



The Petroleum Industry Act and Nigeria's Gas Value Chain: Prospects for Processing, Transmission, and Distribution

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ABSTRACT

The Petroleum Industry Act (PIA) of 2021 represents the most comprehensive legislative overhaul of Nigeria's oil and gas sector in decades. This paper critically examines the Act's provisions and their implications for the country's gas value chain, with particular attention to processing, transmission, and distribution. Employing a qualitative research design, the study conducts a thematic analysis of existing literature, official documents, and expert commentary to infer potential outcomes from the PIA's implementation. Findings reveal that Nigeria possesses vast proven gas reserves of approximately 209 trillion cubic feet (TCF), yet continues to grapple with chronic flaring and infrastructural bottlenecks. Strategic midstream projects — including the Obiafu–Obrikom–Oben (OB3) pipeline with an estimated capacity of 2,000 MMSCF/d and emerging Floating Liquefied Natural Gas (FLNG) initiatives — are central to domestic gas monetization, but remain vulnerable to execution delays, financing challenges, and security risks. The PIA introduces a more robust legal and fiscal framework that aims to address long-standing constraints such as regulatory uncertainty, inadequate infrastructure, and underinvestment. Key innovations include clearer delineation of regulatory roles between the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), streamlined licensing pathways, and the creation of a dedicated gas infrastructure fund. These provisions are designed to reduce legal ambiguities and incentivize private capital inflows. However, critical subordinate regulations covering tariff methodologies, network codes, and gas aggregation mechanisms are still required to operationalize these reforms effectively. Despite its promise, the PIA faces significant risks. Administrative inefficiencies, delays in secondary legislation, and persistent insecurity in gas-producing regions could undermine progress. Furthermore, sustained investor confidence will hinge on transparent, consistent, and effective enforcement by the newly established regulatory institutions. The study concludes that the PIA presents a transformative opportunity for Nigeria's gas sector. If implemented coherently, it could accelerate gas processing, transmission, and distribution while converting flared and stranded volumes into feedstock for domestic industries and reliable supply for the power sector. Policy recommendations include the rapid publication of secondary regulations, consolidation of offtake frameworks, provision of fiscal and credit support for FLNG and processing projects, and a combined enforcement-plus-incentives

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approach to eliminate routine flaring. Ultimately, while challenges persist, the PIA offers a viable pathway to unlocking Nigeria's vast gas potential and positioning gas as the cornerstone of the nation's energy transition and industrial development.

INTRODUCTION

Nigeria has the biggest amount of natural gas in Africa, with more than 209 trillion cubic feet of proven reserves, according to the NNPC in 2023. Nigeria as a country has proven natural gas reserves, giving it a strategic advantage to develop as a viable gas-based economy. However, this potential has been held back for a long time by a slow irregular policy and legal framework that lacked the capacity to attract the necessary investment for midstream and downstream infrastructure.

Over the years regardless of the development of Nigeria's oil and gas resources, as a country Nigeria has had significant challenges in turning its gas resources into sufficient economic gain, and a lot of the gas is still being burned in the air, which harms the environment and wastes a lot of money (Victor, Jaffe, & Hayes, 2006; Ogunleye, 2018). For many years, unclear rules, a hard-to-understand system, and not enough investments made on developing and improving gas facilities and infrastructure have slowed down the growth of the gas industry (Adewale & Okafor, 2021). The passing of the Petroleum Industry Act (PIA) in August 2021 was seen as a major change meant to address these long-standing problems and bring new life to the oil and gas sector (KPMG 2021).

The old system, where the Nigerian National Petroleum Corporation (NNPC) acted as both a business and a regulator, led to a situation that was unclear and not fair for competition. This historical background caused a lot of gas flaring, not enough domestic gas supply, and missed chances for growth in industries and the power sector (Egbe, Onuh, & Ejem, 2021). The PIA, which was passed in 2021, is a major law aimed at removing these obstacles and building a more modern, open, and business-focused petroleum industry (Adeola, & Oyejide, 2020).

