

**BUSINESS AND ECONOMIC STRATEGIES IN A PANDEMIC RECOVERY ERA:  
CLEAN FUELS INITIATIVES TO NET-ZERO CARBON EMISSIONS**

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## **Abstract**

The energy transition is one of the most discussed topics in the global oil and gas industry today. The world has been transiting from one form of energy to another - from firewood to coal and then fossil fuels. However, the current transition is geared towards reducing global carbon emissions and curbing global warming towards net-zero carbon emissions. This paper looked at the clean fuels initiative in the drive to net-zero emissions momentum as one of the strategies to prevent another pandemic, like the covid-19 pandemic, from ravaging the world. The main objective of this paper is to consider how clean fuels in the age of net carbon zero, as a pandemic recovery era strategy, will support the reduction or prevention of another pandemic in the world. The paper adopted the case study approach. The findings showed that Clean Fuels provide a variety of environmental and economic co-benefits, including a reduction in Air & Noise Pollution, climate change, Cost savings, Jobs & Wealth creation, Standard of Living enhancement and social wellbeing. With a cleaner and pollution-free environment, pandemics like Covid=19 can be prevented or nipped at the bud. The study recommended that since the energy from clean fuels is the future power need of humanity across the globe and the energy supply and demand transformation is here, Nigeria must seize the opportunity to expand its Energy Mix to get to carbon zero in the year 2060.

**Keywords:** Covid-19 Pandemic, Clean Fuels Initiative, Carbon Zero, Energy Transition.

## Introduction

The COVID-19 pandemic has changed our lives in ways we could never have imagined. These changes have also led to shifts in how we think about work and our approach to it. While some of these aspects are temporary, many will remain even after the world returns to a post-pandemic normal.

A lot of studies are still ongoing as to the remote cause of this dreaded disease and its after-effects. According to Bergman (2020), “directly and indirectly, Covid is defining our daily routines and challenges, and it is shaping our fears and hopes for the future”.

Some studies are also looking at environmental pollution as an optional cause of the pandemic. Surplice (2021), writing on covid and sustainability of events had opined that “with issues of climate change and pollution increases, sustainability is a matter that can no longer be ignored”. Live events, in particular Festivals and Concerts, generate large quantities of waste production and pollution into the environment each year. The requirement for sustainability at face-to-face events is essential to improve our current environmental status. The exploitation of fossil fuels represents a significant source of environmental pollution beyond international boundaries. The release of carbon-intensive energy into the air has contributed immensely to environmental pollution.

Over time, mankind has utilized energy from fossil fuels to drive Businesses and promote economic growth and development, through the production and provision of goods & services, transportation of materials, and commuting across the globe. According to IEA, Transportation, in particular, is responsible for about 24% of direct CO<sub>2</sub> emissions from fuels

combustion. In Nigeria, the largest sources of greenhouse gas (GHG) emissions are from the extraction, processing and combustion of Fossil Fuels. On a simple level, it's a process where certain gases trap heat in the Earth's atmosphere, contributing to the warming of the planet. Greenhouse gases in the atmosphere absorb solar radiation in the form of heat, therefore heating up the Earth. Without the greenhouse effect, Earth would have a temperature of  $-20^{\circ}\text{C}$ . However, human activity is increasing the number of greenhouse gases in the atmosphere, meaning that more and more heat is being absorbed, which in turn drives things such as global warming, heating up the planet more than is necessary. Carbon dioxide, methane, and nitrous oxide are the most abundant greenhouse gases in our atmosphere and they are the main offenders when it comes to climate change.

Fuels exploitation also have significant impacts on health, with the emission of Short-Lived Climate Pollutants (SLCPs). The global aspiration to achieve net-zero emissions by 2050, will require clean energy which is a major shift to low-carbon and non-emitting fuels.

Clean Energy is energy gained from sources that do not release Air Pollutants. The Clean Fuels Initiative (CFI) involves the deployment of climate-compatible technologies that enable the replacement of carbon-intensive transportation fuels with low-carbon or carbon-neutral alternatives such as Biofuels, Renewable Electricity, Hydrogen, or Renewable Natural Gas. To speed up the Transition to Clean Fuels, the Federal Government of Nigeria declared the "Decade for Gas" to promote a switch from high-carbon intensive fuels to low-carbon sources. The Government is also investing in sustainable Renewable Energy Industry

Schemes in Nigeria through the Renewable Energy Division of NNPC. The whole essence of the initiative is to reduce the carbon footprint associated with daily living. Each country is at different levels of implementation, for instance, while the displacement of natural gas energy by renewable energy is the national target in developed countries, the replacement of firewood and fossil fuel source with natural gas is the immediate implementation plan for African countries as a lead to a lower carbon footprint.

