THREE

REGULATORY FRAMEWORK GOVERNING GAS OPERATIONS AND UTILIZATION IN THE NIGERIAN PETROLEUM INDUSTRY

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Abstract

Gas enjoyed inadequate attention under the Petroleum Act, 1969, as it was considered to be a mere by-product of crude oil. The first gas legislation promulgated by the Nigerian Government to control flaring was the Associated Gas Re-injection Act, 1979 which was promulgated 10 years after the enactment of the Petroleum Act.1969 Soon after that, some laws and regulations have been enacted which were aimed at utilizing Nigeria's enormous gas potential in order to ensure energy security and sustainable development. These laws were however, not as efficient as they ought to be. One of the reasons for this was that the Nigerian National Petroleum Corporation (NNPC) was a joint operator with the International Oil Companies (IOCs) under a Joint Venture (JV) arrangement, and had to bear same cost for building re-injection plants with their partners and NNPC was not meeting up with its cash call obligation with joint operators. The need to ensure energy security and the use of cleaner energy through energy diversification, became evident, especially with Nigeria's commitments to the United Nations Convention Framework on Climate Change (UNCFCC) 2015, to which Nigeria is a signatory. The authors looked at the laws passed and current legal regimes enacted to promote gas utilization, particularly, the Petroleum Industry Act (PIA) 2021, and found that the PIA contains robust provisions which support the utilization of Nigeria's enormous gas resources, and investment. The authors relied on the doctrinal research methodology to reach their conclusion. The authors conclude this article by arguing that the elaborate provisions of the PIA dedicated to gas is commendable and recommends the Brazilian and Norwegian regulatory frameworks on gas. Further, the authors recommend that Nigeria should ensure the implementation of these provisions through the requisite regulatory bodies in order to make them effective to achieve its desired result of turning the country's economy around gas; stating that gas is more environmentally friendly and cleaner than crude oil.

Keywords: *Associated gas, non-associated gas, natural gas, third-party access, mid-stream gas operations, domestic gas delivery obligations.*

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1. Introduction

Nigeria is largely a natural gas province with its 209.5 trillion cubic feet of proven gas reserves, making it the 4th largest gas producer in Africa, and the 6th largest gas province in the world.[1] Despite this vast amount of natural gas resources, Nigeria is suffering from severe energy shortages/power outages and lack of sufficient gas utilization to convert her natural gas reserves to economic prosperity.

Since 1956 when oil was first discovered in commercial quantities at Oloibiri, gas produced in association with oil has been constantly flared. It is worthy of note that Nigeria was at one time the second highest gas flaring nation, and currently the seventh position through the combined efforts of the Ministry of Petroleum Resources, oil and gas majors in Nigeria and an aggressive Associated Gas Gathering (AGG). Projects.[2] While Nigeria attained significant status in the international crude oil business, even though her abundant gas reserves exceeded the foreseeable needs of the domestic, regional and export markets, her natural gas production and utilization profile remained nascent for decades. Historically, all Nigeria's gas discoveries were in association with oil exploration and production (E & P). Among the factors responsible for the slow development of the Nigerian gas sector was the dearth of laws and policies regulating the sector and the absence of a viable local market to justify the capital expenditure required for gas exploration, production and development?

With the realization of the enormous potential of its gas reserves, the Nigerian Government first promulgated the Associated Gas Re-injection Act 1979.[3] In 1984, the Associated Gas Re-injection (Continued Flaring of Gas) Regulations and Associated Gas Re-injection (Amendment) Act were promulgated. These statutes were to ensure that the oil companies conserve the enormous gas reserves of the country, and develop schemes for the processing of gas for industrial purposes.[4] The reason for this was that the oil companies found it cheaper to flare gas than to engage in expensive gas re-injection schemes. According to Kachikwu, "in the final analysis, any meaningful gas re-injection scheme should be backed up by appropriate fiscal incentives to the operators".[5] The Associated Gas Re-injection Act 1979 required all oil companies to submit schemes and projects for the utilization and re-injection of associated gas by October 1, 1980.[6]Under this statute, the flaring of gas after 1984 was prohibited and a penalty of forfeiture of all concessions granted in respect of the particular field (s) was imposed.[7]

In 1991, the Associated Gas Framework Agreement (AGFA)[8] was reached to provide fiscal incentives to improve the economics of gas utilization projects, and to encourage the implementation of same. This agreement allowed the IOC's to offset their capital cost for gas projects from oil revenues. The Associated Gas Re-injection Act, 2004 and the Associated Gas Re-injection (Amendment) Act, 2004 required all oil companies in the country to submit detailed plans for gas utilization. It also prohibited the flaring of associated gas without the written permission of the Minister of Petroleum Resources.[9] There was also the Flare Gas (Prevention of Waste and Pollution) Regulations, 2018 which sought to minimize the environmental and social impact caused by flaring natural gas, protect the environment, prevent waste of natural resources and create social and economic benefits from gas flare capture. The Flare Gas (Prevention of Waste and Pollution) Regulations vested the Federal Government with the right to take all flare gas free of cost at the flare site without payment of royalty. Under this regulation, a company that needed flare gas for its use or for sale to third party off-takers was subjected to a