In the past, Nigeria's hydrocarbon industry has mainly focused on crude oil, which

has created a numerous challenge and has also not taken advantage of the full value chain. Despite having a lot of natural gas, the country still faces significant energy shortages and slow industrial growth because there isn't enough gas available to meet needs (KPMG 2021; NNPC, 2021). The process of gas utilization which includes processing, transporting, and delivering it, has been held back by a long-term lack of investment, unclear rules from regulators, and enormous gas flaring across several production locations. This wasted gas is both a loss of economic resources (money) and harms the environment (World Bank Global Gas Flaring Reduction Partnership (GGFR), 2022).

The PIA is meant to rebuild a vibrant, stable and long-lasting petroleum industry, with specific strategies for the gas sector to enable growth to enhance revenue generation from the gas sector to drive the country's development (KPMG, 2021; Brookings 2021). Thus, the study looks closely at how likely it is that the PIA will be able to change the way gas is used and sold in Nigeria. It goes beyond just explaining what the Act says and instead uses real data and studies from other places to postulate what will happen and what problems might still remain. This paper examines how the PIA affects the three main parts of the gas industry: processing, transporting, and delivering gas. It aims to look at how well the Act's strategies will drive investments, developing infrastructure, and encouraging the use of gas within the country. The study uses a desktop research approach, combining information from existing papers, legal texts, and other secondary sources to offer a thoroughly researched analysis for an international academic audience.

STATEMENT OF THE PROBLEM

For decades, the Nigerian gas industry has faced a number of connected issues gas flaring being the most significant and continues even though many laws have been made to stop



it (Oyewole et al., 2020). The absence of a complete and reliable legal framework has led to an uncertain environment for investments (or investors), which made local and foreign investors hesitant to come into the Nigerian gas development market (Idowu, 2019).

Moreover, there isn't enough investment and support for a proper gas system, especially for moving and delivering gas, which means that even when gas is cleaned and ready, it can't get to people who need it. This has slowed down the development of a local gas market. The old system, where the Nigerian National Petroleum Corporation (NNPC) worked as both a business and a regulator, faced a lot of criticism because it wasn't efficient and didn't operate openly. The PIA was created to solve these long-standing problems, but whether it works well is still being discussed.

The problems of the gas sector have been characterized majorly by three factors. The first challenge is regulatory uncertainty which leads to the absence of a stable and predictable legal framework which has created significant risks for investors thus leading to a decline in foreign direct investment in the midstream and downstream sectors (Idowu, 2019). The second issue is the lack of a robust and integrated pipeline network for transmission and distribution that has made it difficult to commercialize processed gas and deliver it to end-users, thus perpetuating gas flaring. Thirdly, an inefficient market structure: A centralized and government-controlled market stifled competition and innovation, limiting the growth of a domestic gas market for power generation, industrial use, and transportation. Against this backdrop, the paper analyzes the Act's provisions and their potential impact on the gas value chain, specifically focusing on the prospects for processing, transmission, and distribution.

LITERATURE REVIEW

Research by Ogunleye in 2018 and Adeola and Oyejide in 2020 found that the old Petroleum Act from 1969 had significant gaps that had stifled the growth of the industry over the last fifty plus years. It didn't offer a clear system for

managing revenue from oil production or properly separate the rules and regulations for oil and gas. This slowed down significantly investments, especially in big projects that requires a consortium of investors to develop and deploy infrastructure in areas such as processing plants and network of pipeline for distribution.

Studies from other countries that produce gas show how important it is to have a clear legislative framework that governs the sector. The growth of liquefied natural gas (LNG) in Qatar and Trinidad & Tobago was driven by steady and favorable policies for investors, as noted by Victor et al. in 2006. Eweje (2019) also reviewed Mozambique's gas boom and pointed out how having a special regulatory framework is very important for running the sector properly. The PIA tries to set up such an organization in Nigeria. Reviewing the studies on Nigeria's oil and gas industry there is significant research being done on the PIA, as shown in studies by Adebisi and Ezebuio (2023) and Dokpesi and Godwin (2024).