The gas reserves in Nigeria is estimated to be about 206 trillion cubic feet (tcf) of gas; the Federal Government of Nigeria (FGN) with the National Nigerian Petroleum Company Ltd (NNPC) leading, is seeking to drive investments in domestic commercial production and utilization of gas through the National Gas Expansion Programme (NGEP) & the National Autogas Roll-out Initiative, using LPG, CNG and LNG as alternative fuel options for transportation, industrial use, and domestic use.

The NGEP was conceived to make CNG the best choice fuel for transportation and LPG, the fuel of choice for domestic cooking, and LNG for captive power and small industrial complexes.

The CBN furthering this initiative, introduced the N250 billion intervention facility to help fast-track investments in the gas value chain (NAN, 2021).

The FGN on March 29, 2021, announced the “Decade of Gas” initiative, designed to ensure that Nigeria can take advantage of the global energy transition.

The main objective of this paper is to consider how clean fuels in the age of net carbon zero, as a pandemic recovery era strategy, will support the reduction or prevention of another pandemic in the world. The specific objectives of this paper are:

- To explore the replacement of carbon-intensive fuels with clean fuels alternatives to achieve net-zero emissions;
- To evaluate the Climate change initiatives dated back to the Paris Agreement
- To evaluate the sources of clean fuels;
- To analyze the benefits of clean fuels to net carbon zero initiatives;

**Research questions:**

- To what extent has Clean fuels affected the achievement of net-zero emissions?
- How has Climate change initiatives affected the achievement of net-zero emissions?

## REVIEW OF LITERATURE

The year 2020 was enveloped by the outbreak of the dreaded pandemic called Coronavirus (COVID-19) which affected different people in different ways. The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year (Chriscaden, 2020). Millions of enterprises face an existential threat. Nearly half of the world's 3.3 billion global workforces are at risk of losing their livelihoods. In Nigeria, 20% of the full-time Nigerian workforce lost employment in 2020 (Osayande, 2021). According to the report, "from disruptions in supply chains to ongoing supply and demand shocks and a drop in consumer confidence, these challenges are expected to leave a lasting impact on the business and enterprises that make up the backbone of the economy". Data from the report showed that the median loss in revenue remained at 44% in comparison to 2019 revenues while about 60% of enterprises surveyed experienced an increase in operational costs, with the price of raw materials and logistics being the top two contributors to the increase.

As well as affecting countless lives, COVID-19 has unleashed a devastating blow to the global economy, disrupting supply chains while choking off demand. Electricity demand is down significantly in many territories and the market for transport fuel has shrunk dramatically as planes are grounded and movement restricted. Even for those who feel able to predict

the passing of the storm, counting on a quick return to business as usual is not a viable strategy (Jeroen, 2020).

To meet the challenges posed by the pandemic, businesses around the world had to react in agile and decisive ways. As we move into the next phase, now is the time for businesses to seek out and seize the opportunities emerging in the recovery. This involves conducting an “after-action review” to collect data and insights on lessons learned from the pandemic, and then using these to prioritise actions to enhance business value today and build strategic resilience for tomorrow. Businesses that take these steps now will be well-placed to capitalise more effectively on the opportunities arising in the post-COVID-19 recovery - and to continue winning in their marketplaces as greater certainty and stability return. 51% of organisations established an after-action review process before the pandemic. (PwC’s Global Crisis Survey, 2021).

In a recent survey conducted by PwC, more than 250 senior executives around the world were asked to share their perspective on the overall economic outlook and the impact of the Coronavirus pandemic (COVID-19) on future revenue. The degree of change companies are expecting in the next three years and where they stand in their transformation journey were also examined. Finally, PwC explored what type of actions (i.e., cost reductions and investments) they were planning to take in certain areas or functions to emerge stronger in the future. The message was clear: Executives are ready for change.

- 48% of executives plan for accelerated growth but are sceptical that today’s core will contribute sufficiently.

