

The Nigerian Oil Industry in a world of Changing Energy Supply- Are we prepared?"

SPE Oloibiri Lecture Series and Energy Forum 2018

being a paper delivered by

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March 1, 2018

Abuja

Protocol

Introduction

1. On behalf of NNPC, I welcome you all to the 2018 SPE Oloibiri Lecture Series which has the theme: **“The Nigerian Oil Industry in a world of Changing Energy Supply: Are we prepared?”**
2. The theme is indeed quite thought provoking. The thought behind the theme is firmly in consonance with the current Administration's energy economic agenda. This is strengthened by the Federal Executive Council's approval of the National Petroleum Policy in September 2017. I am confident that the views which we will share at this workshop will put us on the right footing to better prepare us for a sustainable energy future.
3. Before I commence on the paper, permit me to use this platform to express NNPC sincere appreciation to the Society for Petroleum Engineers (SPE), the leadership and members of the Association for the frontline role they have been playing in uplifting the Nigerian oil and gas industry. We promise to continue to support your lofty ideals.
4. Distinguished Ladies and Gentlemen, the changes in our industry have not gone unnoticed. Indeed energy transition and the seeming changes to occur in the global energy markets over the next couple of years; energy diversification as well as technological advancements such as the growth of renewables, the evolution of shale gas in the United States, changes in energy for transportation with the advent of electric cars and calls to reduce global warming, shrink

carbon foot imprints and provide cleaner environment. These and many more stare at us in the face.

Where are we today?

5. Generally, energy demand also continues to expand with increasing prosperity and high living standards in fast-growing emerging economies of China and India. Interestingly, the current forecast is that growth in energy demand will come from the developing countries and is expected to be curbed by improvements in Energy Efficiency leading to a turning point between economic growth and carbon emissions.
6. According to the BP Energy Outlook for 2017, while Oil, Gas and Coal remain the dominant sources of Energy, Renewables, Nuclear and hydroelectric power will provide over 50% of the additional energy required by 2035. Renewables are the fastest growing fuel source (up to 10% in 2035); Gas being a cleaner source of energy, has a potential for a higher growth than oil and coal. This can be seen in the impact of US Shale gas as well as the expansion of Liquefied Natural Gas (LNG) business.
7. Now let's come back home to Nigeria and look at Oil in relation to our preparedness for this energy transition. What is the current state our energy resources? What are we doing? What are we going to do? These are the pertinent questions that we must answer to know whether or not we are prepared for Energy Transition.
8. Nigeria is Africa's oil giant with reserves in the region of 37 Billion Barrels and Gas Reserves roughly 192 Tcf with potential upsides up to 600 Tcf. We are Africa's largest oil producer and the sixth largest oil producing country in the world with an average 2.2 mmbbl/d. However, in 2017,

Nigeria average production dipped to an average of 1.99mmbbl/d coming 13th position with Russia (10.5mmbbl/d), Saudi Arabia (10.4mmbbl/d) and United States (8.8mmbbl/d) occupying 1st, 2nd and 3rd positions respectively. Despite the dip and impending growth, Nigeria appears to have a great potential for gas than oil.

9. From our modest production of 5,000 barrels of oil per day from Oloibiri, we have grown to over 2Million barrels per day production and over 8Billion standard cubic feet of gas in about 60 years of oil exploration and production.
10. Not only are we blessed with non-renewable fossil fuels, we have abundance of renewables which are yet to be fully harnessed into our energy mix. They include Wind, Solar, hydropower and Geothermal as well as Biomass & Waste Energy.
11. Biomass Energy make up about 80% of our energy mix. This high share represents the use of biomass to meet off-grid heating and cooking needs, mainly in rural areas. Natural gas accounts for 9.43%, Oil products make up 5.71%, crude oil accounts for 3.61% while hydro and coal account for the balance. However, the new road map by NLNG to make liquefied petroleum gas (LPG) available, assessable at a reduced price will reverse the trend.
12. In the last few years, we started laying the foundation for a sustainable energy future. We know the effect the US Shale Oil boom has on our exports to North America and even its attendant effect on the world supply and oil prices. We know the effect of collapsed oil prices on a monolithic economy as ours. We know that change is bound to come. Per common saying, "the stone age did not end because humans ran out of stones".