Before the Act was passed, most scholars mainly studied the past difficulties faced by the industry. Oyewole et al. In 2020, a study looked at the laws and rules about gas flaring and found that the main reasons it keeps happening are because the rules aren't enforced well and there aren't enough rewards or benefits for not doing it. Idowu (2019) talked about how uncertain rules affect the economy, saying that the long time it took to pass the PIB, which was the first version of the PIA, caused a big drop in foreign direct investment.

Udejimba (2024) looks at the difficulties and problems that come with putting the PIA into place, the challenge of transitioning from the old rules (minimal regulations) to the PIA era, also studying how International Oil Companies (IOCs) work with local communities. The focus was on how effective social responsibility programs worked and the level of compliance of companies to local content rules. Dokpesi and Godwin (2024) reviewed how the PIA is being carried out and its potential to improve the development of the oil and gas industry in Nigeria. They concluded that the implementation level of the PIA will directly decide how successful NNPC Ltd can become as a good



business that is based on merit, excellence, and professionalism, as a reference to this the examples were to emulate by NNPC Ltd the experience and pathways of successful examples like Saudi Aramco, Petronas from Malaysia, and Petrobras from Brazil should be deployed.

Post-PIA, initial analyses have been largely legal and descriptive. Abuja Investments (2021) provided an early overview of the Act, noting its provisions for unbundling the NNPC and establishing new regulatory bodies. The Brookings Institution (2021) offered a critical perspective, acknowledging the Act's potential to

address old problems while also raising concerns about the potential for new ones, particularly in the fiscal terms for deep offshore projects. Adebisi & Ezebuio (2023) has seen the publication of several papers that perform a legal analysis of the Act, highlighting its provisions for licensing and the new institutional framework. These studies, while valuable, often lack an empirical or thematic analysis of the Act's potential outcomes in the real world. This paper bridges this gap by undertaking a thematic analysis to infer the prospects for the gas value chain from the Act's provisions.

Table 1: Key indicators for Nigeria's gas value chain (selected recent figures)

Indicator	Value (latest published)	Source
Proven natural gas reserves	~209.3 TCF	IEA country profile.
Total produced gas (2023, Associated & Non-associated)	2.503 Tcf (annual) — daily avg ≈ 6.857 BCF/Day	NUPRC 2023 Annual Report.
Marketed/available gas production (2023)	~40–42 BCM (range across datasets)	IEA / OPEC/CEIC / industry reports.
NLNG exports (LNG throughput)	~13.5 million tonnes in 2023 (Kpler/Natural Gas Intelligence reporting)	Industry reporting.
Gas flaring (global tracker)	148 bcm (2023), 151 bcm (2024) — Nigeria among top flaring nations	World Bank Global Gas Flaring Tracker.
OB3 (Obiafu-Obrikom-Oben) pipeline capacity	~2,000 MMscf/d (≈2.0 Bcf/d)	Global Energy Monitor / NNPC project reports.
Recent FLNG deals (announced volumes)	Example: Golar FLNG deal ~500 MMscf/d feedstock for FLNG	Reuters / industry press.

Source: Authors' Documentation from Different cited sources

Theoretical Framework

This study is grounded in the New Institutional Economics (NIE) framework. NIE posits those institutions—formal rules, informal constraints, and their enforcement characteristics—are the fundamental determinants of economic performance (North, 1990). In the context of Nigeria's gas sector, the previous institutional arrangement, characterized by opaque rules and a lack of enforcement, resulted in high transaction costs and deterred investment. The PIA, in this framework, is a deliberate institutional reform aimed at lowering these transaction costs by creating clear rules, a stable regulatory

environment, and a predictable fiscal regime. By analyzing the PIA's specific provisions (the new rules) and the new regulatory bodies (the enforcement mechanisms), we can theorize their potential impact on economic behavior, such as investment in gas infrastructure.

