

EVALUATING THE IMPACT OF CARBON PRICING ON GAS COMMERCIALISATION AND ENERGY SECURITY IN NIGERIA: A LEGAL ANALYSIS

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Abstract

Carbon pricing is progressively becoming the major policy tool for ensuring decarbonisation through the internalisation of the externalities associated with climate change, such as greenhouses gas emissions and promotion of clean technology investments. At present, natural gas is being sold as a transition fuel that will lead to industrialisation, provision of adequate electricity supply and reduction of use of carbon-intensive fuels. Based on this, the role of carbon pricing becomes complex in our Nigerian economy. The article thus provides a critical analysis of whether Nigeria can apply aggressive carbon pricing without compromising its aim at gas commercialisation and energy security. In carrying out the above objective, the article will consider the existing legal and regulatory regime regulating gas development, climate change and emission, such as the Petroleum Industry Act 2021, Climate Change Act 2021 and gas flare regulations. By applying the economic theory and Nigerian legal regime, the article will make a comparison with Norway to ascertain if carbon pricing can assist in gas commercialisation in Nigeria. The argument of the paper is based on the view that carbon pricing can help in gas commercialisation only if well designed, institutionalised and aligned with domestic developmental goals.

Keywords: Carbon Pricing, Energy Security, Gas Commercialization, Emissions Trading Systems

1. Introduction

Regulation of climate change has become one of the most critical legal and economic challenges of the 21st century. Carbon pricing policies have been increasingly introduced to lower the emission levels and reach net-zero objectives. For instance, according to The World Bank State and Trends of Carbon Pricing 2025 report, currently, carbon pricing policies cover 28% of greenhouse gas emissions globally; two-thirds of global GDP has been involved in the introduction of such policies. Many major middle-income countries have either adopted or considered adopting direct carbon price policies. However, its use in developing countries reveals an inherent paradox: how to decarbonize and at the same time increase energy access and promote economic growth. Nigeria is one of the countries that experience this paradox and at the same time finds itself in a difficult situation as far as this global transition process is concerned. Despite its low contribution to global emissions, the country is vulnerable to various effects of climate change including desertification, flooding, and coastal erosion. With significant gas reserves, Nigeria has been using gas as a bridge fuel in its energy policy. Under the Decade of Gas Initiative and the Energy Transition Plan, the country plans to develop its enormous natural gas resources in order to spur industrialization, electricity production, and transportation. At the same time, Nigeria's commitments to the Paris Agreement and the Climate Change Act 2021 place new demands for emissions reduction and carbon regulation. Various programs for monetization of gas including gas-to-power projects and

gas flare commercialization projects are part of the same agenda. However, the problem of gas flaring, lack of necessary infrastructure and ineffective regulations continue to hinder

2. Conceptual Clarifications and Applicable Theories

2.1 Conceptual Clarifications

i. Carbon Pricing

Carbon pricing is a policy tool that puts a financial cost on greenhouse gas emissions which is typically measured per ton of CO₂ equivalent, payable by the polluters.¹ Carbon pricing creates a financial incentive to lower emissions by attaching a cost to high emission activities.² This is rooted in Pigouvian tax theory. This was propounded by economist Arthur Pigou and it addresses market failures caused by negative externalities, which are costs that relate to an economic activity that are not reflected in the market.³ Internalizing externalities is moving the cost of environmental damage from the society at large to the emitter, which encourages businesses and individuals to adopt cleaner, more sustainable technologies.⁴

In practice, two dominant models exist:

- Carbon Taxes
- Emissions Trading Systems (ETS)

Carbon Tax is a fee imposed on the burning of carbon-based fuels such as coal, oil and gas, in order to reduce greenhouse gas emissions by making polluters pay for their environmental impact. This focuses on the financial aspect and not necessarily on emissions. This incentivizes businesses to switch to cleaner energy alternatives which are often expensive resulting in higher costs for fossil fuels, gasoline and heating.⁵ Tax is usually levied on fuel suppliers who inadvertently pass the cost to the consumers. Government in developed countries such as Canada often return collected revenue to households through rebates, such as the Canada Carbon Rebate (CCR).⁶ Studies show that it is a cost effective way to reduce emissions such as in the UK that recorded 25% drop in coal

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¹ Climate Action, '5 Things You Should Know About Carbon Pricing', <https://climate.ec.europa.eu> accessed 7 May 2026

² Union of Concerned Scientists, 'Carbon Pricing 101', <https://www.ucs.org>, accessed 8 May 2026