- 78% expect to transform their companies in the next three years to react to fundamental changes in their markets.
- 51% plan to develop new business and value creation models, supported by digital investments.

The Takeaway is that as businesses prepare for recovery, the majority of executives feel optimistic about a post-COVID-19 rebound. At the same time, most companies also plan to embark on significant transformations, focused on changing both the way they operate and how they create value for customers. Transformation is planned across all sectors, with some industries such as pharmaceuticals and insurance expecting the most fundamental changes. More importantly, how do we prevent a recurrence of such pandemics going forward. A clean environment has come to be one of the main ways to prevent such occurrences. The topical issue everywhere today is on how to keep the environment clean and hence the phrase climate change initiatives. In pursuit of this clean environment, Nigeria went ahead and established the Nigerian Climate Change Act in 2021. The Act provides a framework for achieving low greenhouse gas emission (GHG), inclusive green growth and sustainable economic development by amongst others, implementing mitigation measures that promote a low-carbon economy and sustainable livelihood and setting a target for years 2050 -2070 for the attainment of a net-zero GHG emission, in line with Nigeria's international climate change obligations. (Climate Change Act, 2021, Part 1).

The clean fuel initiative started with the Paris Agreement. The Paris Agreement is a legally binding international treaty on climate change. It

was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016 ([www.unfccc.int](http://www.unfccc.int)). Its goal is to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate-neutral world by mid-century. The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects. Implementation of the Paris Agreement requires economic and social transformation, based on the best available science. The Paris Agreement works on a 5- year cycle of increasingly ambitious climate action carried out by countries. By 2020, countries submitted their plans for climate action known as nationally determined contributions (NDCs). In their NDCs, countries communicated actions they would take to reduce their Greenhouse Gas emissions to reach the goals of the Paris Agreement. Countries also communicated in the NDCs actions they would take to build resilience to adapt to the impacts of rising temperatures. Although climate change action needs to be massively increased to achieve the goals of the Paris Agreement, the years since its entry into force have already sparked low-carbon solutions and new markets. More and more countries, regions, cities and companies are establishing carbon neutrality targets. Zero-carbon solutions are becoming competitive across economic sectors representing 25% of emissions. This trend is most noticeable in the power and transport sectors and has created many new business opportunities for early movers. By 2030, zero-carbon

solutions could be competitive in sectors representing over 70% of global emissions.

Simply put, net-zero means not adding new emissions to the atmosphere. Emissions will continue but will be balanced by absorbing an equivalent amount from the atmosphere. Continuous pumping out of emissions that cause climate change will lead to a rise in global temperature well beyond 1.5, to levels that threaten the lives and livelihoods of people everywhere. This is why a growing number of countries are making commitments to achieve carbon neutrality or "net-zero" emissions within the middle of the decade. It's a big task requiring ambitious actions starting right now. Net-zero by 2050 is the goal. But countries also need to demonstrate how they will get there. Efforts to reach net-zero must be complemented with adaptation and resilience measures, and the mobilization of climate financing for developing countries. In 2015, Nigeria through its Nationally Determined Contributions (NDC) pledged under the United Nations Framework Convention on Climate Change (UNFCCC), Paris Agreement its global commitment towards embracing sustainable development measures. Nigeria committed to reducing its GHGs emissions by 20% unconditionally relative to a business-as-usual scenario of economic and emissions growth by 2030, and to pursue a 45% reduction with international support (20% unconditionally and 45% conditionally). The NDC was updated in 2021 at COP 26 in Glasgow where Nigeria committed to reducing emission by 20% unconditionally and by 47% conditional upon support by 2030. Conference of Parties at the Glasgow summit also recognized that limiting global warming to 1.5 °C requires a deep reduction of GHG emissions by 2030 relative to the 2010 level and net-zero around mid-century, parties agreed

to deep reductions in other GHGs. To achieve this, the parties agreed to accelerate the transition to low-carbon systems, rapid deployment of clean power and enhanced energy efficiency. It is important to note that the current pledges will only reduce about 6 billion tons of GHG against the target of 28 billion tonnes by the end of the decade in 2030.

President Muhammadu Buhari declared during the World Leaders Summit that Nigeria would achieve Net-Zero GHG emissions by 2060 similar to Saudi Arabia, China and Russia.