METHODOLOGY

This study is a literature-based empirical analysis. We performed a structured review of:

1. Primary legal documents (PIA text and official gazette).
2. Institutional reports and datasets (NUPRC/NNPC annual reports).

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3. International energy institutions (IEA, World Bank flaring reports).
4. Project trackers and industry press (Global Energy Monitor, Reuters, NLNG releases)
5. Peer-reviewed and policy literature assessing PIA implementation.

Key quantitative indicators (proven reserves, marketed production, LNG exports, gas flaring volumes, pipeline capacities) were extracted from authoritative sources and triangulated to produce an evidence table and to ground inferential discussion on likely trajectories for processing, transmission and distribution under the PIA. Where multiple values existed, we reported the most recent authoritative figure and noted variance in sources.

Analysis

Our analysis of the PIA and its implications for the gas value chain in Nigeria reveals three key thematic areas where change is necessary: Regulatory Clarity, Infrastructure Funding, and Market Liberalization.

Theme 1: Regulatory Clarity and Institutional Unbundling

The most significant reform is the unbundling of the NNPC. The creation of the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA) is a direct response to the problem of a single entity acting as both a commercial operator and a regulator. This separation of powers is designed to create a level playing field and improve regulatory efficiency (Law Hub, n.d.).

The Act transferred a number of regulatory tasks previously dispersed among agencies into the new institutions, thereby aiming to reduce duplication of duties and legal uncertainty that previously deterred investment. However, several critical operational details (tariff methodologies, network codes, gas aggregation mechanisms) depend on subordinate regulations

yet to be fully finalized across the relevant regulators.

Gas Processing

The NMDPRA is now the sole authority for issuing gas processing licenses, with clear guidelines and conditions (Adebisi & Ezebuirio 2023). This reduces the bureaucratic hurdles that previously hampered project approvals. The PIA provides a clear legal definition and operational framework for gas processing (refining, separation, and purification) activities. A key provision is the mandatory stipulation for domestic gas demand obligations for licensees, ensuring a portion of produced gas is compulsorily allocated to the domestic market, including processing plants (PIA, 2021, Section 110). This directly addresses the feedstock uncertainty that plagued projects like the Olokola Liquefied Natural Gas (OKLNG) facility (African Natural Resources Centre, 2021).

Fiscal incentives like tax credits and duty exemptions for gas processing facilities (PIA, 2021, Third Schedule) will now reduce capital expenditure and improve project economics. This mirrors successful strategies used in other jurisdictions to kick-start their LNG industries. The inference is that these incentives, when consistently and stably administered, will make projects like the proposed Nigeria LNG Train 7 and new Central Processing Facilities (CPFs) more bankable and attractive to foreign direct investment.

The Nigeria's large resource base and announced projects (e.g., FLNG agreements, Brass methanol/fertilizer project) create an opening for rapid growth in gas processing capacity. FLNGs can monetize stranded /associated gas that is otherwise flared, converting untapped volumes into saleable LNG and liquids (industry press reporting on Golar and other FLNG agreements).

However, processing scale-up requires reliable aggregated gas supply, bankable long-term offtake contracts and capital. The PIA reduces legal uncertainty but does not automatically provide offtake aggregation or guaranteed tariff frameworks; these remain to be



delivered by the newly formed regulators. Financing such projects typically depends on demonstrable offtake security and predictable commercial rules. Empirically, recent project advances (GSPA for Brass methanol, FLNG project agreements) show progress but the final investment decisions (FIDs) and financing arrangements remain sensitive to regulatory certainty and supply assurances (Udejimba, 2024; Dokpesi & Godwin, 2024).

Gas Transmission

The Achilles' heel of Nigeria's gas sector has been the inadequate pipeline network. The PIA directly tackles this through two main mechanisms: third-party access and a network code. The Act mandates that pipeline owners grant access to other shippers on a non-discriminatory basis (PIA, 2021, Section 177). This liberalization breaks the monopoly historically held by NNPC and its partners, encouraging new entrants to build and operate pipelines. The Act's provisions for gas transportation pipeline licenses are crucial. The NMDPRA is responsible for regulating tariffs and ensuring open access to pipelines, which is a key requirement for attracting independent investment in transmission infrastructure.

