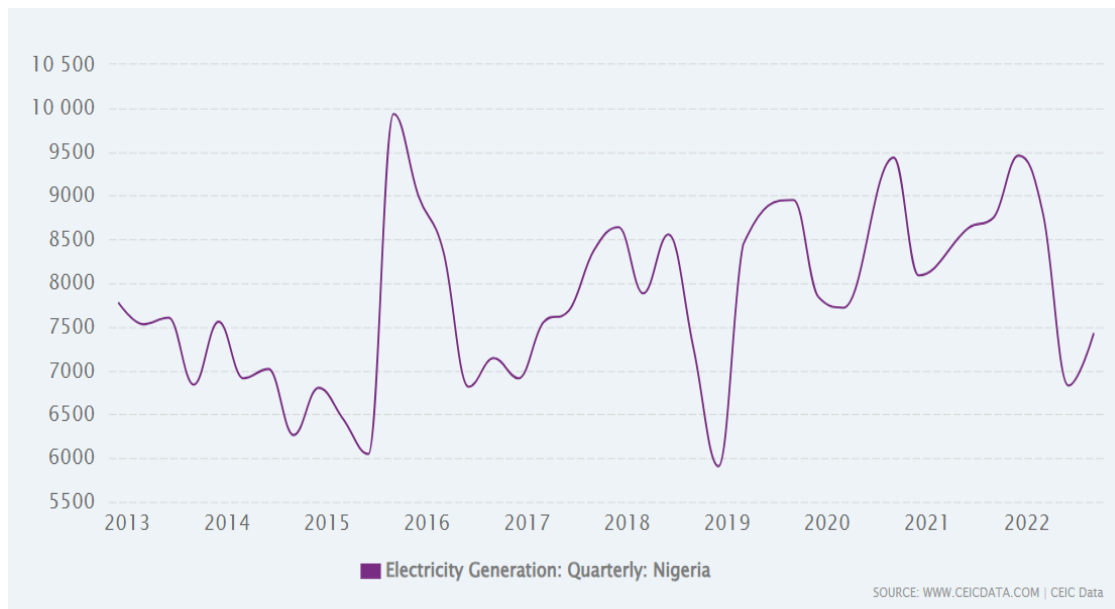


Figure 1.5. Nigeria's Electricity Generation between 2013 and 2022
(Source: <https://www.ceicdata.com/en/indicator/nigeria/electricity-production>)

Figure 1.6 below Juxtaposes Figures 1.1 and 1.5 to show the GDP Performance in Nigeria Versus its Electricity Generation Trends.

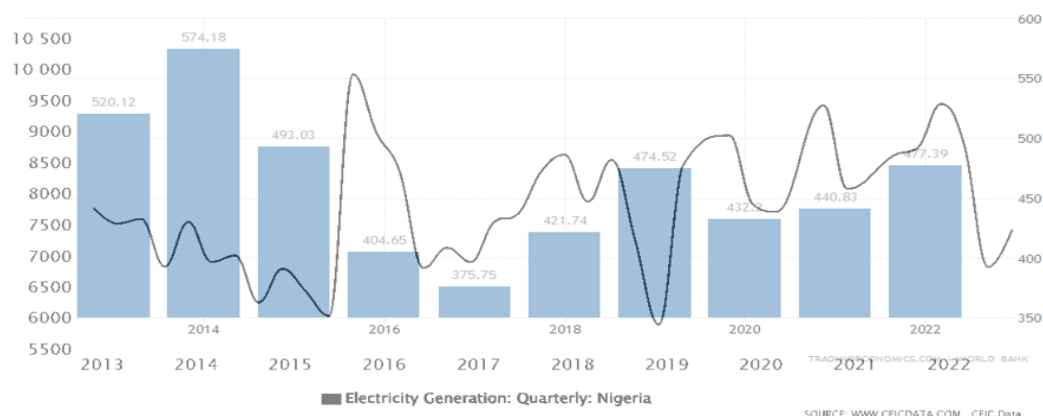


Figure 1.6. The Juxtaposition of GDP Versus Electricity Generation in Nigeria between 2013 and 2022 (Own Construction)