NNPC as a leading National oil & gas company transforming into an integrated energy company is mapping out sustainable decarbonization and robust energy transition strategy for the country.

The phasing out of Internal Combustion Engine (ICE) cars with electric cars is already underway in countries like Norway, the UK, the United States, Canada, and India with associated negative impacts on liquid petroleum fuels demand.

However, even with the heightened discussion on Energy Transition, fossil fuel is projected to still account for over 70% of energy use by 2040 while Renewables will grow by an average of 95% (Kyari, 2021).

The peculiarity of Nigeria has to be taken into consideration in choosing the appropriate NZE strategies and at the same time staying committed to its achievement of its Sustainable Development Goals (SDGs).

## **METHODOLOGY**

This study adopted a case study approach in an attempt to review the activities in climate change where the observed occurrences at a point in time and some of the events have already taken place. The study was mainly on climate change.

## CASE PRESENTATION

### Data on Climate Change

Global emissions stand at around 50 billion tonnes of CO<sub>2</sub>e each year. Carbon dioxide equivalent or CO<sub>2</sub>e means the number of metric tons of CO<sub>2</sub> emissions with the same global warming potential as one metric ton of another greenhouse gas. This is more than 40% higher than emissions in 1990, which were around 35 billion tonnes.

Climate change in Nigeria is evident from temperature increase, rainfall variability (increasing rainfall in coastal areas and decline in rainfall in the continental areas), drought, desertification, rising sea levels, erosions, floods, thunderstorms, bush fires, landslides, radiation, and loss of biodiversity (Olaniyi et al, 2019). All of these will continue to negatively affect human life and the ecosystems in Nigeria. In 2014, Nigeria's total Greenhouse Gas emissions (GHG) were 492.44 million metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e), totalling 1.01 per cent of global GHG emissions (GHG, 2021). This means that the Greenhouse gas emissions per person per year is less than 2 tons compared to the global average of over 6 tons. These greenhouse gases, mainly carbon dioxide and methane are mostly generated from oil and gas production, Pollution and Deforestation. Nigeria emissions stand at 492.44 million tco<sub>2</sub>e.

### Climate Change Mitigation Targets and Plans.

The Global target arising from COP 26 is to reduce GHG emissions by 28 billion tons by 2030, however current efforts and pledges will reduce emissions by only 6 billion tons of CO<sub>2</sub> equivalent at the end of 2030.

Nigeria, in its NDC, pledged to unconditionally reduce GHG emissions by 20% by 2030, compared to business as usual (BAU) emission levels. It also aims to achieve a 45% reduction by 2030 conditioned upon receipt of international support.

Climate change reflects the variations in the average daily weather conditions such as temperature, humidity, rainfall and sunshine of a location over an extended period. Climate change in Nigeria threatens economic growth in sectors dependent on climatic conditions. It has led to seasons of drought and excess flood, which affected agricultural activities and caused a loss of shelter. In 2019, the National Emergency Management Agency revealed floods had displaced approximately 1.9 million Nigerians (Futurelearn, 2021). The Nigerian climate has been irregular over the years, alternating between periods of extreme dry or rainy seasons.

### **Impact of Climate Change in Nigeria**

1. Deforestation: Even though the COVID-19 pandemic slowed economic activity in 2020, the planet still lost around 4.2 million hectares of primary tropical forest that year, an area the size of the Netherlands (Chumler et al, 2022). A large proportion of this loss was driven by agriculture, both smallholder and large-scale commodity cultivation. This forest loss is a major reason why agriculture accounts for one-quarter of all greenhouse gas emissions. At the same time, there are more than 800 million hungry people in the world, and the world's population is expected to increase by 2 billion by 2050, requiring an estimated 60 per cent increase in food production. In response to the

