OIL MANAGEMENT IN NIGERIA AND THE GLOBAL DRIVE TOWARDS GREEN ENERGY

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Nigeria's oil and gas sector operational landscape has undergone a significant transformation, primarily driven by sweeping reforms and recent establishment of Dangote's refinery. These transformations include restructuring of the Nigerian National Petroleum Corporation (NNPC) into a Public Limited Liability Company (PLLC), the deregulation of the downstream sector, and the imminent operationalization of two out of five large-scale refineries in the country. The expectations are a resilient oil and gas sector that supports Nigeria's economic growth and enhances consumer welfare as prices of refined petroleum products reduce significantly.

Although Nigeria has put in place new plans to improve efficiency and maximise productivity by 2030 – 2035, a new and long term challenge arises. The effects of climate change primarily caused by fossil fuels has lead countries to a new revolution - net zero carbon emission by 2060. For instance, countries like Iceland, Uruguay produce energy from renewable sources like hydropower and geothermal energy while many other countries have pled to reducing their fossil energy use by significant amount.

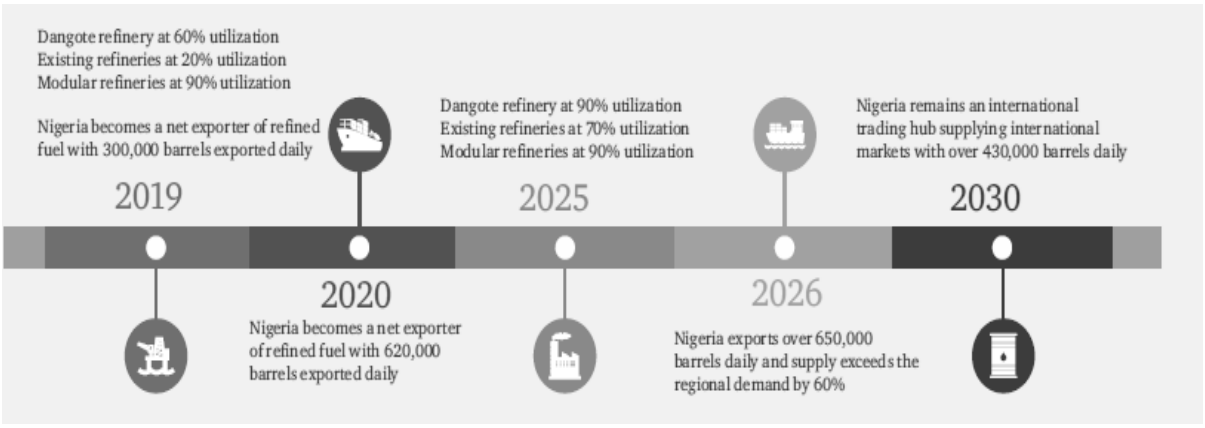

Figure 1 – Oil production estimation with Nigerian refineries working at close to maximum efficiency – mid-term till 2030

Based on today's market conditions and policies, global oil demand increase slightly towards the end of the decade amid the accelerating transition to clean energy technologies. Increased production of electric vehicles (E.V) and the substitution of oil with renewables or gas in the power sector, will significantly curb oil use in road transport and electricity generation.

Nigeria, whose economy is heavily reliant on non-renewable fossil fuels such as oil and natural gas for government revenue and foreign exchange, the transition from fossil fuels to clean renewable energy sources will pose significant economic and development challenges.

One big challenge with greener energy sources is that they are more expensive and cannot meet demand. Agriculture is a big example of this. Ammonia made by Haber process from petroleum-based feedstock is necessary component of fertilizers. It is difficult to realistic mass produce fertilizers and pesticides through any other means. Clothes, an important need of mankind, are mass produced through polymers from petroleum. Strict reliance on cotton would be way too expensive and almost impossible to achieve.