[1] K Jeremiah, 'Nigeria's Gas Reserves Hit 206.53 Trillion Standard Cubic Feet '*The Guardian Nigeria News - Nigeria and World News* (2021) <https://guardian.ng/news/nigerias-gas-reserves-hit-206-53-trillion-standard-cubic-feet/>accessed 11 July, 2022.

[2] National Oil Spill and Detection Agency NOSDRA, 'Nigerian Gas Flare Tracker' *Nosdra.gasflaretracker.ng* (2014) <https://www.nosdra.gasflaretracker.ng/about.html> accessed 11 July 2022.

[3] This Act has been repealed by s.310 of the PIA 2021.

[4] L Atsegbua, *Oil And Gas Law In Nigeria (Theory And Practice)* (4th edn, Four Pillars Publishers 2021) 308.

[5] E I Kachikwu, 'Legal Issues In the Oil and Gas Industry' (1989) (2) *Gravitas Review of Business & Property Law.*

[6] Y Omorogbe, 'Regulation Of Oil Industry Pollution In Nigeria' (1993) (147) *New Frontiers in Law*.

[7] *Ibid.*.

[8] The AFGA was codified under ss 11 & 12 of the Petroleum Profits Tax Act (PPTA) Cap p13 LFN 2004.

[9] (n. 4) L. Atsegbua, 308

competitive bidding process. The regulation also established a new gas flaring payment regime for gas flared within an Oil Mining Lease (OML) area or a marginal field, of $2 per 1000 standard cubic feet (scf) of gas flared for companies that produce at least 10,000 barrels of oil per day, and $0.5 per 1000 SCF of gas flared for companies that flared less than 10,000 barrels per day.[10]

The afore-mentioned laws and policies did little to ameliorate the waste of natural gas through flaring by the companies involved in oil and gas operations. These companies still considered it more economically beneficial to flare the associated gas gotten in the course of their operations, than to utilize it.

The passing of the Petroleum Industry Bill (PIB) into law in August 2021 was a major breakthrough for the oil and gas industry, especially the gas industry. The Petroleum Industry Act (PIA) 2021 made robust provisions catering to gas development and utilization, which has given gas its pride of place in Nigeria. The fiscal incentives as provided for by the PIA[11] for companies engaged solely in gas development projects will go a long way to further government policies to drive gas utilization and further the President's aspirations for making gas the transition fuel of Nigeria when he declared the year 2020 to 2030 as 'the decade of gas.'[12]

2. Legal Framework for Gas Development and Utilization in Nigeria

2.1 The Nigerian 1999 Constitution (as amended)[13]

In the hierarchy of laws within the Nigerian legal system, the Constitution of the Federal Republic of Nigeria, 1999 (as amended) (the Constitution) is the supreme law.[14]The Constitution generally vests ownership of rights in all minerals comprised within Nigeria in the Federal Government of Nigeria. Specifically, with respect to rights in oil and gas, including oil and gas assets and its management thereof, the Constitution provides that "…the entire property in and control of all minerals, mineral oils and natural gas in under or upon any land in Nigeria or in, under or upon the territorial waters and the Exclusive Economic Zone of Nigeria shall vest in the Government of the Federation and shall be managed in such manner as may be prescribed by the National Assembly.''[15]

In line with the above, *Section 4(2) of the Constitution* provides that: "The National Assembly shall have power to make laws for the peace, order and good government of the Federation or any part thereof with respect to any matter included in the Exclusive Legislative List set out in part 1 of the Second Schedule to this Constitution". Natural gas is listed as item 39 of the Exclusive legislative List in Part 1 of the Second Schedule to the Constitution.

2.1.2 The Petroleum Act 1969[16]

The Petroleum Act (PA) was enacted in 1969, and until the effective date of the Petroleum Industry Act (PIA) 2021, it remains the principal legislation governing the Nigerian oil and gas industry. The PA provides for the exploration of petroleum from the territorial waters and the continental shelf of Nigeria. It vests the ownership of all on-shore and off-shore revenue derivable from petroleum resources and all other matters incidental thereto in the Federal Government of Nigeria (FGN).[17]

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[10] W Obayomi, 'Highlights Of The Flare Gas (Prevention Of Waste And Pollution) Regulations, 2018' (2018) <https://home.kpmg/ng/en/home/insights/2018/10/Highlights-of-the-Flare-Gas-Prevention-of-Waste-and-Pollution-Regulations-2018.html> accessed 4 April 2022.

