UNIVERSITY OF THE WESTERN CAPE

EMS Faculty

Department of Political Science

A critical analysis of the role of the Nigerian government on the growth of the country's power sector, 2006 – 2016.

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the Department of Political Studies in the Faculty of Economic and Management Sciences (EMS), University of the Western Cape.

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DEDICATION

This work is dedicated to God Almighty who has made it possible for me to complete this research.

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First and foremost, I appreciate God Almighty for the grace and privilege given to me to be able to complete this work. Without God with me, this work will not have been made possible. Thank you, Lord!

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DECLARATION:

I declare that this thesis entitled "A critical analysis of the role of the Nigerian government on the growth of the country's power sector, 2006 – 2016" is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Signature: Chibuzo JP Igwemezie.

Date: 15th March 2023

List of Acronyms and Abbreviations

AFDB	African Development Bank
APP	Africa Progress Panel
CBN	Central Bank of Nigeria
DisCos	Distribution Companies
EPSRA	Electricity Power Sector Reform Act
FDI	Foreign Direct Investment
FRN	Federal Republic of Nigeria
GenCos	Generation Companies
IEA	International Energy Association
IT	Information Technology.
KPMG	Klynveld Peat Marwick and Goerdeler
M & E	Monitoring and Evaluation.
NEPA	National Electric Power Authority
NERC	Nigeria Electricity Regulatory Commission
OPEC	Organisation of the Petroleum Exporting Countries
PACP	Presidential Action Committee on Power
PHCN	Power Holding Company of Nigeria
PTFP	Presidential Task Force of Power
SSA	Sub-Saharan Africa
TransCos	Transmission Companies
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Keywords

Analysis

Electricity

Energy

Government

Growth

Leadership

Load shedding

Policy

Power sector.

Management

.

TABLE OF CONTENT

LIST OF TABLES **PAGE NO.**

LIST OF FIGURES **PAGE NO.**

ABSTRACT

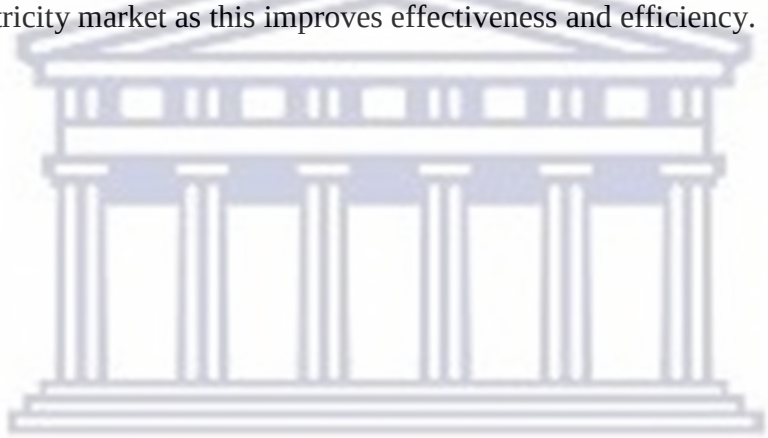
The Nigerian power sector has been experiencing various challenges in the past few decades. Some of the challenges include constant blackouts or load-shedding, old and out-dated equipment, lack of infrastructures, insufficient funding, and inadequate technical knowledge to tackle the issues the sector is experiencing. This has greatly affected the entire country as more than 50 percent of its population does not have access to electricity, while those with access are constantly faced with continuous power failure and outages. There was a steady growth in the power sector after the country's independence in October 1960. Many expected that to continue. Unfortunately, the opposite happened. This has greatly affected the living standards and the country's economy negatively. Inevitably, this situation has had an impact on the country's politics too.

Focusing on the role of the Nigerian government in improving the power sector, this research looked at the efforts the government has put in place in addressing the challenges faced by its power sector. These efforts include funding made available by the federal government to support the power sector, privatising part of the power sector and some policies being put in place to improve the power sector. This research was carried out using both the quantitative and qualitative research techniques. However, only secondary sources were used to collect data sets. This was due to the enormous data available online with regards to the electricity crisis in the country. These sources included *inter alia*: books, published statistical data, published online journals, other internet sources, official government documents and many such related sources. Nigerian Archives were also consulted to obtain primary data. Before carrying out the study, the consent of the University of the Western Cape (UWC) was sought to ensure that all protocols were strictly adhered to.

The study found that some of the Nigerian government's efforts to assist the energy sector have been somewhat successful. However, inconsistencies on the side of government and within the energy sector as well as lack of monitoring of policy implementation have derailed government's intention to see the energy sector operating at its optimal level

The significance of this study is that it will assist the Nigerian government on how it could address challenges in the power sector and use this sector to improve its economy by creating jobs and attracting Foreign Direct Investment (FDI). As the literature review will show, previous studies have overlooked the energy sector as a panacea for Nigeria's economic growth. The focus has tended to be on the production and sale of oil with no explicit discussion

of the energy sector as the potential engine to boost the country's GDP. This means that, the challenges the power sector faces negatively affects the GDP and development in the country. Moreover, the challenges in the energy sector have not been systematically analysed with the view to proffer solutions. Therefore, this study will fill this lacuna. It will ensure that other sources of energy/power are properly integrated to ensure that the power crisis is a thing of the past in the near future. To achieve this goal, the study recommends that government should give the energy sector priority in order to address current socio-economic and political challenges that the country is faced with. Some of these recommendations are; increasing awareness on the use of renewable energy sources and solar panels, dealing with the issues of correction within the power sector, dealing with the issues of gas supply by building more power plants, sourcing funds/investments for the power sector and encouraging a more competitive electricity market as this improves effectiveness and efficiency.



Chapter 1

LANDSCAPE OF THE STUDY

1.1 Introduction.

Nigeria, though having experienced economic challenges recently, is still one of the African continent's great countries in terms of its Gross Domestic Product (GDP). In April 2014, it was announced as the African country with the highest economy, topping South Africa – a position which South Africa reclaimed in 2016 but has since surrendered following the slow growth of the country's economy occasioned, in part, by political instability. Nigeria is blessed with natural resources and minerals, with crude oil being the main resource. It is a member of the Organisation of Petroleum Exporting Countries (OPEC) as crude oil is one of her most important export products. With so much potential and natural resources at its disposal, the Nigerian government still faces a lot of challenges in the power sector. More than 50 percent of the country's citizens do not have access to electricity to-date. Even the areas with access to electricity constantly have power failures or interrupted power supply. This has a negative effect on the country's economy and citizens' social well-being (KPMG, 2015).

The country's power sector has continued to face challenges. Despite the government investing so much money over the years in this sector, there have been little returns from such investment. This leads to the conclusion that there is something missing in what the government has been doing to-date. Therefore, a cogent analysis of the challenges faced by the power sector is a necessity. Importantly, there is a great need to advise government on what it needs to do to change the current status quo. This is important because unless the energy sector is vibrant, the country's economy will remain stagnant, Foreign Direct Investment (FDI) will shrink, job creation will remain a far-fetched dream, and political squabbles will be sustained. Establishing the nature of the challenges and making concrete proposals to the government is the contribution which this study will make. It will mark a deviation from studies that simply focus on oil production and sale and present statistical data without linking it to the country's economic growth potential and its politics. The proposed study will draw this link. This will be the utilitarian function and contribution of the study to knowledge production. Beyond Nigeria, it is envisaged that the findings of this study will assist other African countries which produce oil (e.g., Algeria and Angola) by making Nigeria their reference point.

1.1.1 Background of the Study

The Nigerian power sector was originally managed by National Electric Power Authority (NEPA) which was tasked with the generation, transmission, and distribution processes. However, mismanagement coupled with inefficiency made the Nigerian government to establish the NEPA Act of 1998 whose aim was to encourage privatisation of the power sector by removing the NEPA monopoly. The amendment was taking too long to action until the Federal government took great measures to actualise it in 2005 by establishing the Power Holding Company of Nigeria (PHCN) comprising 3 generating companies, a transmission grid and 11 distribution companies. The unbundling of PHCN into different sectors was meant to bring about efficiency and effectiveness in the organisation. However, to-date the power sector still faces much of the challenges it used to face under NEPA.

Therefore, this means that there is something which the government is not getting right to ensure that the power sector functions effectively and efficiently in carrying out its functions in ensuring uninterrupted power supply to the people of Nigeria. The study will make a significant contribution in this area and make government a viable political institution.

1.1.2 Scope of the study

This research focuses on critically analysing the role played by the political leadership in the performance of the Nigerian government in addressing the power sector challenges and in using the power sector as the springboard for economic development. An analysis of the country polices, management, provision of finance, etc. form the basis of this study. The research investigated how effective the government has been in playing its role in these areas. Every setback and challenges that were identified during the research process will be recorded in the next chapters. Subsequently, concrete recommendations will be made to ensure a more efficient and effective outcome that would reposition the Nigerian government through its revived perception and handling of the power sector and linking it to the country's overall economic goals. It is envisaged that proposals for a multi-sector approach to the challenges faced by the power sector and calls for the sector to be prioritised will ignite a spark and address many of Nigeria's challenges the country continues to wrestle with despite making some interventions meant to address the issues.

1.1.3 Research Problem

Given Nigeria's economic status and position as one of Africa's giant countries, it is worthwhile to understand that the issue of power inefficiency in the country is a major problem affecting all the sectors of the country negatively. By examining the opportunities and challenges faced in the effective provision of electricity, this research looked at the role of the government in ensuring that there is effective provision and distribution of electricity in Nigeria and that the organisational goals set by the government are being accomplished. Importantly, the study aimed at establishing why the Nigerian government has been unable to tackle endemic problems in the power sector after so many years.

Throughout the years, the Nigerian government has placed the management and provision of electricity in Nigeria in the hands of entities such as NEPA and PHCN. These organisations have certain resources at their disposal to achieve specific goals but have failed to deliver satisfactorily on their mandate. Jones (2003) states that the efficient use of these resources to accomplish Nigeria's goals demonstrates the inability of management to achieve realistic planned organisational goals. In case of the government, this depends on how the government manages the resources at its disposal and how its various sectors are being managed in ensuring that there is proper provision of electricity in the power sector and in ensuring that there is efficiency. As a norm, any organisation that cannot properly manage its resources fails and cannot meet the challenges and constraints to provide goods and services to its consumers as is the case with PHCN (Ijewere, 2012).

According to Ijewere (2012), generally, the supply and distribution of electricity in recent years has been very significant due to the importance of electricity in our daily lives. Therefore, long or continuous absence of electricity in people's lives causes discomfort and has a negative effect on productivity. The repercussion of this is that it stalls national economic development and triggers political instability. The consumption of electricity is the parameter that is used to measure the level of industrialisation and the standard of living in nations (Mohammed, 2005). The authors cited above, together with Darling et al. (2003), observe that Nigeria has been facing extreme electricity shortages and that the causes for this have been structural, financial, and socio-political. All these arguments point to the fact that there is something amiss. It is within this context that the present study is so important.

According to Oshodi (2014), there has been unstable and inadequate supply of electricity in Nigeria for years now causing great constraints to the country's local economy. The author

seems to support the idea that inefficiency and mismanagement constitute a major problem within the power sector and that it has greatly affected the economy and the standard of living Among Nigerians. Oshodi (2014) further states that Nigeria's electricity industry is one of the components of the country's economy that continuously maintains the country's status as a developing country. With about 48% of the country's population not having access to electricity, this poses a great threat to the country's economic and political stability. Therefore, government's role needs to be investigated to ensure an improvement in this sector as it has great potential to address several national issues.

Quick observation leads to the conclusion that there is no sufficient futuristic planning and projection in the supply of electricity to the consumers in Nigeria (Olawale et al, 2009). This does not augur well for the country's prospects for economic development. Since this situation has been repeating itself over the years, it can be said that the government has not done much to address the situation. There has been no efficient strategic planning on the part of the government. Also, funds have been misappropriated (Olawale et al, 2009). This amounts to government's dereliction of its duties.

In summary, the problems here include the ineffectiveness of the government to act as the public's guardian. Government ought to be able to properly blend both the private and public sectors for effective outcome in the power sector. Insufficient participation on the part of the government has generally left the power sector vulnerable and hence the ineffectiveness in the sector. Also, there is the issue of policy paralysis where important reforms and laws are not passed due to insufficient commitment on the part of the government or the government's inability to reach consensus over the correct variation of the reforms.

The problems mentioned above, together with those not covered so far but which were investigated by the study, indicate that the power sector of Nigeria is facing major challenges and that the government has not been carrying out its functions/roles very well in ensuring that these challenges are being handled properly. It is very important for the government to ensure that proper policies are put in place and to ensure that these policies are being adhered to in ensuring that there is adequate and constant power supply. Within this context, the research focused on the following issues:

- Reasons why the power sector has failed to perform optimally.
- The challenges that have engulfed this sector over the years.
- Reasons why the Nigerian government has been unable to address these challenges.

- The extent to which the current policies controlling the energy sector are effective; and
- What needs to be done in order to make the power sector the engine in Nigeria's economic development?

1.1.4 Research aim and objectives of the study

The main aim of this research was to establish why Nigeria's power sector has been unable to perform at its optimal level and the role played by the Nigerian government in this regard.

Specifically, the objectives of this study were:

- To establish the role (or lack thereof) of the Nigerian government in promoting the growth of the power sector in Nigeria.
- To identify the challenges faced by the Nigerian government in promoting the growth of the power sector.
- To establish the reasons that have served as stumbling blocks for the Nigerian government in promoting the power sector.
- To assess the efficacy of existing government policies which guide the power sector; and
- To make recommendations on what needs to be done by government and other sectors in order to improve the current situation and reposition Nigeria.

1.1.5 Research Questions

The central research question which the study sought to find answers is the following:

- Why has the Nigerian government been unable to address the challenges faced by the country's power sector?

In addition, the research sought to answer the following sub-questions:

- How effective has the Nigerian government been in promoting the growth of its power sector?
- Why has growth in the Nigerian power sector been stagnant over the years despite continuous government efforts and investments?
- How do challenges in the power sector impact on the country's politics?
- What can be done by the Nigerian government to improve the current situation?

1.1.6 Assumptions

While carrying out this research, three assumptions were considered with the view to later be validated or negated. These assumptions were as follows:

1. The Nigerian government is inefficient and ineffective in carrying out its role in the management of the power sector.
2. There is no proper monitoring and evaluation process by the Nigerian government to ensure that the policies currently in place are implemented and that the resources are being effectively utilised; and
3. Some of the policies that are in place to govern the power sector are ineffective.

1.1.7 Significance of the study

After this research has been carried out and the findings and the conclusions established, it was envisaged that the results would go a long way in contributing to the already existing body of knowledge with regards to the power sector in Nigeria and that the findings would be linked to the country's political sector – a point that has been overlooked in the literature. In managing the challenges currently facing the Nigerian government in the power sector, the roles, policies, and the management functions of the government were all investigated and recommendations for effective operation of the government proffered to ensure a better future for the country's power sector.

Secondly, it was intended that this research would help the different spheres of government in Nigeria to better understand where the challenges facing the power sector lie. This will be vital in terms of policy formulation and implementation, especially in the power sector which is saddled with the responsibility to supply electricity in Nigeria as a whole.

Thirdly, the recommendations from this research will go a long way towards improving the living conditions of many Nigerians who do not have access to electricity supply and to those who constantly face interrupted power supply.

Fourthly, it is envisaged that the recommendations made by this research will improve the economy of Nigeria by making other related sectors viable. Power supply, if properly handled, can greatly boost the economy of the country as many of the industries rely on power to efficiently carry out their functions.

Finally, the findings of this study will demonstrate the correlation between the power sector and the political sector and thereby emphasise the urgency for the government to act swiftly and appropriately.

1.1.8 Unique Contribution to the literature.

Previous works have focused on Nigeria's oil industry and disturbances which constantly occur in the Niger Delta area where most of the country's oil is produced. Little has been done in establishing why Nigeria's power sector has failed to operate at its optimal level. Even studies that have investigated the power sector have focussed on the history of the sector and on explaining the current situation without delving much on *why* the challenges persist. Importantly, the link between the power sector and the political sector has been drawn by previous studies. This research will mark a deviation from conventional approaches to the power sector crisis in four ways. Firstly, it addressed the question *why* the power sector has been unable to perform at its optimal level. Secondly, it established the role played by the Nigerian Federal government in this slow pace in the performance of the power sector. Thirdly, the study draws the link between the power sector and the country's political sector. Fourthly and most importantly, the study proffers solutions by making concrete recommendations on the way forward thus providing more than other previous studies have provided on this theme.

1.1.9 Ethics statement

This research had to be approved by the University of the Western Cape, faculty of Economic and Management Sciences and the department of Political Studies before it could be undertaken. The study did not in any way intend to harm the parties that were to be mentioned in it. Although both quantitative and qualitative data sets were used, no interviews were conducted in this study. The documents that were consulted and subjected to a cogent analysis are already in the public domain. The only primary data were sourced from the Archives in Nigeria. In accessing these sources, the researcher followed the set protocol on how one must access archival information. To comply with ethical requirements, any information used in the study has been credited to the respective authors or individuals who made certain statements. In conducting this research, informed consent will be obtained where applicable. The

researcher will ensure that confidentiality is maintained and all participants rights are maintained.

1.2 Brief Literature Review

This section is only an abridged literature review as the detailed one will be covered in Chapter 2. In any academic research, literature review is conducted for three main reasons: (i) to establish what has already been researched on the topic being investigated at the time; (ii) to identify any strengths in the literature being reviewed in terms of knowledge production; and (iii) to identify any existing gaps that still need to be filled. The last point is more important because it justifies the need for the research being contemplated or planned. The present study is informed by this principle.

A lot has been written about Nigeria from a political point of view. Similarly, attempts have been made to write about the power sector. For example, KPMG (2013) states that, the history of the Nigerian power sector dates to 1896 when the generation of electricity started in the country. According to this source, it was only in 1929, more than 30 years later, that the first distribution company was created. According to KPMG (2013), despite the government's continuous effort and measures put in place to properly manage the power sector which was functioning as a government monopoly, it was evident in the late 1990s that the Nigerian power sector was failing to deliver as expected and hence there was a need for reform in the sector. This ineffectiveness in the power sector pushed the Nigeria government to taking one of the boldest privatisation initiatives in the power sector, which cost the government about $3.0 billion dollars (KPMG, 2013).

To further show the commitment of the Nigerian government to privatizing the power sector, the Federal government has been able to complete the privatisation of the generation and distribution of electricity in the country while partially retaining the ownership of the transmission. Noticeably, the process is being managed under concession. Power Holding Company of Nigeria (PHCN) began its operation in January 2004 as the main organisation that has been given the task of controlling the power sector and hence the generating, distribution and transmission companies all fall under the PHCN. It should be noted that the PHCN is the company that took over from the National Electric Power Authority (NEPA) which operated as a monopoly. It was seen as a better and more reliable option to NEPA as it was established to solve NEPA's problems and challenges.

As seen above, the Power sector in Nigeria involves three major processes of generation, distribution, and transmission. According to KPMG (2013), the generation process has been privatised and it has 23 grids that connect the generation plants that are operational in the Nigerian Electricity Sector. Also, there are 11 distribution companies which are responsible for the distribution of electricity in most parts of the country. The clients that demand the use of the services of the distribution companies are divided into 5 groups which are: industrial, commercial, special, street lightening and residential (KPMG, 2013).

1.2.1 Government's role and management of electricity supply and distribution in Nigeria.

Managing the power sector or the supply and distribution of electricity in Nigeria simply means ensuring that those responsible for an efficient and effective functioning of the power sector do their job correctly. This entails making sure that the resources at their disposal are being properly used for effectiveness and efficiency. When analysing the role of the government in the power sector, it is important to bring out that aspect of management because effective management is what entails the proper functioning of the government. As various authors have argued, management is the process that entails the functions control, organising, leading, and planning while overseeing and coordinating the work done by others to ensure that work is carried out effectively and efficiently (Timm, 2011). For an organisation like PHCN to function effectively or for the government to play a more effective role in the power sector, there is a need for proper management. The Nigerian government is big and hence there is a need for someone to oversee the power sector like the Minister of Power who can be described as the manager of the organisation. According to Timm (2011), a manager is one who coordinates others and resources in an organisation with the goal of ensuring that the organisational goals are achieved. Managers fall under different categories such as first-class managers, team workers and middle-class managers. Each one of these different categories of managers or leaders' function accordingly to achieve the goals of the organisation.

For the government to play an effective role in the power sector it needs to ensure proper management. Various mismanagement aspects can be seen within the power sector which clearly shows the need for the government to be effective in playing its role. According to Agboola (2011), there is a shortage of technical staff within the PHCN which clearly shows lack of management on the leadership. Also, there is the aspect of misappropriation of funds

within the power sector which involves bribery and corruption. Agboola (2011) further states that there is the shortage of technical staff within the various departments in the power sector and hence the need for staff training. Other mismanagement aspects within the power sector are poor customer service, maintenance and mismanagement as cables and grids are broken and outdated. There are also not enough meters for proper billing (Agboola, 2011).

These challenges show that the entire government has a major role to play in ensuring efficiency in the power sector. Other challenges found in this sector include mismanagement. Chinwuko et al. (2011) mention poor planning and poor organising within the distribution companies in the power sector as they fail to determine the numbers and location of the distribution substations and ways of connecting the substations and the local nodes. These irregularities within the distribution companies could be greatly avoided if the government plays a more vital role in ensuring effectiveness and efficiency.

Alabi (2012) also brings out the issue of staff striking and the improper way some staff members are treated within the power sector. From general observation and from previous studies, it is clear that many of the PHCN staff feel that their working conditions are not up to standard, and many complain about their wages. There are instances where they have demanded 50% wage increase. Also, there have been instances where workers have not been paid salaries for months (Alabi, 2012). All these issues show mismanagement within the power sector and the need for the government to play an active role in promoting the sector.

The leadership of PHCN has been described as pathetic by some scholars (Teryima & Agburu, 2013). This description was due to the inability of the PHCN to meet expectations as issues such as nepotism, bribery, fraud, and corruption have constantly been experienced within the organisation. This creates room for inefficiency and ineffectiveness.

What is clear from these sources is that there are challenges within the power sector. Also, these sources show that the Nigerian government is not doing enough to alleviate these challenges. This is very useful information in terms of providing the basis for the proposed study. However, what is missing from these sources is that they have not adequately tackled how the government can effectively engage in promoting the management of the power sector. The sources have listed and identified possible challenges but have not specifically identified policies and methods that the Nigerian government can use in solving these problems. Even existing policies have not been interrogated and subjected to close analysis by these sources. This marks a significant gap in the literature. The present study will delve much in identifying

the challenges, establish why government has failed to address them, analyse existing government policies, and analyse existing statistical data sets. Eventually, this study will make concrete recommendations at the end on what can be done by the Federal government of Nigeria to improve the situation in the power sector as a way forward.

1.3 Theoretical framework

Although there is a chapter dedicated to Theoretical Framework, this section simply introduces the subject. From a general perspective, a theoretical framework assists in giving shape to the study being carried out. In his book *Global politics*, Heywood (2014) addresses the question why theory matters and argues that it simplifies complex data sets and gives meaning to complex matters. Theory gives the context within which the current study being carried out could be understood. In line with this conventional practice of using theory to guide a research project, the main theory used in this study is **Agency theory** by Donaldson, Lex, and Davis (1991). Other theories that are examined are the stakeholder theory and the knowledge management theory.

1.3.1 Agency theory.

1.3.1.1 The history of the agency theory

The first scholars that proposed the creation of this theory are Stephen Ross and Barry Mitwick. Ross was responsible for the origin of the agency theory while Mitnick was responsible for the institutional theory of agency (Mitnick, 2006).

Agency theory explains the relationship between the business, the principals, and the agents in a business/organisation. In this case, the business is the power sector, while the Nigerian government and the masses constitute the agent and the principal, respectively.

The agents and the principals may have different perspectives of things and the way the agent carries out his or her duties and how this affects the end results and the goals which will affect the principals. In the context of this study the Nigerian government is perceived to be the agent. It will be important to see how the power sector; the masses and the government relate to one another and the roles each plays in the current situation.

1.3.1.2 Justification for using the Agency theory

This theory was chosen because it was felt that it would give an understanding as to what the Nigerian government (the agent) is doing to advance the growth of the power sector in the country. In the subsequent chapters, the policies put in place and the effectiveness of the Nigerian government will be scrutinized with the view to clearly demonstrate how this affects the masses (the principal).

This theory helped the researcher in identifying the issues involved in the Nigerian power sector with regards to the government's action and/or inaction.

Agency theory has been criticised for focusing merely on two main stakeholders, which are the *agents* and the *principals*. Critics argue that it is not healthy to focus on just two stakeholders and neglect other key stakeholders such as the manager's subordinates, investors and suppliers who all ensure that an organisation function effectively.

Despite these criticisms, I felt that this theory is still very important and valid in carrying out this research because it is the best theory available to give a clear view on the Nigerian government acting as the *agent* and the staff and consumers acting as the *principals*. The theory is not exclusionary; as such, other stakeholders were considered as secondary role-players.

1.3.2 Stakeholder theory

Stakeholder theory is a theory in view of capitalism that shows that there is an interconnected relationship between a business and its employees, customers, investors, communities, competitors, suppliers, and others who have a stake in the business (Wright, 2022). It argues that businesses can only be considered successful when value is delivered to majority of their shareholders as it is not about wealth maximisation but maximisation of value. Hence, their success is valued. Some of the benefits of the stakeholder theory as will be examined further in this research includes;

- Increased of mental health through job satisfaction of workforce.
- A healthy competitive ecosystem where other companies can thrive too and their stakeholders will benefit.
- Pleasure deriving from being part of a positive change.
- Improved referrals from customers that are happy (Wright, 2022).

1.3.3 Knowledge management theory.

In looking at the knowledge management theory, it comprises of a range of practices through which knowledge is generated and applied by organisations (Dalkir, 2013). Knowledge management is a series of steps that includes the identifying, collecting, and sharing tacit and implicit information to individuals in an organisation. Knowledge management has been in existent for some decades, but the term knowledge management was coined by Peter Drucker in the 1980s

1.4 Research methodology

The systematic way to solve problems is described as research methodology (Rajasekor et al. 2013). Included under research methodology are research methods used to carry the study. In essence, the latter refers to the science that studies how research projects are conducted (Rajasekor et al. 2013). This is the way in which researchers carry out their work in explaining, describing, and predicting events and phenomena. Knowledge is gained through the study methods and the aim of a research methodology section in a research report is to give the readers a clear picture on how the study was conducted so that the results could be understood within that context. Guided by the same principle, this section introduces the methodology that was used in this study.

1.5 Research design and data collection

As a norm, research design describes what data will be used in carrying out the research in the case of a research proposal or what data sets were used in the case of a research report. It describes the method that will be used to collect and analyse data to solve the research problem. The general strategy for conducting research is called a research design (Gay & Airasian, 2000). According to Van Wyk (2014: 4), research design is the overall plan of connecting the research problem to achieve the empirical research results. Hence, the research design entails the plan and method that will be used in carrying out the research.

In line with the understanding presented above, this research falls within the qualitative paradigm. As such, neither interviews nor questionnaires were used in carrying out this research. Instead, pre–existing data sets from secondary sources were utilised. Secondary data

is important because it can be used to answer some social science questions by making use of the data collected by other researchers for their research (Hox & Boeijie, 2005).

However, published quantitative data sets were analysed and interpreted to arrive at certain conclusions. As Hox & Boeijie (2005) argue, there are instances where primary data can serve as secondary data if the information is made available or is being archived. Within this context, archival information stored at the Nigerian archives were used to strengthen this study. Such information is derived from various sources including but not limited to government documents, general reports, statistical reports, etc. Using archival information assisted in locating the study at the PhD level in the sense that it introduced information that has not been considered by previous studies in addition to giving fresh interpretation of pre-existing information. Through these mechanisms, it was felt that the research questions would be addressed, and the research objectives would be met.

As a general norm, qualitative research involves opinions, thoughts, and ideas from others about the study that is being carried out. With qualitative research techniques, the researcher gains a better understanding of reasons, opinions, and motivation behind certain actions (Wyse, 2011). The qualitative research technique is one of the acceptable data collection techniques. What gives the study an identity is the interpretation of the existing data. This is what the present study did. It has interpreted data sets from the sources listed above and as well interpreted and analysed such information in attempt to answer the research questions listed above and meet the study's research objectives. This is in line with general research conventions which guide the research community.

1.6 Data analysis and presentation

Normally, once collected, data is generally analysed to give meaning. According to Marshall and Rossman (1990:111), data analysis is the process that brings order, meaning and structure to the mass of already collected data. It is not an easy process given that it is time consuming, ambiguous, and messy. Qualitative data analysis involves finding relationships or ideas among categories of data (Marshall and Rossman, 1990:111). Normally, such data sets are analysed thematically through what is called Thematic Analysis (TA).

In this study, the researcher analysed all the collected data to come up with more refined and most precise themes that would assist in answering the research questions. Hitchcock and

Hughes (1995:295) provide more details on the nuances of data analysis. In this study, qualitative data were packaged thematically. Quantitative data on the other hand have been prepared and presented in the form of tables, graphs, and charts. This was done to ensure easy understanding to the readers.

There are so many tools that can be used in analysing data, but this research focused mainly on the spreadsheet as it is easy and convenient to use. Through this method, tables and charts were produced. The researcher also made use of Statistical Package for the Social Sciences (SPSS) to ensure that the data sets are properly analysed.

1.7 Organization of the Study

This study is divided into 7 chapters which are organised as follows:

Chapter 1: Introduction and Background to the study.

This chapter has introduced the research and spelt out what the study is all about. In this chapter, the state of electricity distribution in Nigeria has been explained and the role of the government has also been established. The chapter has briefly explained the scope of the study and introduced the research problem. It also listed the key research questions and objectives of the study and outlined the assumptions on which the study is predicated. Moreover, the significance of the study was also discussed in this Chapter.

Chapter 2: Literature review

This chapter, which will follow this one, will expound the Literature Review section presented above and comb the existing literature on the theme of the study to establish what different researchers have already written on the subject. Discussions on the successes and challenges encountered by the Nigerian government in developing and maintaining the energy sector in the country will be considered in a way to establish the nature and extent of the challenges. Gaps in the literature will be identified as justification for the present study.

Chapter 3: Theoretical framework

This chapter will elaborate on the Theoretical Framework section already presented above. It will also introduce and discuss the theory on which the present study is anchored. The Agency theory by Donaldson, Lex & Davis (1991) will be introduced and fully explained – outlining its tenets. Justification for the theory's choice shall be provided. Any criticism levelled against the theory shall be considered and explanations given as to why it is deemed relevant despite such criticisms.

Chapter 4: Research Methodology

This chapter will explain the research methodology and the research methods used in carrying out this research. It will elaborate on what has already been discussed, albeit briefly, above. Reasons for locating the study within the qualitative paradigm shall be provided.

Chapter 5: Presentation of the Findings

The chapter will present the findings revealed by the research as contribution to knowledge on the theme of the study. The findings to be presented in this chapter will be drawn from the different research methods that were used to collect data as outlined in Chapter 4.

Chapter 6: Data Analysis

This penultimate chapter, which will build on the previous Chapter 5 will analyse all the findings presented in chapter 5. The chapter will give meaning to the information presented in Chapter 5. This will assist the reader in making sense of such data sets and appreciate the value of the study.

Chapter 7: Conclusion and recommendations.

This shall be the final chapter of the dissertation. Conclusions will be drawn based on the outcome of the research. Specific recommendations will also be made on ways in which the Nigerian government can improve the management of the power sector for better efficiency and effectiveness. Moreover, general recommendations for further study on the theme of this

study shall be presented in this concluding chapter of the dissertation. Lastly, the contributions made by this dissertation to the body of knowledge shall be reiterated.

CHAPTER 2

LITERATURE REVIEW

MANAGEMENT OF THE ELECTRICITY/POWER SECTOR IN NIGERIA.

2.1 Introduction

Chapter 2 will present the literature review of this work – expanding the section already presented in Chapter 1. This will include important literatures on concepts such as electricity, electricity management and distribution, spheres of government and their role in improving the power sector. The state of electricity management in Nigeria, sub-Saharan Africa, South Africa, and a country in Europe will be looked at to present reference points. In this chapter, the contextual and legislative framework will be examined as well.

The conceptual framework of this research will be discussed. This will entail important concepts that are deemed useful and important in this research. This will include presenting detailed meanings of concepts such as electricity, electricity distribution, management, spheres of government, electricity crisis in relation to the role of the government in the improvement of the power sector. Also, the four management functions within the role of the government will be analysed and discussed to demonstrate their role in improving the power sector.

Moreover, in this chapter, the state, management, and distribution of electricity in the Sub-Saharan Africa will be examined before it will be narrowed down to Nigeria which is our case study. In looking at the legislative framework, the policies and acts that are binding the electricity sector in Nigeria will be presented and analysed to show how they affect the government's role in improving the power sector.

2.2 Definition and discussion of Key concepts

The concepts that will be defined and discussed here include the following:

Electricity

Management

Electricity distribution

Government

2.2.1 Electricity.

In the *Advanced Oxford Dictionary*, the word electricity has four different meanings; one is even used to express human emotion which is a state of heightened emotion, tension, and excitement (Thompson 1995: 436). Electricity can be defined as the form of energy that results from charged particles that exist like protons and electrons. The electricity exists as static charged accumulation or as a dynamic current (Thompson, 1995). Also, with reference to electrons, electricity can be defined as the movement of an invisible phenomenon that is created by electron movement in conductor (Hydro Quebac, 2004, 2011). It is important to note that it is difficult to get one definition of electricity; this is evident with the different definitions of the word electricity and its interchangeable use. The attempt to get one acceptable definition of electricity reflects a world filled with many possibilities and unknowns. Many authors who have attempted to define electricity (electrical energy) which is the core of this research, have put across an understanding of its various properties which is how it is generated, transmitted from one point to the other and how it is used. An example is the definition of electricity by KPMG (2013) which defines electricity as the movement of electrons within a conductor from positive points to negative points. KPMG (2013) further states that, electricity is used to provide power to electrical devices, building, automobiles, etc.

Electricity has been in the mind of people as way back as in the 1740s although not in the same way we perceive electricity today. Electricity was used back then in creating magic tricks like shocks and sparks and it was used at the time to create experiments by scientists. Though it was used by scientists in the 1740s, it was still not very useful to them then till years later. Historically, it was in 1759 that Benjamin Frankline developed the concept of electricity as it is used today when he discovered the similarity between electricity and lightening as elements that created light and made loud sounds when exploded, had a smell, and attracted to metal (Hirram, 2013:15).

The movement of electricity to its final destination involves three processes today, which include the generation, transmission and distribution (IEC, 2007: 7). When looking at the role and contribution of the Nigerian government in the power sector, this dissertation will look at all the aspects of the electricity process which include (as stated above), generation, transmission, and distribution. According to Bloomberg (2016), the Power Holding Company of Nigeria is made up of three types of subsidiaries which are the generating companies

(GENCOs), the transmission and system operation company (TRANSYCO) and the distribution companies (DISCOs).

Electricity can be generated by means of kinetic energy of wind and flowing water and can also be generated at a power station by electrochemical generators that are fuelled by nuclear fission and chemical or chemical combustion. As noted in chapter one earlier, electricity can be generated by various means and in Nigeria for example, electricity in the various power stations is generated using different means. Some power stations use gas (Delta and Afam power stations), while the Shiroro, Kainji and Jebba power stations use water; steam is used by Sapele and Egbin Power stations (Ijewere, 2012).

The South African Electricity Company Eskom stated that electricity is different from other services that can be harvested from nature and supplied or provided to other households such as water (Eskom, 2016). The difference here is that electricity must be manufactured, and it must be manufactured at a low cost so as to ensure that bills are low and that the impact of the environment is at its lowest (Eskom, 2016). Electricity manufactured in countries are measured in megawatts and this differs depending on the amount of electricity each country produces. The World Bank has stated that there has been a great increase in recent years in the demand for electricity and this has greatly put pressure on electricity manufacturers and distributors (Worldbank, 2013).

There has been the use of less quality coal in the power stations that are next to deposits of coal to produce electricity in recent times to cope with the increase in demand for electricity. This is to cope with the water scarcity that is caused by climate variability. Countries such as South Africa and India are examples of those countries that have been practicing this (Eskom, 2016). It should be noted though that coal is economically viable in producing electricity, it is not the best means because no matter how carefully it is burnt, there are still omissions (solid and gaseous). These gaseous omissions have negative climate change effects on the environment as gases that are omitted include sulphur dioxide, carbon dioxide, and oxides of nitrogen (Eskom, 2016).

A more technical part in the process of taking electricity to the consumer is by ***electricity transmission.*** According to Dieter Betz et al (2009), electricity transmission is the more technical part of getting electricity to the final consumer. It is the process where electricity energy is being transferred to substations that are located near the demand centres after generation.

There are 4 main reasons why a strong electricity transmission process is important:

i. The reliability of the electric power system is being improved.
ii. Electricity customers are given flexibility by giving them access to power plants to diversify the mix of fuels that produces their electricity.
iii. Low-cost power plants are given access to high-cost power plants which improves the structure of the entire industry, and
iv. Competition is enabled among power plants as more plants are being given access to the market.

Power stations generate electricity which is being transmitted through power lines that are all over the cities, the rural areas and are also along the road for everyone to see (Eskom, 2015). The power lines that carry the electricity can be seen in the figure below.

Figure 2.1: Power lines that transmit electricity

Source: (Energy story, 2012)

Electricity with low voltage is produced as large electricity generators spin. A volt can be defined as the measurement of the electric force that pushes electrons around a circuit (Brown et al, 2004). As soon as the electricity is produced, it goes to the transformer that pushes the voltage up. Scientists have noted that it is better for electricity to be in high voltages when it is travelling long distances and hence the need for the boost in the voltage and electricity is also

better transmitted in high voltages (Brown et al, 2004). As can be seen in the figure above, the power lines which are thick are made up of cables or aluminium as they have a low resistance, and the power lines then go to the substations that are near factories, businesses and homes. It is here that the transformers are used to change the very high voltages into lower voltage electricity.

Looking at the substations like in the figures above, electricity that operates in different power levels is used to run factories, keep streetlights on, keep stop lights operational, and ensures mass transits – it is sent to neighbourhoods. Smaller transformers that are mounted on poles or in smaller utility boxes in the neighbourhoods convert the power to even lower power levels and can be used in the house (Brown et al., 2004). Voltage is eventually reduced for appliances such as TVs, stoves, clothes dryer, and other smaller appliances. Some new distribution lines are underground rather than over headlines and this protects the power lines from the weather which can cause the power line to break (Brown et al. 2004). This section has explained what electricity is and how it was developed and transmitted. It is important as it plays a role in understanding this dissertation.

2.2.2 Electricity Distribution.

This is the final stage in the delivery of electricity, and it is important that we discuss it as this with electricity generation and transmission are the platforms on which we will discuss the role of the government in the enhancement of the Power sector in Nigeria. According to Brown (2008), this is the stage where the electric power distribution carries the electricity from the transmission systems to the consumers. The vital link between the consumers of electricity and the supplier of electricity is the electricity distribution companies which ensure that electricity gets to the consumers. This involves the process of constructing and maintaining equipment that transform the electricity supply to that which meets the needs of consumers, records the amount used by the consumers in the meter, collects the appropriate billing and collects the payments of the electricity used.

Electricity distribution is managed in other countries by the central government, local government, or private institutions (Brown, 2018). Some countries in Africa can have up to 500 distribution companies. In South Africa for example, the number of distribution companies was reduced from about 500 to about 300. Electricity distribution in South Africa is managed by Eskom and the local government (Eskom, 2016). It should be noted that managing all these

distribution companies has had its own challenges. That is why in the past two decades, there have been talks about rationalising the Electricity Distribution Industry (EDI) with the South African distribution companies and its central government, its local government, and other important stakeholders like the National Energy Regulator (Eskom, 2016). There are proposals for fewer distribution companies because it is believed that it will be easier to manage fewer distribution companies. Eskom was proposing the distribution of six regional distribution companies (REDs) with the sole mandate to manage and control all the distribution of electricity in the country (Eskom, 2016). The idea was that fewer distribution companies would make managing easier as there would be improved service delivery, tariffs would be aligned and better maintaining and updating of equipment's. This would also ensure the reduction of interruption of electricity (blackouts) (Eskom, 2016).