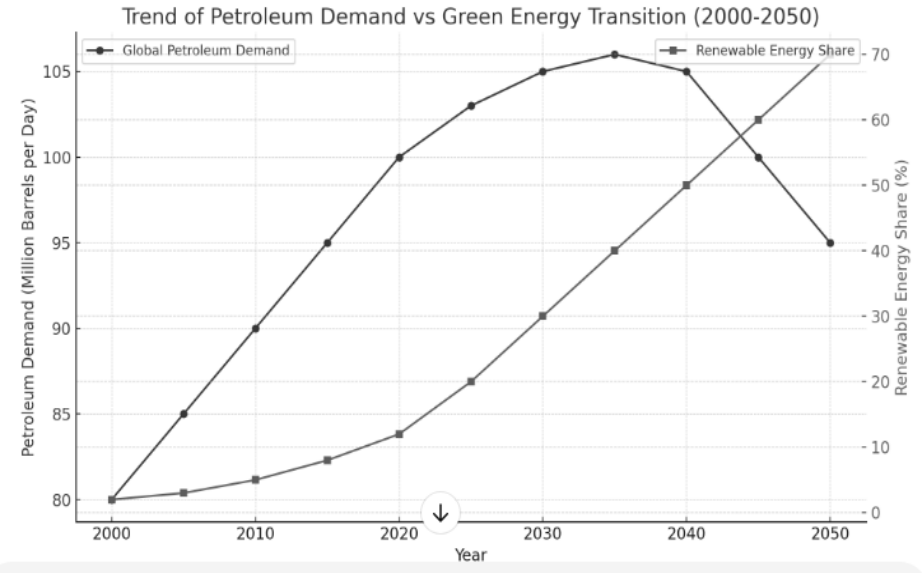

Figure 2 – Global demand for petroleum through 2030 to 2050

Natural gas is a versatile energy source used for power generation, residential heating, cooking, and water heating, as well as in industrial processes like manufacturing, food processing, and fertilizer production. Natural gas emits less CO_2 compared to oil when burned and high energy yield per unit volume. Seen as the lesser of two evils, most countries are beginning to replace oil with natural. food processing, and fertilizer production.

Nigeria intends in the short term, to use natural gas as a pivot to transition from crude oil to a less carbon intensive economy increasingly powered by natural gas. Overtime, natural gas is expected to overtake crude oil as Nigeria's major source of revenue, provide a basis for reliable power supply and a cleaner environment. In the long run, solar energy, biomass, hydro and wind energy will dominate the country's energy mix.

Figure 3 – Global demand for petroleum through 2030 to 2050 and Nigeria current natural gas export effort

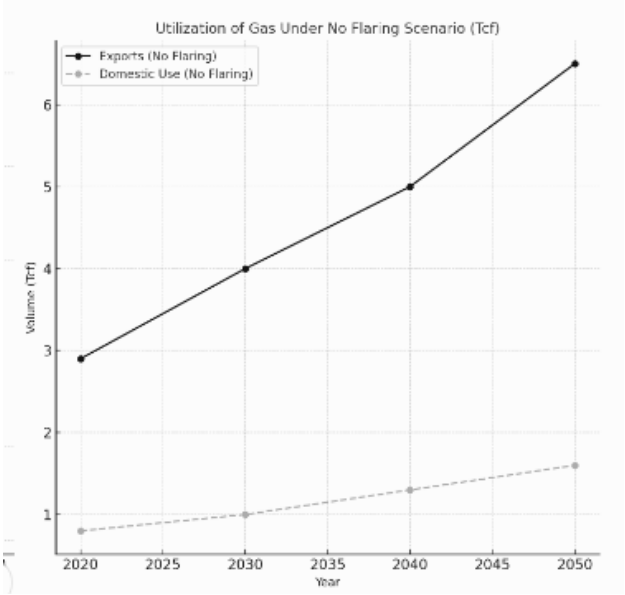

Figure 4 – Global demand for petroleum through 2030 to 2050 and Nigeria natural gas production without flaring

Nigeria is a just a chip of the block of nations which depend on oil. The major hurdle is the potential loss of revenue, as oil exports often form the backbone of their GDP and public budgets. Shifting away from oil risks economic instability, unemployment in fossil fuel sectors, and reduced government funding for infrastructure and social programs. Additionally, investments in green energy infrastructure require substantial upfront costs, which can strain economies already reliant on fluctuating oil prices.

In conclusion, Nigeria should maximise its production of oil for the mid-term by fixing its refineries, encourage private and local investors and eliminate corruption. As the 9th highest producer of natural gas, Nigeria should avoid gas

flaring and boost its production of natural gas to supplement the fall in production of crude oil as the demand of crude oil falls. However, as we transition toward sustainable energy, the focus is shifting to renewable alternatives and reducing greenhouse gas emissions associated with its use. It is paramount Nigeria start diversifying our economy by fostering growth in agriculture, manufacturing, and technology to prevent instability and economic regression

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DEVELOPMENT OF AGRICULTURE IN UGANDA THROUGH THE USE OF WIND MILLS

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Green technology is increasingly central to agricultural transformation in Africa, providing solutions for climate resilience, productivity enhancement, and sustainable resource management. Uganda, where agriculture supports over 70% of livelihoods, faces challenges including climate variability, low mechanization, and post-harvest losses. This article examines Uganda's current experience with green technologies—such as solar irrigation, renewable energy, climate-smart agriculture, and precision farming—and draws lessons from African peers, including Kenya, Morocco, and South Africa. The study identifies key enablers, challenges, and policy recommendations to accelerate adoption and ensure equitable and sustainable agricultural development. Agriculture in Uganda is divided into different sectors (Figure 1).