The empirical success of open access regimes in boosting pipeline infrastructure is evident in the European Union's gas market liberalization (Heather, 2015; Adebisi & Ezebuio 2023). In Nigeria, the preliminary implementation of the Nigerian Gas Transportation Network Code (NGTNC) even before the PIA showed promise in enhancing transparency and capacity trading (Adebisi & Ezebuio 2023; Udejimba, 2024). The PIA strengthens this framework, the inference is that this will catalyze investment in critical backbone infrastructure, such as the Ajaokuta-Kaduna-Kano (AKK) pipeline, by creating a more competitive and liquid market for transportation services.

The opportunity is that, completion of trunk pipelines — principally OB3 — materially increases domestic throughput capacity. OB3's reported ~2,000 MMSCF/d capacity would unlock additional volumes for domestic processing,

power and industry when fully commissioned. The PIA's framework for authorizing midstream operators and enabling licenses should facilitate private midstream participation and create clearer framework for third-party access. However, Pipeline completion alone is not sufficient. Network codes, transparent capacity allocation, tariff methodologies and credible maintenance regimes are essential (Dokpesi & Godwin, 2024). Historical pipeline projects in Nigeria have faced delays, security threats (vandalism and theft), and right-of-way issues; similar risks apply to OB3 and complementary feeder lines. Without an enforceable commercial code and credible allocation/maintenance plans, investor confidence may remain constrained.

Gas Distribution

For distribution to end-users (industries, manufacturing plants, and eventually households), the PIA fosters a competitive market. It establishes a clear licensing regime for gas distributors, provides for the creation of a wholesale gas pricing framework that moves towards a willing-buyer, willing-seller model, and offers incentives for investment in distribution networks (PIA, 2021, Sections 119, 125). Empirical evidence from the pre-PIA era shows that regulated, below-market prices stifled investment in upstream development and distribution infrastructure (Ogunleye, 2018; Udejimba, 2024). The move towards market-based pricing inferred from the provisions of the PIA is critical for attracting the necessary capital to build the city gate stations and local distribution networks needed to supply gas to industries, which is vital for economic diversification and industrialization.

Potential for city-gas and CNG rollouts (private and NNPC-led initiatives) to displace liquid fuels for transport and heat, stimulate local industry, and improve energy access. Evidence from pilot projects shows private sector appetite for station rollouts contingent on supply reliability. However, distribution growth depends on upstream/midstream performance and on consumer conversion economics (vehicle conversion to CNG, appliance conversion),



metering, and commercial tariffs. If supply from pipelines or FLNG is not reliable or tariffs do not reflect cost recovery, distribution investors will face revenue uncertainty.

Thematic 2: Infrastructure Funding and Fiscal Incentives

The most frequent theme across industry and academic sources is that finance and offtake risk are the gating constraints to midstream and downstream scale-up. Aggregation mechanisms that pool supplies and provide predictable offtake to processors/lenders will materially lower project financing costs. Similarly, transparent tariff methodologies for transmission and distribution are essential to permit bankable models for infrastructure investors. The PIA creates the institutions to set and enforce these rules, but delivery depends on prompt and credible regulator action.

The lack of funding for gas infrastructure has been a major bottleneck. The PIA addresses this through several mechanisms.

The PIA's greatest contribution is institutional and legal clarity: separate regulators, corporate NNPC Ltd, and a statutory basis for midstream/downstream licensing reduce a key category of risk — regulatory fragmentation — that previously discouraged long-term investments. The academic and legal literature consistently notes this reform as a positive structural step (multiple legal analyses and peer-reviewed assessments) (Borha, 2023; NNPC Group, 2024).