[11] *PIA 2021 ss. 260(1) (b), 302(6).*

[12] O Esiedasa, 'Nigeria Targets Gas-Powered Economy By 2030' (2021) <https://www.vanguardngr.com/2021/03/decade-of-gas-nigeria-targets-gas-powered-economy-by-2030/> accessed 8 May 2022.

[13] *CFRN 1999 (as amended).*

[14] *Ibid., s. 1(3)* provides that if any other law is inconsistent with the provisions of the Constitution, the Constitution shall prevail, and that other law shall, to the extent of the inconsistency be void.

[15] *Ibid., s. 44(3).*

[16] *P.A1969.*

[17] *Ibid.,* s 1.

The PA defines 'petroleum' as "all mineral oil (or any related hydrocarbon) or natural gas as it exists in its natural state in strata…"[18] Therefore, all the provisions of the Act with respect to exploration, prospecting and mining as covered by an Oil Exploration Licence (OEL), Oil Prospecting Licence (OPL), and Oil Mining Lease (OML) respectively and all regulations made pursuant to the PA also apply to natural gas except where the PA provides otherwise.

The *Petroleum Drilling and Production Regulations (PDPR)*[19] was made pursuant to the Act,[20] and is a key regulation governing exploration and production in the oil and gas sector. Paragraph 43 of the PDPR mandates an OPL or OML holder to submit a feasibility study, programme or proposal for the utilization of natural gas whether associated with oil or not, not later than five (5) years after the commencement of production. The PDPR did not however proffer any clarity to the standards of operation within the first five (5) years of operation.

The *Mineral Oils (safety) Regulations*[21] also made pursuant to the Petroleum Act provides that all drilling, production, and other operations necessary for the production and subsequent handling of crude oil and natural gas conform to good oilfield practices considered to be adequately covered by the appropriate current institutes of petroleum safety codes like the American Petroleum Institute (API) Codes or the American Society of Mechanical Engineers (ASME) Codes.

The PA will however be repealed once the PIA takes effect, except otherwise provided by the PIA.

2.1.3 The Associated Gas Re-Injection Act (AGRA) 1979

The AGRA 1979 was a significant improvement on the provisions of the PDPR. The AGRA compelled every company engaged in oil and gas operations in Nigeria to submit preliminary detailed plans for the implementation of gas re-injection.[22] The Act mandated oil producing companies to submit before 1 April, 1980, a preliminary programme for;

a) Schemes for the viable utilization of all associated gas produced from a field or groups of fields; and
b) Project (s) to re-inject all gas produced in association with oil, but not utilized in an industrial project.

The Act also provided that all oil producing companies were expected to end gas flaring not later than 1 January, 1984. The Act empowered the Minister to grant operators the permission to flare gas after issuing a certificate for same in circumstances where utilization or re-injection was not feasible in a particular field (s).[23] Failure to comply with the provisions of the Act amounted to an offence attracting the penalty of forfeiture of the operators licence or concession.

Inspite of the good intentions of the AGRA, it could hardly be enforced as a result of the unrealistic time-frame and the dearth of the needed infrastructure to attain the objectives of the Act. The Amendment Decree of the AGRA however came into force in 1985, 1990 and 1998 respectively with improved and more realistic penalty regime. The penalties still remained insufficient to reduce gas flaring and to promote gas utilization.

The AGRA Act will however be repealed by the PIA on the effective date of the PIA.[24]

2.1.4 The Petroleum Industry Act, 2021 (PIA)

The PIA was enacted in August 2021 pursuant to the National Gas Policy of 2017. It repeals the Petroleum Act of 1969. It is the principal legislation governing the Nigerian oil and gas industry. The

[18] *Ibid.*, s. 15(1).
[1919] PDPR (as amended) Decree No. 51 of 1969 made pursuant to s 9 of the PA, 1969.
[20] P.A, 1969, s. 9.
[21] MOSR 1997, made pursuant to s. 9 of the PA 1969.
[22] *AGRA 1979 s. 1*.
[23] *Ibid.*, para 3(2).
[24] *PIA 2021 s. 310(a).*

PIA is an Act to provide for the exploration of petroleum from the territorial waters and the continental shelf of Nigeria and to vest the ownership of, and all on-shore and off-shore revenue from petroleum resources derivable there from in the Federal Government and for all other matters incidental thereto.[25]

Under the PIA, petroleum exploration, prospecting and mining may only be carried out under a Petroleum Exploration Licence (PEL) as issued by the Nigerian Upstream Regulatory Commission (the Commission), Petroleum Prospecting Licence (PPL), and Petroleum Mining Lease (PML) respectively as issued by the Minister on the recommendation of the Commission.