What is interesting about Figure 1.6 is that the highest GDP growth occurred during low electricity generation in 2014. Its highest energy production in 2016 was incidental because it coincided with the lowest GDP growth between 2016 and 2018. From there on, Nigeria has a trend of haphazard electricity generation. Nigeria as it stands, is on the opposite (looking GDP growth and electrical trends) by increasing GDP versus the electricity generation trends that are on decline. The possible explanation for this opposing trend is that Nigeria relies on oil production for most of its income, significantly boosting its GDP. The low electricity generation has led to members of society adapting to the status quo, and alternative energy sources are now pervasive at both business and household levels.

Data (Mactrotrends Nigeria, 1960-2023) shows that Nigeria has had a steady GDP growth from 1960, with a GDP of US\$4.08 billion, to US\$477.39 billion in 2022. However, Nigeria has declined over the years due to power shortages, although the sector was officially privatised in 2013 (Mac-leva and Sunday, 2019). The country saw the worst power cuts and grid collapse in 2016 and 2019, respectively. Nigeria has seen 206 power grid collapses or failures, in which 2016 and 2019 were the worst years, and the GDP growth was affected immensely, from US\$493.03 billion GDP in 2015 with a growth of 2.65%, to US\$404.65 billion with -1.62% growth in 2016. Similarly, even in the wave of system failures in 2019, the GDP decreased from US\$478.52 billion with 2.21% growth to US\$432.20 billion with a -1.79 decline in 2020 due to energy shortages in the previous financial year.

Jobs Losses due to Load Shedding and Power cuts in Nigeria and South Africa

According to Brandt and White (2023), “Minister of Electricity, Kgosientsho Ramokgopa, said 650,000 jobs were lost in the South African economy in 2022 because of the energy crisis, and the figure might rise to more than 850,000.” Thus, this depicts that the energy crisis directly impacts the economy and the number of jobs created or lost. Similarly, Akuru and Okoro (2014:64) explain that there were about 83,400 job losses in a single year due to load shedding. Udegbonam (2021) also mentions that the slopy energy supply costs businesses in Nigeria about US\$29 billion per annum; hence, most businesses have no other option but to retrench or close. This further depicts the impact of total grid collapse as some businesses have permanently relied on generators to ensure their continued operation. Hence, Business (2023) from *This Day* newspaper alludes that it costs US\$14 billion per year in petroleum costs to ensure that businesses continue to function. Thus, they end up not making any profit and are forced to retrench some workers.

The Relevance of SOEs in South Africa and Nigeria’s Industrial, Economic Development and Energy Security

The paper concurs with Putniņš (2015) that SOEs need to take the lead in industrial development, especially in ensuring that the state has control of the market and will be able to monopolise it (World Bank, 2000). Thus, this will ensure that the country’s economy is under the leadership of the state’s policy direction, and although influenced by external affairs, they have full authority. For instance, the global power crisis due to the Russian-Ukraine conflict has led to most SOEs across the globe resorting to coal as a means of energy production (Fiebrandt, Röder and Wagner, 2022). This was a clear policy direction by SOEs to ensure a stable energy supply. Thus, POEs within the sector will also follow this policy direction.

Fiebrandt et al. (2022) further assert that although this is a temporary measure, it highlights Germany’s energy security constraints. Thus, emergency decisive leadership had to resolve to maintain the current fossil fuel supply even though the government had resolved to use renewable energy in the power-producing plants. In this instance, the government was the leading entity to clarify the state’s position regarding policy changes and direction (Wüstenhagen and Bilharz, 2006). Therefore, the government played a strategic role in depicting the country’s policy direction and ensuring its partnership with the private sector thrives.