It should be noted that Nigeria has fewer distribution companies – 11 compared to South Africa that has over 170 electricity distribution companies (Baker & Phillips, 2019). Though Eskom (2016) stated that it is easier to manage fewer distribution companies, the challenges faced by the Nigeria Distribution Companies seem to be far greater than that of South Africa. More of this will be discussed later in the chapter. That is why this research intended to bring out the role of the Government in improving the power sector as it will determine what the government is doing in the power sector and what improvements need to be done.

There is Distribution Management System (DMS) in the distribution of electricity which collects applications that are designed to control and monitor the entire distribution network reliably and efficiently (Huang et al, 2012; 33, 43). A DMS is an important aspect of the distribution company as it acts as a support system in making decisions between the field operations and the control room. The DMS also performs other functions such as improving the reliability of the electricity and the quality of services such as minimising outages time, reducing outages, maintaining the acceptable levels of voltages and frequency (Huang et al. 2012:33, 43).

It is therefore important for various countries to have effective DMS to ensure effective distribution of electricity. Most DMS in recent years have been using information technology systems through their Outage Management System (OMS). An OMS gives feedback about customer's satisfaction through the combination of other systems. These include Geographical Information System (GIS) which provides information about customer's geographical location, Interactive Voice Response Systems (IVCS) and Customer Information System (CIS) (Huang

et al. 2012:33, 43). The Schneider Electric's Advanced Distribution Management System (ADMS) is the most advanced DMS that is used in many countries. It provides the most comprehensive network management solution including control, planning, optimization, analysis, monitoring and training tools that all function on a common representation of the entire electric distribution network (Huang et al. 2012:33, 43). The merging of outage management system (OMS), the distribution management (DMS), the supervisory control and data acquisition (SCADA) systems into a unified and secured solution that has more than 50 advanced functions, can maximise the benefits that are possible from a growing foundation of intelligent grid devices, advanced metering, renewable energy, and all things smart grid.

This section has examined literature on electricity distribution and its process and how it operates. It looked at the distribution of electricity in Nigeria as this plays a role in understanding the role played by the government in the Power sector. The next section will focus on management.

2.2.3 Management

In this section, the links between some management definitions, views and important aspects of management are brought out. The discussion of management will form the basis and bring out the angle from which to investigate the role of the government in the Power sector of Nigeria. Management has many definitions from evolution, and, like many other terms, it is difficult to give it one definition. Hence, many authors have defined management differently during the evolution process and they defined it based on their view and experience at the time (Patel & Koph, 2010: 27).

2.2.3.1 Management viewed in terms of achieving organization's goals and objectives through people.

The term management brings terms like people, goals, organisations, business, object tives, and resources to one's mind. This is evident when looking at some of the definitions of management. According to Kotter & Cohen (2002), management is the coordination of people's efforts in using available resources effectively and efficiently in accomplishing organisational goals and efforts through others. Management is also defined as the process that enables an organisation to reach its goals through employees and organisational resources

(Jonkar, 2008). Thomas (1996) pointed out that, the term management be used when referring to people and their activities. This is evident in one of the older definitions of management by Harold Koontz (1909 – 1984) who defined management as the act of getting things done through people within a group that is formally organised (Gautem, 2013). There are four common aspects that can be seen in these definitions. These aspects are organisation, goals, through people and objective. In the context of this research, an evaluation is made of the management of the resources, goals, and the objectives of the Nigerian government in improving the power sector.

In the reality of today's world, we can identify 3 types of organisations with different management structures and goal orientations whose objectives and goals are achieved through people who are the employees and stakeholders (Mulugeta, 2014). The first are the *private organisations* that are managed and operated by individuals who have profit-oriented goals and objectives. There are also *public organisations* that are managed and operated by the government. These public organisations are not like private organisations that are profit-oriented but rather their objective is to provide goods and services to the public. Sometimes they are free at the point of delivery as they have been covered with taxes (Roehrich & Wright, 2010).

Non-Profit-Making Organisations (NPO) are organisations whose primary objectives do not include profit making or revenue generation (Mulugeta, 2014). This was further clarified by Grobman (2008) who stated that such organisations do not necessarily mean that they do not intend to make any profit but rather the organisations are not owned by individuals and so any profit that is realised will not benefit an owner but will further enhance the organisation's goals in reaching those in need according to the objectives of the organisation. The Power Holding Electricity Company (PCHN) is the company that is responsible for electricity in Nigeria. Based on the types of organisations that have been discussed above, PCHN is regarded as an example of a public limited company (Plc) because individuals can purchase and own stocks in the company (KPMG, 2013).

2.2.3.2 Management viewed in terms of functions of management.

Hissom (2009:8) reminds us that Henri Fayol is considered the founder of modern management. Most importantly, he is the first person to come up with the four management functions that define management as forecasting and planning, organizing, commanding,

coordinating, and controlling. Similarly, Aquinas (2011:2) defines management as distinct process that consists of planning, organising, actuating, and controlling (Gautam, 2013). Management can also be defined as a set of functions that are directed towards the effective and efficient use of resources or the achievement of organisational goals (Whetton & Cameron, 1991). The management functions referred to in these definitions are planning organising, controlling, and leading functions. Given the fact that these functions are important aspects of management and management is important as to how the government functions, it is therefore vital that we look at the functions in detail.

2.2.3.2.1 Planning

Planning entails taking decisions on the future of the organisation in terms of where the organisation wants to go and the right steps to get there (Norman, 2014). Planning entails that the management of the organisation ascertains the internal and external environment of the working environment and ensures that they know the challenges and the opportunities that the working environment has. With this, it will be easier to plan ahead, and adjustments can easily be made where and when necessary to ensure that the organisation functions smoothly (Wanish, 2009: 2). Proper planning in any organisation will ensure that resources are not wasted and that there will be a proper allocation of resources. Whetten & Cameron (1991) also note that the process of decision making is a very important and crucial part of planning. This involves making the right decision and taking the best action from all the alternatives presented. Hence, it is important to note that Nigeria needs to take the right decisions in the power sector. This can be done by setting up a good plan which will be used by the PHCN in ensuring the sector is effective while carrying out its day-to-day operations.

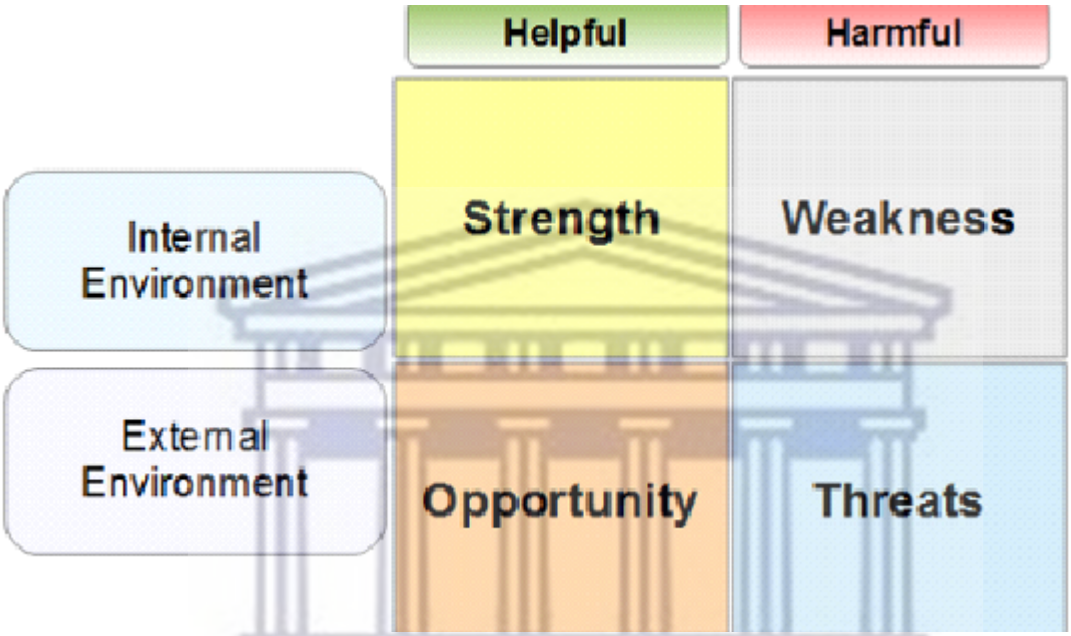
The aspect of ***strategic planning*** is very important here and planning at this stage can be discussed without mentioning strategic planning. The aspect of analysing the working environment, ensuring objectives are defined and also ensure the making of decisions on the best course of action available as discussed above.

Strategic planning therefore ensures that the management of the organisation carries an analysis of its environment before it can proceed with the course of action. One tool that is commonly used in accessing and analysing the environment is the SWOT analysis which ensures that the organisation determines the strengths and weaknesses that it has. It also helps in identifying

areas where there are opportunities and ensuring that threats arising from both the internal and the external environments are prevented (Buzzle, 2013).

Below is a matrix that gives an understanding of the SWOT analysis:

Fig 2.2 Diagram of SWOT analysis matrix



Source: (Pakhare, 2016)

The internal environment as can be seen in the SWOT analysis matrix in figure 2.2 above represents strengths which are the helpful organisation's competences and the weaknesses which are the areas where the organisation needs to improve. There are factors in the organisation that can affect the performance of the organisation. Though the organisation has external environmental factors that are helpful and harmful variables that are outside the organisation that are harmful (threats), they can affect the performance of the organisation though they are out of the organisation (Mulugeta, 2014). Hence, it is important to note that the management of the organisation involves both the short-term and the long-term planning strategy.

2.2.3.2.2 Organising

Organising, which is also one of the management functions, determines how the resources of the organisation will be distributed and how the employees of the organisation will be organised to fit into the plans of the organisation. Delegation of authority and assigning task to the various individuals is very important with organising to ensure that the manager achieves organisational goals and objectives (Harcourt, 2013). Organising is much more than just creating organisational charts but rather involves designing the task of the employees and how they are to execute it (Whetten & Cameron, 1991). The term **job design** is a very popular and important term in an organisation. It involves decisions that are made about the nature of the job in an organisation. Job organisation can be done at the level of the organisation and at the level of the job. At the organisational level, it involves departmentalisation which involves the best way to put the job into the various departments and at the level of the particular job; it involves the best way to design the job of the individual so that the human resources can be used in the most effective way as possible in the organisation (Whetten & Cameron, 1991). Job design traditionally started on the principle of specialisation and division of labour which assumed that individuals would perform their tasks more efficiently if the job content was narrow. Carpenter et al. (2014) noted that it is very possible for jobs to become specialised and narrowed. Hence, linking this with the role of the government in the Nigerian power sector, it is believed that proper organising will greatly improve the power sector.

2.2.3.2.3 Leading

This is the third management function, and it is considered by many as the most important of them all. It is also the most challenging function (Whetten & Cameron, 1991). Carpenter et al. (2004) in their findings stated that for managers to be effective in leading, they must first understand their subordinates. This means that they must understand their attitudes, values, and personalities of their subordinates, this will greatly influence how to lead them. Leading ensures that employees are guided, motivated, encouraged and even communicated with. Managers can keep improving their leading skills and abilities by constantly studying materials on how to lead and to motivate their workers, which determines how workers can be stimulated to direct their efforts towards production, communication skills which help managers to communicate well with their employees and also studies on leadership which will help

managers to improve their leadership skills and how to use them on different leadership situations.

2.2.3.2.4 Controlling

Controlling is the final management function. It is the function that ensures that the other management functions are in the right place working effectively. This is the management function that ensures that performance standards are put in place and that staffs are working and striving and attaining the required standard of the company (Roberts, 2014). It is a very important management function because it ensures that the organisation is moving towards the achievement of its organisational goals and that this done within the stipulated time (Whetton & Cameron, 1991). Not only does it set performance standards depending on the organisation, but it can also be used to set the performance of sales and production reports, financial statements, and customer's level of satisfaction.

With controlling, there is a clear understanding of where the deviation from standard lies (Harcourt, 2013). Performance audits and budget audits are the two control techniques traditionally. A budget audit is the audit that provides information as to where the organisation is with regards to the plan that was made and budgeted for while the performance audit is the audit that will ensure that the figures that are reported or quoted reflects the performance of the organisation. In companies like the service company and the manufacturing companies where this is applied, there is proneness to view controlling functions in financial terms. There is the need to control other aspects in the organisation like the delivery of service procedures, production, operation processes and other activities within the organisation (Harcourt, 2013).

The above discussed management functions of planning, organising, leading, and controlling are widely considered to be the best describers of the job of the manager and the best way to classify accumulated knowledge about the study of management. This discussion of management will form the basis and define the angle from which the Nigerian government can play a key role in improving the power sector in the country.

2.2.3.2.5 Motivating

Motivation is an element of the management process which deliberately inspires and encourages employees to work towards achieving organisational goals by working more. This is about stimulating people to use their own initiative and bring in new ideas and be more interested in achieving organisational goals. Quittner (2014) states that a manager's ability to motivate its subordinates is a reflection that he is a good leader as there is no strict formula for motivation.

2.2.3.2.6 Coordinating

Coordinating is considered a function of leadership that involves the controlling of organising, staffing, and planning activities of the organisation by ensuring that all organisational activities work together for the good of the organisation (Roberts, 2014).

Coordination usually takes place in planning sessions and meetings and with departmental heads so that all departments would be in the same page in terms of goals and objectives. It requires that the management should communicate, direct, and supervise (Roberts, 2014). This makes in the sense that no matter how good any plan is, if it is not properly coordinated and efficiently implemented, it is bound to fail. In the context of this study, the Nigerian government must ensure that any plans it has to address challenges in the energy sector are well-coordinated to ensure good results. Therefore, coordination is one of the critical concepts in this study.

2.2.3.2.7 Staffing

For any project to work, it needs the human capital. It is here where staffing becomes critical. According by Gaurav (2010), staffing involves choosing the right people to do the right task and giving them the right training, development, and the right salary package for them. It is the function that caters for the human resources of the organisation – that is the function that caters for the recruitment and attending to the personnel needs of the organisation. The organisation will likely not perform well without the staffing function as the aspect of executing the task (Roberts, 2014). Any project needs implementers. These are the staff who serve the organisation and ensure that it achieves its set goals.

2.2.3.2.8 Communication

Communication takes different forms and serves different purposes. Written or oral communication is very important within any organisation for the exchange of opinions, information, facts, and ideas between the employees within the departments. Managers are required to use more of their time communicating with their employees to motivate, direct and coordinate activities of the employees. Communication is very essential as it is how people act collectively (Gaurav, 2010). Staff communicate among themselves either to advance the interests of the organisation or to mobilise against the organisation if they feel ignored. Either way, communication becomes critical. In the case of government, communication happens among government officials, between them and the employers and between them and their constituencies as well as the general public. In all these levels of communication, the primary objective is to ensure that everyone is on the same page about different issues. Whether they agree or not is another issue.

These functions will be applied when looking at the role of the government in improving the Nigerian power sector as both the internal and the external factors will be looked at.

2.3 CONCEPTUAL FRAMEWORK

This section of the research will present the concepts underlying this research and present a review of some of the studies that have made use of these concepts.

2.3.1 Organisational Climate.

This study is analysed based on the concept of organisational climate. The concept of organisational climate dates back in the 1950s and it is derived from the work of Lwein (1951) who identified both the internal and external environmental impact as an important tool for determining organisational behaviour (Kritsonis, 2005). Tanguiri (1968:27) in a similar research work where he referenced organisational climate, defines organisational climate as a "relatively quality of internal environment of an organisation that its members do influence it, their behaviour is influenced and can be described by the value of a particular set of characteristics of the organisation". Similarly, Oluwa (2001:89) states that to a great extent, the constellation of environmental factors determines to an extent the functioning and structure of

a system. Therefore, this study was guided by the concept that the behaviour of the Nigerian government and its role in the power sector will be greatly influenced by its internal and external environment.

The PHCH which is the governing body that manages the affairs of the Power sector is a public limited company. Most organisations in Africa are characterised by complexities and dynamism. One of the studies that is still applauded today was carried out by Emery and Trist in 1965. It is considered as the best study on the relationship between the external environment and its ability to deliver goods and services. The study is very unique and was carried out on a British Food canning that classified the organisation into 4 types which are referred to as "casual textures" (Omoleke, 2016; 268). Classification of these organisations was based on the environment they are likely to be influenced by. These environments are discussed below.

2.3.1.1 Placid randomised environment:

This is an environment which is unchangeable, stable and it is not logically connected due to the random dispersion of resources within it. In such environment, organisations find it difficult to predict what will happen and hence a placid randomised environment will not suit large organisations, but rather small and independent organisations will thrive in it (Omoleke, 2010). This is because very little strategic planning is done in such an environment as the organisations in this environment mostly proceed through trial and error. According to Emry & Trist (1965: 590-613), they stated that organisations working in such an environment are not likely to be encountered in Africa. However, one can question that research because we see a lot of natural disasters and even terrorist attacks happening in Africa today like the Boko Haram insurgency which has been rampant in the northern part of Nigeria in the last few years. Moreover, other African countries are also continuously threatened and disrupted by these events. In my own opinion, a country like South Sudan which has been going through such challenges like drought in the last few years can be considered as one although PHCN (the body that manages the Nigerian power sector) does not operate in such an environment. Other countries in East and Eastern Africa have been affected by the activities of Al-Shabaab.

2.3.1.2 Placid, clustered environment

This environment is a more predictable environment because the elements and resources within it have a logical and casual connection (Drucker, 2001). In this environment, strategic planning is possible to an extent and larger organisations can thrive here. However, the Nigerian Power sector under the management of PHCN will not be successful in such an environment because it is too large as it involves distribution, generation, and transmission companies. The main reason why it will not be a good environment for PHCN to operate is because it is an environment that has not been subject to rapid change.

2.3.1.3 Disturbed, reactive environment

This environment is like the Placid, clustered environment with the main difference being that it has many large organisations that are competing for the same resources. The existence of competitors makes it difficult to accurately predict and plan in this environment, hence relative power becomes a vital consideration. As stated by Aldrich (1979: 63), large size might give the organisation such power over time as the larger organisations might drive out the smaller ones. In this environment, structural flexibility and decentralisation are promoted and encouraged. Given the fact that PHCN operates partially as a monopoly as has been discussed earlier in this research, we can say that it cannot exist in this environment. There have been reforms in the power sector which has encouraged private investment in the distribution and generation sectors. If this can be realised – where for example many distribution companies (competitors) can distribute electricity in one locality, then the distribution company (Discos) will exist in this type of environment.

2.3.1.4 Turbulent environment.

Drawing from the summary of the research of many authors, a turbulent environment is an environment which is highly complex, rapidly changing and is characterised by a lot of connections between resources and other elements within it (Grobman, 2008; Gaurav, 2010; Harcourt, 2013).

This environment is clearly the type of environment where the PHCN operates and carries out its generation, distribution, and transmission activities. There are three factors that have been

identified as the main contributors to the complexities and the change that exists in this environment;

- Firstly, adapting to the Placid, clustered environment which is the third type of environment mentioned above increases the links between competing environments. Issues that affect one organisation often affects all those in competition. This turns to create a backflow effect from the organisations to the environment (Grobman, 2008).
- Secondly, there is an interdependence that exists between the society and organisations in general. There is a heavy dependence on customers and client groups within the society by the organisations and hence the society depends on formal organisations for certain goods and services. Hence, any organisation that is operating in such an environment that fails to create that link with its customers will not be delivering goods and services as it ought to (Grobman, 2008).
- Thirdly, organisations rely increasingly on research and development activities due to competition and rapidly changing environment. This therefore shows the importance for PHCN to carry out adequate research to ensure that it is efficiently delivering goods and services. Citing the work done by Litterer (1972: 335) Omeleke (2010) states that most organisations face a regular set of demands from the environment like the production of same products or producing same service delivery to the same clients or very similar clients, the organisations will face stable conditions. An example is a public utility company that produces a standard product such as electricity at a certain range and a certain voltage and frequency.

Hence, in analysing the effectiveness of an environment, understanding the environment is very important because it will enable the analyst in understanding the reasons or characteristics that contribute to the uncertainty in the organisation's decision-making process. Such uncertainty as identified by Duncan (1972) comprises mainly of three components, namely:

- The inability to precisely assess the probability of the environmental factors that affects the failure or success of an organisation that is performing its function.
- Inadequate information with regards to the environmental factors associated with specific decision-making situations, and
- Lack or inadequate knowledge with regards to the costs associated with an incorrect decision (Duncan, 1972).

His identification is useful because it highlights the fact that the degree of complexity and dynamics with perceived uncertainty of an organisation's environment is considered a dominant feature in its process of decision-making.

Based on the conceptual exposition and the reviews of the studies that have used a similar conceptual framework, this research attempts to find out if the internal and external environment in which the Nigerian power sector operates has an impact on its allegedly poor performance even with government's role and intervention over the years. PHCN has remained very vital in the Power sector area of Nigeria. PHCN was rated well for its performance in the first few years of its existence. But their performance has deteriorated in the last two decades and has remained one of the most criticised enterprises in the country and thus has become an issue of the Nigerian public (Omoleke, 2012:12).

2.4 Electricity supply and distribution in Sub-Saharan Africa.

2.4.1 Power in Sub-Saharan Africa.

Sub-Saharan Africa (SSA) has in recent years been identified as a new frontier for growth which has seen its economic growth rise to 5.5% in 2014 compared to the global economic growth of 3% that same year (KPMG, 2014).

KPMG (2004) states that stronger institutions, debt relief, high investment and sound economic policies have made many SSA countries like Ghana to enjoy sustained 5 – 6% growth rate for more than a decade now. Growth in the region and higher economic activities is being supported by the large infrastructure investment and it is also supported by the production of mineral resources, service sectors, agriculture, and a strong domestic demand (KPMG, 2014).

Most African countries in SSA is being continuously challenged by ageing and outdated power infrastructure which is unable to meet the power demands of the increasing population to subdue the power demand. 49 countries in SSA which has a population of up to 1 billion people generates approximately the same amount of power as Spain which has approximately a population of 45 million (World Bank, 2014).

World Bank (2014) states that SSA has a power consumption of about 124 kilowatt hours (Kwh) per capita per year and falling and only a tenth of it is found in the developing world. This is barely enough to power a light bulb with 100 watts per person for three hours a day.

Water and wind had been earlier mentioned as mediums for which power is generated and most SSA countries like Nigeria, South Africa and Cameroon do generate electricity from water, which is called hydro power (Findt et al, 2014). However, climate change over the years which has resulted to longer spells of drought has greatly affected countries that have been over-reliant on hydro power in recent years (KPMG, 2014). It should however be noted that the hydro power potential in the continent is very vast and remains one of the main sources of generating power in the African continent.

There has been a lot of power outages in the SSAs in recent years. This has led to the growing use of emergency power by using liquid fuels which are expensive. The use of a single source of power has proven to be unworkable and the increased stringent climate change regulations have made this approach to cost more, especially for liquid and coal fuel generated power (KPMG, 2014).

2.4.2 Challenges of Electricity distribution in SSA.

Electrification is the term that is used to describe the percentage of people that have access to electricity in a region. Electrification varies from country to country in the SSA. Many households in the Sub-Saharan African region have electrification below 30% while many others do not have access to electricity at all. The latter are mostly in the rural areas. Findt et al (2014) pointed out that the low level of electrification in this region is mostly due to the ageing, damaged, weak, and underdeveloped infrastructures of the electricity distribution system. Given that local municipalities control most of the distribution system operators, this results to loss in economies of scale because there is a lot of separate system operators (Findt et al 2014). Also, there are issues with maintenance as small municipalities are often faced with maintenance problems and there is always the need for additional investment (Lindfeild, 2014).

Renewable energy projects are mostly developed in areas that favour the source of the renewable energy hence, this poses a challenge that affects the transmission infrastructure and so the distribution grip (KPMG, 2014). The problem here is that these areas are not necessarily

the closest to the existing infrastructure. This can be improved if the renewable projects can contribute to the grip project in terms of grip development or coupled projects (KPMG, 2014). Future economic growth plans in the area means that grid extensions might still be needed in the area in the future to ensure that there is wider coverage in terms of electricity supply to the communities.

World Bank (2014) states that the African Power Report quoted that there is need for new generation assets, distribution assets and the transmission assets. It also states that the current assets in the SSA region need to be upgraded and improved to meet up with the increasing demand of the next two decades as well as securing energy supply. The rural electrification programme which is already in place in the SSA region can help to hasten development and in solving challenges faced in the area.

Referring to planning which is one of the management functions that was mentioned above, Findt et al (2014) state that the security of energy supply is depending on projecting the energy of the future and adequate planning. Hence, these authors point out that if strategic planning is made, future electricity requirements can be adequately met. The current situation of the power crisis in the SSA is mainly due to poor planning and projection. Even if there was planning, there was the poor implementation and execution of the plans (KPMG, 2014: 7). It should be noted that many governments are already in the process to correct this. Other visible challenges to secure electricity and maintain the distribution of electricity include the following;

- Utilities have the inability to manage the planned and unplanned maintenance and outages.
- Sub-Saharan African countries have inability to deliver new projects within the stipulated budget and on time.
- Funding issues are a concern as there is difficulties in generating funding for new projects which are the generation, transmission, and the distribution assets.

Scott (2014) highlighted that the affordability of electricity is also a major challenge for the low electrification in the SSA region. Energy prices need to be affordable as this will improve growth and development and the society can and will develop subsequently. As governments of countries in the SSA regions want their countries to grow and develop, there is a need to keep prices low through political influence. This will directly avoid slowing investments on new assets. The amount of time spent on maintenance and improvements will be reduced. A more regulated market with policies that aim at investment security could greatly help deal

with this challenge. However, there are often scenarios where the policies that are put in place are not sufficiently implemented. Hence, it is not only about efficient assets to provide affordable energy but also about effective policies which should be implemented sufficiently.

2.5 LEGISLATIVE FRAMEWORK.

Acts, policies, and the constitution of the Federal Republic of Nigeria have to be looked at when discussing the legislative framework in this research for the proper role of the government in the power sector. As mentioned earlier, we will be talking about PHCN which is the main arm controlling the power sector in Nigeria and aspects of its subsidiary generation, transmission, and distribution companies.

2.5.1 The Electric Power Sector Reform Act No. 6 of 2005

The issuing of the distribution license to various distribution companies to promote the distribu38tion of electricity is promoted in section 67 of the Electric Power Sector Reform Act No 6 of 2005. The distribution license authorises the holder of the licence to operate, construct and maintain distribution system and facilities. The distribution licence holder has the authority to distribute electricity to the consumers and is also authorised to buy electricity from other sources for resale (Federal Republic of Nigeria Official Gazette, 2005).

The standards and codes can be found in section 81 of this Act. This Section promotes the use of electricity by consumers and the standards of overall performance in connection with the provision of electricity (Federal Republic of Nigeria Official Gazette, 2005). The performance standard and code will ensure that the generation, transmission, and distribution companies stick to the quality of services that are produced. It ensures that the goods and services that are supplied to the consumers are of a specific standard and quality. Also, Section 56(1) of the Act brings out the aspect of auditing of the commission. This is very important in running of the PHCN and its subsidiary companies. An auditor is appointed according to this Act as stipulated by the Auditor-General (AG) and he/she audits the accounts. The AG audits the company (the distribution company as an example) in question and files the report. This helps in running the organisation effectively (ESPR, 2004).

Looking at the electricity distribution company, many reforms were introduced in the energy sector which aided in the transformation of electricity distribution in Nigeria and the Power sector.

According to Onagoruwa (2011: 8), the Electricity (Amendment) Decree 1988 and the NEPA (Amendment) ACT of 1998 were passed to put an end or terminate the monopoly of NEPA and to introduce the private sector in the power sector. Privatisation of the power sector brought about many individuals and shareholders to enter the industry. This brought about competition which led to lower cost and improved efficiency. This was how the distribution sector became 11 distribution companies (Discos) to distribute electricity to different parts of the country. This marked the rise of the generation companies and the transmission companies in the country.

The National Council on privatisation issued the **Nigeria Electric Power Policy (NEPP**) with the objective to create a new electricity industry that is based on the rules that are enforced by the independent regulator (Okeke, 2015: 13). The Electric Power Reform Act encoded NEPP into the legislation and the regulator ensures that efficient operators recover the prudent costs. The establishment of the sector regulator, market trading design, privatisation of the electric power sector, new rules, codes, and processes was recommended by NEPP (Onagoruwa, 2011: 8). In 2005, the Nigerian Electricity Regulatory commission (NERC) was introduced with the sole mandate of tariffs regulation and the monitoring of the quality of goods and services of the PHCN (Okeke, 2015: 13). This Act ensured that the pricing of electricity by the PHCN is within the stipulated amount and that consumers are not being exploited. It also ensures that the goods and services that PHCN delivers to its consumers is of standard and that consumers are not exploited. Literature here on some of the reforms, acts and policies is for understanding as the various reforms and policies will be discussed much more in the next chapter to properly understand the power sector of Nigeria and the role of the government in it.

2.6 BACKGROUND AND REVIEW OF THE NIGERIAN POWER AND ELECTRIC SECTOR.

The history of the Nigerian power sector is dated back to the 18th century when the first electricity generation started in 1896 (KPMG, 2013). However, it took over 30 years which was in 1929 for the first distribution company to be created in Nigeria, which was able to start

distributing electricity to the various households (KPMG, 2013). Lagos state in Nigeria is where the first electric plant was located, and it was managed by the Public Works Department (PWD). NEPA which was later transformed and renamed as what we know today as the Power Holding Company of Nigeria (PHCN) came into existence in 1972. NEPA was mandated to develop and maintain the supply of electricity in the country which would be efficient, coordinated, and reliable. As of 1973, only 8 out of the 36 states in the country were connected to the national grid (KPMG, 2013). However, Harnzat (2005: 40) mentions that all states in Nigeria today are connected to the national grid.

Despite the government's continuous effort to manage the then NEPA which operated as a monopoly, there was a lot of inefficiencies and ineffectiveness as it became clear in the late 1990s that the electricity sector was failing to deliver to the demands placed on it. Consequently, there was a need for a different approach that led to the introduction of the private sector in the country. This led to the Nigerian government taking one of the boldest privatization initiatives ever in the power sector costing them about $3 billion (KPMG, 2013). With this move, the federal government has been able to privatise the generation and the distribution processes of the power sector while retaining the ownership of the transmission process which is managed under concession (KPMG, 2013). It should be noted once again that the Power Holding Company of Nigeria is overseeing the power sector of Nigeria today as it took over from the National Electric Power Sector (NEPA) which was noted for its inefficiency. PHCN was applauded at the time of its existence because it was expected to solve the problems that NEPA faced and by so doing improving efficiency and effectiveness in the sector.

As stated earlier, the Nigerian power sector involves three processes which are the generation, the distribution, and the transmission processes. Manitoba Hydro International which is an international management contractor from Canada is tasked with managing the transmission process of the sector (Agboola, 2011). The company is responsible for providing stable transmission of power and for providing technical and financial adequacy. The generation of electricity process in Nigeria has also been privatised with 23 grips connected to the generating plants that are operating in the industry that supplies electricity in Nigeria with 6 successor generation companies. Below is a table that shows the electricity distribution companies, their addresses, areas and their city of location.

Table 2.1 Electricity distribution companies, their addresses, areas and city location.

Electricity distribution company (Disco)	Address of distribution company (Disco)	Areas covered by distribution company (Disco)	City Distribution company (Disco) is located.
Abuja distribution company (Disco)	Wuse zone 4, Abuja.	FCT, Kogi, Nassarawa, Niger.	Abuja
Benin Disco	No 5 Akpakpava street, Benin city.	Edo, Ondo, Delta, part of Ekiti.	Benin
Eko Disco	24/25 Marina, Lagos	Lagos	Eko
Enugu Disco	No 12-station road, Okpara Avenue, Enugu.	Enugu, Imo, Ebonyi, Anambra and Abia.	Enugu
Ibadan Disco	Capital building, 115 Ring Road, Ibadan.	Oyo, Osun, Kwara, Osun, part of Ekiti	Ibadan
Ikeja Disco	Secretariat road, Alausa, Ikeja.	Lagos	Ikeja
Jos Disco	No 9 Ahmadu Bello Way, Jos.	Plateau, Benue, Gombe, Bauchi.	Jos
Kaduna Disco	Nagwamatse Building, Ahmadu Bello way, Kaduna.	Kaduna, Kebbi, Zamfara, Zokoto	Kaduna

Kano Disco	No 1 Niger street, P.M.B. 3089, Kano.	Kano, Katsina and Jigawa.	Kano
Port Harcourt Disco	No 2 Obiwali road, Rumuigbo, Port Harcourt.	Rivers, Cross River, Akwa Ibom and Bayelsa.	Port Harcourt
Yola Disco	No 2 Atiku Abubakar road, Jimela Yola.	Yola, Borno, Taraba, Adamawa, Yobe.	Yola

Source: (Nigeria Electricity Regulation Commission, 2016)

As can be seen in table 2.1 above, Lagos is very massive and hence it is covered by 2 distribution companies (Discos) alone. Most of the Discos cover 3 or more areas in the country apart from Enugu and Ikeja. It should be noted that all the distribution companies are public limited companies which means that shares are offered to the public and the company has limited liability. The Distribution Company has been going through sectorial reforms since its privatisation in 2013. Its aim is to improve the sector by providing efficient and reliable electricity distribution in the country (Amoda, 2013). Changing name and addresses on the website are some of the reforms that were expected as the old ones were outdated and non-functional. Another reform is ensuring that some of the investors in the distribution company can be motivated and allowed to extend and enlarge their operations to more Discos. Amoda (2013) stated that the Eko Disco managing director stated that privatisation will allow electricity generation in the country to go up in the coming years which will therefore make it available for bulk production of electricity to be made available for the distribution companies to supply more electricity for more hours to its customers.

2.7 The government of Nigeria.

The Nigerian government plays a vital role in this research, and it is important to understand the concept "government" while looking at the literature on the Nigeria government and how it operates as this will also function as a guide on the basis on the role of the Nigerian government in the power sector.

There are many different definitions and explanations of government by different scholars depending on how they view government. In simple terms, government can be described as a political system that regulates and administers a country or community. This clearly shows that a government is a system in a country, or a community and it is mandated to administer and regulate it. Government can be referred to as an institution or institutions in operation, the system, process in use or people in charge. It has the authority to set rules for the society and ensures it members relates to one another and to others. It keeps the society running peacefully, securely and smoothly (What is Government? – Roles and Functions, 2014). (Almarabeh & AbuAli, 2010) and (Pardo. 2000) agrees on the definition of government as the dynamic mixture of structures, goals and functions. This explains that a government is an organisation with a structure that has functions to achieve its sets of goals.

A History professor, Dr. Harold Damerow defines government as the body that has the responsibility for making public policy for an entire society. It is the mechanism that steers a given society (What is Government? – Roles and Functions, 2014). Governments have jurisdiction within a specific country, society or community and they basically manage the affairs of the community in which they have control. For example, the government of Nigeria manages the affairs of the Federal Republic of Nigeria and the government of South Africa which is headed by the president of South Africa manages the affairs of the government of South Africa. A government of a particular country, say Nigeria for example, manages within its jurisdiction and cannot go and be trying to manage the affairs of another country. Any such attempt would amount to tempering with the political sovereignty of that country.

The ideas of government have changed and evolved over the years. The keywords that are used to describe government either have Greek or Roman origin. These keywords have been current for more than 2000 years and they haven't exhausted their usefulness (What is Government? – Roles and Functions, 2014). There is also the term called **electronic government** or **E-government** which is the government giving businesses and citizens the opportunity to do

business together with the use of electronic means such as internet, email, telephone touch pads, smart cards, fax, self-service kiosk, and EDI (Almarabeh & AbuAli, 2010: 30). The term E-government shows how broad and evolving the government is becoming and it is catching up with the technological times. Some of the terms that have been used to describe government are:

- Democracy
- Monarchy
- Dictatorship and
- Oligarchy.

2.7.1 Democracy

It is difficult to reach consensus on democracy definition, but it has been widely accepted that the main idea of democracy originated from Athens in the 5th century. Democracy is derived from Greek word "demo" which means people and "krata" which means power. It is the form of government in which the supreme power is vested on the people (Webster New Encyclopaedic Dictionary, 1995). Democracy can be exercised by people in large societies, and this is by people through elected officials or agents (representation). Diamond (2004) gave his opinion on what democracy is and said that democracy is a form of government with four key elements;

i. System where government is been chosen and replaced through free and fair election.
ii. Citizens (people) are actively participated in politics and civic life.
iii. Citizens and human rights protection; and
iv. A rule of law in which there is equal application of the laws and procedures to all citizens.

Democracy is contrary to tyranny or dictatorship and people are given the opportunity to be able to hold their leaders accountable. There are many variants of democracy today. **Direct democracy** is the most dominant variant and is a variant in which all citizens in the country have direct and active participation in the country decision making process. **Representative democracy** is another variant where the political power is exercised indirectly through the elected representatives and the whole body of all eligible citizens remain the sovereign power.

Representative democracy gives room for competitive election and promotes equality among all eligible citizens and voters. It further promotes freedom of speech, freedom of political expression and freedom of press just to name a few (Ngowu, 2015). Direct democracy or participatory democracy is a system where people literally rule themselves. Although all forms of democracy are participatory, direct democracy involves the active engagement of citizens in the self-governing process. Direct democracy can be described as democracy itself that is properly understood (Maduz, 2010: 2)

Literature on democracy has been mentioned and discussed here because the main area of the case study of this research which is the Federal Republic of Nigeria is a democratic state which has three distinct branches like most democratic states. These branches are the **executive, the legislative and the judiciary** and their powers have been vested in the president of the Federal Republic of Nigeria, the National Assembly, and the federal court – including the Supreme Court by the constitution of Nigeria. These three branches of government and their functions will be discussed further down.

2.7.2 Monarchy

A monarchy is one of the oldest forms of government. In this government, the total sovereignty of the state is invested in one person called the monarch who holds this position until abdication or dead (Wilde, 2021). Monarchs usually hold their position through hereditary succession like where they were related to the previous monarch or they can be elective monarchs like in the case of the Papacy which is the office of the Pope, the office and jurisdiction of the bishop of Rome. Examples of countries with monarchies are eSwatini, Lesotho, Morocco, United Kingdom of Great Britain and Northern Ireland and the Vatican City (Wilde, 2021).

There are different types of monarchies, like the absolute and the constitutional monarchy. According to Longley (2021), an **absolute monarchy** is a monarchy in which autocratic rule is practiced and a single person either the queen or the king has absolute power. An example of this type of a monarchy is eSwatini. Hereditary succession is typical of absolute monarchy where the throne passes among members of the ruling party. Absolute monarchy fell sharply after the French revolution which gave rise to government by the people (Longley, 2021). Absolute monarchies prevailed much in Western Europe after the 16th century and was practiced by countries such as France, Britain, and Spain.

Longley (2020) describes **constitutional monarchy** as a form of government in which the monarch who is either a king or a queen function as the head of state within the parameters of a written or unwritten constitution. Political power is shared in a constitutional monarch between the monarch and a government which is constitutionally organised such as a parliament. It is the opposite of an absolute monarchy where the monarch holds absolute power over the people and the government. Examples of constitutional monarchies include countries such as the United Kingdom, Japan, Canada, and Sweden (Longley, 2020). In Africa, Lesotho is one of the countries that use this system.

2.7.3 Dictatorship

A dictatorship is a type of government in which one person who is a dictator has the absolute power to run the country without effective constitutional limits. The rights of citizens in a dictatorship government are suppressed. In this form of government, the ruler (dictator) has complete control (Britannica, 2020). Dictators usually use fraud or force to gain despotic political power. This power is maintained using terror and intimidation. Dictators may also use mass propaganda techniques to sustain their public support. The decline and disappearance of hereditary monarchies in the 19th and 20th century made dictatorship and constitutional democracy the two chief forms of government used by nations throughout the world. After World War II, there was the rise of dictators in the new states of Africa and in Asia on the ruins of constitutional arrangements that were inherited from the Western colonial powers (Britannica, 2020). There are instances where the army seized power and military rules were established and there are also instances or countries where one party rule is established by the elected president or Prime Minister. They suppress the opposition.