³ Zhou Feng, 'Optimizing the Carbon Taxation Mechanism in Heterogeneous Economies: Balancing Climate Targets and Transition Justice via Ramsey-Type Models', *Journal of Cleaner production*, Science Direct vol 522 1 sept 2025, <https://www.sciencedirect.com> accessed 7 May 2026

⁴ *Ibid*

⁵ International Monetary Fund, 'What is Carbon Taxation', <https://www.imf.org> accessed 7 May 2026

⁶ *Ibid*

use. Currently, Nigeria does not have a fully implemented carbon tax. However it is in the process of developing a framework to introduce one.⁷

Emissions Trading Systems (ETS) also known as a cap and trade scheme is a market-based policy that sets a legal limit (cap) on greenhouse gas emissions, requiring companies to hold allowances for each ton of CO₂ they emit. The cap decreases over time, reducing the total emissions while allowing companies to buy or sell allowances.⁸ ETS forces companies to pay for pollution which creates a financial incentive to invest in cheaper technology. The ETS allows a maximum amount of emissions which is lowered annually and companies that emit less than they are allowed can sell their surplus to others thus creating a market price for carbon.⁹ The European Union (EU) has the world's largest system covering over 11,000 power stations and industrial plants. It was introduced in 2005 and by 2024; it had helped reduce emissions in the EU by 50%.¹⁰ The EU has risen over EUR 245 billion by mid-2025 and these funds were used for climate action and energy transition.¹¹

In developed economies, carbon tax and the ETS operate within mature institutional environments. In Nigeria, however, weak enforcement and regulatory fragmentation complicate implementation.

ii. Gas Commercialisation in Nigeria

Gas commercialisation refers to transforming natural gas into economically valuable outputs.¹² It is the process of capturing, processing, and selling natural gas, particularly associated gas that is otherwise flared, for economic use rather than wasting it.¹³ Gas commercialization therefore reduces greenhouse gas emissions due to flare reduction. It increases industrialization due to utilization, and increases the economic value of Nigeria. In Nigeria, the Nigerian Gas Fare Commercialization Programme (NGFCP) was a major initiative by the government where flared gas was auctioned to third-party investors to develop monetization projects. Some of which includes the following:

- Gas-to-power generation;
- Liquefied Natural Gas (LNG) exports;
- Domestic industrial utilisation e.g fertilization;
- Gas flare capture and monetisation;
- Petrochemical development; and

⁷ Inya Agha Egwu, 'EFD Nigeria Partners with NCCC to Develop Carbon Tax Framework for Nigeria', *EFD Initiative* (2024) <https://www.efdinitiative.org> accessed 9 May 2026

⁸ EU Climate Action, 'The EU Emission Trading System', <https://climate.ec.europa.eu> accessed 7 May 2026

⁹ *Ibid*

¹⁰ *Ibid*

¹¹ *Ibid*

¹² Yinka Omorogbe, 'Oil and Gas Law in Nigeria', (Malthouse Press, 2001)

¹³ Editorial, 'Early-Stage Investment Readiness for Gas Commercialization Projects', *Brickstone Africa* <https://brickstone.africa> accessed 9 May 2026

- Compressed natural gas initiatives

Despite significant reserves and policies, Nigeria has continually prioritised oil over gas, which has resulted in extensive flaring and underutilisation of gas resources. Nigeria became a signatory to the Paris Agreement and has ratified same, and has also become signatory to the Global Gas Flaring Reduction Partnership (GGFR) principles for global flare-out by 2030, whilst committing to a national flare-out by 2025.¹⁴ Nigerian government currently views gas as a transition fuel capable of supporting economic development while producing lower emissions than coal and crude oil.¹⁵

iii. Energy Security

According to International Energy Agency (IEA), Energy security is defined as the uninterrupted availability of energy sources at an affordable price.¹⁶ Energy security in Nigeria must be understood in developmental terms. Energy security requires that natural gas is accessible for domestic industries, power generation, and households. Natural gas must be available, affordable, accessible and reliable. Natural gas is available when there are sufficient energy resources to meet demand; it is affordable when the prices for the products are for and stable for households and industries; it is reliable when there is consistency and continuity of supply over time; and it is accessible when it can be accessed by all. Natural gas presently accounts for the majority of Nigeria's thermal electricity generation, making gas development directly connected to national energy security.