The PIA drafting committee has been applauded for giving gas its pride of place in the petroleum legislation. The PIA contains robust provisions aimed at encouraging gas utilization, and attracting investors. This is a major breakthrough for gas, because under the Petroleum Act 1969, gas was only treated as a buy product of oil. There were no significant provisions therein dedicated to gas as an energy source. The importance of gas has become ever more evident with the recent declaration by the President of the year 2020-2030 as the 'Decade of Gas' in Nigeria. The 'Decade of Gas' is an aspirational goal of the President for a fully powered gas economy by the year 2030. This is in pursuance to Nigeria's commitment to the Sustainable Development Goals (SDGs) of the United Nations Convention Framework for Climate Change (UNCFCC) 2015 to which Nigeria is a signatory.

Under the UNCFCC, Nigeria alongside 192 other governments around the world approved 17 Sustainable Development Goals with 169 underlying targets that address amongst others; the availability of clean energy for all, a safe environment, economic prosperity etc. Global leaders pledged to limit the global rise in temperature to below 2 degree Celsius above preindustrial levels to avoid the more serious effects of climate change, with a specific goal of reducing the emission of green-house gasses (GHG) to 1.5 Degree Celsius by 2030. The 7th goal of the SDGs agreed upon by the United Nations as part of its Agenda 2030, was "affordable and clean energy". This marked a significant step forward in the progressive realisation of a cleaner environment for all. Nigeria has thus decided to rely on gas as its transition fuel, in that gas is a much cleaner source of energy than its counterparts like coal, crude oil etc.

Some of the notable provisions of the PIA with respect to gas are as follows;

- i The establishment of the Midstream and Downstream Gas Infrastructure Fund for the purpose of making equity investments of Government owned participating or shareholder interests in infrastructure related to midstream and downstream gas operations aimed at increasing domestic natural gas consumption in Nigeria, encouraging private investment through risk sharing in gas infrastructure and reducing/eliminating gas flare.[26] The source of the Fund shall be; 0.5% of the wholesale price of petroleum products and natural gas collected from wholesale customers, funds and grants from multi-lateral and bilateral institutions, interest in respect of money in the fund, money received from gas flaring penalties and donations made to the Fund.[27]
- ii) The prohibition of operators of marginal fields, licensees/lessees from flaring gas except in cases of emergency or after an exemption must have been obtained from the Nigerian Upstream Regulatory Commission (the Commission). A default of the above shall attract a penalty as prescribed by the *Flare Gas (Prevention of Waste and Pollution) Regulations of 2018*.[28] The penalty shall be a flare payment of $2 per 28.317 standard cubic meters (one thousand standard cubic feet) of gas flared where 10,000 barrels or more of oil is produced, and $0.50 (50 cents) per 28.317 standard cubic meters (one thousand standard cubic feet) of

[25] E I Kachikwu, *Re-Thinking Gas. A Directional Roadmap For Nigeria's Gas Law And Policy Development* (Law Publishing & Conference Services Limited (LPCS) 2017).
[26] *PIA 2021 s.52*.
[27] *Ibid.*, s. 52(7).
[28] *Ibid.*, ss. 104 & 105.

gas flared where less than 10,000 barrels of oil is produced per day in such marginal field or field covered by the Oil Mining Lease (OML).

- iii) A domestic gas supply/delivery obligation[29], obliging a lessee to deliver the volume of natural gas to the domestic market based on the domestic gas demand requirements determined by the Nigerian Midstream and Downstream Regulatory Authority (the Authority), which shall be the total amount of marketable natural gas required for all wholesale customers of the strategic sector as shall be prescribed in a regulation to be made pursuant to the Act. The Commission shall allocate the domestic gas delivery obligation among all lessees before the 1st of March in each year, and failure to comply with this obligation shall attract a penalty of 3.5 US dollars per MMBtu of gas not delivered.[30] A lessee who fails to comply with the domestic gas delivery obligation, in addition to the aforesaid penalties will not be allowed by the Commission to supply natural gas to any new midstream gas export operations.[31]
- Iv The unbundling of the gas transportation network, permitting open access to gas transportation pipeline/network to third parties engaged in similar business with the gas transportation operator, on a non-discriminatory basis, for the purpose of having marketable natural gas transported to the point of consumption.[32] Here, a gas operator is allowed access to use the gas transportation network of the network operator subject to the terms and conditions as prescribed by the gas network code issued by the government. The above provision will encourage smaller investors to invest in gas utilization projects, where they would otherwise prefer to flare the gas and pay the requisite penalties when considering the cost intensive nature of developing these gas utilization projects.