2.7.4 Oligarchy

Oligarchy government is a form of government in which a small and privileged group is in control of the state. This form of government is mostly used for selfish or corrupt purposes (Britannica, 2020). Plutocracy is a type of oligarchy in which members of the ruling party are wealthy or their powers are exercised through their wealth. Most classic oligarchies result from the governing elites being recruited by a hereditary social grouping that is set aside from the rest of the society either by economic status, religion, prestige, kingship or even language. Such

elites exercise power in the interests of their own kind (Britannica, 2020). Oligarchs always secure full control whether the formal authority is vested in the monarch, the proletariat, the people, or a dictator. Gaetano Mosca, who is an Italian Political analyst, insisted that the "ruling class" always consisted of effective oligarchic control (Britannica, 2020). Despite the increased use of democracy by countries, oligarchy continue to exist. Russia since the fall of the Soviet Union and China since they embraced capitalism in the late 1970s are some of the industrialised countries that have being identified as oligarchies. Other forms of governments which are worthy of note but not fully discussed in this literature review include:

- Communism
- Republic
- Totalitarian system
- Theocracy
- Socialism and
- Colonialism.

This section has examined the different type of governments and has stated that Nigeria which is our case study is operating in a democratic state. It is important to examine some of these different types of government because it directly affects the environment in which the power sector operates and hence making it clearer to understand the role of the government in the power sector.

2.8 The three branches or arms of government in Nigeria and their functions.

The Nigerian government has three arms of government which have evolved over the years to ensure that the government functions effectively and efficiently. These branches of government are: **the executive, the legislative** and **the judiciary.** The power of these branches are vested and bestowed by the constitution of Nigeria, the National assemble, the president and the federal courts which includes the Supreme Court which is the highest court in the country (Yusuf Abdu, 20160. This section will briefly describe these branches and their functions. It is important to discuss these branches because most of the policies that are put in place to support the power sector are enacted and put in place from these branches. Bringing out literature for

the branches of government will go a long way in understanding the role played by the government in the power sector.

2.8.1 The executive

The executive branch of government consists of the President, the Vice President, and the cabinet (which is the federal executive council appointed by the president constrained constitutionally to include at least one member from all the 36 states. They are ministers heading the federal ministries). This branch carries out the general administration of the country and it is regarded as the most influential and important branch of the government due to the necessary role it plays in the life of citizens. The executive drafts the executive bill and sends it for deliberation to the legislature. Diplomatic relations between countries are maintained by the executive and they also draft the annual budget that legislature needs to confirm (Walyben, 2021).

2.8.1.1 Functions of the executive.

Walyben (2021) mentioned some of the functions of the executive as;

- Ensuring that government policies and programmes are implemented, and public laws enforced. This is the primary function of the executive.
- Political leadership is given to the government by the executive.
- It has the power to declare and wage war and proclaim the martial law state because it is in charge of the armed forces.
- Laws are made by the executive under delegated legislation.
- They formulate foreign policies, help in negotiating international agreements/treaties and sends and receives diplomatic structures.
- Policies and laws are formulated by the executive and sent to the legislature for debate and approval, and
- Executive performs ceremonial functions during state ceremonies as they symbolise the state.

2.8.2 The Legislature

The legislature is an important branch of the government as it is the body of the government where the laws are made. The legislature is usually unicameral which has one chamber or bicameral which has two chambers. Nigeria operates a bicameral legislature with both upper house (senate) and the lower house (House of Representatives). These are regarded as the National Assembly (Walyben, 2021).

2.8.2.1 Functions of the Legislatures

According to Walyben (2021), some of the functions of the legislatures are as follows;

- In a presidential system like in Nigeria, the legislators approve the appointment of ambassadors and ministers by the executive.
- Legislators have the function to represent the interest and opinions of their constituents.
- They give formal consent (ratify) the judicial appointments made by the executive.
- They also have the authority/power to remove the executive by a vote of censure in a presidential system.
- The legislature also controls the imposition of taxes and public expenditure.
- The legislators supervise the executives.

2.8.2 The Judiciary

The judiciary protects and takes care of the constitution. It ensures that the right and liberties of citizens are safeguarded. They judiciary interprets law made by the legislators in the interest of the public and they prescribe the punishment given to offenders. Disputes between organisations or individuals are settled by the judiciary. Due to the authority vested in them, the judiciary through the law can review and declare both the executive or legislative act null and void. They can also decide the gravity of punishment for an offense committed. The chief Justice is the head of the judiciary, and the judiciary is organised from the magistrate court to the Supreme Court (Walyben, 2021).

Discussing the three arms/branches of government above shows that the separation of power is essential for the Nigerian government to function effectively and that all arms effectively

have a role to play in either the policy formulation or implementation processes. it is for these reasons that we will discuss the policies in place in the subsequent chapters and the effort the government has put in place in ensuring policy implementation and in giving vital recommendations to the gaps in order to improve the power sector of the country.

2.9 Chapter Summary

This chapter, which is the literature review chapter, has provided literature on the management of the power/electricity sector of the Federal Republic of Nigeria by placing emphasis on various areas. Key concepts have been defined in different contexts. Literature from various areas regarding this research has been presented. The chapter has further looked at literature on electricity distribution in Nigeria and the Sub-Saharan Africa. Literature on the management and its functions are also presented in this chapter. The organisational climate is used when presenting literature on the conceptual framework. Also, literature on the Nigerian government, the role, forms, and types of government are presented in this chapter. Certain policies and acts have been presented as well as all these are relevant in understanding the role of the government in the Power sector of the Federal Republic of Nigeria. All these literatures are very vital as they bring out the literature that is available in this research area. They also play in vital role in carrying out this research further due to the available knowledge it provides. The next chapter is going to be looking at the theoretical framework, theories, policies, reforms, and acts that are relevant and has contributed positively in carrying out this research.

Chapter 3

Theoretical framework, legal policies, and institutional framework.

3.1 Introduction

This chapter will examine and discuss the theoretical and institutional framework of this research. It will provide the rationale for conducting this research and investigating the research problem of this research. Importantly, the chapter will provide a justification for the theoretical framework that was used in conducting this research.

Theoretical framework development is very important in any research project because it aids in the clarification of the implicit theory in a more clearly defined manner. Theoretical framework helps one weigh one's option on other possible frameworks and helps in reducing biases that sway one's interpretation.

The theoretical framework is how the nature of the research problem is conceptualized, its basis and the analysis that will be used to investigate the problem. Its intention is to help the researcher to determine how to perceive, make sense of and interpret data. Perspective and context will be better understood by the explanation of the theoretical framework.

The institutional framework here refers to the structures of the organisation, the informal norms and rules for the provision of services. These will be discussed here in conjunction with the theoretical framework, the policies and reforms made in the power sector to analyse the role of the government in the power sector.

As briefly stated in the previous chapter, and by looking at the theoretical framework, this chapter will examine government acts, policies and the constitution of the Federal Republic of Nigeria. This is to ensure that, the Nigerian power sector is operating/functioning properly or as it should be.

3.2 Theories.

This section is going to examine some conceptual theories which were deemed valid and relevant in conducting this research. These theories are the agency theory, the stakeholders' theory and the knowledge management theory. Each of these theories will be expounded individually below.

3.2.1 Agency theory

Agency theory which is sometimes referred to as "agency dilemma" or "agency problem" is very important and it is the main theory used in this research because it is relevant contextually when applied in real world scenarios as this can be applied in the Power sector of Nigeria.

This theory explores the relationship between two parties in an organisation or cooperative who are the principal and the agent whom they delegate activities or work to. In the agency theory, the principals (shareholders and owners) outsource the management of their work to the agents (managers and executives), hence this theory tends to view how the agents in an organisation act in the best interest of the principals (Jessen and Meckling, 1976:308). The separation of ownership and control causes the principal to employ the agent to manage his or her business/organisation and monitor the performance of the agent to ensure that the agent works in the best interest of the principal who is the business owner. There is a tight relationship between the principal and the agent and hence actions taken by any of them affect the position of the other in the organisation. A decrease in the performance or information flow of an individual in an organisation leads to inefficiency in the organisation.

The ***key assumption of the agency theory*** is that individuals are generally self-centred as they act in their own interest. This means that both the agent and individual are out for their own interest (Worsham et al., 1997). This happens when the team is larger, and the unsupervised executive or professionals of the organisation act autonomously. Monitoring an individual's performance leads to the firm incurring costs. According to Jensen and Mackling (1976:300), the ***main goal of the agency theory*** is how the performance of agents can be measured and rewarded so that they can perform their duties with the principal's best interest at heart. At every level of the organisation, employees have different goals. An example of where the agency theory has been used is in a bank with board of directors and the CEO which shows the

principal-agent relationship where the board of directors is the principal and the CEO is the agent. The theory can be applied here to solve disputes between agents and principals.

According to Panda (2017), the main agency theory problems identified are;

- How to align the conflicting interest of the employee(agent) and the principal,
- How to ensure that the agents perform in the way principals expect them to perform.
- The principal acting against the recommendations of the agent can cause an agency problem.
- In a situation where there is a confidentiality breach with regards to the personal and financial information of the principal can lead to agency problem.
- Agents can take a decision independent of the interest of the principal to get some sort of bonus or reward that was agreed upon previously. This can lead to agency problem.
- When the agent conducts insider trading with information that was provided by the principal.
- Agents can sometimes make decisions on the principal's behalf that is not in the best interest of both parties. This can lead to problems.

After looking at the causes of the agency problem, there are certain factors that help to ***reduce the agency problem*** to ensure more healthy relationships between the principal and the agents. According to (Saltaji, 2013), these factors are as discussed below.

Transparency: Transparency between the agent and the principal is very vital to reduce the agency problem. Transparency between the two parties reduces conflict which leads to less confusion and less implication that one party is against another.

Bonuses: Bonuses and incentives can both motivate the agent to act in the best interest of the principal. Also, bonuses can make the agent to take decisions purely for financial gains, disregarding the interest of the principal. Hence reducing and eradicating the bonuses and incentives can lessen disagreements and conflicts.

Restrictions: Abolishing negative restrictions helps reduce loss as this will make the principal feel more confident in their agent and it might instil trust within the agent to enable them to make the right decisions.

A ***major limitation of the agency theory*** has been the over-reliance of the principals on the agents. This has proven to be an unhealthy over-reliance and the level of the independence of some of the agents has been questioned as well.

Applying this theory to this research, the state which is the principal handed the Power sector which is the organisation or business to the agents who are the government officials of the Federal Republic of Nigeria. The Government of the Federal Republic of Nigeria here which acts as the agent has been tasked with the role of managing the affairs of the power sector for the state to ensure that there is efficiency and effectiveness in the sector which leads to growth in the power sector. Referring to the research questions earlier and the concept of the theory, it is very relevant because it seeks to find out effectiveness of the government officials (agents) in ensuring growth in the power sector and if they are operating in the best interest of the State (principal) which gave some government officials the legal authority to carry out the duty. Hence, this agency theory is very applicable to this research.

3.2.2 Stakeholder Theory.

According to Jamal (2008: 231), the stakeholder theory is an organisational management and business ethics theory that addresses values and morals in the management of an organisation. The stakeholder theory argues that other parties are involved as stakeholders in an organisation. These parties include customers, employees, suppliers, government bodies, trade unions, trade associations and financiers. It further argues that even the same competitors are sometimes regarded or counted as stakeholders due to their capacity to affect the firms and its shareholders. In the stakeholder theory, the key aspect in it is understanding the firm functioning within a bigger system of the society providing infrastructure for the firm's activities. Any individual in a firm or an establishment who can be affected by the firm's achievement is a stakeholder (Freeman, 1894: 369).

The stakeholder theory emphasises that there is mutual interdependence between the firms and the stakeholders. The interface between the firm and the parties intertwined in its operations is the fundamental importance of the stakeholder's theory. The theory further argues that a business entity can exist due to the relationship that takes place between firms and the other stakeholders (Nazi, 1995: 31). Companies such as Google, eBay, Merck and Johnson & Johnson are examples of successful companies that have made use of the stakeholder methods and hence apply the stakeholder's theory.

The ***justification*** for making use of this theory is because the needs for all the parties involved is considered when making use of the theory in a project, business, or an organisation. This

means that the more parties feel involved and motivated about the work they do, the better outcome a company can achieve (Indeed Editorial Team, 2022)

According to Indeed Editorial Team (2022), some of the ***benefits*** of making use of the stakeholders' theory include;

- Happier employees
- Clearer purpose
- Higher quality work
- Increased productivity
- Customer satisfaction.

A **weakness/limitation** associated with making use of the stakeholder's theory is that, because companies run for profit, the primary focus of stakeholders on shareholders exhibits a certain amount of bias towards the shareholders. This bias could violate moral and ethical codes by hurting stakeholders (Indeed Editorial Team, 2022).

With regards to the ***relevance of this theory to this research***, the power sector engages with its stakeholders who can be agencies and members of the government and top positions to manage and transact business deals. According by Ilori (2017: 21), the fundamental basis of stakeholder's theory is in the sense that the stakeholders are considered to have essential value.

3.2.3 Knowledge Management Theory

The Knowledge Management Theory is very important and has been very vital to countries in the developed world that has taken advantage of it in their public and private sectors. However, many African countries have not yet realised the advantages of the theory and so have failed to really take advantage of it and hence remain vulnerable to exploitation by the developed world (Ilori, 2017: 20). The nature of today's market environment has a very competitive incentive among businesses and competitions with the aim to leverage their knowledge assets as a means of creating value and achieving a competitive edge.

Various scholars have defined the Knowledge Management Theory and among them is Davemport (2001: 75) who defines knowledge management as mix fluid of enclosed capabilities, skilful insight, contextual information, and values that provides framework for assessing and integrating new information and experiences. It can also be defined as the

function to develop and exploit tangible and intangible resources of knowledge in an organisation (Benchoff et al., 2002: 15). When the concept of this theory is applied in an organisation or business, it increases the output and efficiency in operation. This theory assists small businesses with new tools for growth, their survival and ensures a competitive advantage over contemporaries (Anton & Oversell, 2008: 1199). Knowledge management theory has been vital in increasing competition in organisation (Bell Etienne & Jackson, 2001: 17). Amazon is an example of a reputable company that has made use of this theory.

The ***importance of knowledge management theory*** is that, it helps companies/organisations or institutions to communicate, evolve and focus. When knowledge management theory is used in an organisation or workplace, it enables the leadership of the organisation to focus on their main goals. Productivity is then boosted when organisations make use of knowledge management theory (Sami et al., 2020; 134 – 146)

Some of the **weaknesses of the knowledge management theory** include;

- It requires too much time to consume
- Infrastructures such as internet access, etc are required.
- A lot of time is required to create and to keep it up to date.
- Must be managed properly to ensure that appropriate knowledge is found.

The ***justification for making use of this theory*** is that, due to the fact that knowledge management is key to sustaining and achieving organisational growth through improved efficiency and innovation, the knowledge management theory is vital to the Power sector in terms of the competitiveness involves as one of the main reasons for privatising the sector to bring in competition and efficiency. The Nigerian government through its role needs to create an environment which is sustainable through efficiency, effectiveness, and innovation and hence the sub-organisations within the power sector and its staff will adopt the culture through the skills and principles gathered for growth.

The theories examined above are very relevant in understanding how the power sector of Nigeria operates as an organisation and hence the role of the government officials in the power sector. Many scholars have made use of the above theories in dealing with issues around the globe and hence their relevance in conducting this research. In the subsequent chapters, it will be very vital as it will play a role in the findings and the recommendations that will be provided. Major reforms, policies and acts taken by the government in promoting the power sector will

be examined in the subsequent paragraphs and these will give a clearer view on the role of the government in the power sector. The effectiveness and efficiencies on the application and end product of these reforms and policies will play a vital role in how efficient the government has been in the power sector.

3. 3 Electric Power Implementation Committee (EPIC)

In the year 2000, the current reform in the power sector was the Electric Power Implementation Committee (EPIC). In the year 2001, this committee drafted the National Electric Power Policy and it led to the Electric Power Reform Act of 2005 which comprises of two main components of privatisation and restructuring. Generally, according to Adodhe et al., 2009), the aims and objectives of the reforms include:

- Establishing and improving private sector investments.
- Promoting competition which leads to efficiency and transparency.
- Setting up an independent regulator that will supervise the affairs of the sector.
- Performance improvement and improvement of operations in the sector through the improvement of private sector participation.
- Ensuring that the current and future electricity demand are met, and
- Ensuring that new markets rules/structures and trading arrangements are established.

The EPIC reform was established to ensure that the power sector could move to the next level with its new policies and decisions. All these were part of the government's effort to boost the power sector in ensuring effectiveness and efficiency. The next paragraphs will establish the government's effort to adopt the use of renewable energy or electricity in the sector in order to boost the power sector as is seen below.

3.4 Renewable energy

Renewable energy is very important, and it is one of the means to attain or achieve the options of decentralised energy. The trend of renewable energy has taken a great route in Kenya with remarkable results although no such policy exists or is in place in Nigeria yet. Ray (2019) states that renewable electricity is more sustainable as they constitute one of the aims to attain

decentralised energy alternatives meanwhile conventional sources are not long term sustainable as they are perishable and non- renewable.

In Nigeria, there are however no similar policies in place for renewable energy sources. Although the Nigerian government advocates and encourages renewal energy, it has yet to be turned in to a national priority. This is negatively affecting the sector as will be seen in the next chapter where the findings will be presented. Countries all over the world are adopting the use of renewable energy and making it a major priority as it is seen as the future. This has greatly affected their economic growth positively as the use of renewable energy is directly proportional to the economic growth of many countries (Bhattacharya et al., 2016)

It should be noted that the provision of alternative and renewable form of energy is very important to the provision of regular, affordable, and low-cost electricity in Nigeria. It can also help in poverty alleviation and with employment alleviation. Hence this chapter will further explain the renewable energy/electricity in Nigeria and the different forms and policies implemented by the Nigerian government.

3.4.1 The Evolution of Renewable Energy in Nigeria.

Renewable energy can be defined as the energy that is obtained from naturally persistent and repetitive flows of energy that occurs in the local environment (Twidell, 2021). Over the years, there has been so much reliance on fossil fuels to produce energy and this has had many negative consequences in the environment. Countries all over the world (with Nigeria included) have therefore been looking for alternative ways to produce energy which is environmentally friendly and hence the need for renewable energy. The massive production and consumption of energy sources such as oil and gas has had great negative impacts in the environment and they have been the cause of disasters like the depletion of the ozone layer, acid rain, local atmospheric air pollution, pollution of oceans which has a negative effect on the ocean creatures and climate change (Veziroglu & Sahi, 2008). The over-reliance on fossil fuels has over the years led to the underdevelopment of renewable energy sources. This has limited the access of energy consumption by Nigerians because there is not enough for everyone due to insufficient development. According to Olaoye et al. (2016), the Nigerian energy crisis and the environment issues arising has made it very important for the country to investigate the need for renewable energy mix. If Nigeria can succeed in harnessing its renewable energy mix, it

will go a long way in tackling and solving some of the issues in the sector. The next section will be looking at the renewable energy policy in Nigeria.

3.4.2 Renewable energy policy of Nigeria.

The challenges faced by the country is the reason why renewable energy came to the limelight in Nigeria. Also, the climate change issues where the world at large is trying to reduce the amount of carbon dioxide emission and the dangerous effects of the continuous use of fossil energy resources are the reasons why there has been the need for renewable energy. (Sims et al., 2003).

The national energy policy aim includes the guarantee of adequate, sustainable, and reliable power supply in an environmentally friendly manner, with alternative energy sources (Nelson, 2015). Grid connected operations which include grid based renewable electricity are very crucial in promoting and utilisation of electricity, security, energy strengthening and expanding electricity access.

Furthermore, the National Energy Policy was aimed at;

- Facilitating adequate and reliable power supply at best and affordable cost and also in a friendly environment.
- Facilitating the use of alternative energy sources; and
- Ensuring sustainable and safe energy.

NERC was tasked with the responsibility to promote the generation of electricity through renewable sources by ensuring that there are suitable technical and commercial measures for connectivity to the grip and to the sale to consumers. Wind and solar biomass are the renewable energy sources captured in the policy guidelines on renewable electricity in Nigeria (Afeisume, 2020).

Biomass is derived from living or recently living organisms and it is biological in nature. There is no legislation for biomass as a renewable energy despite its abundance. Biofuels are renewable energy sources from which electricity can be indirectly produced although they are not sources of electricity (Onyi-Ogelle, 2016).

3.5 National Energy Policy (NEP) 2003

The Nigerian Federal government in 2003 approved renewable energy as part of its national energy policy with the aim to ensure that there is sustainable exploitation and the proper use of all the viable energy resources (Energy Commission of Nigeria, 2003). This energy policy is very comprehensive, and it is the first that deals with diverse issues as it addresses issues such as energy legislation, energy financing and pricing, energy research and development, energy efficiency among others. The main objective of this policy among others is to ensure that the nation's energy resources are developed, diversified, achieves national energy security and an efficient energy delivery system with optimal energy mix which is based on the principle of energy economy in which there is affordable energy access in Nigeria and the modern renewable energy increases its share of consumed energy (Energy Commission of Nigeria, 2003).

In this policy, some key issues addressed are the development, promotion and harnessing of the renewable energy resources of the country while incorporating the viable ones into the national energy mix of the country. This will promote the decentralisation of the supply of energy in the rural areas especially where the use of fuel wood will be de-emphasised but rather the use of renewable energy sources will be promoted. Other environmentally friendly technologies that are also alternatives like the smokeless briquettes which promotes efficient use of biomass energy will be promoted. Also, the need to keep up to date with international development in renewable energy technologies and applications (Energy Commission of Nigeria, 2003). The overall push of the National Energy Policy is for the optimal use of the Nigerian energy resources for sustainable development. Harnessing of all renewable resources and all viable energy are encouraged by the NEP for optimal energy mix while sustaining environmentally friendly energy practices. Sector development plan is recommended by the policy although policy incentives and specific targets are not included.

Various sources of energy are looked at in this policy and then policies, objectives and strategies are drawn on how policies and objectives can be improved for the respective energy sources including renewable energy and rural electrification and hence constitutes a plan for all other policies on promoting renewable energy. Provisions in this policy have provided a force for the Federal ministry of Power and steel embarking on the National Policy Guideline for renewable electricity and Renewable Electricity Action Programme.

It was in this policy that the platform was created with which the rural electrification fund was incorporated under the Rural Electrification Agency and constituting a guideline for all subsequent policies on the promotion of renewable energy.

The National Energy Policy was reviewed in 2013 for it to reflect on the recent developments in the energy sector emphasising on renewable energy and energy efficiency. Provision for all forms of energy have been made available in recognition of the importance of renewable energy. Some of the renewable energy sources are wind, solar and biomass (Daudu & Idehen, 2021). It is reported that the distribution companies (DisCos) have been mandated by the Federal government to acquire a minimum percentage of electricity from renewable sources as this will boost the renewable energy sector. Although this policy tries to develop energy strategy to address the growing energy demand and affordable sustainable services, there arises an issue on how this objective can be realised without enabling the legislation to aid propelling the move towards renewable energy.

The Overall drive of the energy policy is the maximum utilisation of the energy resources of the country for sustainable development. Though this policy has led to the setting up of various research centres in various universities and the Energy Commission of Nigeria, not much has been done and achieved in harnessing the renewable energy in the country to the extent that it can be depended upon for national utilisation and hence this has caused many to refer to the policy as ineffective.

This research will however at this stage agree to the above-mentioned statement of the policy being ineffective or incapable as there have been challenges in terms of implementation. When all the facts are presented in the subsequent chapters, there will be final feedback from the results where we can really make a conclusion.

3.6 National Economic Empowerment and Development Strategy (NEEDS) 2004

According to Daudu & Idehen (2021), the aim of the National Economic Empowerment and Development Strategy (NEEDS) is to meet the challenges of Nigeria in the area of development, and this was first drawn up by the National Planning Commission. The objective of NEEDS is to look for means to alleviate poverty by making use of the natural and human resources available to produce goods and services to satisfy the economic needs of the society. The NEEDS recognises and provides for the advancement of the increase of the share of the

application of the energy mix and emphasizes the need for a creation of the renewable energy agency and ensuring the available funds for this purpose through the National Power sector Reform Act (Daudu & Idehen, 2021). Other goals of NEEDS are to integrate the previous legislative achievements with the aim of creating a platform to further sustain poverty reduction. With respect to the adoption of renewable power energy sector, this recommendation has been commended as a milestone and as very good.

3.7 The National Electric Power Policy (NEPP)

This is one of the first policies that was developed in the Nigerian Energy sector, and it was developed with the objective to further the Nigerian electricity supply sector so that the amount of electricity supplied can meet up with the increasing Nigerian population and be able to meet up with the demands and the needs of the 21st century (Tasie, 2014). The aim of NEPP is to encourage the participation of the private sector and to raise capital to fund the sector to ensure all investors have equal opportunities. 12,700 MW and 25,000 MW is the electricity generation targets by the year 2005 and 2010 respectively (Obuedite et al., 2021). NEPP campaigned for the universal access through electricity grid and off grid options that renewable energy schemes maybe included. It was this policy that laid a solid foundation for the enactment of Electric Power Sector Reform (ESPR) Act, 2005 leading to the liberation of the power sector in Nigeria. (Tasie, 2015).

3.8 The Electric Power Reform (ESPR) Act, 2005

This is also one of the Acts that was created during the reformation of the Nigerian power sector. It was created to provide the general legal framework for various legal entities and corporations which are tasked to take over the liabilities and assets of old regulatory body and to also ensure the establishment of NERC which shall take over as the new agency for the generation, distribution, and transmission of electricity in Nigeria. According to Onyi-Ogelle (2016), this act was also established so that it will be able to;

- Formulate companies that will be able to take over the control, staff, assets, and liabilities of the National Electric Power Authority (NEPA)

- Ensure the competition in the electricity market. Improvement of private sector participation in the sector will ensure there is competition which is good for the sector.
- Ensure the establishment of NERC and the regulation of the processes of generation, distribution and transmission and the supply of electricity.
- Enforce issues such as performance standards, consumer rights and obligations.
- Provide and deal with matters and concerns that are ongoing and after the reformation process.
- Promote efficiency and transparency in the sector, and
- Ensure current and future electricity demands are met.

The Act (ESPR) can be credited for some achievements which include the following:

- There was the transfer from NEPA to PHCN as a holding company. On the 5th of May 2005, the process of incorporation of PHCN was done.
- The transfer of the assets, liabilities, and staffs of NEPA to PHCN was done and the 1st of July 2005 was set as the initial date of the transfer as published in the federal gazette.
- Relevant market codes like performance metering and grid distribution were issued,
- There was the development of rural electrification policy by the bureau and agency in 2006 although operations were suspended in 2009.
- There was the inauguration of NERC in October 2005 as the regulator of the sector,
- Market rules were approved in 2008 by NERC that will guide operations in the electricity sector.
- On April 11, 2011, there was the establishment of the liquidation committee to perfectly wind down the operations of PHCN, and
- There was the incorporation of 18 successive companies which comprised of 1 transmission company, 6 generation companies and 11 distribution companies (Onyi-Ogelle, 2016).

3.9 The Nigerian Electricity Regulatory Commission (NERC)

NERC was established by the Electric Power Reform Act (ESPR) of 2005 as a regulatory agency which is a body corporate with perpetual succession and power to perform all acts that body corporates perform by law and to sue in its name (Oky, 2015). A regulator here is the engine room that ensures effective operation of the rules, regulations, objectives, and laws of the Nigerian power sector. Under the Act, NERC was established as a body corporate which can sue and be sued in its corporate name and in accordance with the provisions of the Act, performs the acts that corporate bodies perform and charged with the responsibilities of licencing and regulations on the generation, distribution, transmission, and supply of electricity in Nigeria. It has one of the main mandates to reform the electricity sector as enacted in the Act.

NERC overseas the affairs of the sector as it operates as the official watch dog of the industry ensuring that the sector adhere to the rules and regulations and that things are done in accordance with the law and how it is supposed operate.

The Act makes provision for the application of licenses in the different areas of interests which are the generation, distribution, transmission, and trading regulation 2010, hence ensuring that the provisions for the procedures for the application is made easy and clear enough (Oky, 2015). Interested parties or organisations that are interested in the various categories of the licences can apply to the commission for the various categories in which they are interested in. NERC has provided various regulations to enhance productivity and efficiency.

Two regulations were issued in 2012 by the Nigeria Regulation Commission that will enable communities, local governments, and states to be able to generate and distribute electricity within their domains. This is with regards the hope and yearnings of the stakeholders and experts in the industry for the decentralisation of the generation and distribution of electricity in Nigeria. It aims at ensuring that licence for the operation and construction of independent electricity distribution lines are made available.

Nigeria has had persistent power crisis and a viable way out of it is to completely embrace the policy and the implementation of alternatives like renewable energy in addition to conventional power in Nigeria. It should be noted that one of the directives of NERC is to encourage generation of electricity through renewable and conventional sources.

3.10 Renewable Electricity Policy Guidelines, 2006

This is a comprehensive policy by the federal government for all electricity that is derived from renewable energy sources. The first attempt to formulate a policy that is dedicated to the development of Nigeria's renewable energy and the draft policy was finalised in 2006 although the federal government did not adopt it then. Means to increase the role of renewable energy in sustainable development include numbers of regulatory and promotional instruments that include operation of island mini grid concessions, priority grid access and long-term pricing mechanism establishment. This policy sets out the Federal government objectives, vision and policies for renewable electricity policy guidelines and it is a creation of the Federal Ministry of Power and Steel. The guideline stipulates that the Federal government will take effort to expand the renewable electricity market to at least 5% of the total generation of electricity and a 5TWh minimum in this policy of electricity power production by 2016 (Daudu & Idehen, 2021).

In this policy, a brief of the overview of the electricity sector is given and the impact and importance that the renewable energy can bring to the system (Daudu & Idehen, 2021). An increase of generation systems to the already constrained system, stability of electricity enhancement by reducing the local disruption in reduction and supply of omissions are some of the importance for the need of renewable energy in the sector. Renewable energy is considered a means to reach those that are not connected with the supply of electricity sources like those in the rural areas where many households do not have access to electricity. These are some of the policy goals and strategies set by the REPG like the market expansion to at least 5% of the electricity generating capacity and a 5 TWh minimum of electric power production, establishment of long-term pricing mechanisms which is stable with favourable pricing mechanism and ensuring access to the grid that is unhindered.

Purchase and transmission of all electricity produced by renewable electricity producers be guaranteed, development of cost effective, innovative, and practical measures to accelerate rural areas access to electricity through renewable sources. Setting up electricity trust fund also which is supervised by the rural electrification fund. Creation of a partnership with the multi-stakeholders for renewable electricity delivery to meet the goals of national development and international cooperation. Broadening in expanding the role of renewable electricity for attaining the goals of national development that will contribute to the global effort of dealing with the climate change (Daudu & Idehen, 2021).

Renewable energy has been a success in many European countries like Germany where the use and implementation of renewable energy is made a national priority. The success can be attributed to the support system given for renewable energy in Germany compared to in Nigeria where such support system is not there though there is the National Energy Policy which advocates and encourages the use of the renewable energy sources but is yet to be translated to a national priority as the country struggles with interrupted power generation and supply (Daudu & Idehen, 2021).

3.11 Renewable Electricity Action Programme (REAP) 2006

The Renewable Electricity Action Programme is a programme issued by the Federal government in 2006 to aid the actualisation of REPG (Daudu & Idehen, 2021). The roadmap to implement the policy guidelines is what is set out in the document. An overview of the Nigerian Power sector is given in the programme, and it relates to the renewable energy by defining (outlining) the technologies, potentials, and the potential market of renewable energy. The development targets per strategies for their achievements, technology and application, outlines financing procedures through the Renewable Electricity Fund and other sources, glance into government bodies roles and concludes with risk assessment for monitoring and evaluation structures.

3.12 Nigerian Biofuel Policy and Incentives, 2007

According to Daudi & Idehen (2021), the aim of this policy is to formulate a support programme for biofuel which integrates the agricultural sector of the economy with the petroleum sector. The blending of diesel with bio diesel up to 20% and the blending of gasoline with ethanol up to 10% which are used for thermal, power generation and automotive is provided by this policy. No less than 900 million litres of bio diesel and 2 billion litres of ethanol to be produced locally by the year 2020 were the targets (Daudi & Idehen, 2021).

This policy's goal is for the promotion and development of the national ethanol fuel industry making practical and effective use of agricultural products. This is in line with the Federal government's directive on the programme of automotive biomass for Nigeria in 2005. The

provision to push for the implementation of the policy by the establishment of a Biofuels energy commission was made by this policy. The set targets for the local production of biodiesel and ethanol were not achieved because the Bio fuels Energy commission was not established (Daudi & Idehen, 2021).

According to Daudi & Idehen (2021), creating an environment that can enable the take-off of ethanol has been mandated to the Nigerian National Petroleum Corporation. Hence, this policy has been created to gradually reduce Nigeria's dependence on fossil fuel while creating a commercially viable industry. Several benefits that are linked to biofuel have been outlined by this policy and they benefit the environment due to the reduction of omissions and ozone pollution.

This programme core focus is on the utilisation of all the forms of renewable energy sources for the generation of electricity and highlights any potential gaps, financial implications, technical assessments, limitations, and benefits of Nigeria's Renewable energy sources potentials (Daudu & Idehen, 2021). However, the programme appeared abandoned with the restructuring of the ministry of Power and steel to the Ministry of Power.

3.13 Nigeria Vision 20: 2020, 2010

The Federal Executive Council gave the approval for the birth of Nigeria Vision 20:2020 with the National council constitution and in collaboration with the National Planning Commission. The main point of this document is for the long-term plan of stimulating the economic growth of Nigeria and ensuring the country enters the phase of sustained and rapid socio development. Nigeria's economic growth and development strategies between the years 2009 and 2020 (11 years period) is articulated in this document and it will be implemented out using series of medium-term national development plans. A summary of the key principles of the National Economic Empowerment and Development Strategy (NEEDS) and the seven-point agenda is given when drawing up the objectives of the Nigeria Vision 20:2020 (Daudu & Idehen, 2021).

The strategic objective of Vision 20:2020 ensures that the power sector among the several issues can efficiently deliver sustainable, reliable, affordable, and adequate power in a market that is deregulated. The document sets targets that will enable them achieve this and these targets are to generate electricity from 6000 MW in 2009 and 20,000 MW in 2015 and 35,000 MW in 2020. Also, it is further estimated that, the existing independent private sectors in the

medium term will be encouraged to increase capacity. Ongoing Nation Integrated Power Project (NIPP) projects will be fast tracked to achieve target of 20,000 MW by 2015 while new entrants will be granted incentives for the generation of renewable energy so that additional generation capacity will be achieved. The Independent Power Producers (IPPs) are estimated to generate an additional 20,000 MW annually. Also, in the long run, it is expected that additional large hydro plants, IPPS, biomass, hydro, renewable power generating plants comprising of solar and coal fired plants will be installed to further the increase of the generating power capacity to 35,000 MW (Daudu & Idehen, 2021).

It should be noted that the vision for 2009 to 2015 in terms of power has not been actualised although the vision captures the aspirations of Nigerian effectively. Generation of electricity in Nigeria is presently less than 6000MW and this is probably the reason why it was voiced for this blueprint to be enacted into law (Daudu & Idehen, 2021).

3.14 Renewable Energy Master Plan (REMP) 2012

The commitment of the government to create the necessary environment that enables sustainable energy supply for national development with the private sector actively participating is the Renewable Energy Master Plan (Daudu & Idehen, 2021). In this policy, programmes that deal with the timeline, targets, and incentives that will aid the growth of the market have been provided. The Federal ministry of Environment implements the programme with the aim to increase the contribution of the renewable energy to the total energy consumption (Okedu et al., 2015).

The first draft of the plan was produced in 2005 and it was big and therefore it needed to be more precise and concise hence the review in 2015. Some of the objectives of this policy are:

- Enhancement of the national energy security.
- Capacity building.
- Increasing the access of energy especially in the rural areas which thus improves the quality of learning.
- Development on various renewable energy technologies in the country, and
- Roadmap for achieving a substantial share of the national energy mix through renewable energy.

It is well noted in this policy that one of the constraints that is hindering the fast development and technologies diffusion for the exploitation and proper use of the renewable energy is the lack of appropriate policies, institutional and regulatory framework to attract investors and stimulate demand and the absence of market. The policy further states that the Nigerian government has as a result formulated many policies that are related to the renewable energy into programmes with short (2013 – 2015), medium (2016 – 2020) and long-term (2021 – 2030) timelines (Daudu & Idehen, 2021).

The various energy policies, regulations and institutional frameworks is also arranged by REMP with their expected activities and the ministries that are responsible for the timeline with which the targets are fulfilled as well as ensuring that there is provision for the development of financing option programmes. It is stated that if the policy is fully implemented, it will increase renewable energy supply to about 20% and increases the total electricity supply in the nation (Daudu & Idehen, 2021). REMP suggests that the policy be reviewed together with the institutional, legal, fiscal, and regulatory instruments as it visions a nation that is driven by renewable energy that is affordable and sustainable in years to come (Daudi & Idehen, 2021).

3.15 National Energy Master Plan (NEMP) (Final Draft Report), 2014

This final draft report was developed as the road-map or implementation of the realisation of the policy objectives of NEP. NEMP depended on the Gross Domestic Product (GDP) of the country's projections to project the demand of energy under the three economic growth scenarios which are the optimistic growth, high growth and very optimistic growth, taking into consideration the energy resources available and targets for energy supply sources deduced (Amulah, 2022). The Model of Analysis of Energy Demand (MAED) is the process on how the energy supply and demand process were made together with the Model for Energy Supply strategy Alternatives and their General Environment (MESSAGE) planning tools of energy for International Atomic Energy Agency (IAEA).

3.16 Renewable Energy Feed in Tariff (REFITs) 2016

The Nigerian Electricity Regulatory Commission in section 76 of the Electric Power Sector Reform Act was empowered to establish a methodology that determines tariffs in the Nigerian

electricity Supply industry. Moreover, the Multi Year Tariff Order (MYTO) was issued which sets out tariffs for electricity generation, distribution, and transmission (Daudu & Idehen, 2021). The Renewable energy research and development division of the Nigerian Electricity Regulatory commission has developed renewable energy with regards to solar, wind, biomass, and small hydro power in recognition of the importance of hydro power REFITS that were included in the Multi-Year Tariff Order (MYOT) in January of 2022. The Nigerian government approved the regulation in 2016 and it supersedes the MYOT.

The objectives of the REFIT as stated in section 3 include:

- Boosting of the supply of power in Nigeria.
- Encouraging the participation of the private sector in the generation of electricity from renewable technology by ensuring that there is investment and market security for investors.
- Enhancing the attainment of the targets on renewable energy sourced energy.
- Developing, promoting and harnessing the country's renewable energy resources and incorporating all the viable renewable energy resources into the national energy mix, and
- Establishing a guaranteed price for electricity generated from the renewable energy for a fixed period that provides a stable income stream and an inadequate investment on the return as well as provide priority access to the grid for renewable energy-based electricity.

According to (Adhekpukoli, 2018), guaranteed price and access to grid are the main features of REFIT. Other features include Feed in tariff for solar, biomass, wind and small hydro power plants, power purchase agreement based on plant life cycle. The power purchase agreement based on plant life cycle of 20 years and electricity distribution companies are to procure a minimum of 1000MW meaning 50% of the projected renewable sourced electricity while the Nigerian Bulk Electricity Trading Company (NBET) will source the remaining 50%.