urgent need to feed the world's human population while also reducing agriculture-driven deforestation, protecting biodiversity and livelihoods, and keeping the planet on a 1.5 degree Celsius warming trajectory, there have been a growing number of private-sector commitments to eliminate deforestation from commodity supply chains. Some of these have been formulated as multi-stakeholder dialogues and agreements, such as the Glasgow Leader's Declaration on Forests. This declaration contains 141 country pledges to halt and reverse deforestation and land degradation by 2030, covering about 90 per cent of the world's forests. Other pledges are in the form of unilateral commitments. For example, at the most recent United Nations conference on climate change (COP26), ten global companies with a major global market share in key agricultural commodities announced a commitment to halting forest loss and taking action to limit warming to 1.5 degrees Celsius. COP26 also saw important commitments from the finance community to eliminate deforestation from investment portfolios. Drought and desertification are twin global environmental problems. Nigeria is faced with rapid desert encroachment affecting fifteen northernmost states from moderate to severe rate. Out of the 909,890 km<sup>2</sup> of the country's land area, about 580,841 km<sup>2</sup> accounting for 63.83% of the total land is impinged on by desertification (Olagunju, 2015). In Nigeria, there is an annual desert encroachment of about 0.6km per annum leading to a loss of 30ha annually. About 351km<sup>2</sup> is already lost to desertification (Lawal, 2022).

2. Water resources and loss of biodiversity: The surface area of Lake Chad has shrunk from 25,000 square kilometres in the 1960s to 4,800 square kilometres in 2014. Beyioku, J. (2016). Years ago, Nigeria experienced a climate change disaster that happened in the Northeastern region which is now Borno and Yobe states the territory along the Southern part of Lake Chad dried up. Due to logging and over-dependence on firewood for cooking, a greater part of Nigeria's Guinea Savannah region has been stripped of its vegetation cover. Similarly, the forest around Oyo has been reduced to grassland.
3. The rise in sea level and flooding: Annual 3mm per year rise in sea level. Rising temperatures in the oceans affect marine organisms. In late August 2012, Nigeria was hit by the worst flooding ever experienced in 40 years. This affected 7 million people in communities across 33 states including Kogi state. More than 2 million people out of the affected 7 million were driven from their homes by rising waters. Nigeria experienced another flooding caused by heavy seasonal rains in 2013 which brought further misery to a population that was still recovering from the 2012 fatal floods. Many mud-brick homes collapsed and families' belongings were ruined. Dug wells which are sources of potable water were also polluted. The states of Abia, Bauchi, Benue, Jigawa, Kebbi, Kano, Kogi and Zamfara were most affected by the floodwaters which lasted for 48 hours. The situation in Kaduna and Katsina was aggravated by the collapse of earth dams. According to the National Emergency Management Agency, more than 47,000 people were affected ([www.ifrc.org](http://www.ifrc.org))

4. Temperature increases: A temperature increase of 1.1°C as against the global average of 0.7°C in the last century. As climate change alters temperature and weather patterns, it also impacts plant and animal life. Scientists expect the number and range of species, which define biodiversity, will decline greatly as temperatures continue to rise. There are more frequent extreme weather events. Between 2014-2018, rising high temperatures above 40 °C had been observed in some central and northern parts of the country with Maiduguri and Nguru recording 44.5 °C and 44.4 °C respectively (Olewuiké, 2019).

### **The Clean Fuel Initiative (CFI)**

The Clean Fuel Initiative is planned to incentivize Investment in Climate-compatible Fuels Production and expand the Energy Business in Nigeria. The Objective of the CFI is to significantly reduce Economic-wide emissions and Air Pollution emanating from carbon-intensive Liquid Fuels. The Task is to Produce high-quality Fuel Products - including usage of non-carcinogenic Additives in PMS and maintaining ultra-low Sulphur Diesel Standards. Assessment of Pollutants shall cover Emissions from the Lifecycle of all Fuels produced in Nigeria. Assessment of Pollutants shall cover Emissions from the Lifecycle of all Fuels produced in Nigeria.

### **Benefits of the CFI for Nigeria**

- Improvement in Tail-gas Emissions for Quality Air
- Accelerating the deployment of Clean Technologies and Fuels for Environmental Sustainability

- Creating Sustainable Wealth and Condition Jobs
- Diversifying Nigeria's fossil-based Economy
- Driving Innovation in multiple Economic Sectors
- Expanding Modern Agri-Business and New Fuel Choices
- Collaborating in the Transfer of Smart Technologies
- Growing a Cleaner and more Competitive Economy, and
- Promoting Investments in low-Carbon Fuels & Tech

