

The Nigerian Bio-fuel Policy and Incentives (2007): A Need To Follow the Brazilian Pathway

By Peter Kayode Oniemola and Gbenga Sanusi*

Introduction

Fossil fuel sources¹ are the fulcrum upon which industrialization and globalization have rested over the years. Oil provides over 90 percent of Nigeria's foreign exchange earnings, even though the oil sector of the economy contributes only 30 percent to the GDP in comparison to 40 percent from agriculture. The country benefits from the rise in oil prices and the strategic importance of being one of the world's largest producers of a vital product.² Nigeria's oil has not guaranteed ecologically and socially acceptable development in Nigeria.³ At present, there are over 11 oil companies operating 1,481 wells from 159 oil fields in the Niger Delta producing 2.7 million barrels of crude oil each day and flaring about 17 billion cubic metres of associated gas, spewing 2,700 tons of particulates, 160 tons of sulphur oxides, 5,400 tons of carbon monoxide, 12 and 3.5 million tons of methane and carbon dioxide, respectively, in the process.⁴

The current trajectory of fossil fuel use and its related emission of greenhouse gases⁵ are unsustainable.⁶ The environment is in threat by exploration of oil. With the rise in oil prices and the adverse effects of global climate change, Sub-Saharan Africa has an unprecedented opportunity: choosing a cleaner development pathway via low-carbon energy alternatives that can reduce greenhouse gas (GHG) emissions and, at the same time, meeting current suppressed energy demand and future needs more efficiently and affordably.⁷ Bio-fuels⁸ are becoming an increasingly important alternative source of energy. The use of bio-fuels will reduce the use of fossil fuels, thereby minimising the emission of green house gases. Increased use of bio-fuels will enhance the quality of the environment. The use of bio-fuels will lead to environmentally friendly, sustainable and viable sources of energy to reduce the dependency on depleting fossil fuels. Increasing attention is being focused on the production of bio-fuels especially ethanol and bio-diesel as the alternatives that will contribute to global reduction in greenhouse gas emissions.

According to the International Energy Agency bio-fuels presently account for 10 percent of global Total Primary Energy Demand (TPED), far more than all the other sources of renewable energy. In developing countries it provides 20 percent of Total Primary Energy Demand and reliance on bio-fuels in Africa is put at 47 percent, largely from wood.⁹ Bio-fuels are drawing increasing attention worldwide as substitutes for petroleum-derived transportation fuels to help address energy costs, energy security and global warming concerns associated with liquid fossil fuels.¹⁰

Bio-fuels may emit some pollutants when combusted, but they generally burn cleaner than corresponding fuels used in similar applications. The environmental case for other renewable energy technologies stresses the lack or absence of air-pollutant emissions during their normal operation.¹¹

Nigerian Bio-Fuel Policy and Incentives (2007)

Nigeria presently has a policy on bio-fuels entitled Nigerian Bio-fuel Policy and Incentives (2007). The Policy Document was approved by the Federal Executive Council on June 20th, 2007 and gazetted as a national bio-fuels policy at the same time. The Nigeria National Petroleum Corporation was given the mandate to create an environment for the take-off of a domestic ethanol fuel industry. The aim is to gradually reduce the nation's dependence on imported gasoline, reduce environmental pollution while at the same time creating a commercially viable industry that can precipitate sustainable domestic jobs.

The framework of the policy and the incentives is meant to create an enabling environment that is expected to sensitize and catalyze the development of the country's bio-fuels industry.¹² The bio-fuel programme constitutes a major and unique attempt to integrate the agricultural sector of the economy with the downstream petroleum sector, while fostering the use of other renewable energy sources.

To make the project a realizable objective; the federal government through the Nigeria National Petroleum Corporation, (NNPC) created the Renewable Energy Division (RED), to champion the implementation of the programme. The NNPC, by mandate of the former President, Olusegun Obasanjo, inaugurated the Renewable Energy Division in August, 2005, and charged it with the responsibility of developing the bio-fuel industry in Nigeria.¹³ RED shall provide a consistent, steady supply of alternative fuel to the utmost satisfaction of customers and continuously seek to improve the quality of its management systems.