There is a distinction between the large and small generation plants which is provided by the regulations while electricity ranging from 1MW to 30MW purchased from small plants will automatically be integrated as renewable energy. A competitive bid process was initiated by NERC where generation is more than 30MW in respect of large plants (Daudu & Idehen, 2021)

Specific renewable energy sources have been allocated to respective distribution companies (DisCos) which ensures a balanced energy mix. For example, Ikeja, Eko and Ibandan DisCos were assigned 26MW, 19MW and 22MW of biomass while the highest wind sourced electricity of 14.4MW was allocated to Abuja while Kano and Kaduna Discos were each allocated 10MW of small hydro power, 12MW of solar source energy and 6MW of biomass (Daudi & Idehen, 2021).

NERC in an effort to further encourage investors to invest in the renewable energy sector has said that investors that are involved in the renewable energy plants will be given 20 years operation period in which they will be able to recover their investments for the entire life span of the plants (Reimers et al., 2018).

3.17 National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015

This is a policy document that was first drafted in 2005, revised and redeveloped in 2012 and was approved in 2015 by the Federal executive council. The ministry of power, the Energy Commission of Nigeria (ECN), related sub sections of the ministries, Departments and Agencies (MDA) are agencies that are responsible for the implementation of this policy, and they are to be supervised by the National Energy Efficiency Policy (NREEP) (Offiong, 2019).

The NREEEP is expected to fix a structure and capability to deal with the energy supply crisis. Energy security is intended to improve and power output increase to at least 2000MW of electricity (Offiong, 2019). It was intended that in the long run, the Nigeria electricity generation activities will surpass the ECOWAS regional target for 2020 and the years beyond (Offiong, 2019).

Target renewable energy that will be utilised by the NREEEP will all be used in vast scale. Renewable energy sources are estimated to be about 68,000MW, which is five times the current output of the country. Increased production of renewable energy is expected to contribute to international trade, poverty alleviation, promotion of investments, international trade and cooperation (Offlong, 2019).

NREEEP (2015), which was approved by the Federal Executive Council for the electricity sector highlighted the purpose and objectives of the NREEEP. The purposes of the NREEEP are;

- Clean energy access framework.
- Energy efficiency and renewable energy national significance for energy security.
- Setting national targets for energy efficiency and renewable energy and ensuring renewable energy mix increase in line or above ECOWAS regional policy targets.
- Integrating energy efficiency and renewable energy into national and state planning and ensuring that there is an enabling environment for it to operate.
- National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) to be prepared.
- There should be a mandatory requirement for the Federal ministry of Power to develop an Integrated Resource Plan (IRP) to ensure continuous review and implementations of the policy provisions, and
- Creating a framework for sustainable financing of programmes and projects for renewable energy and energy efficiency.

The objectives are;

- Diversifying the energy mix in the energy sector in Nigeria to achieve national energy security and efficient energy delivery. This will help develop the energy sector.
- Providing enough energy access to Nigerians and more sustainable for domestic use and cooking.
- Establishing appropriate financial mechanism so as to encourage private investment in the sector of renewable energy.
- Fostering of international cooperation at the different levels in the sector.
- Investment promotion in the energy efficiency and the renewable energy sector.
- Ensuring that key shareholders in the renewable energy and the energy efficiency sectors are well coordinated and collaborated.
- Ensuring of efficient cost-effective consumption pattern, location specific of renewable energy resources and improved energy efficiency.
- Ensuring that the supply of electricity is cost effective, reliable, affordable, sustainable and the prices are appropriate and in a friendly environment, and
- Ensuring Process of acquisition is accelerated and technology diffusion, managerial expertise and the participation of the indigenous people in the renewable energy and energy efficiency sector.

According to NREEEP (2015), these target renewable energy resources include;

- Hydro
- Biomass
- Solar
- Wind
- Geothermal
- Wave
- Tidal
- Energy efficiency.

Below are the targets, milestones and timelines according by NREEEP (2015) for the different targets of the programmes.

Table 3.1 Programmes and their targets

Hydropower Programme Target (MW)	**2015**	**2020**	**2030**
Large hydro power	2,121	4,549	4,627
Small hydro power	140	1,607	8,174
Total	2,261	6.156	12,801
Wind programme target (MW0	**2015**	**2020**	**2030**
Wind electricity	55	631	3,211
Windfall water pumping system (NO.)	20	100	200
Biomass Programme Target (MW)	**2015**	**2020**	**2030**
Biomass electricity	50	57	297
Biofuel (ML/Day)			
Bio Ethanol (E10)	53	9.7	24.2
Biodiesel (B20)	20	3.4	11.7
Solar Electricity Programme Target (MW)	**2015**	**2020**	**2030**
Solar (PV and Solar Thermal Systems inclusive)	117	1,343	6.831

Source: (NREEEP, 2015).

There are energy efficiency targets by the years 2020 and 2030 as seen above whereby the year 2020 there was production of guidelines on all the key components of energy efficiency. It was envisaged that air pollution which is caused using generators in the country will be greatly reduced and this will in turn lower the health cost. Climate change will be more tackled due to clean energy and the fostering of mitigation (Offiong, 2019).

3.18 Incentives for renewable energy and energy efficiency companies, developers and importers.

According by Onyi-Ogelle & Helen (2016), below are some of the incentives for companies, developers and importers of renewable energy and energy efficiency companies.

- Local entrepreneurs can be given incentives for production of solar energy conversion systems, domestic development of energy storage technologies and biomass energy conversion systems.
- Renewable energy plants should be given license waivers with less than 1MW at a site.
- Companies producing energy efficient fixtures and appliances should have tax credits.
- Manufacturers of renewable energy and energy efficient equipment's should have tax incentives like tax holidays for several years like 5 years and also dividend income on investments made on domestic renewable energy sources.
- Importers of energy efficient appliances should be exempted from sales tax and excise duties. There should be 2 – 5 years of free custom duty on equipment's and materials that are imported used in energy efficient and renewable energy projects.
- Electricity generation companies should have Power Production Tax Credit (PTC) aim at encouraging the adoption of renewable energy.
- Public Benefit Funds (PBF) where a certain percentage of the tariffs is used to support on and off grip renewable energy generation projects.
- There should be appropriate economic instruments allowing generators of renewable energy to obtain good pricing rates as they sell.
- Energy efficiency products and renewable energy supply should have access to special low interest loans and soft loans from the power sector development funds.

- Electricity producers that produce electricity through renewables should have favourable pricing and Feed in Tariffs (FIT) to encourage producers, and
- Renewable Independent Power Projects (IPPs) that are selling electricity generated to the grip of 50MW should have easy licensing procedures (Onyi-Ogelle & Helen, 2016).

3.19 Energy Institutions

According by Ayangeaor (2022), the table below shows the energy institutions in Nigeria and a summary of their roles is provided as follows:

Table 3.2 Nigeria energy institutions and their roles

S/N	Energy Institution	Role of Energy Institution
1.	Federal ministry of Power	It formulates, coordinates and implement broad programmes and policies for sustainable development of reliable supply of power in Nigeria
2.	Federal ministry of Environment	Climate change issues coordination. Sustainable use of biomass energy for clean cooking purposes is its specific use.
3.	Federal ministry of Petroleum	It formulates, coordinates and implement broad programmes and policies germane for oil and gas industry development in Nigeria.
4.	Nigeria Electricity Regulatory Commission (NERC)	Nigeria's electricity industry has been regulated and monitored by NERC and ensures it complies with the market rules and operation guidelines. Specifically, it functions includes; i. Sets tariffs for electricity. ii. Development of codes and regulations to guide the NESI. iii. Issuing of licenses in the electricity supply industry in Nigeria.
5.	Nigeria National Petroleum Commission (NNPC)	Implements the biofuel blending mandate.

		Its state-owned corporation which has power and operational interests in gas and oil exploration, refining, distribution, and marketing.
6.	Energy Commission of Nigeria (ECN)	Strategic coordinating and planning of national policies in energy field in all ramifications.
7.	Nigeria Bulk Electricity Trading Company Plc (NBET)	Purchases power in bulk from IPPs on-grid and re sales them to the distribution companies
8.	Rural Electrification Agency (REA)	Administering of REF with the purpose of promoting, supporting, and providing programmes for rural electrification through private and public sector participation.
9.	Renewable Energy Service Providers	Energy service providers through solar home systems and mini grids.
10.	Distribution Companies	They retail and supply electricity to the end users
11.	IPPs	Electricity generation for sale on the grid
12.	Transmission Company of Nigeria (TCN)	They wheel the power that is generated by the IPPs to the distribution infrastructures
13.	International Donors and Partners	Technical support provider for the development of strategies, plan, implementation of pilot studies and feasibility studies.

Source: Ayangeaor (2022)

3.20 National Renewable Energy Action Plan (NREAP) 2016

This action plan was created by the Nigerian government in line with the targets created by ECOWAS Renewable Energy Policy (EREP) for the years 2020 and 2030. The NREAP shows the government commitment by ensuring that strategies are drawn up so that the implementation of the NREEEP objectives will be in full force. This action plan shows how Nigeria has planned to reach the targets for the development of the renewable development sector covering the periods between the years 2015 to 2030 (15 years) (Daudu & Idehen, 2021).

A detailed summary and analysis of the National Renewable Energy Action Plan shows how the government of Nigeria intends to produce an estimated 30,000MW electricity by the year 2030 and 30% will be from renewable energy sources (Electricity Vision 30:30:30) (Daudu & Idehen, 2021). This will be pursued with great vigour in the stages of ensuring that they attain stable, sustainable, and uninterrupted power supply in Nigeria. This plan recognises the importance of renewable energy sources and stresses the fact that proper development and exploitation of the country's renewable energy resources will greatly contribute to the country's need of energy hence it will rely less on the conventional international traded energy resources.

According to Daudu & Idehen (2021), details have been provided in the National Renewable Energy Plan (NREAP) on measures and plans that will be enable the NREEEP to be able to achieve 16% of renewable energy targets by the year 2030.

3.21 Other reforms

Nigeria, like other African countries like Togo, Benin, Mali, Guinea, and Ghana, have relied heavily and exclusively on hydropower. The current reform therefore is trying to focus on the use of gas for electricity supply. According to Ogbonnaya et al. (2019), there are two types of power plants operating in Nigeria currently and they are;

- Fossil fuel or thermal
- Hydro=electric

Onyi-Ogelle & Helen (2016) states that 6,953MW capacity is the total number installed capacity in the power plants as of December 2013 while 4,598MW was available capacity and 3,800MW was the actual average generation. 4,949MW was the total amount installed capacity of the power plants as of December 2014. There are Independent Power Producers (IPP) that are power plants that was been owned by private companies/individuals or state governments.

Switching stations to maintain System stability, security, activities, and operations of the generating and transmitting sub stations are all coordinated by the national control centre Oshogbo. System collapse, frequent over loading, T and D losses of up to 40 % most especially in the North Eastern part of Nigeria are what characterises the state of the grip system (Onyi-Ogelle & Helen, 2016)

Below is a makeup of the Nigerian Power sector

Table 3.3 Electricity capacity in Nigeria

Power Generation	
Capacity installed	8,227MW
Capacity installed available	4,058MW
Capability of Actual generation	3,716MW
Maximum peak generation	3,804.3MW
Transmission	
132kv limes	6,00MW
- 330kv limes	5,00MW
Distribution	
- 33kv, 11kv, 415kv, 220kv	60,000MW
National demand	10,000MW
Deficit of national generation	5,750MW

Source: (Onyi-Ogelle & Helen, 2016).

Table 3.3 above displays the makeover of the Nigerian power sector according to (Onyi-Ogelle & Helen, 2016). The table shows the generation, transmission, and distribution capacity of electricity in the country. From the table, it can be seen that the maximum peak capacity is 3804MW for the said period which is very small and can hardly cover much area in the country in terms of electricity. Comparing that with South Africa Eskom which has a generation capacity of 45,000 MW of electricity on average (Pram et al., 2022) clearly shows how much work needs to be done to the Nigerian power sector in terms of generation, distribution, and transmission of electricity. This explains why the electricity transmission and distribution figures are low as well. It should be noted that Nigeria's population is almost 4 times bigger than that of South Africa, yet they generate less than one tenth of what South Africa generates

annually (Ibrahim et al., 2021). More of this will be examined in the chapters of presentation of findings and analysis.

After reviewing the policies and legal framework put in place by the Nigerian government to reform the power sector and to ensure that there is continuous power supply, there is need for certain recommendations which will be discussed and given much more detailed in the latter stage of this research, Some of these recommendations will include ensuring that there is implementation of the reform Act as it is not strictly and fully implemented, dealing with the issues of excesses and the issue of corruption just to name a few.

However, it should be noted that many have argued that the reform so far in the power sector has been a failure because Nigeria still has one of the lowest accesses to electricity in Nigeria despite the many reforms. Failure of this reform can be seen in the absence of specific legal energy resources. However, after the findings presentation and analysis, we will therefore be certain for sure how effective these reforms and policies have been and how effective the government which is the main executor of these policies and reforms has been in the power sector.

3.22 Chapter Summary.

This chapter has looked at the theoretical framework of this research. Conceptually, it has made use of the agency theory, the stakeholder's theory and the knowledge management theory and their relevance to the research. Also, the chapter has looked at some of the policies adopted by the Nigerian government in the power sector by looking at the reforms and the implementation of the renewable energy policies as a framework in the sector. These policies are in accordance with the Acts and the constitution of the Federal Republic of Nigeria. The chapter has clearly examined policies, acts and legislations that play a vital role in the power and in deriving the role the government plays in the sector. The next chapter will be the research methodology chapter.

CHAPTER 4

RESEARCH METHODOLOGY.

4.1 Introduction

In Chapter 1, the Research Methodology was introduced albeit in summary. This chapter will discuss it in detail. In the previous chapters, concepts, theories, and literatures were discussed. Such discussions were useful in this research in bringing out the role of the Nigerian government in the power sector. This chapter is equally very vital in this research. It will deal with the methodology of the research and will discuss the research design that was adopted. This chapter will therefore outline the ways in which the entire research was carried out, how the research problem is solved, the approach that was applied in carrying out this research and the data collection techniques that were used in carrying out this research.

As stated earlier, the data collection method used in this research was secondary data. Given that the research is secondary research, there were no questionnaires nor face-to-face interviews used in carrying out this research as the research is based on already existing data and information already made available by reliable sources which were carefully examined, analysed, interpreted, and explained. The research methodology components that were analysed include the sample size, population size, sampling frame, type and sources of data, research design and sample techniques that were used. The sampling method used and applied in this research is also explained. This chapter also includes the validity, reliability, delimitation, and the limitation of the research.

4.2 Research Philosophy

As conventional practice, it is very important for researchers to ask what research philosophy they will adopt before embarking on any research. The scientific practice that is centred on the theory and assumptions about knowledge, nature and world nature is a research philosophy (Collis and Hussey, 2003). According to Denzin (2000: 922), every research philosophy is detailed in a paradigm and this paradigm are theories that relates how the world functions and the character of humanity. They are feasible to know and not to know. A paradigm according to Guba & Lincoln (1994: 117) involves classifying a body of different views that guide

actions. The authors explained further that each paradigm is made up of three sets of beliefs, which are:

- Methodology,
- Ontology, and
- Epistemology.

The word ***epistemology*** is derived from a Greek word "episteme" which means knowledge. It is simply about what the world knows and our connection between the known and the one seeking the knowledge. ***Ontology*** raises the questions between what can be known and the reality while ***methodology*** is all about getting knowledge with regards the real world and defining the appropriate research approach for valid empirical evidence collection (Ilori, 2017). These different concepts under research philosophy are important as they are applicable in understanding the research methodology of this research.

4.3 Understanding Research.

It is vital to understand the meaning of the concept "research" before proceeding to explain other key concepts in this chapter like the research methodology, research methods, study design and so forth.

Research has many definitions and explanations. A few of them will be mentioned and explained that relate and are very useful to this discipline. ORA/IRB (2009: 1) defines ***research*** as a systematic investigation including research development, testing and evaluation designed to the development and contribution of general knowledge. It is shown this definition is applicable in this research because the research is conducted to contribute greatly to the general public and to Nigeria in particular in identifying the role of its government in the power sector and how it can improve or contribute positively to the power sector. Also, according to Rajasekar et al. (2013: 2), ***research*** can be defined as searching systematically for useful and new information on a particular topic. This definition is very important and relevant to this research because it is researching new and relevant information that can be very vital in ensuring that the Nigerian government plays a vital role in the power sector in the country given that the power (electricity) sector is going through so much crisis. Given the different types of research, this is **applied research** because it is research that is aimed at establishing the immediate problem facing the power sector (industry), the society and business

organisation with the view to find a solution to the problem. Hendricks et al (1993) states that ***applied resea*rch** is research that understands and addresses problems, and it tries to solve them. This further supports why this research is applied research. As mentioned earlier and as will be seen later, it is a qualitative and quantitative research where secondary data and figures that are derived from reliable sources were put together in conducting this research.

4.4 Purpose of Research.

It is vital to understand the purpose of research as it serves many purposes generally. These purposes include:

- *explanation,*
- *description and*
- *exploration* as will be explained below:

Exploration research approach: This approach is very helpful to researchers in breaking new grounds about research. In this research approach, research questions that have not been studied are explored. It aims to provide answers to research questions and hence this research is suitable to social research (Ilori, 2017). The following objectives are meant for the explorative approach:

- Exploration approach ensures improvement on the different approaches that is engaged with the subsequent research study.
- It properly explains the theory and concept of a research study.
- It ensures that the researcher's interest is satisfied with a thirst for better understanding of the work.
- The explorative approach ensures a new hypothesis is developed with regards to the current phenomena and well as the focus of upcoming research is determined.
- The explorative approach ensures that the possibility of undertaking a broad research study is tested.

Explorative studies often lead to a better understanding of exact, complete and replica data. This is the method that involves information used, studies analysed and in-depth interviews (Selltiz et al., 1965).

Descriptive approach: Situations and events of phenomena are described in this approach. This is a research approach that aims at systematically and accurately describing an event, phenomenon, or population. The researcher conducting social research observes and then describes what was observed. Most qualitative research in social research are descriptive in nature, hence this approach often uses qualitative research. Babbie & Mouton (2001:80) contend that descriptive studies involve a variety of research in which descriptive social events are emphasized. In this approach, events ranging from a narrative approach such as historical and discourse analysis to a highly structured statistical analysis is described (Ilori, 2017).

Explanatory approach: In this approach, things and events are explained. The approach tries to find out in detail why something occurs. Identifying the connections between events and variables is the primary purpose of the explanatory approach (Ilori, 2017). This research approach helps the researcher in finding out the main reason or root cause of why something happened so that they are be able to fill the gaps.

The researcher's critical analysis of the role of the government in the Power sector of Nigeria embraces the descriptive, explorative and explanation approaches. This is because the purpose of the current research is to establish how efficient the government has been in the power sector. This involved a detailed collection of information on the activities carried out within the power sector by the government and some of the government agencies. This was done using the secondary qualitative and quantitative data that can be found online, in books, journals, magazines, reports, accredited websites, newspapers and other useful academic data found. The descriptive, explanatory, and exploratory research approaches were used to conduct the research for this study.

4.5 Research methodology and research method

The ***research method*** which is different from research methodology is the study of how the research projects are carried out or are conducted (Rajasekor et al. 2013). Kothari (2004, 7-8) describes ***research method*** as all the techniques and methods used in carrying out research. Therefore, it is the methods used by the researcher in conducting the research. It is vital to explain the meaning of research method and research methodology because the concepts look similar and tempt some scholars to use them interchangeably though they are very different.

According to Kothari (2004, 7-8), ***Research methodology*** is the systematic way of solving the research problem. It is the science that studies how research is carried out in a systematic way. This includes the research ethos that was used to carry out this research. Research methodology also entails the logic behind the method used in context and not just about the technique and research methods. According to Kothari (2004: 7), it is important for the researcher to be able to explain why a particular method was used and not the others as the findings and results of the research can be able to be evaluated by someone else. The concept methodology refers to the methods used by the researcher to conduct the research (Kothari 2004:7). Data or information from secondary data can be reanalysed to solve the research problem or answer the research question.

Methodology refers to the ways data is obtained and analysed (Polit & Hungler, 2004: 233). Decisions that are taken under the methodology depend on the research questions. This is because a proper understanding of the research question enhances a proper methodology decision taken which ensures that the research is carried out effectively.

Research methodology can also be referred to as the way in which the work of researchers is explained, described, phenomena of events explained and carried out (Ilori, 2017). In using research methodology, knowledge is gained, and the research methodology will greatly give the readers a clear understanding of how the research was carried out and conducted as this will broaden the knowledge of the reader for a clear and better understanding of the subject matter. Hence, this chapter will clearly present the methods used in carrying out this research for a better understanding.

The research purpose is understanding and analysing the role of the Nigerian government on the growth of the power sector. It is worrying that despite enormous efforts made and resources deployed by the past and present leadership in the power sector, the power sector of the country (Nigeria) is still in a mess with so much challenges as more than half of the country still does not have access to power (Oyedepo, 2012). The power sector is going through several reforms and ensuring privatisation process in order to boost the sector. This research has been able to establish how effective the government has been in performing its task on the growth of the power sector in Nigeria.

Though this research clearly stated that it used **secondary data only**, the ***mixed research method*** was used in carrying out this research. According to Johnson et al. (2007), the ***mixed methods research*** is a research approach whereby both the qualitative and the quantitative data

are collected and analysed in the same study. It is therefore a combination of both the qualitative and the quantitative research methods in the same study.

This means that both the qualitative secondary techniques and the quantitative secondary techniques were used in carrying out this research because the researcher made use of reliable secondary data collected from academic journals, books, magazines, the internet, government gazettes, newspaper articles and government reports. The data obtained from these reliable academic sources included figures, charts, and tables. These data sets obtained were carefully examined and then analysed by the researcher to ensure that the results are reliable. The secondary figures and charts that were examined and analysed in the results chapter(s) will paint a clear picture of how Nigeria has performed in addressing the energy sector. This method therefore enabled the researcher to come up with reliable results and conclusions on the effectiveness and the role played by the government on the growth of Nigeria's power sector.

4.5.1 Qualitative research technique

Given that this is desktop research, the researcher made use of the qualitative research technique. Reliable secondary data and information already made available by others were used in carrying out this research. The information was sourced or taken from books, articles, magazines, journals, government gazettes and reports.

Qualitative research according to Wyse (2011) involves thoughts, ideas, and opinions with regards to the research that is being carried out. With the qualitative research technique, an understanding of opinions, motivation and reasons are gained. Insight into a problem is provided by the qualitative research technique and also help in developing the hypothesis or ideas for potential quantitative research. Qualitative research is not easily reduceable to numbers, and it is made up of different forms of evidence such as written, stories, verbal and so forth. For the purpose of this research, reliable information from books, articles, journals, magazines, government gazettes, reports and the internet were used in carrying out the research. This was done to ensure that the research problem is well understood and that the recommendations are relevant to the study.

Qualitative research is natural, realistic and it attempts to study the everyday life of different groups of people and societies in their natural backgrounds. This involves real life explanatory approach to real life matters to the area of interest which attempts to interpret and study events

in terms of the attachment given to it by people (Denzin & Lincoln, 2003). Qualitative research seeks to develop explanations for human problems and social events with the purpose to understand and contribute to the social world in which humans live. This type of research also deals with the behaviour of humans and how people respond to the events of society. Qualitative research investigates issues linked to the problem in question because not much is known about these issues and hence a need to find answers and solutions to these problems and questions (Fleming, 2007: 24). With qualitative research, researchers understand the cultural and social backgrounds of people within the society in which they live (Myers, 2009: 621). Creswell (1998: 621) further states that qualitative research is an investigative procedure of social and human problems in a natural setting. The qualitative research approach is naturalistic in nature, and it identifies phenomena in a specific setting (Patton, 2002: 39)

Hancock et al (2009: 6) stated that qualitative research tends to look at how people or a group of people look at reality in a different way or differently. It focuses more on reports of experiences, and this cannot be easily expressed in numerical terms or figures. Qualitative data do not usually manipulate data and use people's accounts as data; they study behaviour in natural settings (Hancock et al 2009: 6).

Hancock et al. (2009: 6) also argued that because qualitative research focuses on description and interpretation, it might lead to the development of other theories, concepts, or the evaluation of an organisational process. Greenhaigh & Taylor (1997) also explains that qualitative research aims at interpreting or making sense of phenomena in terms of the meanings brought to them by people. Through a clearly formulated question and making use of more than one research method, the problem will be addressed. A more systematic, explicit, and reproductive method should be used when analysing qualitative data.

LeCompte & Preissle (1994: 141) describe qualitative research as a loosely defined collection of inquiry which relies on verbal, auditory, visual and history data. Description of observations is what it is based on and grounded in. These descriptions tend to address the fundamental question of what is happening here as most of the research design tends to address and answer these questions. These questions can be asked about anything like extraordinary events, ordinary occurrences, and circumstances puzzling to some investigator.

According to Denzin & Lincoln (1994: 02), qualitative research is a multimethod approach that involves explanation and true-life approach to the subject matter. This means that the qualitative research is used by researchers to study things in the current or natural situations by

trying to make sense of it or trying to understand it by making sense of the meaning attached to it by people. This approach involves the scientific study and the collection of experimental tools such as life stories observations, personal experiences, case studies, interviews, introspection, interactions, and visual texts used in defining the problematic routine and valuable moments in the lives of people. Denzin & Lincoln (1994) further explained qualitative research on the processes which are properly measured in terms of frequency, intensity, or quantity.

Hancock (1998: 02) states that qualitative research emphasizes the social phenomena which aid in understanding the word and how it is set, and it seeks to answer the following questions:

- How do people form their attitudes and opinions?
- How are people affected by events?
- What are the similarities between various organisational groups and societies?
- How does the cultures and societies of people develop the way they do?
- Why do humans behave the manner they do?

Hancock's questions on qualitative research place emphasis on questions relating to how much, how many, and how often.

Olsten & Gurbrium (2001: 55) in his own opinion defined qualitative research rather within the context of the tradition of four research issues;

- Ethnomethodology which tries to understand social order creation by dealing with the study of social interface.
- Post modernism which through discourse it focuses on the construction of variety social realities.
- Naturalism which tends to the understanding of the society and its environs.
- Emotionalism which locates the reality that is stitched into the subjective fabric of the experience of humans.

There exists a similarity between these qualitative research definitions in terms of understanding reality in a productive way, social reality significance, human being, and an effort to understand and seek meaning (Bryan, 2008: 59). The qualitative research significance is evident in what people say about their roles and responsibilities, how it assists the researcher in the process of investigation as well as having first-hand knowledge of the events leading to results (Giliham, 2010:10)

Qualitative research is used to also address questions of research that requires understanding and explanation of social event or phenomena and their contexts (Ritchie & Preissle, 2003). These research questions are well suited in complex issues and studying processes occurring over time.

It should be noted that both qualitative and quantitative research have the same end-goal, which is to answer the research questions and hence they should not be treated as though they are two opposite concepts.

Ritchie & Preissle (2003) note that those t who make use of qualitative research emphasize and place value on the human interpretative aspect of knowing about the social world and the significance of investigators on the interpretations and understanding of phenomena that are studied. With qualitative research, the researcher can investigate thoroughly what is happening within a particular case in which very little is known about the case. Hence bringing out more facts and ideas about a particular case is critical. In summary, the purpose of the qualitative research technique is to uncover the socially constructed nature of reality which emphasizes the relationship that exists between the objective of the study and the researcher as well as the significant nature of the investigation (Ilori, 2017: 128). This section has examined what qualitative research is and its importance in carrying out research. The subsequent section will justify why the qualitative research approach was used in carrying out this research.

4.5.1.1 Justification for using the Qualitative Research Approach

The justification for using the qualitative research approach in this research was to be able to understand a human problem in a social context from different perspectives. This was done by trying to provide answers and solutions to the research questions that were raised in the beginning of this research. The research questions are because of a human problem that arose from the policies within the power sector of Nigeria in terms of the effectiveness of the government officials. Qualitative research enables the researcher to be able to bring out his or her outcome or opinion that is embedded in the literature review in a way that will enable the researcher to be able to answer the research question or solve the research problem (Ile, 2007: 37). The researcher was compelled to use qualitative research techniques because this research methodology is based on fundamental assumptions as seen earlier. The methodological and theoretical expectations of a qualitative research approach according to Boodhoo & Purmessur (2008: 6) includes the following:

- Qualitative research approach helps with the generation, appraisal, and cross case analysis of descriptive theory with regards to events.
- It makes the findings of the research more reliable and consistent. The theory that is used and studied is derived from the different data analysed and this gives more insight to the researched topic and subject matters.
- Emphasis is placed more on the process than the outcome in qualitative research. For this research, the process that involves the policy formulation, monitoring and evaluation and other factors that relates to the role of the government officials in the power sector of Nigeria will be revealed to have a clear understanding on the subject matter.
- Qualitative research approach gives the researcher more insight on the subject matter by the different approaches used by the researcher in collecting data. The researcher might study the findings from interviews and questionnaires from those that conducted research from similar field. Hence the data collection and analysis process conducted by the researcher gives him more insight to the study.
- Qualitative research gives the researcher a reality of the research. The researcher that is involved in the research study fabricates the reality (Creswell, 1998: 76). The researcher therefore has the responsibility to report these realities, interpret the themes and presents the findings.

As the qualitative approach is useful because it offers details related to human attitude, emotions, characteristics, personality and social constructs (Ilori, 2017: 130), it was realised that it would help the researcher in bringing out the reality of the role of the government in the Power sector, interpret its themes and findings and be able to present the findings or results.

4.5.1.2 Limitations of Qualitative research techniques

Like other research methods, there are shortcomings when making use of the qualitative research technique. There are some critiques associated with the qualitative research techniques as stated by Griffin (1985:173) and Frederikson et al. (1996:62). These critiques are:

- Qualitative research techniques heavily depend on the decisions and interpretations of the researcher. This means that there is hardly a second school of thought when the researcher makes their decisions.

- There is the issue of collecting accurate data when there is no sufficient data or information available to the researcher.
- Qualitative research can be very time consuming compared to the qualitative researcher and this can be seen in interviews and during the data collection process.
- The testing of the hypothesis and theories with large participants can be a burden due to the amount of work and time it takes.
- Outcome and results of a qualitative research technique can be influenced by the personal bias of the researcher.

The above paragraphs have explained what qualitative research techniques are from different scholars, the importance and purpose of the qualitative approach and the justification and limitation of using the research technique – both from a general perspective and in the context of this research. The next section will focus on the quantitative approach.

4.5.2 Quantitative research technique.

As this research made use of both the secondary qualitative data and the secondary quantitative data, it is important to understand the meaning of quantitative research because secondary quantitative research approaches were used while carrying out this research which is mixed research as explained earlier. As it is the case in qualitative research, many scholars have different definitions of quantitative research as seen in the subsequent paragraphs below.

According to Tustin et al. (2003:89) and Cant (2003: 144), the quantitative research technique includes data collection which will be analysed by making use of different statistical analysis such as regression analysis and so forth. Therefore, in this research, figures obtained from the PHCN reports and end of year reports, figures obtained from the different agencies within the power sector were consulted and analysed as well as figures obtained from the 3 main branches of the power sectors, which are the generation companies (GENCOS), distribution companies (DISCOS) and the transmission company (TRANSCO). Figures in terms of the amount of electricity produced, supplied, and distributed will also be presented and analysed in the subsequent chapters and figures in terms of the amount spent and the amount received from certain sectors within the PHCN and so forth will also be presented and analysed.

Quantitative research according to Acaps (2012: 4) is a collection of data or information that can be analysed in numerical terms and the results presented in bar charts, statistics, and graphs.

Acaps (2012: 5) further explained that the quantitative research aim is to test a pre- determined hypothesis producing generalised results. Collection and analysis of data and information from the representative samples is commonly used in quantitative data because the data is numeric.

Quantitative research techniques involve the collection of data by making the use of interviews, questionnaires, surveys, and experiments, among others. Such data sources were reviewed and will be presented in the form of tables and put in numbers or figures in which statistical analysis is used to categorise the data (Hittleman & Simon, 1997: 31). The quantitative research technique involves the use of statistics that is reliable and reveals people's thoughts and behaviour. In other words, this means that it involves using and analysing numerical data by using the statistical approach which poses questions of who, where, when, how, why, how much, how many, how often and so forth. Also, quantitative research is defined by Denzin and Lincoln (1994: 04) as an approach that highlights capacity and analysis of connections that are casual amongst variables but does not include procedures and investigation. It is the use of numerical representation to describe and explain an event. This is used in a lot of social and natural social sciences such as sociology, physiology, geology, physics, chemistry, and biology (Ilori, 2017: 131).

The quantitative research approach involves an empirical method and an empirical statement (Cohen, 1986: 15). These empirical statements are usually in mathematical terms, and they involve statements that express what the case of the actual world is relative to what had to be the actual case. Empirical evaluation in a quantitative research methodology is very functional and strives to define the degree with which a detailed programme achieves or does not achieve a particular objective. Similarly, Creswell (1994: 12) defines qualitative research as a procedure that explains events or phenomena by the gathering of analysed data using scientifically and arithmetically based methodology. It can be seen that there is similarity with these definitions as they all involve making use of figures or numerical values in analysing data so as to answer the research questions or solve the research the research problem.

Furthermore, King et al. (1994: 4) state that quantitative research makes use of numerical values and statistical approaches based on statistical quantities of precise events or phenomena. It is extracted from specific examples that are seeking general description from measurements and analysis that are easily replicated by other researchers. Quantitative research relates to types and perceptions and not their frequency and occurrence (Brannen, 1992). Brannen (1992: 5) further explains that quantitative research is concerned with large scale surveys and

approaches rather than simply with small scales and behaviour. Gunderson (2000: 23) explains quantitative data as the collection of numerical or arithmetical data that are evaluated using statistics and arithmetically based approaches. Both sampling and experimental designs in a quantitative research produce generalised results and the researcher avoids contamination, observe, and measures the data due to personal involvement with the research subject. The objectivity of the researcher is the main concern (Glesne & Peshkin, 1992:06).

Quantitative research techniques are designed to create statistical designs that can express how people think and how they behave. The quantitative research method seeks to measure data through the application of statistical system analysis so that a specific population can be generalised based on the result of the sample that represents the population. The results are based on the arithmetic data manipulation so as to produce data of the entire population with the main aim to project the results of future events under different conditions (Tustin et al., 2003:90; Cant, 2003). For this research, emphasis is placed on the phenomenon or event which is government's role (its effectiveness and efficiency) in the Power sector because it is important in quantitative research.

Acaps (2016: 6) explained some of the advantages and disadvantages of quantitative data. The reliability of quantitative data is one of its main advantages as legitimate quantitative data is data that is collected rigorously, using the appropriate method, and analysed critically. Furthermore, Acap (2012: 6) stated that the most disadvantage or shortcoming of the quantitative data is the fact that the data fails in bringing out in-depth description of the effect of the problem of the research.

Sibanda (2009) states that quantitative data focuses on the gathering of data numerically and generalising them across groups of people. The research question in quantitative research is clearly defined and the research aims at answering the question. All aspects of the quantitative research are carefully and precisely designed before the data collection and the numbers are in the form of statistics and numerical values. Quantitative research can also be used to widely generalise future results and concepts (Sibanda, 2009). After examining the quantitative data and its importance, the next section will justify why this research made use of quantitative research techniques as well.

4.5.2.1 Justification for using Quantitative research technique in this research.

The reason for making use of the quantitative research method in this study is because this method evaluates and administers data fast and the result is accurate and reliable (Ilori, 2017: 137). Yauch & Steudel (2003: 473) explain that mathematical data that is obtained through the quantitative research method makes it easy for comparison between groups, individuals, establishments, and cluster groups. The objectives and the research questions highlighted earlier in this research are connected to the quantitative research approach and can easily be achievable with the use of this approach which is connected to both the human and social problem. The use of this technique facilitated a generalised result. As explained by Creswell (1994), the objective of the quantitative research technique is to investigate the human and social problem with the objective of testing predetermined theories and hypothesis based in variables that are measured and investigated by using numerical procedures to obtain a better understanding and accurate results.

Creswell (1994) highlighted several attributes to quantitative research as follows:

- This research approach contributes to the provision of in-depth data on a large number of units. Looking at this research, figures from many government policies and decisions will be analysed and hence this approach is vital in carrying out this research.
- It helps with the facilitation of arithmetic data using statistical method for data collection and thus helps the researcher with the processing of data for accurate and reliable results.
- It is concerned more about process and procedures rather than outcome hence it will assist the researcher in getting a deeper understanding of this research on the role of the government in the Power (electricity) sector.
- Qualitative research technique is vital for validating and testing hypothesis and theories that are constructed before the data collection process. Hence this will give the researcher a better understanding or insight on the subject matter.
- Quantitative research technique produces results that are credible, and this is important because it help the researcher in properly analysing the results and having a credible outcome.
- Quantitative research techniques are very fast to get, very reliable and provide precise numerical and quantitative data. Hence the approach will be used for this in order to achieve reliable and credible results.

- It helps in simplifying outcomes when simulated in different populations and sub populations. This will help the researcher to simplify the outcome of the proposed study.

4.5.2.2 Characteristics of Quantitative research

Quantitative research has the following characteristics according by Brink & Wood (1998: 305) and Burns & Grove (1997:27):

- Quantitative research is often concise.
- The sample of a quantitative research can be descriptive of a large population.
- The account of the characteristics of certain situations, individuals and groups are precise.
- The reliability and the validity of the instruments used are very vital.
- Quantitative research technique allows the statistical analysis performance so that the data can be organised and reduced, similarities organised and decide on the connections within the various data groups.

4.5.2.3 Limitation of Quantitative research techniques

Like all other research techniques, the quantitative research technique has its own limitations. Some of these limitations are listed below:

- The tools of the quantitative research techniques cannot be adjusted once the research starts, and hence quantitative research technique is constant.
- Quantitative research technique is occasionally inaccurate and inadequate, and this can be because of the self- induced information from the questionnaires.
- Quantitative research sometimes might have unverified variables, and this might impact the program.
- According by Everriti & Hay (1992: 4), quantitative research technique can be time consuming and cumbersome because of the large gauge it uses and the descriptive data set.

- Quantitative research technique can have inaccurate outcome sometimes because of inaccuracies in the choice of process for determining statistics significance (Ilori, 2017: 134).

4.5.2.4 Avoiding shortcomings when using qualitative and quantitative methodologies in conducting research.

The fact that both qualitative and quantitative research approaches have their deficiencies does not render them useless. All it means is that they must be used with caution. Attesting to this view, Mays & Pope (1995:112) recommended some checklists that can be used to mitigate some challenges associated with the qualitative and the quantitative research techniques. These checklists include the following:

- *Is the research question clearly identified and acknowledged?* It should be of note that the research question of this research which is analysing the role of the government role (efficiency and effectiveness) in the Power sector is very clear in order to achieve the goal of this research.
- *Was the background and the setting in which the research study took place clearly indicated?* The research is conducted in the Power sector of Nigeria to determine the role of the government there.
- *Did the research study specifically discuss data collection and objectivity with the subject*? Secondary data was collected which are information from reliable academic sources hence the research study did discuss collection of data and the objectivity with the subject.
- *Did the researcher use methodology and approaches to access and test the validity of the research outcomes*? Validation and reliability approach were used together with qualitative and quantitative methods to ensure the research remains valid and reliable.
- *Were any steps taken to increase the reliability of the information collected in this research study*? The researcher ensures that only academic sources and researched information are used in carrying out this research.

4.6 Research study design

An appropriate research study design is very essential in ensuring that the results that you are eventually going to report is very valid (Sibanda, 2009). A research study design that is good is made up of a good research question and a good hypothesis. These research questions are very important as they are the questions that the researcher is trying to answer in his or her research and they might consist of the main research question and the sub research questions. Sibanda (2009) further states that it is important for the research question to be very specific as this will make it easy and direct to answer the research question when carrying out the research bearing in mind that there is a constraint of time and resources. A good research question is expected to start with a broad area of the research before being narrowed down and ensuring that a good literature about the research is known as this plays a key role in answering the research question.

Research hypothesis according to Sibanda (2009) is a statement that can be proved or disproved at the end of the study; it is a preliminary or tentative answer to the research question. This is very vital because at the end of the research, the hypothesis (statement made) needs to be proved or disproved depending on the outcome of the research. Sibanda (2009) further states that, by changing the research question in to a statement, it can be made the hypothesis of the research.