However, the literature and industry evidence also emphasize that statutory change must be matched with rapid subordinate rule-making and consistent regulator performance to close the remaining investment gaps (Saidu, Halidu, Saleh, & Emmanuel, 2024). Empirically, investor responses (announced FLNG deals, GSAs for methanol projects, and increased project pipeline) indicate renewed interest but show continued sensitivity to concrete regulatory outputs (tariff rules, gas transport codes) and to project execution risk (Global Energy Monitor, 2024).

Midstream and Downstream Gas Infrastructure Fund:

The establishment of this fund, capitalized by a levy on the wholesale price of petroleum products, is a game-changer (Natural Gas Intelligence / Kpler. 2024). It provides a dedicated and predictable source of capital for de-risking and co-funding gas-related infrastructure projects, including pipelines and processing plants.

Flare Gas Regulation and Commercialization:

The PIA imposes strict penalties for gas flaring and creates a framework for operators to monetize flared gas. This provides a strong economic incentive for companies to invest in processing facilities to capture and commercialize what would otherwise be a waste product (World Bank. 2023). Nigeria's flaring volumes remain large and represent both environmental harm and economic loss. The World Bank's flaring tracker reports large global flaring volumes and keeps Nigeria among the top flaring countries (2023–2024). The PIA provides tools for flaring reduction (penalties and obligations) but practical elimination of routine flaring requires commercially viable alternatives (gas gathering, FLNG, local processing) and enforcement. The policy implication is clear: combine enforceable anti-flaring obligations with rapid commercialisation pathways and blended finance to capture flared gas.

The PIA introduces a stringent and market-driven approach to eliminating gas flaring through the Gas Flare (Prohibition of Flaring) Programme (PIA, 2021, Section 104). Flaring is outlawed, and defaulters face significant penalties. More importantly, the Act provides a mechanism for awarding flare gas to competent entities for commercial utilization. Empirical data from the World Bank's Global Gas Flaring Reduction Partnership (2022) ranks Nigeria as a top-seven gas-flaring country. The previous Associated Gas Re-injection Act lacked enforceability

<https://www.iea.org/countries/nigeria/natural-gas> (Isallah, 2023).

The PIA's combination of stiff penalties and a commercial framework creates a strong economic incentive to capture flare gas for processing and distribution. This prospect not only promises environmental benefits but also signifies a massive new source of feedstock for the gas value chain.

Thematic 3: Market Liberalization and Distribution

The PIA aims to stimulate the domestic gas market by creating a more competitive environment for gas distribution.

1. Domestic Gas Aggregation and Distribution Licenses: The Act simplifies the process of obtaining these licenses, thereby encouraging new entrants and fostering competition. This is essential for expanding the gas distribution network to reach industrial, commercial, and residential consumers.
2. Pricing Framework: The PIA provides a flexible pricing framework that balances the need for a competitive market with the strategic importance of domestic gas utilization. The NMDPRA has the authority to regulate prices in key strategic sectors to ensure stability and encourage demand.

Challenges and Constraints to Realization

Despite the promising framework, the prospects are not automatic. Inferences from Nigeria's history of policy implementation suggest several constraints:

1. Implementation Risks: The capacity and independence of the new regulatory authorities (NUPRC and NMDPRA) will be tested. Bureaucratic delays and regulatory capture remain threats.
2. Security Concerns: Pipeline vandalism and insecurity in the Niger Delta continue to pose a significant physical risk to infrastructure investment. No legal framework can alone solve this deep-seated problem.
3. Funding Gaps: The scale of investment required is enormous. The

government's limited fiscal space means reliance on private capital, which demands a stable and predictable policy environment—something that will take time to establish post-PIA.

4. Political Will: Consistent enforcement of provisions, especially regarding gas flaring penalties and market-based pricing, requires sustained political will across political administrations.

The PIA, guided by the principles of New Institutional Economics, has introduced a far more transparent and predictable legal and institutional framework for the gas value chain. The unbundling of the NNPC and the creation of the NUPRC and NMDPRA are designed to address the previous conflict of interest and regulatory inefficiency. The thematic analysis shows that the Act's provisions directly target the identified problems of infrastructure deficit, regulatory uncertainty, and market inefficiency. The incentives for gas monetization, the creation of a dedicated infrastructure fund, and the liberalization of the distribution market collectively signal a clear intent to move Nigeria towards a gas-based economy.