Šahović and Da Silva (2016) allude that although the private sector is dominated by external investments/investors, the public is centralised around governmental ownership. This then qualifies that the two sectors must enforce partnerships and collaborations among the public and private entities. Thus, the state will ensure that it plays a pivotal role in the industrial development of the energy sector. Du and Wang (2013) analysed Chinese economic policy and noted that its SOEs contribute about 80% of market values to the economy in terms of industrialisation.

Hence, China has a large share of ownership in these entities, promoting government policies through political and social support. Therefore, the government ensures that SOEs are leading players in developing industries, creating financial stability and ensuring less political intervention in these entities (Du and Wang, 2013). Du and Wang (2013) further present that after 2002, most SOEs in China outperformed the non-state entities. Thus, they could expand to ensure the stability of the industries, further making it easy to foster the state’s policy.

Song (2018) state that SOEs become pillars of their industries, as they have much ownership in the space/sector. Hence, the state has the most influence on the economy due to its strong influence in most sectors. Therefore, Song (2018) assert that SOEs have a significant role in developing industrial sectors and should include strategic sectors to influence policy objectives. This can be attested to the fact that in 1980, Nigeria had about 1,500 SOEs due to the state’s close involvement in their establishment (Asu, 2020). On that note, Eskom and NESCO are also expected to be role players in ensuring stability within the energy sector. Hence, the questioning of their responses as the SOEs responsible for energy provision in South Africa and Nigeria respectively and this should be understood from their influence as the state has more ownership and responsibility thereof.

Globalisation, Technology, Economic Growth, and the Significance of Supply Security in Nigeria and South Africa

Globalisation is a term often employed to critically understand the world’s interconnectedness through trade and technology. In addition, as a concept, globalisation is also used to capture the economic and social patterns that may change due to this worldwide interconnectedness or interrelations (Jacoby and Meunier, 2010). Jacoby and Meunier (2010) further argue that globalisation allowed migration, monetary goods, ideas, and businesses to exchange some of these simply at the touch of a button.

Migration is an essential catalyst to foster ideas, eradicate some of the world’s biggest challenges, such as low economic growth and social ills, and promote multilateral relations based on reaching countries’ needs. The

interconnectedness of the European countries is one of the clear examples of globalisation (Jacoby and Meunier, 2010). The European Union (EU) has ensured economic and social development within the region. This development was fostered by the idea of developing its member states economically, socially, and otherwise, particularly by exchanging what they have in abundance with what others have in abundance.

Lipsmeyer and Zhu (2011) view that the latter has led to stable economies within the EU countries. Similarly, this has also led to a stable energy supply within these nations. Solarin, Bello and Tiwari (2022) contend that although countries such as Denmark are noted to be small, they contribute a lot to the energy sector of the European continent. Hence, the 4IR is not foreign to these countries as they enjoy a stable energy supply and growth in technological ideas and skills. On another note, these countries can share technological advancements such as electric cars as they all belong within the EU, and there is a policy of free movement of people for 90 days within European countries (Jacoby and Meunier, 2010; Lipsmeyer and Zhu, 2011). Liu, Pan, Wang, Yousaf, Goh and Rahman (2022) mention that these electric cars depend significantly on technological advancement and the stable availability of electricity, which power them during refilling or recharging.

Hence, globalisation, from such an understanding, is an essential weapon for migration, remittances, technological import and export. From this background, a stable power supply is necessary to ensure a stable economic supply, which also affects social factors (Liu et al., 2022). On another note, since the world is technically in the globalisation stage, energy fast-tracks the implementation of communication and brings nations closer to one another (Jacoby and Meunier, 2010).

Norouzi, Dadashi, Haghifam, & Zare, (2022) notes that the communication process, which is currently highly complex, has necessitated that energy be a development partner. When writing this dissertation, the world faces the scourge of the coronavirus, and it depicts that the entire globe is moving towards technological advancements for communication (Zuo, Ma, Zhang, Wu and Ren, 2021). Thus, those not technologically robust, particularly developing countries, face a complicated communication network infrastructure (Norouzi et al., 2022).