13. Our strategy is quite simple and it includes the diversification from Oil using our enormous gas resources for in-country industrialization viz- Gas to Power, Gas to Urea, Methanol, and Fertilizers etc. This has the potential to accelerate growth of our economy and mitigate the impacts of future oil price drops.
14. We have embarked on one of the most aggressive gas reforms and implementation. Accelerated implementation of gas pipeline infrastructure development, with specific focus on critical pipeline infrastructure to power plants being put in place. Between 2010 and today, almost 500km of pipelines have been completed, commissioned and now delivering gas.
15. Some of the completed pipelines include the Oben-Geregu (196km), Escravos-Warri-Oben (110km), Emuren-Itoki (50km), Itoki-Olorunshogo (31km), Imo River-Alaoji (24km), Ukanafun-Calabar (128km). With these, all available power plants in the country today are connected to permanent gas supply pipelines.
16. In addition, there is ongoing construction of the very strategic East-West OB3 pipeline (127km) scheduled for completion by Q3 2018, the expansion of the Escravos-Lagos Gas Pipeline System scheduled for completion by Q1 2018.
17. Most recently, the Federal Executive Council approved the contract award of the 40-inch by 614Km Ajaokuta-Kaduna-Kano pipeline and associated facilities. This pipeline is expected to supply natural gas to power plants and industries in the northern part of the country.
18. Once completed, the nationwide backbone gas infrastructure will be in place. With the effort in infrastructure development, we would have expanded supply capacity,

establishing an integrated gas pipeline infrastructure grid across the entire country.

19. With the growth in infrastructure, gas which was hitherto inaccessible and flared, is now being utilized. Nigeria has seen the most aggressive drop in gas flaring from a peak of 2500mmcf/d few years ago to about 700mmcf/d currently and reducing, and in the next few years we would have stopped routine flaring. i.e. Zero flares from all the gas producers.
20. However, the pace of domestic gas demand outpaces our gas supply development growth significantly as we see a huge shortfall of about 3.4bscfd by 2020 as demand increases to 7bscfd which led to the need for NNPC to identify short, medium and long term gas resources to bridge the huge supply gap. To bridge this huge supply gap, we have identified 7 Critical Gas Development Projects (7CGDP) to deliver about 3.4bscfd to bridge the foreseen medium term supply gap by 2020 which will be aggressively implemented on an accelerated basis. These projects when fully implemented will enable the nation meet its aspiration of delivering gas to support 15,000MW power generation and position Nigeria as a regional hub for gas based industries (Petrochemicals, Chemicals, Methanol, Fertilizer, etc.).
21. In terms of Renewable Energy, we see the potential to increase the energy capacity and availability with the abundance. Currently, we have a large hydropower potential of 11,250MW, 11Million hectares of forest and woodland, 30Million tonnes per year of municipal waste, 3.5-7.0 kW h/m²/day of Solar radiation, Wind speeds from a low 1.4 to 3.0m/s in the Southern areas, except for coastal line and 4.0 to 5.1m/s in the North. With all these resources, the country is still lags behind in the renewable energy

development and usage possibly due to high costs of developing them when compared to fossil-based fuels.

22. Furthermore, we are looking at the total revamp and comprehensive rehabilitation of our refineries to ensure that we refine all our in-country requirements. We are in the process of reversing the trend of massive importation of finished products as this is unsustainable, therefore, upgrades of our refineries from the current name plate capacity of 445,000 bbls of crude oil per day to at least 1 Million barrels of crude oil per day is the focus. Discussions with relevant investors and financiers are ongoing. The expectation is that the refineries will be fully back on stream by December 2019.
23. In the area of policy, the omnibus single petroleum industry bill have been broken into three parts for quick review and passage by the National Assembly. As you aware, the first part of the bill; the Petroleum Industry Governance bill was passed by the House recently. When the other sections of the bill are finally passed, it will un-lock over \$10 billion of investment held up due to uncertainty.
24. Corporate Governance, NNPC has been in the fore front of entrenching transparency in the Industry, driving the internalizing of its core values within the corporation. Transparency has been a major source of worry to investors which has denied the country a huge amount of investment. To mitigate this, a lot work have been done to improve the contracting processes and turn around cycle of contract documents.
25. Collaboration with local communities, we have continued the engagement of local communities to reduce militancy and restiveness in our areas of operations. Global MOUs are being emplaced regularly to improve the lots of local communities.

26. Distinguished Ladies and Gentlemen, the challenges associated with 'World of Changing Energy Supply' require a paradigm shift by all stakeholders in the entire oil and gas value chain to align with the current realities. I therefore ask that we collaborate and support Government efforts towards putting in place programmes and policies that will ensure sustainable energy supply.

I thank you for giving me the opportunity to speak as a Lead presenter, I particularly, express my gratitude to the members of the Society Petroleum Engineers for their various contributions to the oil and gas industry.

I wish us all a fruitful deliberations.

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