- V Fiscal incentives for gas development and production. The Act exempts companies engaged in the production of associated natural gas and natural gas liquids produced from non-associated gas in fields from paying hydrocarbon tax, while allocating the cost of producing associated gas to crude oil.[33] The Act further entitles companies engaged in midstream and downstream domestic gas operations and large scale gas utilization industries to benefit from the tax incentive provisions of the *Companies and Income Tax Act (CITA)*[34]. Investors in gas pipelines are equally to be granted a five-year tax free period in addition to the three-year tax free period already granted under CITA.[35]

- viiThe mandatory elimination of routine gas flaring. The Act provides that, after the declaration of commercial discovery by a licensee or leasee, and before the approval of the field development plan (FDP), the Commission shall ensure the licensee or lessee's FDP provides for the elimination of routine natural gas flaring, and that her operations are in conformity with the domestic gas delivery obligations prescribed by the Act.[36]

2.1.5 The Oil Pipeline Act, 1959[37] and Oil Pipelines Regulations 1995

The Oil Pipelines Act 1959 and the Oil Pipelines Regulations 1995 both govern the licensing processes for the construction, operation and maintenance of gas pipelines, including liquefied petroleum gas (LPG) storage operations. Applications for access to pipelines under are made to the Minister for petroleum resources. The Minister will grant the application if the pipeline can conveniently convey the gas. Terms and conditions of access will be as negotiated and agreed upon between the pipeline owner and the applicant, and where parties fail to reach an agreement, the

[29] *Ibid.*, s.110.
[30] *PIA 2021 s.110 (8).*
[31] *Ibid.*, s. 110(14).
[32] *Ibid.*, s.161
[33] *Ibid.*, s. 260
[34] *CITA s.39.*
[35] (n. 10) s. 302(6).
[36] *PIA 2021 ss 79(2)(j) & (k).*
[37] *Oil Pipeline Act, Cap 107 LFN 2004*.

Minister may impose such terms and conditions expedient to secure the access rights of the applicant and to regulate the access charge(s).[38] The Oil Pipeline Act mandates operators to use highly maintained and standard pipeline to transport their products.

This Act shall be saved until the termination or expiration of all Oil prospecting licences (OPLs) and Oil Mining Leases (OMLs) granted under the Petroleum Act.[39]

2.1.6 The Companies Income Tax Act (CITA)[40]

All companies involved in operations in the petroleum industry are subject to taxation under the provisions of CITA.[41] For instance, gas utilization is defined under CITA[42] as the marketing and distribution of natural gas for commercial purposes and includes power plant, liquefied natural gas, gas to liquid plant, fertilizer plant, gas transmission and distribution pipelines. The Act provides for the following incentives to companies engaged in gas utilization (downstream operations) as follows;

a) An initial three (3) years tax holiday, with an additional 2 years renewal if the company satisfactorily performs its business
b) An alternative to the tax holiday afore stated shall be a 35% Petroleum Capital Investment allowance on the value of any asset purchased by the company for the business, and 15% capital investment allowance if it took advantage of the tax holiday.
c) Companies that take advantage of the tax free period shall be allowed an accelerated capital allowance regime after the tax free period which shall be 90% annual allowance on any investment made, with a10% tax retention for investments made in plants and machinery.
d) All dividends distributed during the tax holiday are not taxable provided that the downstream investment is made in foreign currency and the investment was in acquiring imported plant and machinery of not less than 30% of the company's equity share capital.
e) Interest on loans collected by the company for developing gas utilization projects shall be tax deductible, provided the approval of the Minister of Petroleum resources was obtained to carry on the said project.

2.1.7 The Nigerian Oil and Gas Content Development Act, 2010 (NOGICDA)[43]

The NOGICDA provides a Nigerian content plan for the development of Nigerian content in the Nigerian oil and gas industry. It also provides the framework for the supervision, coordination, monitoring and implementation of Nigerian content. The Act requires all regulatory authorities, operators, contractors, alliance partners and other entities involved in any project or transaction in the oil and gas industry to consider Nigeria content as an important element of their overall project development and execution.

2.1.8 The Environmental Impact Assessment Act (1992) (IEA Act)[44]

The IEA Act requires projects, including gas distribution pipelines, oil and gas refineries, as well as storage facilities for petroleum and petroleum products of 200,000 ton or more to undergo environmental impact assessment procedure and appraisal.