Carbon pricing therefore enhances energy security by ensuring that natural gas is affordable, accessible, available and reliable. It further accelerates the transition to domestic renewables by reducing reliance on volatile imported fossil fuels.¹⁷ It forces power generators to improve efficiency and adopt cleaner technologies in order to avoid costs, optimizing existing energy systems. It also strengthens the long-term sustainability of energy systems by reducing the risks associated with high, volatile fuel prices, and climate-related infrastructure disruptions.¹⁸

It is pertinent to observe that for carbon pricing to encourage energy security; it must be carefully designed in such a way not to create short-term hikes in prices of gas products especially during an energy crisis as we currently have with the fuel hike due to the American-Iran war.

2.2 Applicable Theories

The theoretical tension of carbon pricing in Nigeria centers on the conflict between economic development/poverty reduction and long-term climate goals otherwise known as decarbonisation.

¹⁴ NGFCP, <https://ngfcp.nuprc.gov.ng> accessed 9 May 2026

¹⁵ NGP 2017

¹⁶ E. Adhekpukoli, 'Energy Security in Nigeria's Gas Sector' (2015, self-published) pg 2

¹⁷ Climate Action (n5)

¹⁸ Climate Action (n5)

While carbon pricing is economically designed to internalize the costs of pollution and encourage clean technologies, its implementation in Nigeria faces significant hurdles, including high energy poverty, reliance on oil revenue and a large informal economy.¹⁹

There are two theoretical concepts that illuminate this central tension:

i. Pigouvian Efficiency

This is achieved when a tax equal to the marginal social damage is levied on a market activity that is generating negative externalities, thereby forcing these firms to internalize social costs and reduce output to the optimal level. This corrects market failures, promotes efficient resource allocation, and can be used to reduce other taxes, boosting overall social welfare.²⁰ The Pigouvian tax is more efficient than subsidies because it can generate enough revenue that can be used to lower other taxes. It can also incentivize firms to reduce output or adopt cleaner technologies in order to void tax. However, the Pigouvian taxes can be difficult to implement due to the challenge of accurately quantifying the monetary value of the environmental damage or the marginal social damage.²¹

Though Pigouvian tax aims to correct market failures like pollution through taxing negative externalities to match social costs, Nigeria's developmental needs focus on industrialization, job creation, and poverty reduction. Taxing developmental activities, such as oil production/manufacturing for efficiency, can conflict with growth. Aggressive taxation can increase business operating costs and potentially stifle job creation in essential sectors. Carbon pricing though it promotes efficiency conflicts with growth imperatives if not addressed. If carbon pricing is placed on essential items such as electricity or fuel, they can negatively impact low-income households and individuals in Nigeria. Properly implemented taxes can also reduce pollution without a proportional increase in public spending that benefits public health.²² There must therefore be a balance between environmental protection and economic development.

ii. Energy Transition Theory

This describes the long-term structural shift in energy systems from dominant, carbon-intensive sources, such as coal and oil, to lower-carbon, renewable alternatives like wind, solar and hydro. It focuses on enhancing efficiency, reducing greenhouse gas emissions to meet climate goals and

¹⁹ Abdulbaqi Adebisi, 'Environmental Taxation and Carbon Pricing Mechanisms: Policy Design and Economic Sustainability in the Nigerian Context', SSRN(2025) <https://papers.ssrn.com> accessed 9 May 2026

²⁰ C.L Ballard, S.G Medema, 'The Marginal Efficiency Effects of Taxes and Subsidies in the Presence of Externalities: A Computational General Equilibrium Approach', *Journal of Public Economics* (vol 52, 2,1993)pg 196-216 <https://www.sciencedirect.com> accessed 9 May 2026

²¹ C.L Ballard, S.G Medema, 'The Marginal Efficiency Effects of Taxes and Subsidies in the Presence of Externalities: A Computational General Equilibrium Approach', *Journal of Public Economics* (vol 52, 2,1993)pg 196-216 <https://www.sciencedirect.com> accessed 9 May 2026

²² A. Afonso &ors, 'An Analysis of Public Expenditure Dynamics and Public Sector Efficiency in the EU-27', *International Economics* (vol.186, 2026) <https://doi.org/10.1016/j.inteco.2026.100706> accessed 9 May 2026

transitioning to sustainable decentralized energy.²³ Gas at the moment is being considered as a bridge fuel, but carbon pricing could reduce the length of the bridge due to its ability to promote a quicker transition to renewables. The Nigerian strategy for energy transition involves making the leap to net-zero emissions by 2060 despite the economic implications of a country dependent on fossil fuel sources.

The theory of energy transition in Nigeria is a process that involves transitioning from energy use for electricity, transport, and cooking to completely using renewable energy resources. It is analyzed using a socio-technical perspective wherein the path dependency, institutional inertia, and political economy of oil result in lock-in effects.