According to Gay & Airasian (2000), a ***research design*** is the general strategy that is used in conducting research. A research design will explain what data was used to carry out the research or what sets of data is used in carrying out the research. The research design describes the method that will be used in the collection and analysing of data that is used in carrying out the research and in solving the research problem. Van Wyk (2014:4) describes research design as the overall plan that connects the research problem to achieving the empirical research results. It is therefore safe to say that the research design entails the method and plans used in conducting research.

Also, according to Welman et al. (2008:52), research design is the plan in which participants or subjects are obtained and data is being collected from them. This definition is similar to the definition by Parahoo (1997: 142) in which he defines research design as a plan of how, when and where data are to be collected and analysed. Hence it is the overall plan of connecting the research problem to achievable empirical data. The research design articulates the method to

be used in collecting the data required, data analysis and how the research problem is going to be answered.

Burns & Grove (2003: 195) further define research design as the blueprint to conduct a study and having complete control over the factors that may interfere in the validity of the findings. The information (data), method and the way they are configured in the research project needs to be most effective in the production of the answers of the research question. Burns & Grove, (2003: 195) further state that it is the overall researcher's method in testing the research hypothesis or answering the research question.

With the understanding of the concept of research methodology, research methods and research designs explained by the different scholars, this research falls within the qualitative paradigm as pre-existing data sets from secondary sources were used in carrying out this research. It should be noted that neither interviews nor questionnaires were used in conducting this research. Hox & Boeijie (2005) stated that secondary data is very important because some of the social science questions can be answered as some of the data collected by other researchers was used in this research.

This research did not make use of only *qualitative secondary data* but it also made use of *quantitative secondary data* sets as well. As has been seen and will be seen further in this research, quantitative data sets in the form of tables, chats and other means will be used, analysed and thoroughly explained in this research. Hox & Boeijie (2005) noted that primary data can be used as secondary data if the information is made available or being archived, hence the reason why one had to use researched data that have been archived in journal articles, books, newspapers, government gazettes, statistical reports, newspapers, websites and so forth. Primary data will be explained further in this research for better understanding.

4.7 Data Collection

After carefully examining the research design and understanding what research design is, this section is going to explain the data collection processes. The data collection process is vital because it is going to explain the data collection process used by the researcher while carrying out the research. It is vital that the process of data collection is explained in an efficient manner because it needs to meet the information requirement of the research or study and a great breakthrough in ensuring the research problem is solved. As mentioned above, apart from

archival data, secondary data were the only collected and used data sets since the researcher made use of data that has been collected by other researchers from sources such as peer reviewed journals, newspapers articles, magazines, online sources, etc. When explaining what secondary data is and justifying why only secondary data is used below, primary data will be explained briefly for the sake of knowledge so that the readers will be aware of it.

4.7.1 Primary data

Driscoll (2011: 154) describes primary data as the original or first-hand data from the main or direct source which the researcher collects and uses to conduct his or her research. The first-hand or original data is specifically for the purpose of the research. They are considered as raw materials which are original in nature. Primary data according to Driscoll (2011: 154) is based on scientific method principle and the use of scientific method; research questions or hypothesis development by researchers and data collection on people, objects and events that are measurable, replicable, and observable. For the purpose of this research, the researcher did not make use of primary data as only secondary data were used as mentioned earlier.

4.7.2 Secondary data

It is very important to clearly understand the concept of secondary data and its importance and significance in this research because the researcher made use of secondary data in carrying out the study. Secondary data is important because it can be used to answer some research questions by using data or information that has been collected earlier by other researchers for other purposes other than research. It should be of note that any form of primary data can be used as secondary data because the primary data is made available or archived (Hox & Boeijie, 2005). Secondary data of qualitative research can be described as making use of existing data to find solutions or to answer research questions which are not the same as the questions asked in the original research (Sutehall et al. 2010). Secondary data analysis is also very vital in conducting research and as Glaser (1963: 11) puts it, secondary data analysis that is conducted by an independent researcher can lead to new strength to fundamental social knowledge body. This therefore shows that secondary data analysis is very important as it can always add new knowledge to the already existing research carried out on the topic or related topics.

In this research therefore, secondary data were used in answering the research question or hypothesis and in solving the research problem. As mentioned earlier, the secondary data were obtained from books, peer reviewed journals, newspapers articles, magazines and so forth. These secondary data or information will be analysed and reanalysed carefully. They will also be verified with other sources for reliability as this will address the limitations associated with secondary data. It will ensure that it is able to answer the research questions and solve the research problem in analysing the role of the Nigerian government in the power sector by seeing how efficient they are and recommendations and options for the future will be provided.

4.7.2.1 Justification for making use of secondary data

There are specific reasons why this study used secondary data. These reasons are discussed below.

The power or electricity crisis in Nigeria has been an issue that has been going on for decades now. There has been so much research and write-ups on it from different researches which are available online and are very accessible. These are in the form of online peer review journals, newspaper articles, books, magazines, government gazettes and reports and so forth. The current technological advancement has made it easier for secondary data to be collected, compiled, archived and accessed by other researchers.

Also, secondary data analysis is economical, convenient and saves a lot of time. No funding was allocated or made available for this research. Hence, it was more economical, convenient and time-saving to carry out this research by making use of the secondary data while ensuring the validity of the research. There was also the issue of time constraints as the study had to be completed within a specified time. Moreover, conducting interviews with politicians is usually not easy. It is difficult to secure appointments. Even after an appointment has been secured, researchers are disappointed on the day of the interview when the informant cancels.

4.8 Data collection instruments

This is the area that deals with the gathering of data process that is designed to meet the required information of the study. This involves the tools that are used to collect data such as document review, observations, interviews, questionnaires, checklists, focus groups and tests (Seaman, 1991: 42). The data collected in this research are both secondary primary and secondary data. The reasons for using secondary have already been provided earlier.

One can never over-emphasize the importance of power or electricity in the growth of any economy and hence there is the need for effective or proper data collection to effectively analyse the role of the government in the growth of the power sector. It is secondary research which used the archived resources and online sources. The researcher made use of the online sources where numerous articles, journals, books, videos, reports and so on are made available. Books related to the subject matter were also consulted and used in carrying out this research.

4.9 Document Analysis

Data analysis is examined here as an instrument used in conducting this research. Document analysis can be defined as a methodical process that is used for reviewing and assessing hard copy and electronic documents/materials that are transmitted through the internet or that are computer centred (Ilori, 2017: 139). According to Corbin & Strauss (2008), document analysis in a qualitative approach assists in the development of empirical knowledge and understanding. A document is an information of the society that is created, collected, and used in a socially controlled way (Atkinson & Coffey, 1997: 47). Documents that are useful for research study do take a variety of forms. Document analysis is used mostly when there is a combination of other approaches with the qualitative research methodology which is known as triangulation approach. The latter can be defined as the arrangement of procedures in the study of the same event or phenomenon (Denzin, 1970: 291).

For this study, the researcher made use of various materials and documents that are of vital importance to the research. Data were collected electronically from the website of the different branches of the power sector in Nigeria. That means the websites of the generation, distribution and the transmission companies was of great use in getting information used in this research. The researcher made use of textbooks, reports, media, press briefings articles and journals written by academia and scholars with an insight knowledge on issues in the Power sector. The researcher made use of the library of the University of the Western Cape, University of Cape Town library, its resource centres, and the websites in gathering information. The researcher compared, and contrast the various data obtained, analysed, and compared them with reputable scholars with similar information (various sources). This helped to mitigate limitations and to ensure reliability during the data analysis procedure.

4.10 Data collection methods

The means by which data is collected to conduct or carry out research is called the data collection method. As it has been stated that the research made use of secondary data only, the researcher was therefore limited to getting data or information online, from textbooks, journals, articles, government gazettes and any other information found that can be useful in carrying out the research. The internet or online sources contain a lot of unorganised information pertaining to the role of the government in the power sector in Nigeria. The researcher carefully selected, read, and analysed relevant information from the internet and other archived sources that were deemed useful to this research.

4.11 Population

A Population in research according to Hanlen & Larget (2011: 7) refers to the number of people with the same characteristics and are of interest to the researcher. Population in research is the total collection of all the elements and objects that the researcher will use to make specific conclusions about. Yin (1989: 18) defines population as the set of cases that is comprehensive from which a sample is taken. Meanwhile, Polit & Hungler (1999: 232) define population as the entire team that adapts to a set of stipulation, enclosing the whole group that the researcher is interested in and to whom the research outcome can be generalised. It is important that when studying the population, it should include the stakeholders with the information that the researcher needs (Alreck & Settle, 1995: 5). Polit & Hungler's (1999: 232) definition of population is what the researcher adopted in carrying out this research because it easily captures the intention of the researcher in what needs to be done in conducting the research. In the ensuing chapters, policies adopted by the government of Nigeria and their achievements (in figures and literally) will be presented together in certain sectors within the organisation. This gave the researcher useful information/data to carry out this research.

4.12 Research Sample

A **sample** is selected from the population, and it is the sub-set of the population. A sample is very important in research because it ensures that the whole population is represented. This is because it is impossible to study the whole population as it might be too costly and too time-consuming (Hanlen & Larget 2011: 7).

According to Seaberg (1988: 240), a small portion of the complete set of people, events or objects which encompasses the subject theme is what is called the sample. Also, according to Arkava & Lane (1983: 27), it is the portion of the population that is included in the study or that is viewed as a sub-set of measurements drawn from a population. In other words, the sample or sample size is part of the population or event that is considered and used to represent the population when conducting the research. This is choosing the number that is manageable to conduct the research or to take part in the research but that will represent the whole population. The device from which the sample is drawn from is called the sampling frame which is the list of those that are within the population that can be sampled, and they may include people, households, and institutions (LoBiondo-Wood & Haber, 1998: 250). Hence, it was necessary to decide that the sample used while conducting this research would help in evaluating the roles of the government sectors, agencies, policies and even officials that are of interest to the researcher in conducting this research.

In analysing the role of the government in the power sector in Nigeria, certain roles, efforts, and performance of the government were analysed within the power sector. The analysis was based on the role in the generation, distribution, and transmission companies. The analysis will be made in general, and references will be made where necessary and this is because the companies are headed by different leaders, situated in different locations and the different policies like the renewable energy policy and others have affected them differently. Samples were taken from some of the distribution companies, the generation companies, and the transmission company to carry this research. The companies were selected from the different geographical areas of the country to ensure that all areas and population are represented.

4.13 Validity and Reliability of the Study.

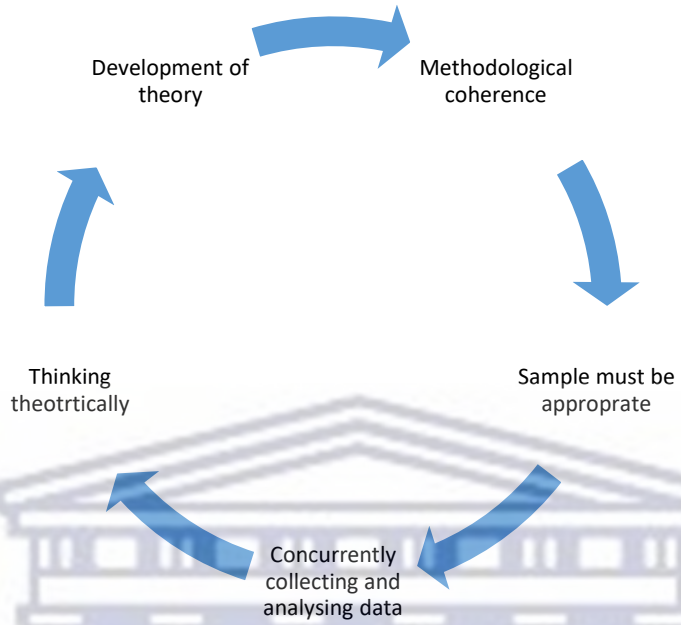
The researcher constantly made use of the words “validity” and “reliability” while conducting this research and in this chapter. While these words seem similar or the same, there is a slight difference between them. It is important to understand them because they are very important as they are used partly to ensure the credibility of the methods used and in conducting this research as well. Reliability and validity are words that are frequently used in methodology and are key components in the measurement of research credibility (Ali, 2003: 316). Reliability is described as the level to which outcomes are consistent and reliable over a period that is the true description of the entire population that is under study (Golafshani, 2003: 598). When the

outcome of the research can be reproduced using other related methods, then the research instrument is deemed reliable. This can be further supported by the description of Babbie & Mouton (2001: 75) where they argue that reliability is a matter a particular technique that is repeatedly applied to the same object and will yield the same results each time. Reliability is therefore associated with consistency, stability and dependency of a pool that can be quantified. The techniques used in this research do have their own advantages and disadvantages (limitations). These will be addressed below.

Burns & Grove (1987: 294) state that valid data provides an accurate image or picture of what has been studied. The validity and reliability of the research can be strengthened by the various opinions of scholars and researchers on the research carried out. As stated earlier, the researcher used reliable sources only in carrying out this research to ensure validity and reliability of the research. Morse et al (2002: 13) outline several verification strategies to strengthen the validity and reliability of a research. These are listed below;

- The research sample must be appropriate during the data collection process, and this can only be achieved if the participants have a clear and better understanding of what the research is about or of the research topic.
- There must be an operational approach which is consistent and pragmatic to ensure that there is a link between the mechanisms of the method and the research question.
- Data collection process and data analysis process are a joint interface between what is known and what is to be known.
- The development of theory is an examination of both the micro perspective and the macro perspective of data using the knowledge of theoretical and the conceptual frameworks.

Figure 4.1 Verification strategy



Source: (Morse et al., 2002)

The diagram above illustrates the verification strategy diagram by Morse et al. (2002). It shows the procedure that safeguards the verification and reliability of research. The diagram is very vital as it aids in ensuring the validity and reliability of the research. This was deemed important since it will improve in the credibility of the present research.

4.14 Procedures of Research and Ethical Considerations.

The University of the Western Cape (UWC) granted the researcher permission to carry out this research. The University of the Western Cape Ethic Committee gave a go ahead and clearance for the research to be conducted. All this was done after a proposal was submitted and the University of Western Cape together with its Ethic Committee evaluated it and granted the clearance and permission for the study to be conducted. Relevant and useful sources from books, journals, articles, magazines and peer review journals and online sources that have been made available by other researchers is used carrying out this research. Scholars and data that is also made available by the parties of interest to the researcher. The purpose of doing this was

to collect useful data that would give a better understanding on the role of government officials in the power sector of Nigeria. The process of collecting data and information is done with integrity and quality affirmation.

4.15 Delimitation of the Research

Research delimitation can be described as boundaries set by the research in terms of participants type, duration of study, population size to be used and other variables and factors that are not included in the research. They are details of the research that explore the research question and the boundaries with which it operates in relation to the duration (time frame) and the population (Ilori, 2017). They are what the researcher decides to include and not to include in the research study (boundaries set by the researcher while conducting the research). These boundaries are vital and important because they narrow the study so that it can be manageable and very relevant to what the researcher is trying to prove. The delimitation are parameters that are within the researcher's control (Ilori, 2017).

The present study is based on the Power (electricity) sector of Nigeria, and it looks at the role of the government in the power sector. The research focused on the efficiency and effectiveness in the power sector to establish how efficient and effective the government has been in its role in improving the power sector. The study aimed to answer the question of why the power sector of Nigeria has been on the downhill for decades now despite government's enormous investment in the sector. It also looked at issues related to politics and the power sector to the impact the challenges facing the power sector have on the politics of the country. The research also looked at making recommendations on what can be done to improve the power sector in Nigeria.

The researcher made use of secondary qualitative and quantitative techniques in carrying out this research. This is because a lot of research has been done on the power sector of Nigeria. The researcher made use of archived data to ensure that the validity and credibility of the research was intact. Also, as no funding was made available to conduct this research, it was more economical for the researcher to use secondary data to carry out this research while upholding the credibility of the research. Finally, the researcher looked at the generation, distribution and Transmission companies which are the three main arms of the power sector. The researcher looked at some of the policies instituted by the Nigerian government like in the use of renewable energy in the sector as well as the impact of the past and present government

in improving the Power sector. All this was done to have a clear understanding of what is going on in the Power sector and to understand the government's role and thereafter make clear recommendations after the research questions have been answered.

4.16 Study Limitation

Research limitations are *different* from research delimitation. Limitations are things that the researcher cannot do or simply put as things that are out of control for the researcher. They are beyond the researcher's means. Limitations of a research relate to the reliability and validity of the research. They are the methodology or research design characteristics that are out of the researcher's control but influence the findings of the research. They are considered as potential weaknesses because they do influence the internal and external validity of the research (Ilori, 2017).

The research is secondary research and hence the researcher relied on secondary data to carry out the research. The data is not first-hand data and hence certain information needed might not be found in books, online, journals or magazines and some of the information found might not be necessarily 100 percent accurate. Certain figures and information might not be found online or in books as the organisations might not share all information to the general public as they deem it confidential information. Not all information is on the government websites and gazettes and cannot be found in books or hard copy and hence making it difficult to obtain certain information with regards to the government's role in the power sector.

There was a limitation in terms of funding as there is no funding was allocated to carry out this research. This posed as a great challenge to the researcher who had to depend on his personal funds to conduct the research and hence faced a lot of challenges associated with conducting research of this magnitude.

4.17 Data Analysis Procedure.

Data analysis can be defined as the systematic search of meaning (Hatch, 2002: 148). Data analysis is the way that the qualitative data can be processed so that others can understand what has been learnt. Data obtained must be carefully organised and labelled so that the ongoing analysis can be easy. Marshall & Rossman (1990: 111) explained data analysis as the process

that brings order, meaning and structure to the mass of collected data. Data analysis is the search for general statements with regards to relationships among data categories.

Data analysis that is done depends on the data that is collected. Hence, useful data gathered will generate good data analysis and vice versa.

The secondary dataset would be evaluated by ensuring that;

1. The data is suitable for the need of the researcher, and this is done by verifying certain key elements like;
    - The original purpose of the data.
    - The place and time that the data was collected.
    - The data that was collected and how they were collected.
    - Questions that were asked by participants.
    - The shape/structure/form of the data.

2. Assessing the credibility of the data. After the researcher gets the suitable data needed for the research, the next step is to ensure that the data is credible. This can be done by checking certain key points such as;
    - Verifying the credentials of those that carried out the research.
    - Checking if there is access to the full methodology.
    - The consistency of the data with other sources.
    - Checking if the data has been published in any credible research journal.

The available data from the research methodology will form bases from which the researcher would be able to gather and analyse data in the next chapter.

The next chapter is going to analyse data to find out how effective the role of the government has been in the power sector. All the data collected will be presented and analysed.

4.18 Chapter Summary.

This chapter has explained and discussed the methodology of this research. The chapter focused on the process of collecting relevant information and data deemed useful in this research. The researcher made use of the mixed research method which included both secondary qualitative research techniques and secondary quantitative research techniques in gathering data before analysing them. This mixed research method is very important in obtaining a wide variety of useful data and hence it enhances validity and reliability.

Making use of the mixed methods approach provided the researcher with comprehensive information which has been summarised with the use of figures and tables in some instances as shall be clear in the results chapter(s).

The chapter has further discussed the data analysis, population, sample size, delimitation, and the limitation of the study in ensuring its validity and credibility. The next chapter will be the presentation of the findings.

Chapter 5

Presentation of the Findings

5.1 Introduction

Having discussed the research methodology in the previous chapter, this chapter will present the findings of the research. Such a presentation will be devoid of any subjectivity so that the results could be credible. It is important to properly present the findings of the research because it will be easier for readers to understand what was found during the research and because it will be very helpful when analysing the findings of the research in the next chapter. This is conventional practice within the research community.

In presenting the findings of this research, it is important to reiterate the problem statement, the research questions and to outline the purpose of this research which triggered the study in the first place. This is vital because the results presented will have to reflect on the research questions, study objectives and the problem statement of the research that was presented in the previous chapter.

As mentioned earlier, the aim of this research is to establish why the Nigerian power sector has been unable to perform at its optimal level and the role played by the Nigerian government in this regard.

Below are the research questions that were outlined earlier in chapter 1 of this research:

- Why has the Nigerian government been unable to address the challenges faced by the power sector of the country?
- How effective has the Nigerian government been in promoting the growth of the power sector?
- Why has growth in the power sector been stagnant over the years despite government's continuous effort and investment?
- How do challenges in the Power sector impact on the country's politics?
- What can be done by the Nigerian government to improve the current situation?

The problem statement and the research questions reiterated here will help the reader understand the findings of the research as presented in the subsequent paragraphs below.

5.2 Research Findings.

The research findings are presented below.

5.2.1 Ineffective policies or policy challenge.

This research found that there were several policies in the power sector that were introduced by the Nigerian government that are not effective or that do not align with the goals of the Power sector reform. For any organisation or institution to be functional and to grow accordingly, there is need for the policies in place to be effective and to be in line with the goals of that organisation.

Various policies that were established in the Power sector are not effective. This hinders the proper growth of the power sector in the country. Ogunleye (2017) states that, the guiding policies for the sector reform are uncoordinated and numerous. Moreover, many of them are not in sync with each other. The research found that many of these policies are characterised by overlaps and conflicts. The constant change of the political system in Nigeria affects some of the policies in the country negatively as the policies constantly change too. New administrations abandon the old policies when they get to power, and they initiate new ones. Many of the rural electrification projects that the government launched over the years do not reach the completion stage while others that are built use sub-standard appliances. This shows lack of proper policy evaluation in the Nigerian power sector (Emodi & Yusuf, 2015).

The research findings reveal that there are many policies that were introduced by the Nigerian government to boost the power sector. These policies ended up being ineffective because they were not properly implemented, abandoned or the policy itself was not the right fit to promote the industry. Ogbonnia (2015) stated that the nationwide gas pipeline master plan that was initiated by President Obasanjo Olusegun was abandoned. Also abandoned was strategic East North gas pipeline (CAP) which passes Calabar through Enugu and Ajaokuta to Kano. This has caused most gas infrastructures of the country to be localised to a volatile axis of the country. The consequence is that any tempering with the gas pipelines in the area often always leads to darkness in the area. Hence, ineffective policies by the government of Nigeria are greatly affecting the electricity industry negatively.

5.2.2 Inadequate planning

Inadequate planning by the Nigerian government in the power sector is one of the factors found by the research that hampers the growth of the Power sector. In any organisation or institution, proper planning is very essential for the organisation to achieve its goals. Planning here is deciding on time what to do, how it will be done, when it will be done and who to do it. This is what takes the organisation from where it is to where it will be.

The research has found that, the Nigerian government has failed to properly plan when making decisions with regards to the Power sector. This has greatly affected the execution of the projects and the goals of the organisation. As earlier mentioned, planning is one of the fundamental management functions which are vital in any organisation to properly achieve its goals. Inefficient planning by the government officials is a major contribution to why the power sector has failed to achieve its goals. Ogbonnia (2015) stated that, Nigeria is not quite ripe or ready for deregulation and may have seemed to be in a paradox of a sort. This clearly confirms what is found in the research about ineffective proper planning within the sector. Lack of futuristic planning and projection has also been found when conducting this research. The research has found out that the Nigerian government h ad failed to provide proper futuristic planning and projections in the power sector and this had affected the goals of the organisation negatively as many goals the organisation had set up for the past decades were not accomplished. Futuristic planning ensures that the organisation plans way ahead of time to ensure that its goals are achieved in the future as planned. Ogbonnia (2015) states that the implementation team of the Nigerian Power sector reform placed all its eggs in a shaky basket. This is the most perilous mishap of the road map. This can be attributed to inadequate futuristic planning and projection that has hindered the growth of the power sector. This research therefore found out that the government has failed to properly plan or there has been inadequate planning and projection in the power sector. This had greatly affected the goals of the Power sector negatively as the goals had not been achieved.

5.2.3 Leadership instability and technical knowledge of the sector.

Leadership instability is one of the major problems that has been found while conducting this research. Leadership stability is very important in any organisation as it will help in ensuring that the policies put in place are carried out and that there is continuity in terms of policies and goals as planned by the organisation. The government failed to ensure that there is leadership

stability within the power sector over the years. Leadership here includes the government in power, directors and managers heading different departments of the power sector and those in charge of making critical decisions in the power sector. Ogbonnia (2015) states that the main problem facing the Nigerian power sector is failure in leadership. Failure in leadership can be seen by the government taking pride in awarding huge undeserved contracts to the militant cabal for gas and petroleum pipelines. These leadership failures and incompetency greatly leads to issues within the power sector that hinders its growth.

5.2.4 Corruption

This research found Corruption to be one of the factors hindering the effort to positively impact the Power sector. Corruption is a major challenge in the power sector and the research found out that it is a major reason why the sector has been stagnant and in decline in decades despite massive government investments. Ogunyele (2017) states that corruption is one of the key reasons for the collapse of the Nigerian electricity sector; it is one of the main reasons why the sector needed reform. Corruptions in this sector has also been enhanced by government officials in many forms. These different forms of corruption include but are not limited to bribes, diverting funds for the sector to private use, over pricing contracts, tribalism, nepotism, etc.

Ogbonnia (2015) gave an instance where during the privatization process, many of the electricity assets were sold at below the market prices to many government officials who clearly lack the technical capabilities, expertise and even the genuine interest of the power sector at heart to take the power sector to the next level. Issues like these, show how deep-rooted corruption had eaten the power sector thereby hindering the success and progress of the sector. Ogbonnia (2015) further stated that, the mystifying of the case of the Geometrix which is the first indigenous generating plant that is in Aba was a historic moment. This plant was completed for years and was not allowed to be used due to corruption issues, politics and issues with monopoly in the private sector. Consumers' complaints are not limited to the inefficiency of NEPA as an organisation but also the corruption and oppressive actions of the officials of NEPA (Olujoju, 2004).

According to Olugbenga et al. (2013), other instances of corruption recorded in the power sector include;

- Inability to account for the sum of sixteen billion naira that was allocated to the NIPP and allied Power projects during the regime of former President Obasanjo Olusengun.
- An amount of 5.2-billion-naira fraud involving the Rural Electrification Agency (REA) top management, member of the National Assembly and officials of the Ministry of Power. This caused the REA which was formed in 2006 to be suspended in 2009.
- A puzzle around the 88-million-naira PHCN fund from the 7.5% deducted from salary of workers is another corruption case.
- The Federal government's claim of spending about 2 billion Naira annually to sustain the power sector while the average generation capacity stock is at 2,000MW over this period was another concern. The amount is too much for no improvement over the years.
- Former Minister of Power, Prof. Barth Nnaji's corruption allegations include the collection of 280 billion Naira from PHCN for the army, 200 billion Naira from PHCN for unknown projects in the Power ministry and 88 million Naira for a bullet proof car from PHCN, etc. (Olugbenga et al., 2013).

The research found that there was a lot of looting of funds that were allocated and meant for the reform of the Power sector. Looting of funds here simply means that funds that were meant for the growth of the Power sector were stolen by some government officials. This has greatly impacted the growth of the Power sector for decades. According to Kyari (2019: 107), looting and embezzlement of funds in the power sector is widespread. The Nigerian government allocates billions of naira every year for the advancement and growth of the Power sector. Much of these allocated funds do not get used to what they were meant for because some government officials, individuals and organisations divert them for their personal use. Some of the ways in which the funds are looted include: awarding illegal contracts. These proceeds from illegal contracts gets looted by the contractor and the officials that award the contract. Some senior officials tend to sell transformers of the PHCN and use the funds for their personal gains. They also collect bribes and cancel bills of individuals worth millions of naira (Edikan et al., 2008: 164). The research also found that the government has failed in ensuring that funds that were given to contractors and officials of the PHCN – the GenCos, DisCos and the transmission companies are used properly. Many contractors loot the funds and do sub-standard work while many do not even carry out the work. They loot the funds and sometimes with the help of government officials and officials of PHCN. This constant looting has greatly stalled the Power sector and the government has really failed to address it properly. Part of the reason (as

mentioned above) is that some government officials are also involved in these corrupt activities. As such, they cannot be the ones given the responsibility to curb corruption.

5.2.5 Mismanagement of the Power sector resources.

This research found that there is a lot of mismanagement of resources that would have aided in the development of the sector by the government. It found that government officials with the task to manage these resources mismanage them. The Nigerian government has failed to ensure the proper use of gas to power approach in the generation of electricity in the country. Due to gas flaring, Nigeria lost about 8.5 TCF of natural gas in 2014 alone which totals to about 5% of the total proven reserves of the gas of the country (Odumugbo, 2010). Though some of the plants are still under construction, many of them have been completed but are not being used or connected to the national grid and pipelines. Hence the research has found these resources are not used to capacity or to maximum efficiency.

The research also found that the government is not making proper use of the abundance natural resources found in the country and that can help in boosting the power sector. Ajao et al. (2009) states that Nigeria is blessed with so much abundance of natural resources such as coal, hydro, biomass, and gas but the government has failed to ensure that these resources are properly harnessed and channelled to the right use. At least seven states (Ondo, Enugu, Anambra, Benue,Kogi, Delta, Kwara, Buachi, and Gombe states) of Nigeria are blessed with abundance of coal, yet the government has failed to use coal to produce electricity despite the technology advancement available in the use of coal to produce power. According to Simsek & Urmee (year?), countries like the USA, South Africa, China, and Indonesia have all been using coal to produce electricity and hence making use of their natural resources and other alternatives while Nigeria is still not really making use of the potentials of its natural resources to advance their power sector.

According to Usman et al. (2015), mismanagement of the Nigerian power sector for decades led to the power sector experiencing enormous challenges due to obsolete equipment, transmission capacities, etc. Mismanagement on the part of government officials is in the form of resources not being used to their maximum capacity. Resources here include labour (human resources), capital, infrastructures, vehicles and other valuable that can enhance the growth of the power sector. Mismanagement on the part of government officials leads to massive inefficiency on the power sector. When resources that are meant to promote the power, sector

are mismanaged by the government officials, its effect can be seen and felt in the power sector. This effect includes backlogs occurring within the power sector because someone up the hierarchy did not do their job on time. Mismanagement of resources like funds meant for the growth of the sector leads to the equipment not being replaced when they go bad or outdated. An amount of $16 billion dollars was spent in the former president Obasanjo regime without leading to power generation, distribution, and utilisation (Cheri et al., 2000: 44). Mismanagement also leads to poor investment and to government officials not making the right decisions when it comes to issues regarding the power sector. The research found that the issue of mismanagement ensures that government officials do not plan well on critical issues to boost the Power sector. This clearly has a negative impact on the growth of the power sector.

5.2.6 Inadequate funding and investment in the power sector

One major issue this research has found is the lack of adequate funding and proper investment in the sector. The research found that, the government has failed to raise and provide funds efficiently to sustain the power sector and to also invest efficiently in the sector. Ogunleye (2017) says that funding is one of the fundamental challenges facing the power sector. The issues arising with lack of adequate funding can be traced to issues of corruption, citizens not paying their electricity bills and tariffs, inadequate and incorrect collection tariff methods, etc. What has become clear in this study is that the Power sector has really struggled to grow and expand due to limited funding. Mismanagement of funds and the unpredictable environment that the power sector operates in is a major reason why investors scare away from the sector. Generation and distribution companies also faces a lot of losses because consumers do not pay their bills the excessive bills that do not reflect the power available, and consumption has discouraged many consumers from paying their bills (Ogunleye, 2017). These and other factors greatly deplete the funds that the company needs urgently for the growth of the sector.

Lack of investment in the power sector is also another contributor that has hindered growth in the power sector. Investments in the various areas of generation, distribution and transmission of electricity are needed. Adekoya (2020) states that the power sector is unpredictable and therefore it is difficult to invest in it. The Power sector processes are broad with an entire value chain. The kind of investment needed for this power sector to operate is huge. It involves investing in the power stations, the pipelines, transmission lines and distribution network

(Ogunleye, 2017). The power sector lacks these huge investments that would facilitate the growth of the Power sector.

This inadequate funding and investment in the power sector is a hindrance on the growth of the power sector. The Nigerian government has failed to use its position to ensure that the sector is favourable to attract investors and in ensuring that there is sustainable funding available for the growth of the power sector.

5.2.7 Infrastructure constraints.

This research also found that there are infrastructure constraints which are greatly hindering the government's effort in promoting the Power sector. Most countries in the developing world find it difficult to keep pace with adequate provision and maintenance of infrastructures (Adenikinju, 2005). This is exactly what is happening in Nigeria where the government failed to properly develop infrastructures that can benefit the power sector to its maximum capacity. Infrastructure constraints span across the value chain. It is from fuel to power distribution chain, undiversified energy sources for electricity which includes 20% hydro and 80% thermal. There are no sufficient gas pipelines in the sector hence enough gas cannot be transported to the power plants for the generation of electricity. The generation plants and equipment's are obsolete and outdated. Many of these are no longer functioning because they are damaged and have not been replaced or repaired Substations and other parts of the distribution system have also been damaged. Iwayemi (2008) states that substantial access and expansion to infrastructure quality and quantity in electricity are all fundamental to sustained and rapid economic growth.

The research found that there is a lot of starting and stopping of heavy equipment, improper wiring and overloading of the circuit. Poor infrastructural issues within the power sector also causes short circuit. Short circuit can occur when there is a breakdown within the insulation of the wiring used (Akinloye et al., 2016). Also, is the issue of circuit or fuse breaker operation and a failure in cascading. The research found that infrastructure facilities within the power industry in the country has been greatly neglected as they are outdated and not in good state to effectively carry the power sector to the next level.

5.2.8 Nepotism and Tribalism.

Nepotism is also a major problem found when conducting this research. Nepotism here refers to scenarios where those with influence and power hijack the recruitment process and favour their friends and relatives by giving them jobs without merits (Chijoke, 2017). Nepotism is very rampant within the government of Nigeria and the power sector of the country as well. This has greatly affected the growth of the power sector. Nepotism has ensured that those who are experts in the field are not given the opportunity to work and push the industry forward. Contracts are awarded to friends and family members and kickbacks are given where illegal payments which are compensation for preferential treatments are given to the government officials. These greatly hinder the power sector growth because the controversial contracts awarded are not even carried out to maximum efficiency – at times not at all.

Furthermore, is the issue of tribalism that is found within the power sector is an issue of concern. The issue of tribalism has greatly eaten the Nigerian politics and thus has great influence on the role of the government in the power sector (Igwe et al., 2018). Tribalism here refers to when people in power or influence favour those in their same tribe only by giving them most of the opportunities in the sector and not really based on their expertise. Like nepotism, tribalism has greatly hindered the growth of the Power sector because jobs are given based on tribal sentiments rather than on who can do the job. This is a great failure on the part of the government which after all these years does not ensure that experts and those who have the country's power sector interest at heart are rewarded and given the opportunity to grow the country's power sector. They are still busy ensuring that their friends and tribal people are given the opportunity to continue wasting and misusing state resources at their disposal. The research found that nepotism, tribalism, regionalism, sectionalism, and ethnicity have all hindered the Nigerian Power sector's growth (Igwe et al., 2018).

5.2.9 Revenue Collection Problems.

Another problem found to have prevented the government's impact in the power sector is the problem with revenue collection in the industry. The government has failed to properly ensure that the revenue collection process within the power sector is transparent and that the revenue is collected adequately. The billing system within the Power sector has been poor for decades and the government has failed to rectify it despite years of complaints and issues with regards to it. The poor billing system has caused insufficient collection and remittance (Oseni, 2015).

There is also the issue of meter bypass where individuals bypass the meters and steal electricity without accounting and paying for it. There is also electricity theft where households and organisations use dubious means to steal electricity and do not pay for it (Olaoluwa, 2017). Also, there is the general no-payment consumer culture where consumers have the mindset of not paying for their electricity bills because it's a culture that has been around for years. Had the government been able to effectively carry out its duties, these issues would not be an issue in this time and age. This issues in revenue collection plays a vital role in the financial constraints the power sector is facing today. These financial constraints have had impacts on the level of investment the sector can make, and it has overall stalled the power sector into moving to the next level.

5.2.10 Inadequate Monitoring and Evaluation (M&E) process.

Monitoring and Evaluation is one of the key components that can ensure an organisation to achieve their goals. The research found that there is insufficient monitoring and evaluation process within the power sector. The government did not ensure the seriousness of the monitoring and evaluation process so that tasks and contracts can be carried out effectively and efficiently. Monitoring and evaluation here refers to teams designated to ensure that the task or contracts are monitored while the job is ongoing and to evaluate the task at the end of the contract or job done to ensure that it is of standard or that what must be done was done correctly. Monitoring and Evaluation (M&E) are processes that organisations set up with the main aim of improving their output, impact, and outcome management (Igbokwe-Ibeto, 2012). Monitoring happens when programmes are assessed continuously based on the detailed information provided early for the progress or delay of the ongoing assessed activities. Ilori (2017) says that monitoring is the inspection of progress made towards the achievement of a goal or objective as against set objectives and goals. A good monitoring system will give implementation of a course of action early so that the end goal will be reached as planned. Evaluation here involves examining the efficiency, effectiveness, impact, and relevance of activities with regards to specific objectivities.

Evaluation is an assessment of ongoing project or assessment (Yumi & Beaudy, 2007:26). Ilori (2017) further defines evaluation as assessment activity to compare with the intended results against the actual activity. Many organisations such as World Bank group have been utilising M&E for years now. The Nigerian government has failed over the years to properly ensure that

M&E is functional so that the power sector can achieve its goals. Erratic contract implementation is one of the issues found to be affecting the power sector negatively. Contracts awarded by the government to boost the Power sector forward are not properly implemented. There is nobody that really follows up to ensure that these contracts are implemented. This leads to massive waste of resources as the money is being redirected to private use and sub-substandard jobs are delivered and, in some cases, nothing is done. In the next chapter of analysis, M&E will be examined in detail.

5.2.11 No maintenance culture and dealing with issues of wear and tear

In this regard, the research found that the Nigerian government has failed to instil a maintenance culture within the Power sector. Maintenance culture here refers to repairing or replacing old, outdated, depreciated, or outdated equipment's. According to Emovan et al., 2018), many of the machines and equipment used in the power sector are outdated, old and have not been replaced or serviced for years. They are in their wear and tear state. Many are not functioning at all or those that are functioning do not perform at maximum capacity. Many of the equipment and machines used for generation, distribution and transmission of electricity need to be replaced after certain years due to depreciation (wear and tear). According to Onohaebi & Lawal (2010), many of the PHCH generating plants are obsolete and averaged. When machines or equipment are not replaced after wear and tear, they will stop operating at full capacity and will constantly be breaking down. According to Onohaebi & Lawal (2010), many of the basic spare parts required for maintenance of these machines are not available. The spare parts were not procured with these machines. They are also difficult to be procured because of poor funding, political considerations, and unpatriotic acts of some personnel.

Onohaebi & Lawal (2010) further states that, there is a high non-maintenance culture in the industry and the government has also not taken enough action to deal with it because of the corrupt practices going on within the government. Nigerians have not absorbed or imbibed the culture of planned maintenance due to:

- Culture
- Societal values,
- Management and technology, and
- The Nigerian environment that is largely dependent on imported machines.

Also, many government officials who are tasked to do this do not have expertise or do not have the technical know-how on what to do. The issue of wear and tear is a normal phenomenon that occurs within organisations, and it is vital for the government and organisations to plan ahead for it. This is not the case in the Power sector where such machines and equipment are not replaced or maintained. There are also scenarios of vandalism where pipelines are destroyed, and other equipment are stolen. These issues need to be investigated if any improvement in the power supply is to be achieved. The research found that, the government does not really take proper measures/action in dealing with these issues and hence, the power sector is stalling or lagging.

5.2.12 Bureaucracy and administrative bottlenecks

This research found that there is a high degree of bureaucracy and administrative bottlenecks in the power sector. This high level of bureaucracy and administrative bottleneck are directly influenced by how the government intervenes or oversees the Power sector.

Bureaucracy refers to the excessive administrative processes within an organisation. This is very common within the power sector, and it is also influenced by the government officials who are also very bureaucratic in nature when dealing with them. Ogunyele (2017) states that political interference is the most visible and challenging political economy issue that the power sector is facing. According to Mukandala (1992), major bureaucratic problems associated with the power sector include the following.