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See footnotes at end of text.

The implementation plan includes initial market seeding (E-10), a bio-fuel production programme (PPP) to achieve 100% domestic production by 2020, a complete bio-fuel uptake arrangement, and joint-venture distilleries. This is anchored on agricultural productivity and competitiveness. The policy is intended to create market demand for bio-fuel products. Already, US\$4 billion has been committed to a sugar-cane sourced ethanol project in the northern states of Jigawa and Benue while cassava-sourced ethanol projects are earmarked for the southern Anambra and Ondo states.¹⁴

For the purposes of implementing the provisions of the Policy, a Bio-fuels Energy Commission shall be established. The Bio-fuels Energy Commission is charged with responsibility for implementing the strategies for bio-fuels in the country. It shall specifically exercise the following responsibilities:

1. Register all bio-fuel plants/projects in the country.
2. Issue license to bio-fuel operators for the production of fuel ethanol or/and bio-diesel in Nigeria.
3. Formulate and recommend fiscal, financial and other incentive policies for the bio-fuel industry, as well as protection measures if required.
4. Periodically, review and assess the economic, technical, environmental and social impact of the use of bio-fuels, and determine changes in policies required when necessary.
5. Monitor the supply and utilization of bio-fuels and bio-fuel blends and recommend appropriate measures to the Department of Petroleum Resources in case of shortages in the supply of bio-fuels or feedstock.
6. Review and adjust the minimum mandated bio-fuel blends as it deems appropriate.
7. Determine and put in place industry stabilization mechanisms.
8. Designate and oversee the activities of the investment bank appointed to manage the Bio-fuel Industry Equity Fund.
9. Establish and support the Bio-fuels Research Agency to be established under the Bio-fuels Programme.
10. Monitor intra-industry commerce, in particular relationships between out growers and bio-fuel producers. Present quarterly reports and briefings on the status of the bio-fuel industry to the National Assembly.
11. Present quarterly reports and briefings on the status of the bio-fuel industry to the National Assembly.
12. Disseminate and share information with investors and other interested members of the public.
13. Liaise with the Energy Commission of Nigeria in the formulation, revision and implementation of the National Energy Policy.
14. Liaise with the National Sugar Development Council as may be required.
15. Liaise with government ministries, agencies, parastatals, research institutes.

Provisions for incentives in the biofuel industries have also been made. For instance, there exist provisions for application for waivers granting Pioneer Status for an initial 10-year period with the possibility of additional 5 years extension since biofuel is not listed as one of the companies benefiting from such under the Industrial Development (Income Tax Relief) Act. The Policy explores the various provisions of the tax laws¹⁵ in Nigeria in order to create a wide range of incentives to the bio-fuels market. It, therefore, becomes necessary for the amendment of the tax laws in the country to bring them in consonance with the intent and purpose of the policy.

A research agency to be known as the Bio-fuels Research Agency shall be established to act as the central coordination body for bio-fuel research in the country. The policy stresses a collaborative efforts with local research institutes in feasibility studies namely, International Institute of Tropical Agriculture (IITA), National Cereal Research Institute (NCRI), National Root Crops Research Institute (NRCRI), Nigerian Institute for Oil Palm Research Council (NIFOR), Forestry Research Institute Nigeria (FRIN), Nigerian Stored Products Research Institute (NSPRI), Institute for Agricultural Research and Extension Services (IARES), Agricultural Research Council of Nigeria (ARCN), National Biotechnology Development Agency (NABDA), SHEDA Science and Technology Complex (SHESTCO) Federal Soil Conservation School (FSCS), National Centre for Agricultural Mechanisation (NCAM), National Agricultural Seeds Council (NASC), Nigerian Automotive Council, Raw Materials Research and Development Council (RMRDC) and Federal Institute of Industrial Research Oshodi (FIRO) and other relevant agencies. There is also collaboration with Government agencies and parastatals in bio-fuels policy development.