Carbon pricing is regarded as the key tool for driving the shift by making high-emission energy sources more expensive, encouraging the adoption of cleaner alternatives. The carbon market incentivizes emission reduction by providing rewards through carbon credits. However, the potential impact depends largely on the viability of these markets. The international markets offer higher prices than local market which impacts on the effectiveness of local initiatives.²⁴

3. Nigeria Legal Framework

i. Petroleum Industry Act (PIA) 2021

The PIA is the primary legislative framework that governs the Nigerian Petroleum Industry. It is significant in that it serves to completely revamp the structure of Nigeria's petroleum industry by creating regulatory authorities, which include:

1. The Nigerian Upstream Petroleum Regulatory Commission (NUPRC);
2. The Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA).

The PIA provides an important foundation for examining the relationship between carbon pricing, gas commercialisation and energy security in Nigeria. Although the PIA does not establish a comprehensive carbon tax or emissions-trading system, it creates economic and regulatory mechanisms for making gas flaring costly, measuring gas that is flared or vented, and requiring the elimination and monetisation of gas that would otherwise be wasted. Its provisions therefore provide an important basis upon which Nigeria's broader carbon-pricing framework can develop.

The PIA establishes the statutory framework for the prevention and control of gas flaring and venting.²⁵ It prohibits a licensee, lessee or marginal field operator from flaring or venting natural gas except in circumstances permitted by law, including emergencies, an exemption granted by the

²³ Yu Yang & ors, 'Energy Transitions: Connotations, Mechanisms and Effects', *Energy Strategy Reviews* 52 (2024) <https://www.sciencedirect.com> accessed 11 May 2026

²⁴ UNFCC, 'Assessment of Carbon Pricing Initiatives in Nigeria', <https://unfccc.int> accessed 14 May 2026

²⁵ PIA 2021 s.104-108

Commission or where flaring is required for safety.²⁶ The provision therefore establishes the principle that routine or avoidable flaring should not be treated as an ordinary incident of petroleum production. Importantly, the PIA provides that the applicable gas-flaring penalty is not eligible for cost recovery or tax deduction.²⁷ This increases its deterrent effect because the operator cannot simply treat the penalty as an ordinary deductible business expense. The PIA further directs the application of monies received from gas-flaring penalties towards environmental remediation and relief for affected host communities.²⁸

The PIA strengthens the economic consequences of flaring by providing for the payment of the applicable penalty and giving the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) the right to take, free of charge and without payment of royalty, natural gas that would otherwise be flared, subject to the provisions of the Act and applicable regulations.²⁹ This provision is particularly important because it connects environmental regulation with resource recovery. The State is not merely penalising the destruction of gas; it is given a legal mechanism to take control of gas that would otherwise be wasted and make it available for utilisation or commercialisation.

It further provides an essential foundation for this framework by requiring appropriate metering equipment to be installed on facilities from which natural gas may be flared or vented.³⁰ This requirement is particularly relevant to carbon pricing. An effective emissions-pricing system depends upon reliable measurement. Without accurate information concerning the quantity of gas flared, vented or otherwise released, it is difficult to determine the financial liability of an operator or to develop a credible emissions-based carbon price.

The PIA also recognises that an absolute prohibition on all flaring would not necessarily reflect the technical realities of petroleum operations. It therefore permits limited flaring or venting for specified operational purposes, including facility start-up and testing, subject to the statutory and regulatory conditions.³¹ The approach is therefore one of controlled elimination of avoidable flaring, rather than an unrealistic prohibition of every form of gas release.

The strongest statutory connection between gas emissions and commercialisation requires a licensee or lessee producing natural gas to submit a Natural Gas Flare Elimination and Monetisation Plan to the Commission.³² This is significant because the legislative objective is not merely to stop

²⁶ Ibid s.104

²⁷ Ibid s.104 (3)

²⁸ PIA 2021 s.104 (4)

²⁹ Ibid s.105

³⁰ Ibid S.106

³¹ Ibid s.107

³² Ibid s.108

the release of gas into the atmosphere. It requires consideration of how the gas can be eliminated from the flare stream and converted into economic value.

This provision subsequently became the statutory basis for the regulatory requirements contained in the Gas Flaring, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulations 2023. The Regulations operationalizes the right of NUPRC to take flare gas and requires producers to submit a Flare Elimination and Monetisation Plan.³³ The Nigerian Gas Flare Commercialisation Programme (NGFCP) further provides a mechanism through which flare gas can be allocated to qualified third-party investors for commercial utilisation.