However, the success of the PIA is not a foregone conclusion. The Act's effectiveness is contingent on its implementation. Administrative and bureaucratic hurdles, coupled with the security challenges in key gas-producing regions, could undermine investor confidence. Furthermore, the capacity and independence of the new regulatory bodies will be a crucial factor in ensuring a level playing field and consistent application of the law.

RECOMMENDATIONS

Based on this analysis, the following recommendations are proposed:

1. Strengthen Institutional Capacity: The new regulatory bodies, NUPRC and NMDPRA, must be adequately funded and staffed with competent professionals to ensure consistent and transparent implementation of the PIA.

2. Ensure Policy Consistency: The government must provide a clear and unwavering commitment to the Act's principles to build investor confidence and signal a long-term vision for the gas sector.
3. Publish and implement subordinate regulations urgently: regulators (NUPRC, NMDPRA) should prioritise tariff methodology, a gas transmission network code, and explicit rules for third-party access. Evidence suggests investor decisions follow clear rule-sets.
4. Use blended finance and fiscal incentives for early FLNG/processing: provide targeted tax allowances or guarantee instruments for projects that monetise flared gas, coupled with strict enforcement of anti-flaring rules. Industry FLNG deals demonstrate the model's potential to convert flared volumes into commercial product.
5. Fast-track city-gas and CNG demand stimulation: subsidies for vehicle conversion, appliance financing and public procurement for CNG buses/vehicles in pilot cities will create initial demand that can anchor distribution investments. Empirical pilot projects show uptake when supply is predictable.
6. Prioritize Security: A robust security strategy is essential to protect critical gas infrastructure, including pipelines and processing plants, thereby reducing project risks for investors. Prioritise OB3 and feeder pipelines with security, metering & compressor packages — phased commissioning patterns show large marginal benefits; ensure accompanying O&M and security frameworks to protect throughput.
7. Promote Public-Private Partnerships: The government should actively promote Public-Private Partnerships (PPPs) for gas infrastructure projects to leverage private sector expertise and capital.
8. Conduct Post-Implementation Audits: Future research should focus on empirical studies to evaluate the PIA's impact on key metrics, such as the volume of flared gas, investment inflows, and the expansion of the domestic gas market.
9. Public Awareness: Launching stakeholder engagement campaigns to ensure buy-in from host communities, investors, and the general public.

CONCLUSION

The Petroleum Industry Act represents a significant and well-thought-out attempt to reform Nigeria's gas sector. The thematic analysis shows that the Act has the potential to fundamentally transform the gas value chain by creating a more stable and transparent regulatory environment, providing a clear pathway for infrastructure funding, and fostering a liberalized domestic market. The institutional unbundling, coupled with specific licensing and fiscal provisions, provides a robust framework to attract the much-needed investment in gas processing, transmission, and distribution.

The law's institutional reforms reduce legal uncertainty and provide the regulatory scaffolding necessary for private investment. Empirical indicators — substantial reserves, continued flaring, ongoing OB3 pipeline construction, FLNG agreements, and restarting NLNG throughput — reveal both the scale of the opportunity and concrete executional barriers. The realization of the PIA's promise depends on rapid secondary regulation, credible offtake aggregation, financing mechanisms for midstream and processing projects, and vigorous anti-flaring enforcement combined with commercial capture pathways. If these conditions are met, Nigeria can substantially convert flared and stranded gas into domestic industrial feedstock, power generation capacity, and export revenue; if not, legislative reform alone will be insufficient.

However, the Act's success is not guaranteed. The actual benefits will depend on the effective implementation and enforcement by the newly created regulatory bodies. Potential pitfalls



include administrative delays, bureaucratic inefficiencies, and the lingering threat of insecurity in key project areas.

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