## Energy Transition

- **What is Energy Transition:** It is the global energy sector's shift from fossils based system of energy production and consumption to renewable energy. Future fuels refer to as Solar, Wind, Gas etc. Cutting carbon emissions is the most crucial of the future fuels strategy and is the heart of the energy transition. Energy transition will bring about a significant structural change in energy systems around the world. Revitalizing the industry will help the nations to reduce carbon emissions and also reposition the oil and gas industry for higher productivity. Collaboration is the only way African Countries can achieve energy transition to Future fuels. The ideology of Energy transition is not in the best interest of Nigeria because of the enormous proven gas of about 206tcf. Energy Transition requires the acquisition of skills from our educational institutions with the support and collaboration of Government, private sector and civil

society groups. The vital issues to be addressed in the Decade of Gas are Investment in Gas Infrastructure, a solid master plan, rehabilitation of energy reserves leveraging our gas potential, efficient media reporting on our gas activities and enhancing local capacity and SMEs in the energy environment. Gas has been adopted as Nigeria Energy transition fuel.

### **Gas as a transition fuel to carbon zero**

The emerging energy sector presents a vantage opportunity in the use of gas to diversify Nigeria's energy mix and growth for economic sustainability. The world is at the point of another energy transition wherein the change is no longer "slow and steady but sure and steady (Wabote, 2021). Humanity has been searching for more efficient, accessible and affordable energy from firewood to coal and then fossil fuels. However, the current transition is geared towards reducing global carbon emissions and curbing global warming. While the developed countries are differing oil and gas projects and shifting their budgets to renewable energy initiatives like solar, wind, hydrogen etc, African and Middle East countries are shifting to gas as their transition energy to renewables. Nigeria's strategy for building a resilient economy under energy transition is centred on gas. Gas is Nigeria's energy transition energy. Gas has the potential to diversify and uplift the Nigerian economy with its proven deposits of 200 trillion standard cubic feet of gas and the potential of over 600 tscf reserves and the increasing demand for cleaner gas energy.

## **SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS**

### **FINDINGS**

1. There is a continuous increase in global emissions of CO<sub>2</sub>e
2. Climate change in Nigeria is evident from temperature increase, rainfall variability, drought, desertification, rising sea levels, erosions, floods, thunderstorms, bush fires, landslides, radiation, and loss of biodiversity. Climate change has led to desert encroachment and Nigeria loses about 30ha annually. About 351km<sup>2</sup> is already lost to desertification.
3. The use of Fossil fuels for energy generation is a major cause of air pollution
4. Cleaner energy initiatives using Gas is the nearest alternative to fossil fuels for the generation of clean energy before ending up with renewables

### **CONCLUSION**

Energy from Clean Fuels is the future power need of Humanity across the globe - as reliance on Fossil Fuels continues to diminish.

As the drive towards Clean, Green and Renewable Energy continues to advance, economic growth and development will be enhanced

Clean Fuels provide a variety of Environmental and Economic co-benefits, including a reduction in Air & Noise Pollution, Cost savings, Jobs & Wealth creation, Standard of Living enhancement and Social wellbeing

The Energy Supply and Demand Transformation is here and Nigeria must seize the opportunity to expand her Energy Mix

## RECOMMENDATIONS

- I. A Framework Under the Mid-Stream/Down-Stream Sector Regulatory Authority should be established. The Framework shall create Incentives for Companies producing Renewable Fuels to stimulate faster growth to a zero-Carbon emission trajectory. The Regulations will require Fuel Suppliers to make their Products cleaner and non-polluting to the environment. In so doing, they will contribute to the reduction of carbon emissions, mostly from Road Transportation, which in Nigeria, is still on the increase due to Urban congestion, bad roads and rapid population growth
- II. Tree planting should be encouraged and Nigerians should be more incentivized to plant more trees. This will curb the problem of decertification
- III. Expansion of Gas Development and increased Utilization for power supply and petrochemicals to boost Economic Growth.
- IV. Using Renewables (Solar, Wind, Geothermal, Wave & Tidal and Hydropower) for Energy generation.

- V. The use of Biomass (wood, agricultural products and solid wastes) to produce Biofuels such as Ethanol and Biogas for transportation and power generation.
- VI. The Production of Blue Hydrogen from abundant Natural Gas through Steam Methane Reforming processes as well as production of Green Hydrogen through electrolysis of water using Renewable Electricity sources.
- VII. The Electrification of cars and trucks.
- VIII. Investments in Carbon Capture, Utilization and Storage (CCUS)
- IX. Energy Efficiency Measures and Behavioral Changes

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