3. Institutional Framework for Gas Utilization in the Oil and Gas Industry in Nigeria

3.1 The Ministry of Petroleum Resources

The ministry of petroleum resources deals with policy formulation and provides direction to other agencies in the petroleum industry. It oversees the upstream, midstream and downstream petroleum operations. Some departments were established under it to oversee petroleum activities like the

[38] *Ibid.*, s.3.
[39] *PIA, 2021, s.311 (9)(c).*
[40] *CITA CAP C21 LFN 2004 (as amended).*
[41] *Ibid.*, s. 302.
[42] *Ibid.*, s 39(3).
[43] *NOGICDA 2010. Act No. 2, CAP P10, LFN, 2004.*
[44] *EIA Act Decree No. 86, 1992.*

Department of gas established to regulate the gas sector, evaluate, review and implement national policies on gas development that may be issued from time to time by the Federal government. There is also the Department of petroleum resources, which is the technical arm of the ministry that ensures compliance with industry regulations, applications for licenses and leases and permits and also enforces environmental regulations.

However, on the commencement of the PIA, the functions of the Ministry of petroleum resources will now be taken over by the Commission and the Authority charged with regulating petroleum operations.

3.2 The Nigerian Upstream Regulatory Commission (The Commission)

The Commission is a body corporate established pursuant to the PIA[45]and it is responsible for the technical and commercial regulation of the upstream petroleum operations. Some of the functions of the Commission are to;[46]

- Ensure compliance with all the applicable laws and regulations governing the upstream petroleum operations
- Ensure upstream petroleum operations are carried out in a manner to minimize waste and achieve optimal government revenues
- Promote healthy, safe efficient and effective conduct of upstream petroleum operations in an environmentally acceptable and sustainable manner
- Ensure efficient, safe, effective and sustainable infrastructural development of upstream petroleum operations
- Set, define and enforce approved standards and regulations for the design, construction, fabrication, operation and maintenance of plants, installations and facilities used in upstream petroleum operations including; natural gas evaluation and management, upstream natural gas gathering, natural gas treatment and the elimination of natural gas flaring.

The above are some of the technical and commercial regulatory functions of the Commission which all apply to upstream gas operations and operators.

3.3 The Nigerian Midstream and Downstream Petroleum Regulatory Authority (The Authority)

The Authority is a body corporate established pursuant to the PIA[47]and it is responsible for the technical and commercial regulation of the midstream and downstream petroleum operations in the petroleum industry. Some of the functions of the Authority are to[48];

- Ensure efficient, safe, effective and sustainable infrastructure development of midstream and downstream petroleum operations
- Promote healthy, safe, efficient and effective conduct of midstream and downstream petroleum operations in an environmentally acceptable and sustainable manner
- Promote a competitive market for midstream and downstream petroleum operations
- Promote the supply and distribution of natural gas and petroleum products in the midstream and downstream petroleum operations and the security of natural gas supply for the domestic gas market
- Ensure compliance with applicable laws and regulations governing midstream and downstream petroleum operations

[45] PIA 2021 s. 4.
[46] *Ibid.,* s.6.
[47] *PIA 2021 s. 29.*
[48] *Ibid.,* s. 31.

- Determine, administer and ensure the implementation and maintenance of technical standards, codes, practices and specifications applicable to midstream and downstream petroleum operations pursuant to good international petroleum industry practices.

The Authority also plays a huge role in the regulation of third-party access to gas infrastructure in the midstream and downstream gas transportation operations.[49]

3.4 The Nigerian National Petroleum Company Limited (NNPC Ltd)

The NNPC ltd incorporated pursuant to the PIA[50]is the vehicle through which the Federal Government of Nigeria participates in the oil and gas industry. The primary function of NNPC ltd is to engage in all commercial activities relating to the petroleum industry that represents good international petroleum industry practices.[51]NNPC ltd shall no longer be a regulator of the petroleum industry, but will carry out its business in a commercially viable manner like any other company registered in Nigeria. Its function shall include the promotion of domestic use of natural gas through the development of gas utilization industries.

3.5 Nigerian Content Development & Monitoring Board (NCDMB)

The NCDM is the agency established to implement the provisions of the NOGICDA, 2010, with respect to supervising, coordinating, administering, monitoring and managing the development of the Nigerian Content industry. The NCDMB is also to assist local contractors and Nigerian companies to develop their capabilities and capacities. The functions of the NCDMB is crucial to ensuring sufficient involvement of local content in the gas industry, which will boost Nigeria's Gross Domestic Product, especially now that the Federal government of Nigeria has declared the years 2020-2030 as the 'the decade of gas', meaning that Nigeria is deliberately moving towards a gas-based economy.

3.6 The Federal Inland Revenue Services (FIRS)

The FIRS is the agency responsible for assessing, collecting and accounting for tax and other revenues accruing to the Federal Government of Nigeria, including taxes payable by companies involved in gas development businesses.

3.7 The Federal Ministry of Environment (FME)

The FME is the authority charged with the responsibility of enforcing the requirements of the EIA Act. In line with its functions, the FME has published the EIA Procedural Guidelines. The guidelines cover major development projects including on and offshore oil and gas projects, and are intended to inform and assist proponents in conducting EIA studies.