- Red tape - where rules and procedures to complete a task are very complicated. It's a whole lot of issues to get government officials to sign off documents or even for them to complete their task as accessibility is not very easy. This enforces a culture where productivity is not promoted.
- Conflict - where different units in the same organisation are debating over a policy or when they work against each other or compete about the same idea.
- Waste – which refers to things in the organisation that do not lead to the desired outcome. Waste occurs in the power sector through inefficiencies, poor customer services, underperforming members of staff, duplication, and imperialism. (Mukandala, 1992). These will be discussed and understood further in the research analysis chapter.

Administrative bottleneck refers to a situation where work is delayed in an organisation. This is very rampant within the power sector. Government officials, NEPA officials and other staff within the power sector generally delay in delivering goods and services rendered to the consumers or those in need of their services. This attitude is influence by the fact that emphasis is not really done or put in place to tackle issues like these. According to Nieten (2017), administrative bottlenecks can occur where the following exists;

- Communication barriers: this is a situation where a prominent person in the organisation (Power sector) has a very busy schedule and not responsive. Also, when there is a lack of easy communication across departments or communication across departments.
- Too much paperwork: Organisations such as the Power sector of Nigeria has a lot of paper work to be done. Trying to deal with government officials, staff, clients and others requires a lot of paperwork. This is not collected efficiently within the Power sector of Nigeria. This therefore leads to administrative bottlenecks within the organisation.
- Lengthy approval processes: Like most organisation, there is a specific period of time for the manager or CEO to sign off approval before some processes can be completed. In the case of the Nigerian Power sector, the government at times needs to approve certain processes by signing off on them before they are done. The research found that these processes take time to be completed and sometimes this is due to inefficiency on the part of government officials responsible. These lead to administrative bottlenecks within the organisation (Nieten, 2017).

5.2.13 Incompetency of some government officials

This research found that some government officials were incompetent in promoting the affairs of the power sector of Nigeria. Incompetency on the part of the government officials is due to lack of intellectual ability or qualifications. Developing countries like Nigeria have witnessed project failures in their project implementation due to incompetence among other factors among their staff and officials (Eja & Ramegowda, 2020). The Nigerian government is in a position to support the Power sector by making the right decisions in areas of policies, political appointments, funds and investments by ensuring that the power sector operates smoothly. However, the research has found that the Nigerian government had been very incompetent as many of the policies put in place are ineffective. This incompetency on the part of the

government officials translates to the Power sector as well because many of the government officials and staff are notorious of gross incompetency. Among other factors, the erratic power supply in Nigeria is caused by incompetent workforce of the energy sector (Ohajianya et al., 2014). Individuals who do not have a track record to boost the power sector are given strategic government positions to manage the sector. The research found that these officials are not able to carry out the task effectively because they lack the ability as well as the requisite skills and knowledge. Also, the issues of corruption, tribalism, nepotism, and lack of accountability are some of the reasons why there is such a high rate of incompetency in the power sector.

5.2.14 Lack of proper accountability

Lack of proper accountability is another issue this research identified as impacting the role of the government in the power sector. The research found that, government officials are not really held accountable for some of the decisions they make with regards to the power sector. Aliyu et al. (2013) states that lack of accountability is one of the problems facing the Nigerian electricity generation company. The inadequate accountability on the part of government officials is due to the high level of corruption among the government officials and due to the lack of proper auditing in the department. Proper auditing and accountability will greatly improve how government officials take decisions with regards to the power sector. The general public is increasingly demanding public officials to be more accountable when it comes to the effective use of public funds and resources in the delivery of administration and quests for government targets (Ozuomba, 2019). The inadequate accountability leads to high levels of corruption. It also gives room for officials to do and act as they want. Officials do not complete their tasks on time, they are not available to sign off on documents on time, and they hardly respond to emails or pick up office phone lines. Some of these government officials do not positively contribute in meetings on efforts to improve the power sector because they do not have the ability or knowledge on the issues. Lack of accountability in the management of the power sector has remained a critical issue since 1999 when democracy returned to the country after years of military rule (Ejere, 2013). All these things continue because there is no one or nobody that ensures their job descriptions are carried out to the best ability. These and many are the issues found to show that there is not enough accountability on the part of government officials on the power sector.

The research found also that the lack of accountability on the part of government officials can be seen within the officials and staff of the Power sector. There is also inadequate accountability as many of the officials and staff members do not carry out their tasks to the best of their ability or as stipulated in their job description. Due to inadequate accountability, officials of the Power sector can be absent from work for weeks, do not reply to emails nor pick up their phone calls. Many are never available to deal with very pressing matters and issues. All these things slow work down and lead to inefficiency and ineffectiveness in the organisation. In conclusion, the research found that there is inadequate accountability within the power sector and among the government officials as many of them do as they please, with no consequences. Hence, these actions contribute towards stalling the progress of the power sector.

5.2.15 Marketing problems

Strategic marketing planning is very vital for any organisation to grow. This research found that the Nigerian government has failed to strategically market the Power sector in a way that it is supposed to. Strategic marketing here refers to the actions taken by the Nigerian government to bring attention to the Power sector. Such attention can be in the form of services rendered or goods available for sale. Examples of marketing can be on television, billboards, newspapers adverts, magazines adverts and Google adverts. Marketing is very strategic, and it is key for any organisation like the PHCN to be able to sell their services and products. The Nigerian government lacks a good marketing strategy as they fail to identify their target market and are not focused and committed to the problems of their consumers. The market strategy helps in identifying the strength, nature, way and interaction between the environmental factors and the marketing mix essentials in specific conditions (Musibau et al., 2011: 390). This research has established that the Nigerian government has failed to properly market the Power sector, and this has greatly affected the trust if investors. Many of the investors have had to shy away from investing in the sector as they are not sure of the certainty of the market. Also, the lack of investment due to inadequate marketing also ensured that there are limited funds available for the Power sector to operate at its maximum capacity. The research clearly found that the government failed to properly market the Power sector. This has been one of the contributing factors towards the sector's underperformance.

5.2.16 Debts, electricity theft and non-payment culture.

The research also found that one major issue that has kept the Power industry down for years in Nigeria is the high level of debts, theft of electricity and the culture of non-payment that exist. According to Akanonu (2018), government departments, ministries and agencies owe the Power sector about $72million in debts as at the end of 2016. These huge debts owed to the Power sector had greatly contributed to the sector's cash shortfall. The research found that these huge debts are a major challenge facing the power sector. These debts range from contracts payments not being completed, money for gas not being paid out, salaries owed, and money for equipment supplied not being made available, etc. Government's reluctant efforts to settle its debts and to ensure that sectors owing the power sector do so has made it very challenging for the power sector to function efficiently. These amounts of money owed could have gone a long way in ensuring the growth of the sector.

Jeremiah (2021) argues that, despite the intervention of NERC and the central bank of Nigeria in addressing the liquidity crisis affecting the power sector of Nigeria, the power sector continues to struggle under huge debts. The research found that these huge debts are also due to the non – payment culture that exists within the government and the Power sector as well. The non-payment culture has made consumers and government officials to have the audacity to always think that they can consume goods and services of the power sector without paying for it because they think everyone else is doing that. One problem facing the Nigerian power sector is customers evading the payment of electricity tariffs (Oladimeji & Akinwale, 201: 2). Government needs to really step up its efforts to ensure that this culture of non-payment is a thing of the past if it is serious about improving the Power sector.

Electricity theft is also an issue that the research identified. The research found that consumers steal electricity. This electricity theft issue has been going on for decade as consumers alter their meters and can use electricity for years without paying for their bills and tariffs. Many households in Nigeria indulge in different forms of electricity theft and they illegally temper with the electricity metering (Dike, 2015). This has been a major challenge to the sector as the industry is losing billions of naira to electricity theft. This money would have gone a long way to promoting the Power sector. The research found that the issue of electricity theft is a major crisis. If care is not taken, it would keep crumbling the sector as producers will not be able to keep producing goods and services if they do not get paid for them.

This section clearly shows that power theft, debts and the non-payment culture constitute a major issue found in the power sector. Unfortunately, the government of Nigeria has done very little over the years to address it, hence its continued existence.

5.2.17 Unreliable service delivery

The research found that the services provided by the Nigerian government to improve the power sector had been very unreliable. The Nigerian government is tasked with offering a range of services to improve the power sector and the research found that these services had not been consistent and reliable. This is greatly affecting the Power sector negatively. Despitean increase of finance in the Abuja Distribution company on maintenance and infrastructure, there is not enough output to bring about sustainable service delivery (Achimugu, 2020). Some of the services that the Nigerian government is expected to offer the Power sector include transporting the electricity generated by the GenCos using the transmission company (TransCo) to the distribution companies (DisCos). The transmission company TransCo which is still managed by the government is not able to transport all the electricity generated by the GenCos. This is greatly affecting the power sector because electricity generated cannot be stored and hence leads to loses and waste. The consumers are unable to get enough electricity as the electricity transmitted to the DisCos is not of full capacity because the TranCo does not have enough equipment to transmit it. Achimugu (2020: 61) states that the unpredictable and erratic nature of the supply of electricity has endangered a sense of frustration that is felt across the country as a whole and its urban centres.

Studies in the Kano Distribution Company of Nigeria reveals poor and unreliable power supply and most bills issued are based on assumptions. This greatly affects the consumer's payment response on electricity bills (Abdulwahab, 2009). This clearly shows unreliable service provided by the government to improve the power sector. The government also fails to pay its debts on time, it also fails to fund projects related to the growth of the power sector on time. The research also found that the government under the ministry of power acts as the regulator in the Power sector. Acting as a regulator, the government has failed to provide stable prices and constant set of regulations and guidelines because investments decisions made by investors depends on this. The government has failed in its role as a regulator. Government also has the role to give incentives and grants to the public sector and has not been consistent in carrying out that function. The research found out that the government is not transparent on many levels.

This is also part of the reasons why it is unable to deliver its services in a reliable manner. Due to inadequate transparency on the part of the government, it is not clear enough on its activities, which are not easily available for scrutiny. Had the government been transparent and readily available for scrutiny, there would have been great progress on the issue of service delivery. This will be examined and discussed further in the next chapter on data analysis.

Overall, the research found that the government has been unreliable in providing services needed to enhance the Power sector.

5.2.18 Inadequate Competition

The research found that there is inadequate competition within the Power sector of Nigeria. The power sector reform in Nigeria needs to develop a competitive electricity market in order to improve the sector (Onochet et al., 2015: 495). Competition is very essential for any organisation to propel to the next level because it gives rooms for variety of services. Suppliers tend to go an extra mile to please consumers in a competitive market. This competition leads to better service delivery in the market as each supplier aim to get a bigger share of the market. Over the past decade, the power sector reform has sought to improve private participation and competition in the sector (Eberhard & Raciboski, 2016). When the Federal Government decided to privatize the generation and distribution companies of the power sector in 2013, many thought that this would lead to a lot of competition in the sector. However, this has not been the case. The research shows that very few companies were given licenses to operate. This has greatly limited the level of competition that is expected to boost the Power sector to the level. Absence of competition and poor service culture has severely constrained the generation of electricity in the sector (Ejumudo & Ejumudo, 2014). Also, the transmission company was left under the management of the government and the lack of competition is the main reason why the company is failing to be able to transport all the electricity generated to the DosCos. Lack of competition in the transmission company has led to inefficiency and ineffectiveness in the sector.

Clearly, the research shows that the government of Nigeria has failed to provide an adequate environment and opportunity for competition in order to boost the power sector.

5.2.19 Lack of emerging and modern technology

In this regard, the research found that the government has failed to invest adequately on the rise of emerging technologies that are available to improve the Power sector. The world is fast evolving, and technology is the main drive of this. One of the major challenges facing the Nigerian power sector is the lack of required modern-day technology or communication and monitoring of the generation, distribution, and transmission infrastructures (Sambo et al., 2010: 14). The Nigerian government and its leaders are still with the mind-set of the past while many countries are looking into the future. Things regarding the generation and supply of power have greatly advanced and yet the government in Nigeria fails to invest in this technology. This is holding the power sector backward. The Power sectors of some nations are making use of other means to produce electricity using technology while the lack of technological advancement on the part of the Nigerian government is ensuring that they are still using traditional means. This has ensured that Nigeria does not make proper use of energy mix, renewable energy, and other alternative means to produce electricity.

There are areas like cyber security as well that the Nigerian government has failed properly invest in. These areas are very vital in protecting sensitive data in the power sector. Hackers can get hold of these data and it will be an issue for the country. Other technological innovations some countries are adapting to include; battery and storage utilities, IoT, robotics and connected technologies. The Nigerian power sector is prevalent with the absence of technological and structural changes to move the power sector forward (Ajenikoko, 2018). These are other innovations changing the power sector rapidly. This research found that these and other technological factors are still lacking in the Nigerian power sector because the government has failed to greatly invest in the sector.

5.2.20 Gas supply issues

This research found that the government has failed to deal with the issues of gas supply. This has greatly impacted the growth of the Power sector. Apart from other energy sources, Nigeria has a great abundance of gas that can ease the pressure on the power sector if properly harnessed. However, the government has not been consistent in ensuring enough gas supply to the multitude power plants in the country. Gas as a feedstock, accounts for about 50% of the total cost of producing power in Nigeria. This is very important as 80% of the electricity produced in Nigeria is from gas (Ogynleye, 2017). Adebulu (2021) states that Nigeria lost

about N6.8 billion due to challenges of insufficient gas supply within the first seven days of March 2021. This clearly indicates the challenges the country is facing due to inadequate power supply. Adebulu (2021) states that Nigeria produces less than 5500MW of gas out of its 13,000MW generation capacity. These gas constraints greatly hamper the generation companies of the Power sector of Nigeria. Out of the 28 GenCos, only three of them are hydro while the rest are gas fired and, hence, they need constant supply of gas to produce electricity (Adebulu, 2021). The research found that some of the power plants are located in the Southwest of the country while gas is produced in the South East and South-South of the country. While transporting gas from these power plants in the Southeast and Southsouth to the Southwest, there is a reduction in the pressure hence companies under the NIPP gas find it difficult to get enough gas due to the reduction of pressure from transportation. According to Ogunyele (2017), the distribution companies have named insufficient gas supply as the major challenge affecting their finances as it limits the power the generation companies supply to them. Over the years, gas companies have been careful to invest in infrastructure because of the low prices of gas and also the gas debts owed by the distribution companies and the government. Hence, despite our abundant natural gas supply, there is not enough to power the power plants for the supply of electricity. Insufficient gas supply and lack of government effort to harness the abundant gas in the country impacts the growth of the power sector negatively.

5.2.21 Cash shortfalls

This research found that there are heavy cash shortfalls in the sector. This has also negatively impacted the efforts of the government to boost the Power sector. Cash shortfall refers to a situation whereby the amount available is less than the liability or financial obligation. Cash shortfall can be temporary due to some unforeseen circumstances, or it can be persistent or permanent due to poor financial management. The Nigerian Power sector cash shortfall has been persistent over the years. This can therefore be attributed to poor financial management either on the part of the government partly and also on the part of the management of the Power sector. (Tena, 2022) concludes that there seems to be no ending to the woes of the power sector as experts of economics are concerned about the $1.95 billion generation and distribution companies owe the banks. It should be recalled that the Power sector was only partially privatised in 2013 and it has not really lived up to expectations due to the many challenges facing the sector. Independent power producers (IPPs) and generation companies owe banks

over $1.31 billion while the distribution and transmission firms owe $638 million (Tena, 2022). Furthermore, Akintayo (2022) stated that the Nigerian Power sector's total shortfall has reached N1.6 trillion as at the last quarter of 2021 in eight years. When investments made on projects by the generation and the distribution companies cannot be recouped, this leads to cash shortfalls.

The research shows that the distribution companies find it difficult to get revenue from tariffs. These lead to shortfalls which eventually lead to debts. It further limits investments and development in the sector (Akintayo, 2022). Both the Transmission Company (Government owned) and the GenCos and DisCos which are privately owned, owe the banks lots of money; they are in debts. These clearly confirm the findings of the cash shortfalls in the sector which hinders the government's effort to improve the power sector.

5.2.22 Brain drain.

Brain drain is one of the problems the research has found to hinder the government from positively impacting the growth of the Power sector. The term 'brain drain' here refers to the emigration of Nigerians abroad for better paying jobs or greener pastures. Brain drain according to Odunsi (1996: 194), can be defined as a situation where professionals and intellectuals of a region or a country are depleted through immigration. In the power sector, the research found that brain drain had greatly affected the sector because many of the experts, technicians, IT personnel and managers have emigrated abroad and are still emigrating because of better working conditions and better pay outside Nigeria. Unemployment also causes brain drain as some best talents emigrate due to the country having no job opportunities. The high rate of youths and graduates leads to brain drain in Nigeria and this is a big concern for the country (AbdulKereem et al., 2021). The research found that the Nigerian government has failed to address persistent issues while working in the power sector.

Issues like tribalism where jobs and promotions are given based on tribal connections rather than on knowledge pose another challenge to the growth in the power sector. Issues of nepotism, corruption and the general unfavourable working conditions are also some of the reasons why many emigrate for greener pastures. Nigeria has witnessed an increase in the number of trained and skilled workers with many years of training and experience migrating to other countries, particularly in the West (Vanguard, 2020). Many of the experts are not paid well and salaries payments are not consistent as some staffs, contractors and officials get owed

for months. These are some of the issues the research found to be leading to brain drain and hindering the growth of the power sector. (Vanguard, 2020) further states that the persistent brain drain in Nigeria is due to the crippled economy, porous infrastructure, security issues and high unemployment rates. Inadequate experts and those with technical knowledge in handling the equipment and other technical issues has greatly affected the Power sector negatively and hinders the growth of the Power sector.

5.2.23 Insecurity problems.

This research found that one major area that the government has failed to handle, and which has affected the power sector negatively is the insecurity in the country. The research found that the insecurity in the country in the past few years has worsened. This has affected the power sector significantly. The high rise of insecurity is threatening the existence of country as one geographical entity (Jelilov et al., 2018). The high level of insecurity has seen workers of the PHCN kidnapped for ransoms. Even after ransoms are paid, some are still killed. Unknown gunmen have been rampant in certain areas of Nigeria. This has hindered the movement of field workers to carry out their duties effectively and efficiently in those areas. Research found that certain areas had also being terrorised by the Boko Haram terrorist group. These zones are no go areas and hence repairs and other power sector activities are not done there. The Nigerian government has not really engaged effectively with its security personnel in putting an end to the security issues the country is facing. High level of insecurity in Nigeria has made the power sector reforms initiative highly ineffective (Babatude, 2011). The rampant insecurity that the government has failed to properly address dries out investments in the country. Investors fear investing where there is no sure security and even some of the investors in the country run away. The state of insecurity in the country leads to vandalism of pipelines with serious implications for the progress of the reform as gas supply to the power station is constrained (Ogunleye, 2017). Insecurity issues in the country also increases unemployment as the power sector does not function to maximum capacity and hence are forced to reduce their staffs which increases unemployment. Insecurity also dwindles the government's revenue.

Government revenue reduces as potential investors are scared away. Government cannot collect revenue from certain insecure areas which are not accessible and, government loses money by paying ransoms to unknown gunmen when negotiating the release of certain individuals. All these affects the revenue of the government who therefore cannot raise enough

funds to allocate the various sectors like the power sector. The insufficient funds allocated to the Power sector leads to inefficiency and ineffectiveness. The high rate of insecurity also slows down business activities within the power sector. The research also found that there are other forms of insecurity affecting the power sector that the government has failed to deal with. These include; the religious conflicts between the Muslims and Christians, ethno-religious crises, clashes between neighbouring communities and suicide bombings. The issue of insecurity will be discussed in detail in the next chapter of data analysis on how they greatly hinder the government's effort to improve the power sector.

5.2.24 Poor Transmission Network

The transmission segment is owned and managed (by concession) by the Nigerian government. Ogunleye (2017) argues that the transmission segment is the weakest link in the electricity value chain because the transmission lines are very old and weak. Akanonu (2020) further supports (Ogunyele (2021) by stating that the Nigerian transmission network had long been the weakest link in the electricity value chain of Nigeria. She further states that the Transmission Company of Nigeria (TCN) has never dispatched more than 5.4GW of power in Nigeria, which has a population of more than 200 million people. The TCN continuously fails to dispatch the power that is generated with a peak of about 7.4GW (Akanonu, 2020). Some of the cables of the transmission lines are not able to transmit or carry the power lines because they are very old. They are outdated and hence do not have the pressure to carry the electricity to the distribution centres. The transmission lines are not able to transmit all the power generated to a point of need because the system always faces total collapse. The research found that the transmission lines are limited in scope and coverage. The total collapse of the transmission lines during peak generation of electricity often leads to trapped power generated (Ogunleye, 2017). The research found that the transmission lines have limited capacity as they were originally designed to carry between 3000MW or 3500MW and the generation companies generate more than that capacity. Lack of regular maintenance, insecurity in some parts of the country that have affected the transmission lines and issues associated with the rights for the construction of new transmission lines are some of the constraints for the expansion of the transmission lines (Ogunleye, 2017).

5.2.25 Weak regulatory, legal, and institutional framework.

The research found that the institutional framework for the power sector reform has inherent structural weaknesses (Ogunyele, 2017). These weaknesses are from the obvious gaps, confusions, conflicts and overlaps in the interactive and mandates relationships among these various institutions as provided in their enabling laws. Most of the times, what the institution is responsible for in the power sector is not clear or is obscure (Ogunyele, 2017). There are scenarios where two institutions are having the same mandate as the case of the Nigeria Electricity Management Services Authority and the Standard Organisation of Nigeria (SON). The conflicting mandate also distorts the regulatory structure and framework of the power sector the technical and economic regulation was solely the responsibility of NERC. The mandate of the Nigerian Electricity Management Service Authority also conflicts with that of NAPTIN (Ogunyele, 2017). The creation of additional regulatory agencies is inconsistent with the privatization philosophy as it negates the provision in section 32 of the ESPRA. All these therefore shows weak regulatory, institutional, and legal frameworks are hindering the progress of the power sector.

5.2.26 Electricity tariffs problems.

Problems associated with electricity tariffs is one of the factors the research found to be negatively affecting government's effort to promote the power sector. Ogunyele (2017) opines that, electricity is a concern because pricing is supposed to achieve the interest of consumers and investors. The research found that there has been absence of cost- reflective tariffs. It had been cited as one of the main deterrents to both the foreign and local investors. Even with the introduction of cost-reflective tariffs through Multi Year Tariff Order (MYTO), it still encountered challenges. NERC found two major challenges in the new price structure. These challenges are that there had been a substantial shift in the two key variable that is used to determine tariff –gas price and exchange rates. This means that, the cost reflective tariff was still unattractive to investors. Secondly, the tariff only made provision for gas as a power generation source, leaving out others like coal, solar power, and hydropower. Other investors were interested in exploring these other sources in their power generation bid (Ogunyele, 2017). A review by NERC in February 2016 led to 45 percent hike in tariff, leading to protest and strikes as it was seen as being unfair especially as it was not accompanied with commensurate improved services (Ogunyele, 2016). The electricity tariff was not fair and

transparent. Government failed to properly address the electricity tariff issues that led to many investors shying away because of the uncertainty in it. Many consumers also got frustrated, protested, and refused paying their bills. The research found that this and other factors greatly hindered the government's effort to promote the power sector of Nigeria.

5.2.27 Insufficient sustainable subsidies

While conducting this research, it was found that the government did not provide subsidies which are sustainable. The Nigerian Power sector has been subsidised for decades now by the Nigerian government because it has been unable to run on its own. This is because the Power sector has struggled to generate enough funds/capital to keep it afloat on its own. The issues of inadequate funding, inadequate investments, electricity theft, non-payment culture, mismanagement, corruption, etc. have all greatly left the industry short of funds and it has been depending on government subsidies. In many developing countries like Nigeria, electricity supply is not well subsidised due to incessant financial and economic problems (Mohammed et al., 2013: 266). Sustainability here refers to the ability to support or maintain this process over time. It refers to fulfilling the current generation needs without compromising that of the future generation. This is done by ensuring the balance between the economic growth, social well-being, and environmental care. Sustainable subsidies refer to being able to maintain the subsidies at a certain level or rate. The Federal government of Nigeria failed in providing sustainable subsidies to the Power sector of the country. Their progress and consistency of the Power sector has been greatly impacted by this.

5.2.28 Ageing workforce and leadership

Ageing workforce and leadership constitute one of the issues found in this research that has prevented the government from achieving its goal. The research found that the government of Nigeria and the Nigerian workforce in the Power sector have an ageing population. These ageing workforce and leadership pose a great threat to the future of the industry. Bello (2019) observed that there is ageing workforce in the power sector. Sahara Power Group trained some young engineers to help fill the void. One of the main reasons for the ageing workforce and leadership on the side of the government and the Power sector is the issue of brain drain, tribalism, nepotism etc – all of which were cited earlier. Brain drain here occurs because the

youths and also many of the experts leave the workforce for greener pastures, better pay and better working conditions. This leaves the sector with an ageing population. Tribalism leads to corruption where officials give jobs to those from the same tribe as them and not due to knowledge on the job. This is very common in the Nigerian employment sector. There is also the case of nepotism where jobs in the power sector are given to friends and families after collecting bribes and not because they are best suited to do the job. According to Kayode et al. (2014), ascription and nepotism in Nigeria permeate the job placement in both the private and the public sectors. This has denied energetic, qualified, and determined youth employment. Organisations like the PHCN must endeavour to have the right skill mix so that when the older group is retiring, there is a well-equipped younger group to take over and take the sector to the next level. This research found that the Power sector does not have the right mix of skills to take the sector to the next level. This hinders the government's effort to take the power sector to the next level.

5.2.29 Research and Development problems

The study found that there are research and development problems within the Power sector. Government officials do not promote research and development within the power sector which would have gone a long way to improve the power sector. Research and development involve organisations gathering new and improved knowledge to create new products to improve their existing products and services. Research and development ensure that the Power sector can produce new products or improve on ways to satisfy its consumers and also market their new services in the market for financial gains. According to Abdullahi et al. (2021), the challenge facing the Nigerian Solar energy development and promotion is adequate research and development. Government officials fail to do proper research that will improve the development of the Power sector of Nigeria. Proper research will enhance innovation and product improvement and processes within the Power sector. The research shows that the Power sector had been lagging in research and development. Government has not created a conducive environment for research and development. The research found that the Power sector has not followed other countries like the USA, Australia, and Indonesia in greatly promoting the research and development sector to improve their power sector. These countries are making use of Technology to improve their power sector as they also use modern and new ways to ensure that their Power sector is functioning efficiently. The research found that the

government of Nigeria has failed to invest in the area of research and development, and this has greatly limited the growth of the power sector.

5.2.30 Aged and outdated equipment and machines.

This research found that the use of aged equipment is one of the factors that has hindered the growth of the power sector in Nigeria. There is lack of latest or modern equipment in the Nigerian power sector. Aged and long use of machines reduces efficiency of the machines. Lack of funds ensures that the necessary and efficient machineries are not made available (Awosope, 2014: 20). Outdated and old machines tend to be consuming lots of fuel while producing little electricity. The research found that the use of old machines that are not working effectively is due to reasons ranging from lack of funds, corruption where monies allocated for new machines are stolen and the culture of non-maintenance that is affecting the sector negatively. Old machines always break down, always need to be repaired and many are not even working. Government's effort to ensure that these costly machines are replaced by new and better ones is greatly affecting the progress of the power sector and hinders the government's effort to improve the sector.

5.2.31 Energy security

This research found that energy security is one of the factors that has impacted the government's effort in promoting the growth of the Power sector. Energy security is when energy sources are available at a price which is affordable. There are many aspects of energy security. The long-term energy security aspect deals mainly with investments to supply of energy in line with environmental needs and economic development. Energy security is because of the limited government investment in clean energy. These clean energy types like hydro and solar would have greatly helped in achieving optimal mix of energy sources (Ogunleye, 2017). The research found that despite Nigeria's abundance of other energy sources, millions of its population do not have access to affordable and sustainable energy (Ajao et al., 2021). The Nigerian energy mix is heavily dependent on crude oil for the generation of energy, and it has slowed down the development of other energy sources by the government. Government's continued effort to bail Nigeria out of the energy crisis has not been fruitful. This has ensured that many Nigerians, especially those in the rural areas, do not have

access to electricity as many in the interior villages are yet to be connected to the national grid (Ajao et al., 2021). As earlier noted, Nigeria has also failed to adequately diversify its sources of energy. This is posing a serious challenge to the sector. It has also contributed greatly to the poor economic and development in the country. It has also greatly limited government efforts to improve the power sector.

5.3 Chapter Summary

This chapter has presented the findings of the research. The findings provide reasons why despite the government's continued effort to improve the power sector, it has not succeeded. The findings provided reasons such as corruption, lack of technological advancements, use of old equipment, policy evaluation and implementation problems, lack of experts in the field due to poor working conditions and low salaries which lead to brain drain, mismanagement problems, inadequate funding, lack of monitoring end evaluation, gas supply issues, etc. These and other reasons explain why the Nigerian energy sector is struggling even though the country has various natural resources with the potential to boost the energy sector.

Having presented the results of the study in this chapter, the next chapter (Chapter 6) will focus on the data analysis. It will be analysing the findings that have been presented in Chapter 5 of this research with the view of giving these results both meaning and context.

Chapter 6

Results Analysis

6.1 Introduction

Chapter 6 of this dissertation is the research analysis chapter. This penultimate chapter will be interpreting the findings that were presented in the previous chapter (Chapter 5). The chapter will bring out what is important from the findings and give the results the necessary meaning and context. The research questions will be presented here again in order to serve as a guide to the reader while analysing the findings. This is important because it will ensure that the most important data from the findings is given meaning which will assist in addressing the research question(s) and the research aims and objectives that were listed in Chapter one of the dissertation.

The research aim was to establish why the Power sector of Nigeria has failed to perform at its optimal level and the role played by the government of Nigeria in in sustaining the current status quo.

The research questions outlined earlier in this research are the following;

- Why has the Nigerian government not been able to address the challenges facing the power sector in the country?
- How effective has the Nigerian government been in promoting the Power sector growth?
- Why is the power sector in Nigeria still stagnant and ineffective despite government's continued effort to invest in the sectors?
- How do challenges in the power sector affect the politics of the country?
- What can the Federal government of Nigeria do to improve the power sector crisis?

These research questions reiterated above will help in structuring and guiding the analysis of the findings. The relevant data will be analysed in the subsequent paragraphs with the view of providing meaning and context to the data

6.2 Analysing the research findings.

The paragraphs below will be analysing the findings presented.

6.2.1 Analysing the challenges of Corruption.

Given the research findings that corruption is one of the factors that has kept the power sector progress stalling for years now, this paragraph will be analysing how it can hinder the progress of the Nigerian government in ensuring that the power sector moves forward. (Omonijo, 2008: 88) lists patterns (forms) which corruption takes in the power sector and within the government. Some of these patterns include the following;

- Looting,
- Bribery and kickbacks,
- Wasteful expenditure,
- State capture,
- Embezzlement and fraud,
- Fees and commissions,
- Trading of information,
- Gifts and hospitality,
- Nepotism and favouritism,
- Payment to g host workers (non-existent) and pensioners,
- Under payment of taxes and duties through forged invoices,
- Inflating prices of goods purchased. Misappropriation of assets,
- Lack of accountability.

Adekeye (2003) states that, the PHCN is the most corrupt public institution in Nigeria. From the findings, it is clear that corruption and its patterns are a major reason why the continuous government efforts to improve the power sector has been stagnant over the years.

Looting is one of the types of corruption found to derail government's efforts to improve the power sector. Looting refers to when officials steal resources or funds that are meant for an organisation and divert them to private use. Resources and funds that are meant to promote the power sector get stolen by these officials. There are so many instances of looting by government officials and the officials of the PHCN. Unlike in the developed countries with good socio-economic and political institutions, developing countries like Nigeria are more

corrupt because of lack of developed socio-economic and political systems (Omonijo, 2010: 88).

Forging as another form of corruption. Omonijo (2009: 88) states that, many public servants and officials forge certificates and documents in order to secure jobs, get promotions and move from one management position to the other. This is not different from what some officials are doing to get jobs within the PHCH and some government bodies. The effect of such people securing jobs and promotions is that they are hired ahead of those with better knowledge of the job or ahead of someone that can do the job better than them. Omonijo (2009: 88) further states that various junior and senior staffs tend to inflate invoices, contract sums and forge documents to claim allowances all to acquire money illegally. Inflating contract sums seems to be on the rise in public institutions in Nigeria. All these forms of corruption have derailed the efforts of the government of Nigeria to improve the power sector.

6.2.2 Analysing the inadequate emerging and modern technology.

As stated earlier in the findings chapter, the Nigerian power sector is way behind in terms of technological advancement that the power sectors of other countries (especially those in the developed world) are experiencing. This lack of technological advancement is greatly affecting the advancement of the power sector. According to Javaid (2022), the type of expectations that consumers require from their energy providers are changing. They want energy sources that are cheaper, safer, more sustainable, reliable, convenient, personalised, and devoid of any control from their energy providers. Also, many of the government officials and officials of the PHCH that are tasked to manage the affairs and growth of the sector do not have the technological knowledge and expertise that the power sector needs to move it to the next level.

The generation, distribution, and transmission of electricity over the years has tremendously changed and technology has advanced and improved how the electricity is produced. Countries like Nigeria that are still using the older ways to generate electricity find it difficult to cope and as well fail to meet up with the demand of the power needed. According to Sambo et al. (2010), the technologies used generally provide very poor stability of voltage. The Nigerian population over the years has been on an increase and this has caused an increase in urbanisation over the years as well. The increase in urbanisation has seen the shift of more people leaving the rural areas and moving towards the urban areas either in search of better job opportunities or to enjoy the basic necessities such as running water, better infrastructure, etc.

This increase of urbanisation and the resultant increase of the urban population is greatly putting pressure on the demand of electricity needed in urban areas. The Nigerian government has failed to deal with the increased demand of electricity as it is not technologically sound to use modern technologies to improve the amount and quality of electricity that the country can produce. All aspects of the power sector have gone digital over the years. These innovations range from the generation, distribution, transmission processes, collection of tariffs, installation of modern meters that record and display the energy consume/amount and so forth. Smart grid technologies and renewables have upended assumptions about capital planning, decentralised generation against centralised generation and the underlying foundation of the business (Kenedy, 2018).

In terms of technology advancement in the power sector, the PHCN needs to improve on security measures to protect the data and sensitive information of the sector. Inadequate technology advancement means that the sector lacks capable personnel that can handle cyber security issues to prevent online hackers who tend to steal information, data and even steal electricity from the sector without paying. These hackers enter servers and manipulate data and information to serve their selfish purposes. Government through the ministry of power fail to adequately advance the power sector technologically. This is affecting the power sector growth negatively.

Other technological advancements in the Federal government and the PCHN that have failed to improve the power sector include;

- IoT (Internet of things) in the power sector which can help in efficiency increase in production, selling and distribution,
- Cloud computing,
- Automating the power sector (automation),
- Artificial intelligence and advanced analytics in the sector,
- Block chain in the sector,
- Technology up-gradation/digitisation,
- Energy storage and mitigation.

6.2.3 Analysing the ineffective exploitation of other renewable sources of energy

There are other energy sources that would be beneficial to the power sector which the Nigerian government and PHCN leadership have failed to explore. They include the biomass solar power, wind power, wave power, coal power, conventional hydro power, nuclear power, and pumped storage. Nigeria has abundance of renewable and non-renewable energy sources. Many of the renewable energy sources have been underexploited (Mohammed et al., 2013). Some of the countries have gone digital. Renewable energy harnessing strategies in developing countries like Nigeria are focused on the provision of sustainable energy to the economically subjugated fraction of the society, encourage rural infrastructure development, assist in combating energy shortage and in the provision of clean energy towards global decarbonisation. Furthermore, according to Mohammed et al. (2017: 820-838). Nigeria is endowed with renewable energy sources that are diverse. They include:

- Biomass, which involves the use of raw and processed plant materials. They also include paper trash, agricultural residues, wood waste, energy crops, municipal solid waste, energy crops and methane from land hill sites. Biomass is renewable because only a short term is needed for the energy to replace what is used as a source of energy. Biomass is used to generate electricity.
- Wind power involves the use of an electricity generator, and the air movement is used to propel blades. These blades then turn the axle that is attached to the centre of the blades carrying energy to a gearbox and finally to the generator where the electricity is generated.
- Wave power is free and sustainable energy resources created as wind blows over the ocean surface. The technology involves a collector and a turbo which both capture the wave energy and transform the wave power into electricity.
- Conventional hydro power is where water stored in a dam and passed through a turbine and generator is set before it is being released to the river downstream.
- Nuclear power involves the harnessing of the energy that is created from a nuclear reaction. Energy source is needed to drive huge turbines in a power station so as to produce electricity.
- Pumped storage power station is located between the upper and lower dam. Water from the upper dam is pushed through a turbine to the lower dam in a generating mood.

- Coal is pulverised into huge mills converting it to fine powder before it is blown into boilers (Hugh kettles) (Mohammed et al., 2017: 820-838).

The Federal government of Nigeria has failed to collaborate with the ministry of power and the PHCN in ensuring that these other sources of energy are harnessed to cope with the increased demand of electricity by consumers. This explains the cause of the energy crisis in the country.

6.2.4 Analysing inadequate funding and investment

Inadequate funding and investment constitute some of the factors that have hindered the growth of the power sector. As earlier noted, lack of sufficient funding is one of the major factors that has hindered the government's effort to improve the power sector. No organisation (including the PCHN) can operate effectively without funds to carry out its activities and to meet its goals. As earlier stated, the Federal government and PCHN's inability to ensure that the power sector is provided with sustainable funds hinders the sector to reach its targets and goals. Paucity of funds has caused poor maintenance of the distribution infrastructures (Ikekpeazu, 2018: 3). This shows the impact inadequate funds is having in the sector.

There are so many ways in which the power sector can raise funds to ensure that it operates effectively. Some of these ways are through tariffs collection, allocation from the government and other organisations, individual and public investors, etc. These and other means generate investments for the power sector. Most of the funds that are raised for the power sector are being mismanaged, hence the sector is always in need. There are some reasons why the power sector faces insufficient funds. These reasons include;

- Mismanagement and misappropriation of funds. There is gross mismanagement of funds happening in the power sector. Funds are not being used for what they are meant to be used for. Funds are not used and invested on projects that that will improve the sector like the repair of equipment and machines. Rather, they are being used on irrelevant things. Mismanagement of funds can be because of lack of training, obvious bias, etc. Mismanagement of funds ensures that old and outdated equipment are not replaced and repaired, which greatly affects the operations of the power sector.
- Inadequate investors and donors also ensure that the sector does not have enough funds. Idowu (2019: 339) states that, there is inadequate financial investment in the sector to raise performance capacity of operators across that value chain. The PCHN does not

attract enough investors to boost the capital of the organisation. One of the main reasons why the power sector was partially privatised was to be able to attract private investors. But the uncertainly around the sector over the years has ensured that some investors shy away from investing in it. This is greatly affecting how the sector operates. In the process, Nigerian citizens suffer from lack of electricity.

- Government's refusal to grant loans to some of the companies within the PHCN creates another challenge. Because of the rising debts it owes the banks, like many organisations, the PCHN relies on government's support, not financial institutions like the banks to get loans to be able to finance certain projects. Over the years, it is reported how the generation, transmission and distribution companies of the power sector have failed to pay back some of the loans. The banks and other financial institutions have therefore stopped financing some projects or providing them with short and long-term loans. This is greatly affecting the capital injection and shortage of funds needed for operations.
- Issues with regards to the collection of revenue is also a reason why the sector is struggling with raising funds for operations. The previous chapter stated that many consumers do not pay for their electricity bills. It has been reported how Nigerians have a non-paying culture with regards to paying electricity bills. This is affecting the power sector in terms of collecting revenue for the services they offer. Many consumers steal electricity by manipulating the electricity meters to favour them. Also, the lack of modern and efficient revenue collection methods by the PCHN is also affecting the generation of the funds needed for the power sector to operate.
- The issue of corruption is also one of the main reasons why the power sector lacks sufficient funds to carry out its operations. Corruption is in many forms as explained above and all of them directly or indirectly affect the funds of the power sector. When invoices and contracts are inflated, this affects the capital of the power sector. When government and PCHN officials divert funds meat for the organisation to personal use, it affects the power sector negatively. Consequently, projects are not being carried out as planned. Ghost workers where money meant for the sector is being spent on workers that do not exist leaves the power sector short of cash or funds.