The economic significance of this framework is that it changes the calculation facing an upstream producer. Flaring has traditionally been the easiest way to dispose of associated gas where adequate gathering, processing or transportation infrastructure is unavailable. Under the PIA, however, avoidable flaring creates a financial liability, while the gas itself may be taken and commercialised. This creates an incentive to consider whether investment in gas capture and utilisation is more economically attractive than continued disposal.

The PIA should nevertheless be distinguished from a comprehensive carbon-pricing regime. The Act principally establishes a gas-flaring penalty, rather than a tax calculated according to the quantity of greenhouse gases expressed in tonnes of carbon dioxide equivalent (CO₂e). Consequently, the PIA primarily places an economic cost on gas wastage and prohibited flaring,³⁴ rather than fully internalising the climate externality associated with methane and other greenhouse-gas emissions.

This distinction is important for Nigeria's future carbon-pricing architecture. A conventional carbon price would attach an economic value to the environmental damage associated with greenhouse-gas emissions, whereas the PIA's flare regime principally asks whether gas has been unlawfully or unnecessarily flared or vented. The two mechanisms should, however, be complementary rather than mutually exclusive.

ii. Gas Flare, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulations 2023

These regulations act as Proto-Carbon Pricing. Proto-carbon pricing refers to foundational, often localized or preliminary mechanisms used to put a monetary value on greenhouse gas emissions, serving as a proto-type or early stage model for broader more standardized carbon pricing systems.³⁵

³³ Gas Flaring, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulation 2023, Reg 3

³⁴ PIA 2021 s.107

³⁵ IMF, 'A Proposal to Scale-up Global Carbon Pricing', <https://www.imf.org> accessed 14 May 2026

The Gas Flare, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulations 2023 represent a significant development in Nigeria's legal framework for regulating upstream petroleum emissions. Made by the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) pursuant to sections 7(e), 10(f) and 104 -106 of the Petroleum Industry Act 2021 (PIA), the Regulations came into force on 24 May 2023. Unlike the earlier regulatory framework, which was principally directed to the prevention and commercialization of flared gas, the 2023 Regulations adopt a broader approach encompassing gas flaring, venting and fugitive methane emissions. The objectives include reducing the environmental and social impacts of emissions by the federal government taking all flare gas,³⁶ preventing waste of natural resources by prohibiting gas flare and venting of natural gas³⁷ and it imposing financial penalties on flaring and venting.³⁸

This broader scope is important to the emerging relationship between carbon pricing, gas commercialization and energy security. Gas flaring is not merely an environmental problem; it represents the destruction of a potentially valuable energy resource at a time when Nigeria continues to face constraints in electricity generation, industrial gas supply and energy infrastructure. The 2023 Regulations therefore provide a legal basis for treating emissions reduction and resource utilization as interconnected objectives.

The Regulations applies to gas flaring, venting and methane emissions by licensees, lessees and gas producers engaged in upstream petroleum operations.³⁹ This is a significant expansion from a regulatory approach focused primarily on flaring. By expressly including venting and fugitive methane, the Regulations recognise that greenhouse-gas emissions can occur through multiple pathways and cannot be effectively addressed solely by regulating flare stacks.

The inclusion of methane is particularly relevant to carbon pricing. A conventional flare penalty can be calculated largely by reference to the volume of gas flared. Carbon pricing, by contrast, requires a reliable basis for determining the quantity and type of greenhouse-gas emissions attributable to an activity. The 2023 Regulations therefore provide part of the regulatory infrastructure necessary for an eventual transition towards more comprehensive emissions-based pricing through their measurement, monitoring and reporting requirements.

However, an important legal distinction must be maintained. The Nigerian flare charge is not, strictly speaking, a comprehensive carbon price. The existing regime principally imposes a charge on unauthorised flaring or venting based on the quantity of gas disposed of. It therefore prices the waste of gas, rather than fully pricing the climate externality associated with the resulting methane and carbon emissions. The World Bank similarly distinguishes Nigeria's existing flaring instrument

³⁶ Gas Flare and Venting Emissions Regulations 2022 Reg. 2

³⁷ *ibid* Reg 13(1)

³⁸ *ibid* Reg. 16

³⁹ *ibid* Reg 2

from a comprehensive carbon tax.⁴⁰ This distinction is important because a future carbon-pricing mechanism could complement, rather than necessarily replace, the existing flare penalty: the latter would discourage waste and regulatory non-compliance, while the former would internalise the environmental cost of greenhouse-gas emissions.