The Bio-fuels Research Agency shall collaborate with the Ministry of Agriculture and Ministry of Science and Technology to provide direction for research in crop production, industry technology and

processes pertaining to the production of bio-fuels.

The International Energy Agency presents two scenarios in its World Energy Outlook, and discussions of these two scenarios show how policies affect the global energy market, energy security and energy-related climate change concerns. The Outlook contains two energy scenarios: a reference or baseline scenario, which depicts how global energy markets would evolve in the absence of new government policies; and an alternative policy scenario which depicts global energy markets as impacted by additional government interventions and policies.¹⁶ This calls for rapid adoption of policies that are favourable to bio-fuels and other renewable sources in Nigeria. A legal regime favourable to development of bio-fuels must also be created following the path of Brazil.

Biofuel Policies in Brazil

Brazil has exhibited a high level of commitment to the development of renewable energy through a series of measures like the New Hydropower Policy, aimed at building large hydro schemes; the Biodiesel Policy, which seeks to increase national biodiesel use; the Luz para Todos Program (Lights for All), which targeted 2.5 million new connections by 2008—of which 200,000 will be supplied by renewable energy; and an Ethanol Policy aimed at increasing domestic application of ethanol (1 million flex fuel vehicles in 2005) and exports.¹⁷

The most popular is the Brazilian National Alcohol Programme (Programa Nacional do Alcool-PROALCOOL) to reduce the need for oil imports and provide a market for Brazilian sugar. This was launched in 1975 and included the promotion of ethanol as motor fuel through, credit guarantees and low interest loans for the construction of new refineries, purchasing ethanol at favourable prices by the state through a trading enterprise, granting of subsidies for ethanol, large marketing campaigns with the state oil company, Petrobras, becoming involved in ethanol distribution in the whole of Brazil.¹⁸ These would not have been possible without a combination of policy, mass enlightenment, and a legislative and administrative framework. The result was an increase in ethanol production by 500%.¹⁹

Brazil produces the lowest cost ethanol worldwide, owing to genetic R&D, which has led to a more robust sugar cane variety that is also richer in saccharose. The country is expected to produce another 16 billion liters of ethanol in 2008.²⁰ The legal framework for the programme was created by Decree 76.593/1975.²¹ The investments and expenses related to the program were financed by the National Bank for Economic Development (Banco Nacional de Desenvolvimento Económico) and other banks.²² Though the program experienced crises due to the fall in oil prices and the rise in sugar prices, the program is noteworthy for the effect it had in the development of ethanol in the Brazilian energy mix.

As at January, 2008 there are sixteen ethanol plants in Brazil.²³ Beyond the use of ethanol for vehicles, Brazil is also a leader in the generation of electricity from renewable sources. Over 80% of Brazil's electricity is produced via sustainable technology, mainly through the harnessing of hydroelectric power (77% of all generation).²⁴

The Brazilian Program of Technological Development for Biodiesel envisions exporting biodiesel, depending on production levels and on the growth and consolidation of an international market.²⁵ The idea is to encourage the cultivation of castor beans and palm by family farmers and in the less developed regions of the country.²⁶ The government will confer social certificates on producers who encourage the participation of family farmers in the biofuel production process.²⁷ Brazil has more recently begun to target the increased use of biodiesel fuels, derived primarily from domestically produced soybean oil, with recent legislation allowing for blends of 2% biodiesel in diesel fuels (B2), which may be increased to 5% (B5) in the near future if the market responds favourably.²⁸

Brazil's bio-fuel program was successful because its research and technology was adapted to the needs of the citizens.

Therefore, there is need for innovation through research and development. Private sector companies with the ability for joint ventures and government agency participation are necessary for bio-fuel technology to be adapted successfully.