4. Regulatory Overview of the Gas Sector in Other Jurisdictions

4.1 Brazil

Brazil just like Nigeria relied greatly on fuel, and even with their abundant gas reserves, gas made up only 2% of the energy source till the late 1990's. The demand for energy was growing and there was the indication that fuel/oil may not meet the countries energy needs. Thus in order to ensure security of supply, Brazil amended the 2009 Gas Law sometime in April 2021, to allow third party access to gas infrastructure and oil and gas equipments generally as a way to maximize recovery of hydrocarbons.[52]

[49] *PIA 2021 ss. 160(2), 163.*
[50] *Ibid.*, s.53
[51] *Ibid.*, s. 63(1) (e).
[52] The Oxford Institute for Energy Studies. 'Liberalisation: the key to unlocking natural gas potential in Brazil?' (2021) <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2021/12/Liberalization-the-key-to-unlocking-natural-gas-potential-in-Brazil-NG173.pdf> accessed 1 February, 2022.

Brazil had significant natural gas potential given the offshore oil and gas mega discoveries in 2006-2008 that catapulted the country into the big league of hydrocarbon reserves. To monetize this potential, the Brazilian domestic natural gas market required further development. With that in mind, the Brazilian government enacted the 2009 Gas Law[53] which was expected to incentivize competition and to encourage more investment in exploration and production leading to market expansion and greater utilization domestically. The 2009 Gas Law was enacted to regulate the transportation, treatment, processing, storage, liquefaction, re-gasification, and trading of natural gas. In accordance with the Gas Law, the National Agency of Petroleum, Natural Gas and Biofuels (ANP) is responsible for implementing natural gas policy with an emphasis on ensuring the supply of natural gas, its by-products, and the protection of consumers interests regarding price, quality and product availability. The 2009 Gas Law, and its implementing regulations not only provided a fuller and specific legal regime, but were also expected to give rise to competition in natural gas transportation as a result of the establishment of a concessions regime for all gas pipelines considered to be in the general interest, as well as strengthening the guarantee of free access to gas pipelines in order to encourage more investment in exploration and production'.[54]

However, the 2009 Gas Law did not produce the intended results, as Petrobras (Brazil's national oil company) continued to be the only supplier of gas. By 2015, the Brazilian natural gas market continued to suffer from high levels of concentration and price-dominated by a single state- owned company, which hindered competition and elevated natural gas prices. Concrete and concerted efforts to overhaul the regulatory framework began in 2016. The Temer Administration proposed a 'Gas to Grow' (Gás para Crescer) program seeking to overhaul the market design and to enhance competition, including measures to harmonize federal and state rules and to overcome barriers for greater utilization of gas in power generation. Temer's reform initiative was eventually derailed in Congress as a result of state resistance over the federal regulation of distribution operations. In Brazil, states are sensitive to federal encroachment that might affect state-owned utilities (and their revenue).

To tackle the above challenge, in 2019, the Bolsonaro Administration sought to work within the available regulatory framework to enact liberalization guidelines under an initiative branded as the New Gas Market (NGM). Building on the Gas to Grow recommendations, the NGM called for the unbundling of gas supply from transport and distribution to encourage more upstream investment, non-discriminatory third-party access to essential infrastructure so that more than one producer gets to market gas at the wholesale level and the harmonization of tax rules so taxes are applied to the commercial rather than the physical flow of gas. This process was catalyzed in July 2019, when the Brazilian competition authority (CADE by its acronym in Portuguese) and Petrobras signed a Term of Commitment of Cessation (TCC) agreeing to provide third-party access to strategic infrastructure to increase the number of players in gas commercialization and to divest itself of transportation and distribution assets by 2021.[55]

To lure investors, assuring legal security and stability became a priority. In October 2019, the Brazilian Congress rehashed the previously rejected Temer Administration 'Gas to Grow' reform bill. Finally in early April 2021, after a fast track approval process, Congress approved, and the president signed *Law No. 14,134 (the 2021 Gas Law)*, which regulates the transportation, treatment, processing, storage, liquefaction, re-gasification, and commercialization of natural gas in Brazil.[56] The Law enshrines many of the features of a competitive market design including unbundling, third party access rules, an entry–exit transport system, and introduces an authorization regime for the development of

[53] Law 11909 of 4 March 2009.< http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/lei/L11909impressao.htm> accessed 1 February, 2022.

[54] F Rocha de Sousa, (2010). Desdobramentos da Lei do Gás. Consultoría Legislativa. Nota Técnica. April 2010. -. Notably however according to this congressional briefing note on the Gas Law, the law did not have the power to change the structure of the natural gas transport market in the short and medium term, or to modify the de facto monopoly's domestic natural gas price policy.