The strongest connection between the 2023 Regulations and gas commercialisation is found in Regulation 3. Regulation gives the Commission the right, at a flare point, to take natural gas free of charge and without royalty⁴¹, subject to the PIA and applicable regulations and directives. It requires a licensee and gas producer, subject to section 108 of the PIA, to submit a Flare Elimination and Monetisation Plan (FEMP) to the Commission.⁴²

The significance of the FEMP requirement is that the Regulations move beyond simply penalising the producer after gas has been flared. They require the operator to contemplate the elimination and monetisation of the gas. The legal philosophy is therefore increasingly shifting from a reactive approach—“pay for gas that has been wasted”—towards a resource-management approach—“develop a plan to prevent the waste and convert the gas into economic value.”

This is reinforced by the provisions permitting access to flare gas for commercialisation or utilisation. The Regulations provide a mechanism through which the Commission may grant qualified applicants access to disposed gas, including through competitive processes. The result is an important legal bridge between emissions regulation and the development of a market for gas that would otherwise be wasted.

The commercial effect of this framework can be understood through the economics of carbon pricing. An oil producer faced with associated gas effectively has an economic choice between capturing and utilising the gas or disposing of it through flaring or venting. Gas capture requires investment in gathering, processing, transportation and utilisation infrastructure. Flaring, by contrast, may be operationally simpler but creates regulatory costs and destroys the commercial value of the gas. Increasing the cost of avoidable flaring through regulatory charges and, potentially, carbon pricing can alter this calculation.

The objective should therefore not be to impose an increasingly high carbon price in isolation. Rather, the legal framework should make unnecessary emissions increasingly costly while making gas capture and utilisation increasingly commercially attractive. If carbon pricing is introduced without addressing the infrastructure and market constraints affecting gas commercialisation, it could increase the cost of marginal gas projects and discourage investment. Properly designed,

⁴⁰ World bank Group, ‘global Flaring an Methane Reduction Partnership’, <https://flaringventingregulations.worldbank.org> accessed 13 August 2026

⁴¹ Regulations 3(1)

⁴² Ibid 3(2)

however, carbon pricing can strengthen the economic case for investment in flare-gas gathering, processing and utilisation.

The monitoring provisions of the 2023 Regulations are consequently important to this process. The Regulations require producers and permit holders to maintain records of flaring, venting and fugitive methane emissions and establish metering and reporting requirements for disposed gas.⁴³ The World Bank notes that the Regulations require daily records covering gas produced, consumed, delivered to off-takers, flared, vented and lost through incomplete combustion or fugitive emissions.⁴⁴ These requirements provide the measurement, reporting and verification (MRV) foundation necessary for an emissions-based pricing system.

This is particularly significant because carbon pricing is only effective where emissions can be measured with sufficient accuracy. Without reliable MRV, a carbon price risks becoming a general fiscal charge rather than a mechanism that reflects the actual environmental externality. The 2023 Regulations therefore have significance beyond their immediate penalties: they contribute to the institutional and informational infrastructure necessary for Nigeria to develop a more credible carbon-pricing framework.

The Regulations also link emissions control with energy transition and resource conservation. The Regulation expressly identifies prevention of natural-resource waste, enhancement of energy transition and creation of social and economic benefits as objectives.⁴⁵ This creates a legal basis for viewing gas-flaring regulation as an energy-security measure.

The energy-security argument is particularly compelling in Nigeria. Gas that is flared cannot simultaneously be used to generate electricity, supply industry, produce fertiliser and petrochemicals, support LPG/CNG/LNG value chains or provide other forms of productive energy. Consequently, eliminating routine flaring can produce a dual benefit: it reduces greenhouse-gas emissions while increasing the quantity of gas available for productive economic use. The 2023 Regulations should therefore be read alongside the Nigerian Gas Flare Commercialisation Programme (NGFCP). The regulatory framework provides the legal mechanism for accessing and monetising gas that would otherwise be flared, while the NGFCP provides a commercial pathway for bringing third-party investment and technology into flare-gas utilisation. The International Energy Agency similarly identifies the 2023 Regulations as combining flaring and venting

⁴³ Gas Flaring, Venting and Methane Emissions Regulations 2023 Reg 15-16

⁴⁴ World bank Group (n51)

⁴⁵ Gas Flaring, Venting and Methane Emissions Regulations 2023 Reg 1 (a)-(f)

restrictions with rights over flare gas, monetisation requirements and measurement and reporting obligations.⁴⁶

Nevertheless, the effectiveness of this framework depends upon enforcement and commercial viability. Regulation cannot by itself create the pipelines, processing facilities, gathering systems and gas markets required to commercialise associated gas. There is therefore a risk that a purely punitive carbon-pricing approach could produce unintended consequences if producers are unable to economically capture the gas. Nigeria's legal framework should accordingly combine polluter-pays principles with resource-utilisation incentives.