An example of Brazilian government support or participation in bio-fuel initiatives is the establishment of regulatory agencies responsible for the launching of bio-fuel industries. These agencies also provide grants for research, development and demonstration purposes. These are coupled with the provision of financial incentives (e.g., bio-fuel price subsidies), and 'sunset' provisions for the policies supportive of technology joint ventures as appropriate.^{29,30}

It is now well established that to achieve this potential energy, efficient policies and legislation must be put into place that make it possible for firms to profit by supplying energy services through efficient investments. Legislation and policies must be adopted that will promote bio-fuel subsidies. Also, policies

must be adopted that help remove the many barriers that efficiency investments must overcome. These include informational, institutional, behavioural, financial, and legal barriers.

Conclusion

In conclusion, the present Nigerian government needs to formulate policies that have legislative support, as is the case in Brazil. There is need for a new legal framework that will enable the process of complementing traditional sources of energy with renewable energies like bio-fuel.

The lack of enabling legislation in the Nigeria energy sector has retarded the implementation of clean energy policies. Technical information on bio-fuels has also been hindered. Besides, there have been logistics bottlenecks. Moreover, the government has not encouraged the research and development required to enable the use of bio-fuels and other renewable sources of energy to achieve full efficiency and sustainability. Multi-sectoral coordination and support is equally lacking. In addition, no effort has been made toward the development of local expertise and institutional procedures to facilitate project finance and provision of appropriate fiscal and economic incentives, hence the call for enabling legislation that will fill these regulatory gaps in the energy sector.

There is a need for a public-private partnership in the development of bio-fuels in the country. The proposed partnership should optimize benefits amongst parties, either public or private, by allocating responsibilities to the party that is best positioned to control the activity that will produce a desired result. Clear and transparent legislation to develop the industry is critical and must be put in place at the right time.

Footnotes

¹ The common examples include coal, oil and natural gas.

² The top most oil producing countries include Saudi Arabia 264.3; Canada 178.8; Iran 132.5; Iraq 115.0; Kuwait 101.5; United Arab Emirates 97.8; Venezuela 79.7; Russia 60.0; Libya 39.1; Nigeria 35.9; United States 21.4; China 18.3; Qatar 15.2; Mexico 12.9; Algeria 11.4; Brazil 11.2 Kazakhstan 9.0; Norway 7.7; Azerbaijan 7.0; India 5.8 barrels, constituting 95% of the world total. (Source: Oil & Gas Journal, Vol. 103, No. 47 (Dec. 19, 2005). From: U.S. Energy Information Administration. <http://www.eia.doe.gov/emeu/international/petroleu.html>.

³ Olaniyi, A. "Biofuels Opportunities and Development of Renewable Energies Markets in Africa: A Case of Nigeria". A paper presented during the Biofuels Market Africa 2007 Conference, in Cape Town, South Africa, on November 5-7, 2007.

⁴ Ibid.

⁵ Six greenhouse gases have been identified under the Kyoto Protocol to include Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆), as listed in Annex A of the Koyoto Protocol.

⁶ International Energy Agency (2008). World Energy Outlook (2007 Edition), Paris: IEA-OECD.

⁷ Christophe de Gouvello, Dayo, F. B. and Thioye, M. (2008) "Low-carbon Energy Projects for Development in Sub-Saharan Africa Unveiling the Potential, Addressing the Barrier". Wahington DC: The International Bank for Reconstruction and Development / The World Bank, P.1.