These are some of the reasons why the power sector lacks sufficient funding to operate. The discussion above also clearly shows how the efforts of the government is being hindered due to insufficient funding in the sector.

6.2.5 Analysing the use and effect of old and outdated equipment in the power sector

The use of old and outdated equipment in the power sector is one of the factors that has hindered the power sector's growth over the years. Many of the power sector machines, electricity lines, meters and equipment used by the power sector are very old and outdated. Some of them are also faulty and need repairs. Most transmission lines are redundant because of lack of maintenance. Also, there is constant tripping on the power lines caused by lack of maintenance and replacement (Ikekpeazu, 2018: 4). When machines and equipment become old and outdated, they no more function to full capacity or efficiently. The Nigerian government, the ministry of power and the leadership of the PCHN failed over the years to properly allocate and make use of funds for the purpose of depreciation. According to Ejoh (2018), supported by Idowu (2019: 338), about 60 billion dollars (2.4 trillion Naira) is required to revamp the decayed infrastructure in the Nigeria power sector. Infrastructure here includes the equipment of the sector as well. Many of these machines have outlived their lifespans and are yet to be replaced. The vandalism and the insecurity in some parts of the country have resulted in some of the cables and equipment being stolen and damaged by thieves. They have not been fixed or replaced over the years. Some funds allocated for the equipment have also been stolen. Another reason why some of the machines have not been replaced or repaired is because the spare parts to repair them are not available in the country. Most of the machines were imported from Europe and Nigeria does not have the spares to replace the damaged ones. The lack of expertise or engineers to remove and repair them is scarce in the sector. These factors show that, the use of old and outdated equipment in the power sector is a hindrance to the efforts of the power sector to grow.

6.2.6 Analysing nepotism and tribalism challenges.

As seen in the previous chapter (Chapter 5), nepotism and tribalism also hinder the government efforts and plans to improve the power sector. Like many countries in Africa, Nigeria's corporate world experiences its fair share of nepotism and tribalism. The issue of nepotism and tribalism hinders the best talent from getting the opportunity to do the job. Nepotism refers to the practice where those that are in influence or power favour their relatives, associates and friends, especially by giving them jobs. Tribalism is very similar to nepotism but is limited to one's tribe. Tribalism is a situation where those with influence

or who are in power are conscious and loyal to those from their same tribe, thereby favouring them by giving them jobs even when they are not the most qualified for those positions. Both nepotism and tribalism carry a negative connotation in the workplace. Some of the impacts of tribalism include the inability to fight corruption and distrust. Politics of division, employment by tribal sentiments and not qualification, promotion of mediocrity and justice suppression are some of the factors that negatively affect the power sector in Nigeria (Adeyanju, 2015). Nepotism is very rampant within the PHCN as many of the officials favour their friends, families, and associates. Nepotistic corruption refers to preferential treatment or unjustified appointment of relatives and friends to public office which is in violation of the accepted guidelines (Elijah, 2007: 5). They give them jobs even when they are not experts in the field or are the most qualified. This greatly affects the work standard of the organisation as productivity drops. Nepotism is not good as it can demoralise employees and affects a positive work environment negatively. Nepotism brings unwanted chaos within the power sector and as well lowers talented people's morale. Talented people or experts see how those whom they are more qualified than are promoted or given better positions. They might end up slagging or not putting in their best. Hence, it will tend to demotivate talented or high performers which can lead to high turnover of employees (a situation where employees do not stay in the organisation for a long time). Pearce (2015) highlighted some of the negative effects of nepotism. Some of these negative effects of nepotism within the PHCN include;

- Creating a toxic workplace environment. Nepotism makes employees feel undervalued and uncomfortable. This is because favouritism is at play and employees feel like any actions can be reported to the manager without them knowing and these lead to unwanted conflict, harming employee relationships at workplace.
- Poor productivity and engagement. Due to nepotism, managers tend to appreciate only employees they know well. Such employees tend to get away with bad work ethics and performance while employees who perform well and work hard are under appreciated. They do not recognise the employees that perform well and achieve their targets. Enthusiasm is diminished and employee' morale too. Consequently, employee productivity and engagement levels significantly drop.
- Drop in employee satisfaction. As employees of PHCN sense nepotism, many of them tend to work less as they feel that they will not be appreciated and recognised

no matter how hard they work. This will negatively affect employee satisfaction in the work place and in the long run will cause a drop in the organisational performance and thus affect the company's success rate.

- Increase in employee turnover. Nepotism makes employees not to feel valued and their work satisfaction reduces. They tend to look for jobs elsewhere and many even decide to travel overseas for greener pastures like in the case of the power sector. As the work environment does no suit them, they tend to leave the organisation (power sector) and the country.
- Damage to PHCN's reputation. A good work culture is sustainable when employees give positive feedback about the company. When nepotism exists for a long time as is the case in a country like Nigeria, this brings a bad name to the company as employees will not recommend such a company to others as they do not trust the higher authorities. This can be detrimental when recruiting new talents that can make the difference in the organisation. This is the case with the PHCH as it fails to recruit and sustain top talents because of nepotism, tribalism, and other negative aspects within the organisation (Pearce, 2015).

Therefore, nepotism and tribalism have greatly affected the progress of PHCN and has hindered the government's efforts in trying to improve the power sector.

6.2.7 Analysing the insecurity problems affecting the government effort to improve the power sector of Nigeria.

One can never overemphasize the importance of adequate security and its impact on an organisation like the PHCN or the power sector of Nigeria. As seen in the findings of this dissertation, security issues are very rampant in some parts of the country, and this has been affecting the growth of the power sector immensely. In the past decade, Nigeria has been experiencing the rise of insurgents that have been causing havoc in some parts of the country, especially in the Northern states of Nigeria. Most notable in recent times has been the Boko Haram insurgency that started in July 2009. This militant Islamist and jihadist rebel group has caused terror and has instilled fear to millions of Nigerians. The group has attacked schools, hospitals, government offices and individuals. They kidnap, kill, steal, and seize people and properties while demanding ransoms up to millions of US dollars. They have taken control of some parts of Nigeria (Obirisiagbon & Akintoye, 2019). Citizens of those states have been

forced to run away for their lives while abandoning the states. Those that are remaining do so in constant fear of their lives every day. Not only is there Boko Haram in Nigeria, there are other groups that are also agitating for change and revolting against the government. Okeke & Nwali, (2016) also mentioned the Niger Delta militants that vandalise pipelines for gas supply and kidnap high profile individuals and demand ransom.

The IPOB (Indigenous People of Biafra) is a nationalist group in Nigeria whose aim is to restore the Biafra Republic. The IPOB are mostly from the eastern part of Nigeria and have been advocating for separation from the Federal government of Nigeria (Adangor, 2018). The activities of this movement have been accompanied by violence and bloodshed in recent times as lives are being lost. They have been in constant confrontation with the Nigerian police force and soldiers. This has also given rise to a lot of insecurity and bloodshed in some areas in the Eastern region of Nigeria. Houses, cars, shops, properties are being burnt. Kidnappers have taken advantage of the situation by kidnapping high profile individuals, travellers, and businessmen for ransoms. These acts of violence and uncertainty have caused many people to be displaced from their homes. Many areas have been deserted as well as many workers and individuals have tended to resort to staying away from their places of work and cease to carry out their tasks like being the workers of PHCN. The dysfunctional institutions in the country have not helped in combating the security issues in the country. For example, institutions like the Nigerian police whose function is to maintain law and order as well protect lives and properties has failed woefully from protecting transformers, transmission lines and cables from vandalism. Same is the weakness of paramilitary agencies like the Nigerian Security and Civil Defence Corps (NSCDC) which is responsible for protecting the country's strategic assets such as electricity equipment and gas pipelines (Okeke & Nwali, 2016:9). Other insecurities that are very rampant around certain parts of Nigeria include;

- Armed robbery. The hardship in the country, ineffective policing, and the rising insurgency in the country in the last few years have seen the rise in armed robbery incidents. There are cases of armed robbery every day in different parts of the country and the rise of these crimes is a great concern to organisations like the PHCN and the power sector as whole in the country.
- Herder-farmer conflicts. This has been a great concern and a major issue that has fuelled insecurity in the country. It is a series of disputes between the use of land or land resources across Nigeria. These disputes are between mostly the Fulani herders and non-Fulani farmers who are predominantly Christians. This takes place mostly in the

Middle Belt (North Central) of Nigeria and has been on the rise since the return of democracy in 1999. In recent years, the conflict has been on the rise due to the climate change, the increase in population and other factors. As these herders move about with their cattle looking for areas to graze their cattle, disputes arise as they are accused of taking over land that is not theirs or trespassing in areas or land that is not theirs and using it for grazing. This has been causing many problems and violence over the years.

- Ritual killing. This refers to the killing of an individual(s) or animal(s) in a religious but not sacrificial setting. In this context, it is when a human being is sacrificially slayed as a propitiatory offering to a deity. Some of the reasons for the ritual killing is the desperation for wealth and security. The rise of ritual killing highlights the weakening state control and Nigerians' desperate attempts to achieve economic stability. Most individuals used for ritual killing are kidnapped either at home, on the road, around their neighbourhood or from place work. This highlights the level of insecurity in the country and its resultant impact.
- Banditry activities. This refers to acts of robbery and violence in areas where the rule of law has broken down. There is rise of bandits in some areas of the country where they steal, rob, and commit all manner of violence. Policing in these areas is weak and state governors have failed to direct operations to deal with it (Okeke & Nwali, 2016: 9).
- Extrajudicial killing, torture, and abuse. There are a lot of extrajudicial killings where individuals are tortured, abused, and killed without judicial approval. Basically, some individuals and even some members of the Nigerian police force are guilty of this as there are many reports of police abuse of power in the country in recent times. This poses a great threat to the security in the country as no one would want to invest in a country where neither they nor their employees are not safe.
- Election violence. Elections in Nigeria are often accompanied by a lot of violence and insecurity. Be it presidential, senatorial, governorship or local government elections, the same thing happens. Some of the parties and individuals use violence as a means to alter the election results and this greatly affects the security level of the various states. This indirectly affects the power sector too.
- Cybercrime. It is the crime that involves the use of a computer or computer networks. Increase in the use of technology in Nigeria has seen a rise in cybercrime in the country. Criminals target breaches in the security systems and try to exploit them. Individuals

and organisations are targeted as well as banks. The increase of cybercrime by hackers has been an issue of concern in recent years.

Above are some of the different insecurity forms that affect the environment within which the power sector operates. Below are some of the effects the insecurity issues are having on the power sector and how these are hindering the government's effort to improve the power sector.

- Investors tend to stay away from areas where there is a high crime rate or insecurity. The rise of the insurgent groups, random kidnappings, bandits, high cybercrime have all made many investors to shy away from investing in the power sector as investors prefer to invest where they feel safe. This has greatly affected the flow of funds and capital needed by the PHCN to operate, hence hindering government's effort to improve the power sector.
- Insecurity in some parts of the country where there is evidence of agitations, gun violence, Boko Haram insurgence and even the Herder farmer conflicts have made it difficult for staffs of PHCN to access these deserted and high crime areas to carry out their operations. Cables, circuits and meters need to be repaired in these areas, but technicians are scared away from these areas. This is affecting the growth and progress of the power sector negatively.
- Insecurity also affects the mental wellbeing of staffs and leadership. Many of them lie in fear and feel paranoid. This affects the productivity and output of the PHCN. Many staff, especially the expatriates, tend to leave the country for fear of their lives while many indigenous staffs also seek employment out of the country where they feel safe. No one wants to work where they and their families are not safe. This is greatly affecting the growth of the power sector as it tends to lose important and qualified staff due to security concerns around the country.

The above reasons and effects of the insecurity problems in the country highlight the impact of insecurity on the growth of the power sector. It shows that the insecurity affecting Nigeria at the moment is greatly affecting the power sector negatively and it is hindering the continuous efforts of the government in advancing the power sector.

6.2.8 Analysing the problems of gas supply and how it affects the growth of the power sector.

As stated earlier, gas is the key component needed by the generation companies (GenCos) for the generation of electricity in Nigeria. It is a major feedstock to the electricity generation in Nigeria as over 75% of the grid generation is generated from thermal plants that are gas fired. Nigeria is blessed with an abundance of gas and has one of the countries with highest amounts of deposits of gas (Ohimain, 2013). Despite this abundance of natural gas deposits, the power sector faces the supply of gas as a major challenge affecting the growth of the sector. Nigeria is a major gas producing country and has one of the highest gas reserves in the country. However, it has struggled over the years to supply gas to the local market despite increased demand. The inability to feed the thermal plants with sufficient gas over the years is one of the reasons why the sector has been facing grid breakdown which leads to light outs or load shedding for days in many parts of the country. According to Rabiu (2022), Nigeria needs 50 billion cubic metres of gas which include 25bcm for thermal electricity generation. Sadly, Nigeria produces only 14bcm, out of which 50% (7 bcm) is allocated for thermal electricity generation. A lot of factors affect the Nigeria gas industry which is hindering the production and enough supply of gas to its various customers. These factors include;

- Vandalism of the pipeline infrastructures. Pipelines that are used for the transportation of gas from the source to its required destination are constantly being vandalised by criminals and thieves. Okeke & Nwali (2016: 19) states that, the vandalism of the pipelines that convey gas to the power plants has ensured that there is inadequate gas supply for the production of electricity. This vandalism creates a lot of losses and as well affects the supply of gas because the grip and generating plants cannot receive enough gas due to the vandalism. This affects the power sector growth negatively.
- Government regulated pricing for gas to power. Government acting as the market regulator affects industry. Government regulates the price of gas and at times it does not support the gas suppliers. Also, this does not encourage companies to invest in the gas business. All these issues affect the supply of gas as there is not enough gas produced to supply the power sector for the generation of electricity.
- Unpaid gas supply invoices. Another reason why there are challenges in the supply of gas is because of unpaid gas supply. Gas companies are owed billions of naira by the PHCN. The large amount of money owed by the generation and distribution companies has made the companies to sometimes fail to supply them with gas unless they pay their

outstanding debts. This irregular supply of electricity due to debts affects the operation and growth of the power sector negatively.

- Gas reserves are in the Southeast and Southsouth of the country. There is reduction of pressure of the gas when transporting the gas through the power plants to the Southwest. There is massive loss in the transportation of gas due to low pressure to the Southwest. This reduction is a major problem in the power sector, and it affects the supply of gas to the power sector. Basically, demand exceeds supply. This hinders the government's effort to improve the power sector.
- Unstable foreign exchange market. Unstable exchange rate and rising inflation affect the gas supply in the country. High inflation rates have been affecting the naira in recent years compared to international currencies like the US dollar. This unstable exchange rate makes it difficult for the gas generating company to produce at a standard price continuously and it affects the supply.
- Low remittance within the electricity value chain. The low amount of money remitted within the electricity value chain affects the power sector negatively. The low remittance across the value chain does not encourage gas supply to the sector. This limits the sector and affects the growth negatively.

The highlighted and analysed effects of low gas supply in the power sector is negatively affecting the growth of the power sector in the country.

6.2.9 Analysing the non-maintenance culture and how it is impacting the government's efforts to improve the power sector.

Non-maintenance culture in Nigeria that is affecting most government entities and organisations is impacting the growth of the power sector negatively. Non-maintenance culture here refers to the situation whereby Nigerians in general (be it those in leadership or not) have adopted a culture of not maintaining public utilities. This culture is very bad and has destroyed a lot of infrastructures, roads, equipment, and other machines due to the carefree attitude of non- maintenance culture. Looking at the power sector, the research identified the non-maintenance culture across the value chain and its negative impact on the sector's growth. The non-maintenance culture can be seen and felt in many aspects, including the ones discussed below;

- Machines and equipment used for the purpose of generation, transmission and distribution of electricity are old. The old and outdated machines need to have been replaced or serviced years ago. But due to the non-maintenance culture, which is also fuelled by negligence and corruption, the machines are not being fixed and replaced. This therefore negatively affects the power sector supply as the old and outdated machines are unable to function effectively. The distribution of electricity is hindered by ageing infrastructure which is incapable of supplying the right amount of electricity to meet consumers' demand (Justin- Ugo et al., 2019: 266). The Nigerian government has failed to ensure or enforce laws for the utilities in the power sector to be inspected and serviced or replaced on time as should be the case. Also, the leadership of PHCN has failed in its duties in ensuring that the equipment used in the sector is up to standard and that maintenance is done regularly to ensure that the machines do function effectively.
- Across Nigeria, there are many cable lines that are bad, electrical poles that are on the floor, damaged meters, and circuits (Ikekpeazu, 2018: 3). Some of the plants need maintenance and repairs. It is evident that enough efforts are not made by the leadership of PHCN to ensure that these cables are fixed or replaced, meters and circuits sorted and some of these plants fixed. There are areas where the transformers of power have been destroyed or spoiled for months and some for years and nothing is done about that. These areas have blackouts for long periods of time. Even when they are reported to the appropriate authorities, nothing is done about it, these are some of the challenges faced due to the non-maintenance culture within the power sector of Nigeria.
- The non-maintenance culture within the power sector transcends to the infrastructure of the power sector. Some of the infrastructure used to carry out activities of the power sector needs to be expanded while some need maintenance. The non-maintenance culture is the reason why the infrastructures are not being maintained which is affecting the growth of the power sector. Lack or inadequate infrastructure maintenance will be analysed in detail in the paragraph below.

The concept **Wear and tear** is a common phenomenon that happens to goods that are used always and every day. It is that damage that occurs naturally and inevitably to an object used ordinary over a period of time. The damage occurs due to aging or normal wear. Most organisations, especially in developed countries or countries with a functioning system where

accountability is effective, do plan for wear and tear. The power sector of Nigeria and the government authorities in charge have failed to deal with the issues of wear and tear. They have also failed to maintain aspects of the sector that is experiencing wear and tear. Some of the budget allocated to wear and tear are also diverted to private use. The sector waits for machines and equipment to breakdown completely before they start making plans to fix and replace them. By then, it is too late, and blackouts or load shedding is inevitable.

The points highlighted and analysed above clearly show the negative effects of the non-maintenance culture on the power sector and how it is hindering the government's efforts to improve the power sector.

6.2.10 Analysing the non-payment culture, debts, and electricity theft within the Nigerian power sector.

The culture of non-payment which leads to debts and constant electricity theft within the power sector has over the years hindered the growth of the power sector. There are many debts that are owed the power sector and these huge debts negatively affect the sector's financial power to complete its task and achieve its goals. According to Idowu et al. (2019: 340), there is a high debt profile that has been trailing the power sector from pre-reforms days till this present day. The government ministries, departments and agencies do not pay their bills to the power sector and these huge debts affect the power sector's ability to operate and function. These debts might be from contracts not being paid up, failure to pay for power supplied, approved funding that was not paid, and electricity bills or even services offered by the power sector, but which are not paid for. Also, there are a lot of households and businesses that do owe the power sector a lot of money as many of them are owing months while others are owing years of electricity bills. Idowu et al., (2015: 380) further argue that the power sector post privatisation is confronted with regulated and low tariff regime, which leads to poor return on investment. All these debts are running in millions of dollars and if they are paid, they will go a long way in ensuring that the power sector operates in full capacity. Part of the reasons for the huge debts is the non-payment culture that is going on within the Nigerian power sector. Mnay Nigerians pay their electricity bills when they feel like and others do not even pay at all. Although some do not pay because there are irregularities in the amounts to be paid, many do not pay because of the non-payment culture within the sector. The government through its departments and ministries is supposed to set an example by paying its debts and bills on time. However, it is

not the case as the government ministries and departments are major debtors of the power sector and this is affecting the power sector negatively. These are some of the problems the power sector is facing that are hindering its growth.

The problem of electricity theft is a major issue that affects that power sector of Nigeria negatively. Electricity is deliberately stolen in Nigeria, and it is widespread as this happens nearly in every part of the country. The Nigerian electricity power sector is faced with high technical losses emanating from the distribution of customer losses to pilfering and customer theft (Idowu et al., 2019: 339). These thefts of electricity have a negative impact in the growth of electricity sector. The electricity thefts happen through various schemes such as;

- Direct connection to the overhead low-tension cables (illegal connections),
- Meter bypassing. This is done so that only a small load is connected while the rest are connected directly to the supply behind the meter,
- Direct hooking from the line,
- Meter tampering so that a lower reading of power use is shown,
- Physical obstruction,
- Buying and selling of illegal prepaid electricity vouchers,
- ESD attack on the electronic metre,
- Transformer oil theft.

Some of the reasons or factors why there is electricity theft in the country include:

- Unemployment. The high rise of unemployment in the country has made it impossible for many people to be able to pay for electricity bills. This is because many do not have jobs and can't pay for their power bills, they end up looking for means to steal the electricity.
- Poverty. Nigeria in recent years has been experiencing increase in the number of people below the world poverty line. There is high rate of poverty in the country since there are no jobs and also due to failing government policies. Many of these poor people steal electricity as they cannot afford to pay for it.
- Attitude. There are some people who can afford to pay for their electricity bills but choose not to pay for it due to the wrong attitudes they have or even the non-payment culture instilled in them by the society.
- Illiteracy. This is another factor that causes electricity theft in Nigeria. Nigeria has a fair share of illiterates who do not understand the implications of their actions. Hence,

they end up stealing electricity because they do not really know or understand the implication of their actions.

This section has analysed the issues of non –payment culture, electricity theft and the debts as factors that have been affecting and impacting the government's efforts to improve or promote the power sector of Nigeria.

6.2.11 Analysing the ineffectiveness of some policies within the power sector of Nigeria.

Every organisation like the power sector of Nigeria operates within the guidelines or policies. For the organisation to operate effectively, the policies put in place must be effective. Only when the policies are effective can they really help the organisation to achieve its goals and mandate. Bad policies have made Nigerians to be suffering for a while despite being blessed with plenty of resources (Adeyinka & Ema, 2015: 38).

Before and after the power sector was privatised to PHCN, there are certain policies that were put in place to ensure that the reform went smoothly and to ensure the progress of the power sector for the future. However, there are many of the policies that are confusing or not very clear on their roles. The lack of clarity on the roles of some of the policies put in place has made reforming the power sector ineffective. It has also negatively affected the growth the power sector. Ikekpeazu (2018: 12) clearly stated that, the policy making and co-ordination in the power sector has been chaotic and generally problematic due to inadequate reform planning before the commencement of the reform programme in the power sector. These are some of the reasons why some of the policies in the power sector remained ineffective;

- Leadership and government change in the country has not helped many of the policies of power sector reform to be effective. New leadership within the power sector or change of government and its officials usually need to deal with issues regarding the power sector because of its sensitive nature for the Nigerian economy. These new leaders and government often change the operations of the policies with their new and different ideas. This at times diverts the course of action as it might get confusing along the line due to different ideas in the same policy.
- Some of the policies have overlaps and conflicts. Some of the policies are not well coordinated. There are instances where two policies are having the same function and there some scenarios where the policies are not well spelt out on what exactly needs to

be done. This brings a lot of confusions and conflicts. Some of the policies are not clear enough and do not align properly with goals of the power sector. This makes it difficult for policy formulation to occur within the organisation.

- Lack of implementation and evaluation of policies is also an issue. The policies that are put in place are not verified to ensure that they are properly implemented and evaluated for them to be effective.

Above are some of the factors that highlight the difficulties faced with some of the power sector reform policies that are hindering proper implementation and hence growth of the power sector.

6.2.12 Analysing the issues of inadequate engineers, experts and brain drain affecting the power sector growth of Nigeria

Brain drain also affects the Nigerian power sector in a negative way and hinders the efforts of the government to improve the sector. Brain drain is when qualified individuals seek for better job opportunities and living conditions outside their country or continent. A lot of engineers and staffs working within the Nigerian power sector have been leaving the organisation and relocating abroad especially to the West. This is really affecting the power sector because the best brains that are supposed to be the engine room or help in taking the power sector to the next level are leaving. The power sector has heavy duty machines and equipment that require specialised engineers to operate. They also need good IT technicians in the sector to ensure that they tackle the technological improvement that the power sector needs. However, these people are leaving the country for better opportunities, and this is not good on the sector. Ikekpeazu (2018: 12) states that many competent professionals who might have been inclined to work for PHCN are deferred by the low public wage in the sector. Reasons why some of the best brains, staffs and engineers of the power sector are leaving for other opportunities are discussed below;

- Better working and living conditions. Living and working conditions play a key role on how effective staff can carry out their duties. With the many uncertainties and happenings in Nigeria, some of the experts, engineers and staffs are looking for alternative opportunities abroad where the living and working conditions are better.
- Increase in salary and benefits. Better pay in other parts of the country have encouraged many of the staffs of the PHCN with specialised skills to decide whether to stay or leave. Many are lured by organisations and firms outside the country with better salary

and benefits. Their departure leads to the great shortage of skills in the sector and hence affecting the power sector growth negatively. Also, with the high rate of inflation affecting the Nigerian currency, many are leaving to countries with stronger currency like the US and the United Kingdom.

- Scholarship opportunities in the West. These scholarship opportunities give them the opportunity to further their education and improve their skills, knowledge, and opportunities.
- Insecurity concerns. The increased insecurity in the country and corruption are some of the factors that are making experts and skilled workers leave the industry for better opportunities.

The Nigerian government has failed to ensure that the workers are paid in same brackets like their counterparts on the West. The inability of the government and the leadership of PHCN to address these issues are the reasons why the power sector is facing shortage of skilled workers. This increase of brain drain is affecting the efforts of the government to improve the power sector.

6.2.13 Analysing the bureaucratic and administrative bottlenecks that are affecting the Nigerian power sector

High Bureaucratic and administrative bottlenecks directly affect the productivity of the power sector. The power sector of Nigeria experiences bureaucratic and administrative bottlenecks as it is very difficult for decisions to be made. The bureaucratic bottlenecks in the release of appropriate capital budget to the power sector are vastly bureaucratic and opaque (Obi et al., 2019: 121). Some of the bureaucracy processes are way too much and make it difficult for things to be done in the organisation on time. Dealing with government officials takes a lot of processes and time and they hardly reply to emails and are also not available for meetings. The channels to pass through to get an appointment or work done from them is a whole process. Sometimes it is still not possible at all to secure such appointments. It is the same scenario when dealing with the leadership of the PHCN. Emails are hardly replied, appointments hardly met, documents hardly signed etc. Some of the bureaucratic problems associated with the power sector and he government officials are:

- Red tape. Government officials take a very long time to get things done. It is very tedious to get them sign off on documents, reply to emails or even to be able to book appointments with them. The tedious process is very frustrating and time consuming. It therefore negatively affects the productivity of the power sector as much can't be done with so much bureaucracy acting as a hindrance.
- Bureaucratic and administrative bottlenecks are the reasons why when the PHCN orders equipment and machines for the sector, heavy taxes are placed on the goods which at times takes months for such machines to be cleared. There are so many processes to be followed and so much money to be paid to the customs before the goods can be released. This negatively affects the power sector's productivity and hence hindering the growth of the power sector.
- Duplication is also a problem associated with bureaucracy. Duplication refers to when two or more agencies or programmes are doing the same job or are providing the same services. This is when the government or the power sector have same agency doing the same job. Due to the bureaucratic nature in the organisation, the same programmes and agencies are tasked with the same activity and at the end, resources are wasted and not much in done.
- Bureaucratic imperialism is another problem associated with too much bureaucracy in the power sector in Nigeria. This is when there is a conflict between two or more agencies that are seeking to permanently control the same jurisdiction or a situation where one agency is seeking to take over another agency and its jurisdiction. Imperialism caused by bureaucracy brings a lot of conflict in the organisation, affecting the productivity and growth.
- Conflict is another problem encountered due to bureaucracy with the government agencies and the power sector. This is when agencies are doing the same thing. It is when various bureaucratic agencies end up working at cross purposes because their goals don't just match up.
- Waste also is another issue that arises due to bureaucracy. It is careless and thoughtless expenditure either by the power sector or even the government agencies involved. It involves the mismanagement and abuse of resources to the detriment of the power sector. Between the years 1999 and 2012, the power sector expended a whooping sum of 2.8 trillion Naira with no tangible results (Obi et al. 2019). Waste is a common

phenomenon that occurs in the power sector and it's a great threat to the growth of the power sector.

Apart from much bureaucracy, **bottleneck** is also another factor that was mentioned in the previous chapter of this research that is playing a role in derailing the government's efforts to improve the power sector. Nieten (2017) stated that, process bottlenecks can cause stress to employees, time wasted, unhappy clients and loss of revenue due to low quality outputs. Simply put, administrative bottleneck is the stage of work that gets more work request than it can process at maximum capacity. They are obstacles that cause delay in a process. This causes delay in the production process because there is an interruption in the flow of the process. Administrative bottlenecks and how they are manipulated for class and personal gains serve as a major forerunner to the apparent wrongdoings of capital spending and infrastructures development along the value chain of the power sector (Obi et al, 2019: 121). Hence, a bottleneck within the power sector and the government agencies assisting the power sector causes delays of work within the power sector. According to Nieten (2017), some of the causes of administrative bottlenecks within the power sector include:

- Communication barriers. Communication barriers constitute one of the biggest roadblocks to organisation efficiency. Busy schedule by managers or those in leadership positions can make someone to be unresponsive or to fail to communicate quicker. These issues of communication barriers lead to administrative bottleneck issues within the organisation.
- Lengthy approval process is also another issue that causes bottlenecks within the organisation. There are processes that are involved before the manager or those in leadership positions sign off for tasks to be completed. When anyone in these approval processes falls behind, it leads to administrative bottlenecks in the organisation. This is a common phenomenon that is occurring with the power sector and it is greatly affecting the growth of the energy industry and hampers the government's efforts in improving the power sector.
- Too much paperwork is also another reason why there is bottleneck within the power sector. There is a lot of paper work to be done and collected when dealing with government agencies with regards to issues concerning the power sector. This paperwork takes time, and the process is too long. It is tedious and affects the productivity of the power sector. This means that the efficiency is also affected as well.

- Outdated equipment and breakdowns within the power sector also cause bottlenecks in the organisation because they delay the processes of the organisation.
- Absent workers also cause bottlenecks in the organisation. The absence of workers in the power sector causes a lot of delays in the organisation and hence bottlenecks. There are many reasons why staffs or workers are absent within the organisation. Apart from ghost workers who do nothing in the organisation, there are some employees or even those in leadership positions that are absent frequently as they are not too concerned about the organisation. This greatly slows down the processes of activities and hence bottleneck occur.
- Bad forecasting is also another issue leading to bottleneck in the power sector. When those in charge estimate that a machine will last longer than expected, and they break down before the expected date, it leads to bottlenecks or delay in the organisation's performance (Kokemuller, 2022)

Furthermore, Wallace (2022) argues that bottlenecks can stall production, reduce employee morals, and lead to disorganisation and supply overstock.

This paragraph has clearly stated and analysed how much bureaucracy and bottlenecks affect the growth of the power sector despite the government's continuous effort to address it.

6.2.14 Analysing unreliable service delivery and its impact on government role in the power sector

Proper service delivery is very crucial for an organisation, agency, or sector. Organisations aim to give their consumers proper service as this leads to the customer's satisfaction and even trust. As mentioned earlier, in the case of Nigeria, service delivery has been poor within the power sector. For decades, this has greatly affected the growth of the sector. The end goal of the power sector is to deliver consistent power supply to its consumers. This is something the power sector with the efforts of the government has not been able to do for decades. There are so many factors discussed above that have contributed to unreliable or ineffective service delivery from the power sector. Nigerians have been suffering in the midst of plenty due to inefficient services and bad policies (Adeyinka & Ema, 2015: 38). Understanding what service delivery is within the power sector means that one has electricity to understand the function(s) of PHCN which is to generate, transmit, distribute, and sell to the various consumers in Nigeria.

PHCN has not been able to deliver on this function as the country has been experiencing erratic and unreliable power supply for decades now. Even though regular and reliable power supply is essential for rapid development of a society, the Nigerian government and the PHCN has failed to deliver rapid power supply throughout the country. Apart from the fact that they have failed to provide reliable power supply, they have also failed to deliver on other issues they are tasked to. These include the following;

- Repairing of transformers, cables, poles, broken pipes, circuits, and meters. Despite the fact that the power supplied by PHCN is erratic and reliable, some communities still fail to get electricity for weeks, months and even years because of the inefficiency of PHCN to do repairs on time. When transformers and other mentioned equipment are vandalised or need repairs/replacements, the power sector is hardly on time to address the situation despite continuous effort by the community to report to the nearest power sector office to sort it out.

  Table 6.1 below is the registered 3 months complain statistics released by NERC of 2 electricity distribution companies in Nigeria.

Table 6.1

Complain statistics for 3 months (January 2015 – March 2015) from 2 electricity Distribution companies.

Electricity disbution companies (DisCos)	Complaints within the period	Complaints solved within the period	Amount of complaints not solved
Abuja DisCo	9,710	8,908	802
Ikeja DisCo	30,084	20,819	5,262

Source: NERC, 2015

From table 6.1 above, it can be deduced that out of the 39,794 complaints recorded within the specified period, about 6,062 complaints were not solved. These are complaints not solved and this can explain the complicated relationship between the consumers and the officials of the power sector (Igwemezie, 2016: 60). It also brings

out the problem of negligence on the part of the officials in not properly dealing with issues related with the power sector.

This lack of proper service delivery greatly affects the growth of the power sector as consumers lose faith and interest in the organisation and revolt by not paying tariffs/bills etc.

- Wrong or estimated billing also shows how the power sector fails to deliver reliable services to the consumers. There is the constant issue and complaint from consumers over their electricity bills. The power sector has failed to address the billing issue, and this is clearly a failure on its part in terms of service delivery. Consumers complain constantly of wrong bills given to them as it is alleged that PHCN gives out estimated bills instead of the actual bill of its consumers (Okeke & Nwali, 2016: 9). This is evident because individuals are billed large sums of money even when they have been away from their households for months. Some are also billed outrageous amounts. This is still an ongoing challenge because the power sector has failed to adequately address the billing problem by providing modern and adequate meters that can read the electricity bills of households correctly. They are even lagging in terms of providing each household with its own readable meter so as to ease the issues of estimated billing. All these issues are affecting the power sector negatively as consumers often revolt against paying their bills.
- Low voltage of power supply is also affecting households and destroying their appliances. Despite the unreliable power supply, most times when power is available, it is with low voltage. This epileptic power supply often causes more harm than good. According to Adediran (2021), residents around Lekki, Lagos have lamented poor power supply by the Eko Electricity Distribution Company and the losses they have incurred due to the epileptic supply of power in the area. Appliances like TV, refrigerators and radios are destroyed when the power supply is of low voltage and this a big concern. It shows failure of the PHCN on the delivery of services to the general public.
- Delayed connection is another issue that shows PHCN's failure of service delivery. Delayed connections have led to many households looking for alternatives like generators and inverters. The power sector is losing trust, credibility, funds, and investments as they are all affecting the sector negatively.

Analysed above are some of the issues associated with unreliable service delivery in the power sector. The section has shown how unreliable service delivery is affecting the power sector growth and how it is impacting government's efforts to promote the sector.

6.2.15 Analysing leadership incompetency in the power sector.

Competent leadership is very essential for any sector to achieve its desired goals. The Nigerian power sector and the government agencies that assist the sector have been marred by incompetency on the part of the leadership, management, and those in strategic key positions within the sector and the government department. According to Ikekpeazu (2018: 12), over the years, poorly qualified persons were appointed to both the board and management levels of the defunct NEPA without regarding technical, professional, or managerial competence. Many of the previous administrations of Nigeria did not have the requisite political will and the clear focus to adequately address the problems of the power sector. They might indeed not understand the nature and extent of the problem. Incompetent leadership here refers to the detrimental effects those in leadership/authority have on the organisation and their subordinates. When a leader or those in authority are incompetent, they can't turn around the fortunes of an organisation. Incompetency is at different levels with the organisation. Sanyaolu (2022) shows incompetency on the part of the government during the privatisation process. Government sold assets of the power sector to incompetent individuals and was also deceived to pay about 2 trillion Naira to these investors who bought the companies. According to Sanyaolu (2022), the National Union of Electricity Employees (NUEE) says investors in the power industry that bought assets of the defunct PHCN during the privatisation process lacks the technical competence and financial muscle to turn the sector's fortunes around. Had the government officials tasked with the sale and process of privatisation been competent, they would have done their homework to know who to sell to that will be able to take the power sector to the next level. Incompetent leadership ensured that the Power sector was sold to the incompetent buyers who are also struggling to effect the necessary changes they promised the privatisation process will bring.

Incompetency has caused the power sector to be deteriorating and the banks are trying to take over some distribution companies to be able to recover some of their monies (Sanyaolu, 2022). Some of the distribution networks that were sold within the zones of Delta, Ekiti, Ondo and Edo have remained the same and have not been upgraded or their capacities expanded. All this is because they were inherited by individuals who do not have the capacity and are not

competent to run and manage the organisation. Same issue with the generation capacity can be seen where the GenCos has failed to improve the generation capacity and has not added 1MW to what was inherited. The output of the generation companies (GenCos) has been between 3500MW and 4000MW despite some improvement in the transmission company of Nigeria (TCN) to over 7000MW which is still owned by the federal government. The lack of improvement on the part of some generation and distribution companies shows that there is a lot of incompetency in the leadership of the power sector, and this is clearly affecting the growth of the power sector. Incompetency on the part of the leadership is the reason for many of the poor working conditions of staffs of the power sector which leads to strikes in the country. Poor management approach on the plight of workers of electricity by the Federal government is a major reason for the strike action (Ukanwa, 2022). This clearly shows how incompetent government officials failed to engage with workers in the power sector which has led to strikes. These strikes slow down the productivity and this hinders the growth of the power sector.

6.2.16 Analysing the inadequate monitoring and evaluation (M&E) processes within the power sector.

The process of monitoring and evaluation is a vital one to ensure that organisations and agencies complete the task they are assigned to and to ensure that they do it effectively. Government agencies and the power sector under the umbrella of PHCN have not engaged the monitoring and evaluation process effectively. This has not given them the ability to do follow up during the process of carrying out activities and after the activities are done. Monitoring and Evaluation can help the power sector to improve its output, management, impacts and outcomes. It is a continuous management function that assesses the progress that is made in achieving expected results and to verify if there are any unintended effects from the plan, project, or investment plan. According to Peralta (2019), there are different types of M&E and they are based on focus, purpose audience and timing. These different types include:

- Process monitoring. This is often referred to as the activity monitoring. It is often implemented in the initial stage of the activity to monitor the inputs, outputs and to also ensure how outputs and activities are delivered. It is conducted often with the compliance monitoring.

- Compliance monitoring. This ensures that there are compliance contract requirements, grants, donor regulations, local government regulation and laws, ethical standard and the projects expected results. Compliance monitoring can also be done at any stage of the project cycle.
- Context monitoring tracks the settings in which the project is operating. It is often called situation monitoring. It helps to identify and measure risks, unexpected situations and assumptions that may arise during the project within the policy, political, institutional, and financial contexts.
- Beneficial monitoring. This may arise any time within the project cycle and its aim is to identify and analyse the perception of beneficiaries of the project. This may include the satisfaction of beneficiaries, complaints with the projects, participation, and access to resources, treatment, and overall change experience. It also tracks the complaints of shareholders and their feedback.
- Financial monitoring. This tracks the financial situation of the project. It looks at the expenditure of the project in comparison to the budget allocated for it. It helps the project team to be able to maximize outputs with minimal inputs.
- Organisational monitoring. This type of monitoring tracks communication, institutional development, collaboration, capacity building and sustainability within an organisation. This is done with the stakeholders and partners to project implementation.
- Results monitoring. This is the stage where monitoring and evaluation are entwines. Data is gathered to demonstrate the project overall effects and its impact on the target population. Results monitoring assist the project team to track if the project is on the right track towards the intended results and check if there might be any unintended impacts (Peralta, 2019).