The Regulations should not, however, be characterised as creating a comprehensive carbon-pricing regime. Rather, they establish a sector-specific emissions and gas-waste pricing framework upon which a broader carbon-pricing system can be developed. The principal legal opportunity for Nigeria is to integrate the 2023 Regulations with its developing carbon-market and emissions-MRV architecture so that carbon pricing does not merely increase the cost of petroleum production but creates a stronger economic incentive to capture and commercialise gas that would otherwise be wasted.

Nigeria's gas-flaring and methane-emissions framework represents an important transition from the regulation of gas as a pollutant to the regulation of gas as both an environmental liability and a strategic economic resource. However, the existing framework remains fragmented because the volumetric penalties imposed on flaring and venting are not yet fully integrated with a comprehensive carbon-pricing mechanism. A properly calibrated carbon-pricing regime, combined with methane measurement, flare-gas commercialization and targeted fiscal incentives, could transform carbon regulation from a cost imposed on gas producers into an instrument for gas commercialization and energy security.

iii. Climate Change Act 2021

The Climate Change Act 2021 establishes Nigeria's institutional framework for climate governance. It provides legal framework to achieve low greenhouse gas emissions, sustainable economic growth, and net zero emissions between 2050 and 2070.⁴⁷ The Act provides for carbon

⁴⁶ IEA, 'Gas Flaring, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulations , 2023' <<https://www.iea.org/policies/29172-gas-flaring-venting-and-methane-emissions-prevention-of-waste-and-pollution-regulations-2023>> accessed 13 August 2026

⁴⁷ Climate Change Act 2021 s.1

budgeting⁴⁸; emissions reduction target⁴⁹; climate adaptation strategies⁵⁰; and national climate accountability mechanism.⁵¹

Section 19 mandates carbon budget preparation to guide emissions reduction across sectors. Although Nigeria does not yet operate a comprehensive carbon tax or national ETS, the Act creates the legal foundation for future carbon pricing systems. The absence of a coherent carbon pricing framework reflects in policy fragmentation, institutional overlap, and limited technical capacity.

iv. Nigeria's International Obligations- Paris Agreement

Nigeria ratified the Paris Agreement in 2017 and committed to reducing greenhouse gas emissions through its Nationally Determined Contributions (NDCs). NDC's are non-binding national climate plans submitted to the UNFCCC every five years under the Paris Agreement to reduce greenhouse gas emissions and adapt to climate change. These obligations create increasing pressure for methane reduction; flare elimination; decarbonisation of industry; and cleaner energy systems.⁵²

Nigeria's NDC target is to reduce greenhouse gas emissions by 32% by 2035; its commitment to achieving net-zero emissions by 2060; renewable energy expansion; and reducing fugitive methane by 60%.⁵³ Nevertheless, international climate obligations must be balanced against Nigeria's developmental realities, including widespread energy poverty and industrial underdevelopment.

4. Impact of Carbon Pricing on Gas Commercialisation

4.1 Carbon Pricing as a Catalyst

i. Economic Incentivization of Flare Reduction

Carbon pricing increases the opportunity cost of flaring, making gas capture economically viable. This in turn can accelerate investment in gas processing infrastructure, and support initiatives such as flare commercialisation programmes.

ii. Repositioning Gas in the Energy Mix

In a carbon-constrained environment gas becomes more competitive than diesel and coal; while gas-to-power projects gain relative attractiveness. This reinforces gas as a transition fuel.

iii. Market Signalling and Investment Efficiency

Carbon pricing offers strong price signals that will aid efficient resource allocation, innovation, and reduction of regulatory uncertainties (when done correctly).

⁴⁸ *Ibid* s. 19

⁴⁹ *Ibid* s.1 (f)

⁵⁰ *Ibid* s.22-26

⁵¹ *Ibid* s.20

⁵² UNFCCC, 'Nationally Determine Contributions', <https://unfccc.int> accessed 14 May 2026

⁵³ NDC Partnership, <https://ndcpartnership.org> accessed 14 May 2026

4.2. Carbon Pricing as a Barrier to Gas Development

i. Increased Compliance Costs and Reduction in Investment

Carbon pricing could raise compliance cost for gas development through emissions charges, methane compliance costs; carbon disclosure cost; and carbon allowances. These high compliance costs can dissuade investments in both upstream and midstream development of gas projects, especially in cases where there is regulatory uncertainty.