[55] CADE, 'Petrobras Agreement', (2019) <https://petrobras.com.br/data/files/0D/92/F0/C7/B81DB710E2EF93B7B8E99EA8/TCC%20assinado%20entre%20o%20Cade%20e%20Petrobras%20_1_.pdf> accessed 5 February, 2022.

[56] 2 Law No. 14,134 of 8 April 2021.< https://www2.camara.leg.br/legin/fed/lei/2021/lei-14134-8-abril-2021-791240-norma-pl.html.> accessed 5 February, 2022.

transport infrastructure abandoning the previous burdensome concession framework.[57] The Law, as part of its gas network unbundling strategies provides for an entry-exit model for virtual-trading points (virtual hubs) alongside the gas point-point pipelines. The law also grants 3rd party access not only to gas transportation pipelines, but also to essential facilities such as gas offloading systems, gas processing facilities and LNG terminals. This way, transaction costs and complexity for gas transportation services are greatly reduced, thereby attracting smaller investors to the field to help maximally recover and utilize gas resources.

4.2 Norway

Norway as in Nigeria is rich in natural gas reserves. It is a major producer and exporter of natural gas. Norwegian natural gas supply represents approximately 22% of the European Union's and United Kingdom's natural gas demand. The ability to maintain production rates, and a readily available and efficient gas transportation system combined with a predictable long term government petroleum policy have all contributed to the continued attractiveness of Norwegian natural gas.

The principal law governing the Norwegian oil and gas industry is the *Petroleum Act of 1996*[58] *and the Petroleum Activities and Safety Regulations* issued there under, which provides for a very strict flaring/venting policy in order to maintain reservoir pressure and reduce emissions. Natural gas not sold or used for production purposes is re-injected in the production field reservoirs for pressure maintenance and temporary storage. Such re-injection forms a core component of the Norwegian resource management philosophy, and a central part of enhanced oil and gas recovery activities.

5. Conclusion

With the growing population of the world, every country's energy need is consequently growing, thereby intensifying the need for energy diversification. Nigeria has been endowed with abundant gas reserves, making it the 6th gas country in the world and the 4th in Africa, thereby making it increasingly necessary for Nigeria through its petroleum legislation to drive the utilization of gas by building gas development projects and encouraging investment in the gas sector. According to the erudite Dike[59], the availability, accessibility, affordability and sustainability of energy are the indices that will ensure energy security and gas can drive energy security in Nigria in the long term . More so, the direction of the rest of the world to energy sources that are environmentally friendly and Nigeria's commitment to the UNFCCC 2015 Sustainable Development Goals, have caused the Federal Government of Nigeria to declare gas to be the country's transition fuel. Little wonder why gas has gotten all the attention under the PIA, and this is highly commendable. Although the PIA has only become effective, the provisions which are dedicated to gas seem robust enough, especially the provisions permitting third-party access to the gas transportation network, and the establishment of the Midstream and Downstream Gas Infrastructure Fund aimed at making equity investments in gas infrastructure. If properly implemented through the requisite regulatory institutions, these provisions are capable of turning the Nigerian economy around and providing energy security which is a dire need of any society.

6. Recommendations

Flowing from the foregoing discussion, the authors recommend as follows:

- That like the Brazil Gas law of 2021, the PIA be amended to make provisions for virtual trading points, as part of the strategies for unbundling the gas transportation network. This is to encourage small players in the petroleum industry to partake in gas business, thereby increasing gas utilization and making gas accessible to end users.

[57] Ministry of Mines and Energy, 'The New Gas Law: Summary Table of Major Changes'. (2021) <https://www.mayerbrown.com/-/media/files/perspectives-events/publications/2021/03/legal-update--nova-lei-do-gs--17-de-maro-2021.pdf >accessed 5 February, 2022.

[58] *Act 29, November, 1996, No. 72 as amended*.

[59] S C. Dike, *Energy Security: The Case of Nigeria and Lessons from Brazil, Norway and the UK* (Pearl Publishers, 20)32.

- That Nigeria, like Norway adopts a strict gas flaring monitoring and implementation process which will significantly reduce gas flaring and greenhouse gas emissions. It is recommended that Section 108 of the PIA which allows a licensee/lessee 12 months after the effective date of the Act to produce a natural gas flare elimination plan, be expunged as the long time frame portends environmental harm and waste of resources.
- That the Nigerian government not only pays more attention to, but financially supports its domestic gas operators. Domestic gas development projects are regarded as uneconomical by investors because of the humungous financial involvement. This has been a major hindrance to the development of Nigeria's gas market. The development of domestic gas markets just like the international gas market has the potential to build the economy and increase human capacity development, also in creating jobs. The Nigerian government can strengthen her indigenous gas development investors by allowing them easy access to loans from banks, other financial institutions and some form of government assisted funding.