⁸ Biofuels are products that can be processed into liquid fuels for either transport or heating purposes. Bioethanol and biodiesel are two of the most common forms of biofuels. Others include biomethanol, biodimethylether and biogas. Bioethanol is produced from crops such as sugarcane, corn, beet, wheat and sorghum. A new generation of 'lignocellulosic' bioethanol also includes a range of forestry products such as short rotation coppices and energy grasses. Biodiesel is made from seeds such as rapeseed, sunflower, soy, palm, coconut or Jatropa. New biodiesel technologies synthesize diesel fuels from wood and straw to a gasification stage (see Bart de Steenhuijsen Piters, "How sustainable are biofuels? Between common curiosity and confronting interests". Available on <http://knowledge.cta.int/en/Dossiers/S-T-Issues-in-Perspective/Biofuels/Articles/How-sustainable-are-biofuels-Between-common-curiosity-and-confronting-interests> assessed 29th October, 2008.

⁹ International Energy Agency (2008). World Energy Outlook 2007 Edition, Paris, IEA-OECD.

¹⁰ United Nations Conference on Trade and Development (2008) Biofuel production technologies: status, prospects and implications for trade and development UNCTAD/DITC/TED/2007/10.

¹¹ R. Steenblik (2005) "Liberalisation of Trade in Renewable-Energy Products and Associated Goods: Charcoal, Solar Photovoltaic Systems, and Wind Pumps and Turbines". OECD Trade and Environment Working Paper No. 2005-07.

¹² Dayo, F. B. (2008) "Clean Energy Investment in Nigeria: The domestic context, Manitoba, International Institute for Sustainable Development". p.59.

¹³ "Africa's First Ethanol Refinery Flagged off in Ekiti". Available at <http://www.tribune.com.ng/16092008/>

biznes.html.

¹⁴ Azih, I. "Biofuels Demand: Opportunities for Rural Development in Africa (Nigerian case-study)", A paper presented at the 2nd European Forum on Sustainable Development, Berlin Germany, June 18-21, 2007.

¹⁵ Companies Income Tax Act A (Cap C 21, Laws of Federation of Nigeria, 2004) Value Added Tax Act (Cap V 1, Laws of Federation of Nigeria, 2004), Petroleum Profit Tax Act (Cap P 13, Laws of Federation of Nigeria, 2004).

¹⁶ International Energy Agency, World Energy Outlook, 2006.

¹⁷ Report of proceedings of the International Grid-Connected Renewable Energy Policy Forum held on February 1-3, 2006 in Mexico City, Mexico. Available at http://www.gridre.org/images/Grid_Proceedings_Final_May_3.pdf

¹⁸ Omorogbe, Y. O. "Promoting Sustainable Development through the Use of Renewable Energy: the Role of the Law" in Zillman, D. N., Redgwell, C. Omorogbe, Y. O. and Barrera-Hernandez, L. K. (eds.) (2008). Beyond the Carbon Economy: Energy Law in Transition. New York: Oxford University pp. 54-55.

¹⁹ Ibid. 55.

²⁰ Ru"ther, R. "Renewable Energy Policies in Brazil". Kreith, F. and Goswami D. Y. (eds.) (2007) Hand Book of Energy Efficiency and Renewable Energy, Taylor & Francis Group, Boca Raton. p2-3.

²¹ Yanko Marcus de Alencar Xavier, "Energy Policy for the Future: Brazilian Law and Policy" Zillman, D. N. et al. Op. cit. 405

²² Ibid. 405.

²³ "World Biofuels Map". 2008 Edition, London: Petroleum Economist Ltd.

²⁴ "Biofuel Industry in Brazil", Available at http://www.researchandmarkets.com/reportinfo.asp?report_id=591868

²⁵ World Resources Institute, "Brazilian Program of Technological Development for Biodiesel" <http://projects.wri.org/sd-pams-database/brazil/probiodiesel-brazilian-program-technological-development-biodiesel>.

²⁶ Ibid.

²⁷ Ibid

²⁸ See www.procana.com.br, www.bioenergy-lamnet.org

²⁹ United Nations Conference on Trade and Development (2008) "Biofuel production technologies: Status, Prospects and Implications for Trade and Development" UNCTAD/DITC/TED/2007/10.

³⁰ Ibid.

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