Following below are the different types of evaluations relevant to the power sector of Nigeria;

- Formative evaluation is conducted before the project implementation phase, and it may continue through the implementation stage based on the type of project. This type of evaluation is done in order to generate baseline data to investigate the project need, raise awareness of the initial project status, identify the area of concern and provide recommendations for the implementation and compliance of the project.
- Process evaluation is conducted as soon as the project implementation stage starts. It assesses whether project activities are being executed as intended and the resultant

output. It identifies project shortcomings while the project is still on-going to ensure that the necessary improvements are made. It helps in assessing the project's long-term sustainability.

- Outcome evaluation takes place once the activities of the project have been implemented. It measures immediate effects of activity outcomes to the target population. This helps in making improvement for project effectiveness.
- Summative evaluation assesses the efficacy of the project and the instant changes the interventions manifest into. It compares the baseline data with the outcome data to determine whether the project was successful in producing intended outcomes. The evaluation provides evidence of success or failure of the project to the donors and stakeholders in order for them to decide if it makes more sense to invest more time and money to the extension of the project.
- Impact evaluation. It evaluates the long-term impact due to the project and its interventions on the target population. It looks at the degree to which the project reaches its ultimate goal. This normally occurs after project completion or during the final stages. If the project is longer, it can be conducted during the process or when impact need arises.
- Real-time evaluation. This is done during the implementation stage, and it is normally done when there is an emergency where immediate feedback or modifications are required to improve ongoing implementation. Emphasis is placed on immediate lessons/ learnings over accountability or impact evaluation.
- Participatory evaluation is done in collaboration with stakeholders, partners, and beneficiaries to improve the implementation of the project. This evaluation is empowering for everyone involved as it builds capacity, ownership, joint support, capacity, and credibility.
- Thematic evaluation focuses on one theme across the programmes or projects of an organisation. This theme can range from environment, migration, and gender.
- Sector or cluster evaluation is implemented by larger humanitarian and development sectors. It includes groups of different programmes, as well as projects working on similar thematic areas. Interconnected activities across different projects are being assessed. This strengthens partnership between these key sectors while improving accountability, response capacity, predictability, and their coordination.

- Meta evaluation assesses the evaluation process itself. It is useful to make selection of the types of evaluation for the future, checking of compliance with evaluation policy and good practices, looking at how well evaluations are used for organisational change and learning (Peralta, 2019).

This section has analysed and explained what monitoring and evaluation are. It has further examined the different types of evaluations. The Nigerian government and the power sector of Nigeria have failed to engage with the issues of monitoring and evaluation which can go a long away to ensure that projects begin and end effectively and efficiently. Projects such as contracts awarded, electrification processes, renewable energy sources can make good use of the M&E processes to improve to the next level. Lack of adequate M&E across the power sector and the government agencies has hindered the growth of the power sector.

6.2.17 Analysing mismanagement and insufficient accountability in the power sector.

Mismanagement and lack of proper accountability across the power sector and the government agencies have greatly hindered the government's efforts to improve the power sector in Nigeria. Mismanagement occurs across different spheres of the sector and its impacts is highly felt. Mismanagement across the sector involves mismanaging human capital where the leaders or management does not effectively ensure that the staffs are happy and ensuring that they are carrying out their activities effectively. The power sector has thousands of staffs in its payroll and many of these staffs are always complaining and striking because they are not satisfied with the way the organisation is run and also with the poor working conditions they are at. Failure of the government and the leadership of PHCN to address and solve these issues over the years shows how mismanagement is affecting the organisation. Justin-Ugo et al., (2019: 263) explained that, that there is lack of managerial and technical capabilities by the Electricity distribution companies to effectively distribute electricity. This shows that mismanagement is inevitable.

There is also mismanagement of resources in the power sector. Financial mismanagement is one of the most prominent mismanagement activities that is affecting the power sector. Financial mismanagement entails misuse of state funds and funds of the power sector. Financial mismanagement is the reason why the sector is in serious shortfalls and always indebts over the years. Corruption as discussed earlier also supports the fact that the sector is facing financial mismanagement. Funds are diverted to private use, money is spent extravagantly in items of,

travels and purchases that are not needed. Contracts are given to contractors who do not deliver and many of these contracts are overpriced. The Nigerian government has failed to properly manage its natural resources which could have boosted its power sector tremendously. With the abundance of gas, coal, and other natural resources at its disposal, it has failed to make good use of them for the eradication of load shedding and power failure in the country. This mismanagement is directly affecting the productivity of the power and hence, much needs to be done if the power sector needs to see any improvement. The government and PHCN have failed to deal with the issue of pricing that has been affecting the power sector for a while. The constant change and uncertainty around the pricing of gas, electricity and coal has been detrimental to the growth of the power sector. Mismanagement is also evident on the part of the government and the PHCN where there are still ghost workers on the pay roll. These ghost workers are collecting salary that is meant to improve the power sector. The problem of ghost workers has been there for years and the inability to deal and put an end to it shows mismanagement on the part of the power sector and the government officials. The poor investments in the sector ensures that billions of naira are lost annually and this supports the facts that there is a lot of mismanagement in the sector. Had there been adequate management in the sector, the government in collaboration with the private sector would be able to attract enough investors and donors to support the power sector and take it to the next level. Inability to properly manage the sector is very detrimental to the growth of the sector.

The reason for so much mismanagement in the sector is the appointment of unqualified personnel in key management positions (Ikekpeazu, 2018: 12) and inadequate accountability in the sector. Accountability cannot be discussed here without mentioning the inability of the sector to conduct proper auditing regularly. Proper and regular auditing will aid in addressing the issues found within the sector. With accountability, staffs are not accountable for their action, and this is affecting the power sector growth as many of them are doing as they wish knowing that there will be no consequences. With the continuous demand from the public for officials to be more accountable on the use of public funds, it is important for accountability to be taken seriously to improve the power sector. Corruption, for example, has been going on for a long time now due to no proper accountability. Proper accountability ensures that everyone is accountable for what they do as it will limit the high level of corruption in the sector. Managers and others in the senior leadership take months and some even reply to their emails or sign off documents longer than the expected time. This can also be linked to mismanagement

within the organisation. Lack of proper accountability in conjunction with inadequate auditing hinders progress of the power sector.

The section has shown how mismanagement and inadequate accountability pose a challenge in the power sector. These factors have played roles in ensuring that the power sector is stagnant over the years despite government's efforts to improve this very important sector, without which there can no development in the country.

6.2.18 Leadership instability.

There has been a lot of leadership instability within the Nigerian power sector over the years and this has greatly affected the growth of the power sector as it has also derailed government efforts to improve the power sector. This is because the constant change of leaderships comes with change of ideas and it also affects the continuity of projects as new ministers can stop and on ongoing project and start theirs. The table below shows the various ministers who have been in power from 1999 to present. It shows that Nigeria has had 8 Minister of power from 1999 to 2019 (20 years span).

Table 6.2 Former and current ministers of power of Nigeria and their years in office.

Nigeria power ministers from 1999 to 2019	Years in office
Bola Ige	1999 – 2000
Olusegu Agegu	2000 – 2002
Liyel – Imoke	2003 – 2007
Rilwan Lanre Babalowa	2008 – 2010
Barth Nnaji	2011 – 2012
Chinedu Nebo	2013 – 2015
Babatunde Fashola	2015 – 2019
Sale mamman	2019 – present

Source: Alabadan et al, 2016

According to Alabadan et al (2016), Nigeria witnessed a high turnover of power ministers within the years 1999 to present. As can be seen in table 6.2 above, 8 ministers have occupied the position of the power minister from 1999 to 2019 making it an average of 2.5 years per

minister in office. It can be deduced from the table that, some ministers like Bola Ige, and Barth Nnaji lasted just a year in office while others like Olusegu Agegu, Chinedu Nebo, and Rilwan Lanre Babalowa lasted just two years in office. The effect of the constant change of ministers in the power sector is that new ministers tend to abandon some of the policies and projects of the former ministers and starts theirs. Before their projects can run through and effect the desired change, there is a new minister who comes in, abandon the old projects and starts theirs. These constant changes and reshuffles of power ministers do not bring a lasting solution to the issues affecting the power sector. Alabadan et al (2016) further states that the ministers that are reshuffled out of the cabinet does not necessary mean that they do not attempt to solve the problems of the power sector but rather it means that their attempts were not enough to take Nigerians out of the constant load shedding doldrums and darkness in parts of the country. These constant changes of power ministers or leadership instability in the sector with no policy in place to ensure that there is continuity of effective projects/polices by the previous administration or power ministers shows it is affecting the power sector negatively and negatively impacting the government efforts on the growth of the power sector.

Apart from the constant change of power ministers, the change in the presidents of the country also has its fair share in negatively affecting the growth of the power sector in Nigeria.

Table 6.3 President of Nigeria and active years in office

Nigerian president from 1999 - 2019	**Years in office**
Olusengun Obasanjo	1999 – 2007
Umaru Musa Yar'Adua	2007 – 2010
Goodluck Jonathan	2010 – 2015
Muhammadu Buhari	2015 – present

Source: EarlyFace Group of Nigeria, 2016

According to Earlyface Group of Nigeria (2016), the president is the head of state of the Federal Republic of Nigeria and he plays an active and very important role on decision making that affects the power sector of Nigeria. Nigeria has had 4 presidents from 1999 to 2019 (20 years span) making it an average of about 5 years in office. Certain policies take up to 10 to 20 years to be accomplished and the change of presidents has affected the long terms goals of these policies. An example of policies that were put in place to effect changes in the power sector

and later abandoned is the Presidential Action Committee on Power (PACP) which former president Goodluck Jonathan created and chaired. The PACP was made of his vice president and other ministers who has a role to play in transforming the power sector. It was aimed at reducing the red tape and bureaucracy in decision making (PTFP, 2013). It was also established as the day-to-day planning, development and driving forward the reform plan of the power sector (PTFP, 2013). However, President Goodluck Jonathan lost the presidential election of 2015 and consequently the president, his vice and various ministers had to step down. By the time of the cabinet reshufflement of 2016, many of the policies pertaining to the growth of the power sector had been abandoned as the new president and his cabinet came up with their own plans and strategies to improve the power sector (Igwemezie, 2016: 63). This clearly shows how the change of constant change of leadership in the country affects the growth of the power sector as there is no continuity in policies. Even change of leadership is inevitable in democracy, there is need for the constitution to ensure that active policies that have potentials be given enough time by the new administration for them to effect the desired change it is intended for.

From the theory of organisational climate of Kurt Lewin discussed earlier in chapter 2, leadership instability that affects the growth of the power sector and the economy of Nigeria, supports the facts that the power sector (PHCN) is operating in a turbulent environment. The growing economy of the country and the interdependence of one sector to the other can also be viewed as reasons for this (Igwemezie, 2016: 64).

6.3 Chapter summary

This Chapter 6 is the data analysis chapter of this research. The chapter has analysed many of the points that the previous chapter (Chapter 5) presented as the findings of the research. This chapter has further analysed the findings to ensure proper understanding of the factors that the research found to be hindering the progress of the power sector despite continuous government's effort to improve it.

The next chapter, which is Chapter 7, is the last chapter of this dissertation. The chapter will be the recommendations and conclusion of the research. The chapter will recommend solutions to mitigate the problems found in the research. This will be followed by the research conclusion which pulls the dissertation together.

CHAPTER 7

Recommendations and conclusion

7.1 Introduction

Chapter 7 is the last chapter of this dissertation. This chapter will do three things. Firstly, it will present a summary of each of the six individual chapters in this dissertation thus far. Secondly, it will present a summary of the analysis covered in Chapter 6. Thirdly and most importantly, the chapter will present the recommendations, which will constitute the contribution of this research. The recommendations here are based on the findings of the study. Others focus on further research that could be considered by other researchers on the same theme of the present study.

7.2 Summary of the individual chapters.

Before proceeding further in this chapter, it is vital to give a summary of the previous chapters so as to recall the discussions done earlier.

Chapter 1 of this dissertation started by discussing the state of electricity in Nigeria. The researcher went further to state the research problem and the research questions. Furthermore, the objectives of the research, the significance of the study and how the research was conceptualised were well defined in the introductory chapter. Lastly, the outline of the dissertation was presented, whereby each chapter was introduced to prepare the reader's mind set.

Chapter 2 of this dissertation is the literature review of the research. This chapter discussed and engaged with the different literatures that are available on the role of the Nigerian government in the country's power sector. In this chapter, key concepts such as electricity, electricity distribution, government and management were clearly explained. Looking at the conceptual framework, the organisational climate was used to determine the type of environment that the Nigerian government operates in. Literature was presented on the legislative framework as well where the Electric Power sector reform Act No. 5 of 2005 was presented and discussed. Literature on electricity supply and distribution in Sub-Saharan Africa was presented as well. Finally, this chapter presented literature on the Nigerian government,

stating clearly that Nigeria is a democratic state but going further to demonstrate how the government has made vain attempts to revamp the country's power sector.

Chapter 3 is the theoretical framework, legal policies, and the institutional framework. The researcher made use of the agency, stakeholders, and the knowledge management theories as the conceptual theories relevant in conducting this research. Some of the government acts, policies and reforms were presented in this chapter. They gave an understanding on the guidelines governing the power sector operation in Nigeria. The chapter discussed how the government instituted policies and acts to shape the sector and to reform t it. This was meant to understand the government's roles, influence, and effort in the power sector. The various theories were discussed with the view to locate the present study in the broader context.

Chapter 4 is the research methodology of the dissertation. This chapter outlined how the research for the present study was conducted. The chapter stated clearly that the research was a desktop study and hence only secondary data sources were used in carrying out this research. However, reference was also made to the fact that archival research was carried out in Nigeria. The chapter indicated that both secondary qualitative and quantitative research documents were used in carrying the research. The different research techniques were explained, and justification made as to why such techniques were used in this dissertation. Limitations of using these research techniques were also explained in this chapter. This chapter went further to examine the research design, data collection process, data collection instrument, document analysis, population of the research and the research sample. Further examined in this chapter are the validity and reliability of the research, procedures of the research and ethical considerations, delimitation of the research, study limitations and data analysis procedures. All these areas gave a clear understanding on how the research was carried out and certain paradigms and data collection strategies were employed in carrying out the research for the study.

Chapter 5 of this dissertation is the presentation of the study's findings. The chapter presented the different findings. In a nutshell, the dissertation found that there are various problems preventing the growth of the Nigerian power sector despite the continuous government's efforts to improve the situation. In this chapter, the government's role in the power sector and challenges associated with why its efforts are not making much impact in the sector was presented. These findings include *inter alia*; corruption, ineffective planning, lack of experts, leadership instability, and mismanagement. Inadequate funding and investment, infrastructure

constraints, Monitory and evaluation problems, non-maintenance culture, non-payment-culture, problems associated with tariff and revenue collection, bureaucracy issues, administrative bottlenecks, incompetency, lack of accountability, debts in the sector, electricity theft, inadequate competition, technology challenges, gas supply issues, insecurity, ageing workforce, old and outdated equipment, cash shortfalls, brain drain, weak regulatory, legal and institutional frameworks were some of the many factors responsible for the poor performance of the energy sector in Nigeria.

A range of challenges are found to have been the challenges standing on the way of the government's continuous effort to improve the Nigerian power sector.

Chapter 6 is the research analysis chapter. This chapter selected and analysed the key findings presented in chapter 5. The key findings were analysed to properly examine the government's role in the sector and to understand why the sector is not performing at its best despite the efforts of the government to try and improve the situation. In analysing these findings, an understanding of the reasons was clearly examined and presented.

7.3 Summary of the analysis of the findings.

This section will present a summary of the findings and the analysis made while conducting this research and during the presentation of the results.

In general, the findings and analysis thereof done in this research determined that there are irregularities from the part of the Nigerian government which have hindered the progress of the Nigerian power sector. These irregularities rub off on the leadership (management) of the power sector which has greatly affected the progress of the power sector over the years. These irregularities have been examined in the previous chapter. They include but are not limited to: corruption, weak leadership, insufficient skilled labour/expertise, inadequate planning, old and outdated equipment, etc. The conclusion is that unless these and other factors are addressed, the current power crisis in Nigeria will continue unabated, if it does not become worse. Another point worth mentioning is that both the political leadership within the Federal government of Nigeria and the leadership in the power sector need to join hands and make concerted effort to reverse the current status quo.

7.4 Recommendations

After carefully presenting the findings and analysing them, this dissertation shows that there is inefficiency and some shortcomings on the part of the Nigerian government and the leadership of the power sector (PHCN). This section therefore makes recommendations that the researcher thinks will be beneficial to the Nigerian government and to the leadership of the power sector to turn things around. If these recommendations are taken into consideration and are implemented, they will go a long way to ensure that the power sector keeps moving to the right direction. Productivity, efficiency, and effectiveness in the sector will be the order of the day.

7.4.1 Dealing with the issues of corruption.

The Nigerian government and the leadership of PHCN should design means to tackle the issue of corruption. From the findings and analysis, corruption has been presented in the form of embezzlement of funds meant for the sector, nepotism, tribalism, illegal issuing and even over pricing of tenders, receiving and giving bribes and looting. If the Nigerian government and the PHCN leadership can look for means to deal with corruption, this will go a long way to ensure that the power sector moves forward. There are ways that can be implemented to tackle the issues of corruption. These ways include;

- Proper auditing of the government agencies/departments dealing with the power sector. Auditing the GenCos, DisCos and TransCo as well should be done consistently. These audits can be done once or twice a year and every suspicious activity found should be dealt with accordingly.
- All deals done on behalf of the power sector should be transparent and should follow the necessary procedures. Transparency will greatly limit corruption in the sector.
- Penalties and punishment should be put in place for those caught engaging in corrupt practices. These penalties and punishments should not only be put in place but should be enforced. These will go a long way in reducing the level of corruption and corrupt practices plaguing the sector.
- Proper supervision and checks should be put in place at the different levels of the power sector and government agencies that deal with the power sector.

These factors, together with other mechanisms, will play a vital role in fighting corruption in the power sector and improve the sector significantly.

7.4.2 Proper planning (futuristic/structural planning and projection) in order to meet up with the objectives and goals of the power sector.

This dissertation found and has shown that, insufficient planning and implementation of plans are major problems affecting the government's efforts in the growth of the power sector. Insufficient planning and implementation of plans is the cause for some of the findings in this dissertation. Insufficient planning is the reason why the power sector still uses outdated and old equipment that is not more functional and that does not function to capacity. It is why the power sector is faced with infrastructural problems where buildings are depreciated, and Transmission Company does not have the capacity to transport the electricity generated by the GenCos. This is why objectives and goals of the power sector are not met on time.

In this regard, the government and the power sector leadership should ensure that, an outline on how the power sector should be run and objectives met should be put in place. This should follow a proper monetary and evaluation process. Outlining and putting in place monetary and evaluation processes will ensure that projects are monitored and evaluated before, during and after completion. This will go a long way to improve the power sector and to ensure that there is accountability and transparency in the sector.

Buildings in the urban areas of Nigeria are haphazardly arranged and devoid of planning. This makes it difficult for the ministry of power under the power sector to monitor, maintain and regulate the supply of electricity in these areas. The Nigerian government, in conjunction with state governors of Nigeria, should embark on expanding urban areas in the country and planning urban houses properly. They should endeavour to open up more cities so as to lessen the burden on already overpopulated areas like the state of Lagos. This will ensure that the power regulation body in conjunction with the state or government are able to create proper grid in all sections of the country. This will enable them to monitor power supply and consumption adequately. If some cities are not depopulated and the grid systems expanded, monitoring of electricity supply and consumption might be impossible. Hence, proper planning is absolutely a necessity.

7.4.3 Increasing awareness and use of solar panels and other renewable sources of energy.

According to Oladipo et al. (2008: 8), Nigeria needs to invest in solar energy. Dealing with increasing demand of electricity is the major challenge facing the power sector. Increased

population and urbanisation had ensured that electricity demand is on the rise in Nigeria. This has clearly caused demand of electricity to exceed its supply. The Nigerian government in collaboration with the leadership of the power sector should prioritise in investing in other sources of energy and solar panels. Awareness should be created by increasing advertisement and educating the masses on these other sources of energy. This will go a long way in reducing the pressure on the government and management of PHCN on the demand of electricity. It will also help with climate change while promoting clean energy. Turner (2007: 49) states that, the type of solar panels that might be considered include polycrystalline, amorphous/thin film and mono-crystalline panels. If the government of Nigeria can be able to invest and subsidize in solar panels and other renewable energy sources effectively, this will go a long way towards tackling some of the demands and challenges faced by PHCN and the power sector in general.

The government under the Minister of power should also ensure that the monopoly of the hydroelectric plant is phased out immediately. This is because the hydroelectric cannot be Nigeria's main source of power supply because the same river is used by other countries along the same line and natural disasters like drought can dry up the river. Other means to generate electricity in the country should be introduced along with the hydroelectric form. These other means include coal, natural gas, hydro, solar, etc. There are vast unused lands in the northern part and the middle belt of Nigeria which are very rich in sunlight and can generate a great amount of solar energy. The Federal government can take the bull by the horns and build turbines in these great hectors of lands which would provide alternative renewable solar energy.

7.4.4 Properly engaging with consumers with regards to their plights and challenges

Communication is key and a breakdown in communication between consumers and the management of the PHCN is the main reason for some of the challenges faced in the sector. Some of these challenges that can be attributed to the lack of communication is the resistance to pay tariffs/electricity bills, manipulating electricity meters, vandalising power sector equipment, among others. Consumers feel neglected in their complaints to the power sector. These complaints include wrong electricity bills given to them, constant load shedding, broken meters, broken electricity poles and cables, etc. Their complaints are not always attended to. This is making many consumers to lose faith on the PHCN and the entire power sector. The loss of faith and frustrations is evidenced by their continuous boycotting to pay their electricity bills (which affects the revenue of the power sector), riots, constant vandalism and even

electricity theft. Nigerians do not mind paying high electricity bills in so far as it is constant and reliable (Oladipo et al., 2018: 8). Hence, the Nigerian government in collaboration with the management of the power sector should look for means to properly engage with consumers and instil faith in them to trust the government, the power sector, and the process. This can be done by ensuring that they start taking consumers' complaints seriously and correcting where they are slacking. This will go a long way to improve the power sector and ensure that the government's efforts for the sector are not wasted.

7.4.5 Attracting skilled and qualified workers/expertise

As discussed earlier, attracting, and retaining the right experts and skilled labour with requisite skills and knowledge in the power sector has been a major challenge over the years. The Nigerian government in collaboration with the power sector management must look for ways to attract the best qualified skilled workers and experts in the sector. Their knowledge and ability will be very vital in taking the organisation to the next level. Some of the ways that can be used to attract and retain the qualified experts in the sector is by;

- Properly advertising positions for all to have access.
- Properly adjusting the wage/salary to international standards to be able to attract both local and international experts in the sector.
- The government through the security agencies should ensure to raise up security in the country. This will attract experts that will feel safe to work in the sector.

Adding experts and qualified skilled labours to the power sector will be very vital in improving the power sector. These technicians know their job and will ensure that government's efforts in trying to improve the power sector yield maximum returns. Effectiveness, efficiency, and productivity will be improved in the sector.

7.4.6 Creating/organising training and programmes for staffs

Another effective way to improve the power sector is by the government collaborating with the power sector management to organise and sponsor trainings and workshops for their staffs at various times of the years. These trainings and staffs are very essential as they are meant to;

- Train them on new ideas and motivation and remind them on what to do to improve the fortunes of the sector.
- Remind them on what to do and to focus on the goals/objectives of the organisation, and
- Allow them to express themselves by bringing out their own ideas/suggestions and contributions.

These trainings and workshops will allow the staffs and management to interact with each other and share ideas. The training from the experts will be very helpful and vital as their ideas will be taught and replicated by the staffs in the organisation. These trainings and workshops will enlighten the staffs to be more focussed as they interact with new ideas. This will improve the efficiency and productivity of the organisation.

7.4.7 Performance-related bonuses should be put in place by management to encourage staffs/employees.

The Nigerian government can collaborate with the management of the power sector to ensure that that there are performance related bonuses for staffs. Appreciating experts and staffs of the different departments of the power sector with incentives will make them feel appreciated and encourage them to strive to reach targets. This will improve the working conditions and will in turn improve on the productivity and efficiency of the staffs and the organisation in the long run. Some of the forms the government through the management of the sector can sponsor or design performance related bonuses can be through;

- Vouchers and gifts to staffs that meet up with targets.
- Monetary gifts, bonuses, salary increase for those that meet up with targets, and
- Travel holidays paid by the organisation.

These performance related bonuses will encourage healthy competition among the staffs and will go a long way to encourage improving productivity, effectiveness, and efficiency in the power sector.

7.4.8 Monitoring and Evaluation (M & E) structures should be put in place.

As this dissertation found that enough is not done with regards to monitoring and evaluation, structures should be put in place to encourage the monitoring and evaluation in the power sector. The Nigerian government should ensure that the management of the sector has structures in place to encourage and make use of monitoring and evaluation strategies in the organisation. With the different types of monitoring and evaluation mechanisms explained above, a proper application of them before, during and after projects will most definitely ensure that the process is devoid of mistakes, mismanagement, and inefficiency.

Efficient application of monetary and evaluation process will ensure that appropriate questions are asked. These questions include;

- Who does what?
- What time is it done?
- Is the task done?

Effective monitoring and evaluation process ensure that experts, staffs, management, and contractors are doing their duties accordingly and not just when they feel like doing it. Proper monitoring and evaluation processes will therefore ensure that implementation is done accordingly. Proper monitoring and evaluation process will limit some challenges like corruption, insufficient planning, gas supply issues, unreliable delivery of services, incompetency, non-maintenance of equipment, nepotism, etc.

7.4.9 Dealing with issues relating to bureaucracy and administrative bottlenecks.

The Nigerian government and the management of the power sector need to find ways to adequately deal with the much bureaucracy and administrative bottlenecks that occur within the power sector and government agencies tasked to assist the power sector. As mentioned earlier, these bureaucracies and administrative bottlenecks hinder the growth of the power sector. They prevent free and easy access to management, free flow of communication within the sector and they also delay activities in the organisation all of which affect the effectiveness and efficiency of the sector. Some of the ways to deal with the challenges of bureaucracy and administrative bottlenecks include;

- Eliminating paperwork where possible. Too much unnecessary paperwork wastes time and hinders efficiency. Eliminating unnecessary paperwork will improve efficiency.
- Cutting out unnecessary processes to ensure that there is free flow of communication and to save time.
- Empowering people. This will ensure that staffs know what to do and are able to make the right decisions without always needing to wait for the manager's approval.
- Avoid putting off decisions. This will help ease the problem of bottlenecks. Mangers should get ways to make decisions fast and putting them off or delaying in making these decisions affects the productivity of the power sector. Government should also endeavour to make decisions fast with regards to affairs pertaining to the power sector so as to improve its efficiency.
- Having information ready so that the right decisions can be made on time. Lack or inadequate information causes delay of decisions which affects the power sector growth negatively.
- Decreasing/limiting excessive meetings. Meetings need to be objective. This is because excessive meetings can derail the objective of the power sector. Hence, meetings need to be objective and strategic in a way to improve efficiency and effectiveness in the organisation.

These factors will go a long to ensure that the challenges associated with bottlenecks and bureaucracy are handled. It will improve the efficiency and effectiveness of the power sector of Nigeria.

7.4.10 Building more plants for the extraction of natural gas and ensuring that there is adequate gas supply.

Nigeria is blessed with an abundance of natural gas deposits and there is no reason why the country has only a handful of power plants built while the country wallows in darkness (Ifedobi, 2006). The ministry of power should ensure that the government builds more power plants, especially from the National Integrated Power Projects (NIPP) and the Independent Power Producers (IPP). Apart from it aiding in the generation of electricity, it will create jobs and hence reduce unemployment. However, the success of this depends on the ability to protect these pipeline networks for the entire energy sector to thrive. Without a pipeline grid that is functional, it is impossible to operate a functional electric power generation and distribution.

The government can implement the use of drones to monitor the pipelines or even Digital Acoustic System which is a more efficient node of monitoring pipelines. It is therefore imperative that, if Nigeria must have electricity, the government should make efforts to protect its pipelines with the most technologically advanced means possible.

7.4.11 Effective policies, policy changes and policy implementation.

For the government to see growth in the power sector, it must be strategic in its policy formulation and implementation. Given that some of the policies the Nigerian government did put in place for the growth of the power sector were ineffective, the government should ensure that it engages the various policy makers and ensure that their policies are aligned with the goals of the organisation and that these policies are well defined and articulated. The Nigerian government should embark on policy changes. There are many policies in place within the power sector that are not effective because the policies are not well articulated, drafted or in line with the end goal of the power sector (as discussed in the previous chapters). The Nigerian government should ensure that, there is effective policy change with policies that are not actually in line with the goals of the power sector. Government can consult with consulting firms, experts in the field and the leadership of the various departments in the power sector to ensure that these policy changes become effective and efficient.

Looking at the current administration under President Muhammadu Buhari, the ministries of housing, works and power were combined into one office in 2015 which was headed by a lawyer (Ifedobi, 2016). The ministry of power and works is already too big and to add power to it is simply heading to inefficiency. No one can actually manage all 3 sectors in one office and hope for efficiency. It is just too much. The power sector must be given paramount attention for the government to reap the benefits of the resources it is investing in the sector.

The government should also look for means to address the possibility of scavenger industries sabotaging the progress of the power sector. These are industries that make a living from the dysfunction and corruption in the system. For example, someone that is in generator supply might not want to see uninterrupted power supply while someone that is into pipelines bunkering might not want to see the protection of national pipelines (Ifedobi, 2016). A diplomatic solution by the government is then essential to address the issues of people making billions from the government from a dysfunctional system. The government should ensure that its policies are effective and that the power sector is given proper attention while addressing

the dysfunctionality in the system that is benefiting scavenger industries at the expense of the state.

7.4.12 Provision of funds/investment.

The government of Nigeria, in collaboration with the Ministry of power and the PHCN, needs to ensure that that there are means to generate funds and ensure that the environment is attractive for investors. Oladipo et al. (2018: 9) opine that the provision of funds in the power sector will greatly improve the generation of electricity. If the power sector can be able to generate funds, it will go a long way in improving the generation, transmission, and distribution of electricity. There are many ways in which the power sector can generate funds. Marketing the sector well so that investors will be attracted to invest is one way. They can also provide good services and educate the masses in terms of the need to pay the tariffs and bills. This will generate much revenue for the sector. They should be able to be timely will their loan payments with the banks so that the bank can gain their trust and provide them with more loans to run the organisation. Adequate provision of funds and investment in the sector will go a long way in ensuring that the sector moves to the right direction and that the government's efforts in the sector is not wasted.

7.4.13 Introducing and using technology advancement to improve the power sector.

Ensuring that the power sector moves with the time and is not being stuck in the past will go a long way towards taking the power sector to the right direction. The government of Nigeria, the ministry of power and the PHCN should invest heavily on technology as this will make their task easier and more efficient. As mentioned earlier, the power sector has gone digital these days. The Nigerian government should endeavour to make use of digitalisation by making use of advanced drone systems to monitor their gas pipelines to avoid vandalism. They should also make use of IoT and other technologies available to improve the sector. Technology can be used in metering and giving out electricity bills. This will boost the confidence of the sector from the consumers, and they will pay their bills. This will solve the problem of estimated billing. Government should really encourage the ministry of power to engage with IT specialists to improve the power sector.

7.4.14 Strengthening the regulatory framework.

Making use of a strong regulatory framework will help in restoring confidence in the power sector (Arowolo & Perez, 2020). The independent regulator created in the sector is inefficient and while regulations exist in paperwork, application of the regulations has been ineffective. Therefore, the government in conjunction with the ministry of power and PHCN should endeavour to strengthen the power sector. This will attract investors in the sector because of the confidence boost of the sector. They will invest in the critical gas value chain which needs investors to raise funds for its infrastructures. If the government can ensure that the regulatory framework is strengthened, it will provide the right avenue to deal with the issues of investment, access, pricing and ensure that the overall power sector performance is improved (Arowolo & Perez, 2020).

7.4.15 Government should endeavour to reduce a portion of the debts of the power sector.

Government should look for means to relieve a portion of power sector debts. This will enable the power sector and its subsidiary companies to invest in critical maintenance. As examined earlier in this research, the GenCos, DisCos and TranCo are owing the banks large amounts of debts. These huge debts, the inability to pay back and servicing of the debts are greatly affecting the growth and the functioning of the power sector. The government of Nigeria can engage with the central bank of Nigeria (CBN), the banks and financial institutions to find a lasting solution to relive the power sector of some of its debts. The government can engage with CBN to pay a portion of the debts of the power sector or to help in servicing a portion of the debts of the power sector. By doing this, the pressure and burden to pay these huge debts will enable that the sector to redirect its finances in maintenance and upgrading the key elements the power sector needs to produce and deliver electricity. By giving a helping hand in paying a portion of the debts and by ensuring that the finances of the power sector are being used for the right purpose, it will go a long way to ensure that government efforts to improve the power sector has a positive effect in the growth the sector.

7.4.16 Tax incentives to businesses, corporations and households that make use of alternative energy sources.

Given that the power sector in Nigeria is in crisis and the need for climate change, the Nigerian government should consider introducing tax incentives to business organisations, corporations and households that make use of alternative energy sources like solar panels, biomass, etc. These tax incentives will encourage the use of alternative sources of energy, and this will go a long to reduce the strain on the power plants. Nigeria and other countries in Africa and the world at large are encouraging the use of green energy or alternative energy sources because of the traditional energy sources which has a negative effect on the climate change. The introduction of tax incentives to households and business that will consider using alternative energy will go a long way in ensuring that the efforts of the government to improve the power sector is yielding positive results.

7.4.17 Encouraging a more competitive electricity market through broader reforms.

The Nigerian government should broadly reform the power sector of Nigeria to ensure that there is a more competitive market for electricity in the country. A competitive electricity market will remove the need for guarantees and this is a lasting long-term solution that addresses the shortfall in the power sector. A more competitive electricity market will allow multiple companies to engage in providing the services of the generation and supply of electricity. This will ensure that multiple companies (privately and state owned) compete for the generation and supply of electricity on an equal footing. This competitive electricity market will drive investment in the power industry, improve efficiency and even diversify the energy sources required.

The above recommendations will go a long way in ensuring that the power sector moves to the right direction. The Nigerian government will be able to see positive results from its investments and the power sector will increase its productivity and efficiency. The problems of load shedding will be a thing of the past should these recommendations be adhered to.

7.4.18 Capacity building or capacity development initiatives.

Capacity building is synonym for organisational or institutional development. It is often a serious sounding alternative to "training" (Eade, 2007). Capacity building is the process to develop and strengthen the skills, abilities, instincts, and the resources that organisations need to thrive, adapts and survive in a world that is fast changing. Capacities that the government needs to build to ensure that the power sector functions effectively and efficiently can be intellectual, material, organisational, technical, financial, representational, political, and cultural – and mostly likely a shifting combination of all these. Good governance is not served if the state is encouraged to abandon its responsibilities to its citizens (Eade, 2007). The Nigerian government needs to thoroughly engage with capacity building initiatives to ensure that, the staff of the power sector can improve and retain the knowledge, skills, resources, and equipment needed to do their job to a greater capacity or competently. At individual level, the government should ensure that capacity building such as training and mentorship are provided. At the organisational level, the government should ensure that there is capacity building to raise funds needed to improve the organisation, hiring expertise, forging partnerships with other organisations and investing in new IT capacity. Systematically, capacity building here should include policy development, political advocacy efforts and allocation of resources. Capacity building is very vital as it is an investment that will benefit the power sector's long-term health and success.

7.4.19 Institutional reforms.

Institutional reforms are fundamental for economic prosperity and development. These are reforms that attempts to change the rules that affects human interaction. Institutional reforms are therefore the restructuring and reviewing of institutions of the state so that human rights are respected, rule of law preserved and they are accountable to their constituents. According to Effiom et al., (2011), institutional reforms will respond to the persistent economic underdevelopment, nepotism, corruption and profligacy that occurs within the public sector (power sector inclusive).They are mainly divided in two categories which are;

- Political.
- Economic institutional reforms.

With institutional reforms, the government can ensure that the power sector is able to achieve long term objectives such as improve access to electricity and long-term growth and development. Institutional reforms will in the long run often lead to improve standard of living. Institutional reforms will reduce fixed cost of the power sector and improve efficiency. This will in the long run ensure that the power sector is operating at its maximum capacity. Hence. it is very essential for the government of Nigeria to embark into institutional reforms aim at the improving and advancing the power sector. This will ensure that government efforts to improve the power sector are not wasted.

7.5 Conclusion

Drawing conclusions from the various qualitative and quantitative secondary data collected from academic online sources, government gazettes, newspapers, published articles, books, academic journals, and archival documents, this research demonstrated the role of the Nigerian government in the growth of its power sector. The results obtained show that there are a lot of shortcomings and flaws in the roles and efforts of the Nigerian government in attempting to improve the power sector. This has greatly affected the efficiency, effectiveness, and productivity of the power sector.

The research shows that, government's actions play a major role in shaping how the power sector is run or how the management of the power sector manages the power sector. There is a direct relationship between government actions on the power sector and how efficient the power sector is or the efficiency of the power sector. This means that, if the Nigerian government takes right decisions with regards to the operations of the power sector, the sector will perform more efficiently and vice versa. This involves the policies, acts and regulations that the government had drafted in order to promote the power sector. The government should therefore collaborate with the leadership and management of the Power Holding Company of Nigeria (PHCN) to evaluate the policies, acts and regulations affecting the power sector. This is because, when these policies are implemented, they can either positively or negatively affect the growth of the power sector.

From the research findings analysed and discussed earlier, it can be deduced that, despite the government of Nigeria advocating enormous resources to ensure that the power sector of Nigeria operates effectively and efficiently, there has been a lot of waste and much of the resources has not produced the desired results. Therefore, there is an emphasizing urgency and

significance of taking action to address the identified challenges. These actions has been explained in the recommendations above. The government of Nigeria should therefore engage and collaborate with the leadership of the Power sector of Nigeria, expertise in the power sector and reputable consulting firms in the sector to ensure that the right policies, acts and regulations are drafted and properly implemented. These actions will ensure a healthy future for the Nigerian power sector.

The ***unique contribution or value-added insight*** this research brings to the existing knowledge on the topic is that, this dissertation has generated a new understanding of the role of the Nigerian government on the growth of its power sector. It is therefore envisaged that, the policies recommended above will be of great value to Nigeria and beyond. Policy makers and management of the power sector in Nigeria and other countries facing similar challenges will benefit from this as it will improve efficiency and effectiveness in their respective power/electricity sectors. While the focus of this study was on Nigeria, future studies could do a comparative analysis of two or more countries to establish if certain trends could be identified.

7.6 Recommended future Research

In this study, the researcher has established the challenges facing the growth of the power sector of Nigeria despite the efforts of the government. The researcher has given a suitable way out via the recommendations given above. Crucial discussions in this research study have a pivotal role to play in the development of the power sector and hence development of the informal and the formal sectors of Nigeria and beyond. This will go a long way to bring development to the country and hence improve the standard of living.

In conclusion, the conceptions anticipated by the researcher in this research study may be integrated further and developed in future research. After conducting this research, below are some areas suggested/recommended for future researchers;

- Comparative analysis of the government efforts to improve the power sector in Nigeria and South Africa within a specific period of time.
- Researchers can consider carrying out similar research but making use of a shorter or longer time frame.
- Researchers can consider comparing the state of the Nigerian power sector before privatisation and after privatisation.

- Researchers may consider critically analysing the effectiveness of the generating, distribution, and transmission companies in Nigeria to find out which is more effective and ways to improve them.
- Researchers may consider looking at a country in Africa that is doing well with the supply of electricity presently like Zambia and comparing it with Nigeria or South Africa which are having challenges with their power sector.

The above recommended areas for further study will go a long to understand the electricity/power crisis in many parts of Africa and will recommend solutions to improve the power sector in the continent and beyond.

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