The lack of network towers perpetuates this issue in capacitating the total number of users staying in this region. Similarly, Nigeria and South Africa were a nightmare due to load shedding and power cuts being implemented now and then (Gray, 2008). Matsilele, Tshuma and Msimanga (2022) argue that although many entities had to close for the remainder of lockdown levels in South Africa, some companies forced their workers to work from home to continue operations. In addition, Nigerian businesses lose over US\$29 billion annually due to power cuts, as stated by Udegbumam (2021). Sasu (2023) also mentions that about 2.2 million Nigerians working full-time lost their jobs due to the coronavirus crisis, resulting in negative economic growth. Matsilele et al. (2022) contents that COVID-19 changed the mode of communication in education, management and family life; thus, technological advancements had to be available to keep the economy afloat. However, without energy, the face-to-face, hybrid, Microsoft Teams, and Zoom facilities could not have been achievable, or their existence would be without any impact, leaving the world stagnant. Matli (2020) asserts that these communication mechanism tools made the world see COVID-19 as an enemy that needs to be addressed as a matter of urgency.

The press conferences broadcasted on TV, tabloids, newspapers, and information sessions informed communities about the impact of COVID-19 (Matli, 2020; Matsilele et al., 2022). What were the precautionary measures to be adopted, the steps taken by respective governments and health institutions, and what impact that had? In the process, again, the communities were informed about the COVID battle and the number of infected. Without energy, all that could not have been possible. Moreover, economic growth was also tempered (Norouzi et al., 2022). From the abovementioned, it is evident that energy provision is vital for social development. Globalisation stands at the centre of communication, technological advancements, and transfer. This knowledge and technology transfer contributes to embedding economic growth and fosters interconnectedness and interdependency from one country to another.

Hence, Norouzi et al., (2022) highlights that the state needs to procure a stable energy supply if there is any hope of sustaining the development of the 4IR and believes that the development will also see growth in the transport economy from regional, continental, and global perspectives. Not only that, but advancements in social and professional communications will also increase, thus signalling the importance of attaining a stable energy supply before commencing with the 4IR.

Lazo, Aguirre and Watts (2022) studied the Nigerian state during the COVID-19 lockdown, noting that the lockdown increased the demand for energy across the country. In addition, the lockdown also considerably impacted the migration of Nigerians as most had to work from home, thus increasing power or energy demand from households. Fouche and Andrews (2022) also found that working from home is a significant challenge for most South African citizens. These scholars also highlight that many students were marginalised when universities had to restructure their teaching philosophies and material.

Besides the issues of data constraints, the unstable energy constraints further perpetuated the learning space to be a vulnerable space for most. Willie and Skosana (2021) studied employees to decode the effects of working

at home due to COVID-19 in South Africa. The abovementioned scholars believe that working from home due to load shedding is less productive than being in the office. This phenomenon makes employees lose productivity, negatively affecting profits and economic growth (Willie and Skosana, 2021). Hence, it is vital to attain a stable energy supply in the world of globalisation. Many international entities have left the African shores of Nigeria and South Africa due to the unstable energy supply. Makgetla and Patel (2021) confirm that most have cited that the constraint power cuts and load shedding, which have resulted in the government having no clear vision on combating the energy crisis in these two countries, has resulted in international disinvestments.

While Lazo et al. (2020) maintain that the lockdown has increased the need for energy supply while constraining the system, this was also reflected in the number of disinvestments made in both South Africa and Nigeria as a result of unstable energy supply (Makgetla and Patel, 2021). Therefore, a stable energy supply is crucial for capturing foreign investors and establishing a good productive environment for businesses to start and thrive depending on the energy supply.

CONCLUSION

The paper has presented the findings of the impact of energy shortages in the economic development of South Africa and Nigeria. The paper has argued that energy shortages of any state have direct implications for development in these respective states. Additionally, these states have deteriorated over years in terms of their economic hegemonic strength within their regions and the continent due to this shortage. Energy shortages have led to less development and the projection these two states as depicted in the figure above does show this has a relation with the energy availability factor.

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