In underdeveloped countries such as Nigeria where infrastructure gaps are still significant, carbon pricing may reduce competitiveness in comparison with other regions.

ii. Risk of Policy Misalignment

Legal ambiguity regarding carbon legislation could pose challenges to future gas investments. Investments in gas infrastructure are normally very costly and have long payback periods. Unclear regulations and frequent changes to emissions rules could increase financial risks; lower levels of confidence among investors; limit foreign direct investment; and delay infrastructure expansion. Moreover, when carbon legislation is introduced in a manner that is not consistent with gas legislation, it could weaken the incentives provided for by the PIA.

iii. Institutional and Governance Limitations

There are enforcement deficiencies, policy inconsistencies, and bureaucratic division in the regulation of Nigeria. Without reforms by the government, carbon pricing can be ineffective or even counterproductive.

5. Effect On Energy Security

i. Electricity Generation Woes

In the electricity generation industry of Nigeria, dependence on thermal power stations fueled by gas is still high. Increased cost of producing gas due to carbon pricing may have effects such as increased electricity tariff, decreased efficiency, and increased energy affordability issues.

In the case of *Gbemre vs. Shell Petroleum Development Company Nigeria Ltd*⁵⁴, the Supreme Court of Nigeria acknowledged the significance of environmental protection based on the violations of the constitutional right to life and dignity as provided by the Constitution of the Federal Republic of Nigeria 1999 through gas flaring.

The case indicates that environmental protection and human well-being are linked in some way. Yet, the legal challenge to balance environmental rights and economic growth still persists.

⁵⁴ AHRLR 151 (NgHC 2005)

ii. Energy Poverty and Developmental Realities

Nigeria continues to experience substantial energy poverty, particularly in rural areas. Aggressive carbon pricing without transitional protections may increase domestic fuel prices; worsen electricity affordability; limit industrial growth; and slow economic development. In other words, throw us into the dark ages. Therefore, developing countries generally require differentiated climate obligations consistent with the principle of common but differentiated responsibilities recognised under international environmental law.

6. A Concise Review of the Norwegian Regime and Lessons for Nigeria

Norway provides a particularly relevant comparator for Nigeria because both countries are significant petroleum-producing states in which natural gas is an important commercial resource. The principal difference is that Norway has developed a much more integrated system in which carbon pricing, strict petroleum regulation, emissions trading and gas-sector development operate simultaneously. Norway's experience therefore demonstrates that strong environmental regulation does not necessarily require abandoning gas production or compromising energy security.

Norway's petroleum-sector emissions are regulated through a combination of the CO₂ Tax Act on Petroleum Activities, the Greenhouse Gas Emission Trading Act, the Pollution Control Act and the Petroleum Act.⁵⁵ Petroleum installations are subject both to carbon taxation and the EU Emissions Trading System (EU ETS). Norway has applied a carbon tax to petroleum activities since 1991, while its petroleum installations entered the EU ETS in 2008. The combination is significant because the operator faces a direct economic cost for emissions while also operating within an emissions-cap-and-trade system.

The Norwegian system is therefore considerably more comprehensive than Nigeria's current flare-penalty regime. Nigeria's Gas Flaring, Venting and Methane Emissions (Prevention of Waste and Pollution) Regulations 2023 principally regulate flaring, venting and methane emissions from upstream petroleum operations. The Nigerian framework consequently combines emissions control with gas commercialisation, but does not yet constitute a comprehensive carbon-pricing system.

Norway demonstrates what a more developed pricing architecture can achieve. For 2026, the Norwegian petroleum-sector CO₂ tax is NOK 2.57 per standard cubic metre of natural gas used as fuel, equivalent to approximately NOK 1,098 per tonne of CO₂.⁵⁶ More significantly for Nigeria's flaring and venting analysis, natural gas released directly into the atmosphere attracts a much higher

⁵⁵ Climate Change Laws of the World, 'CO₂ Tax Act no 21 on Petroleum Activities', <<https://climate-laws.org/document/co2-tax-no-21-on-petroleum-activities-064b>> accessed 16 August 2026

⁵⁶ Norskpeteroleum, 'Emissions to Air', <<https://www.norskpeteroleum.no/en/environment-and-technology/emissions-to-air>> accessed 16 August 2026

rate of NOK 23.53 per standard cubic metre.⁵⁷ It is 30 times higher than Nigeria's maximum penalty for large-scale producers. Petroleum-sector emissions are also subject to the EU ETS.⁵⁸ The Norwegian government estimates that the combined carbon cost for petroleum-sector emissions was approximately NOK 1,825 per tonne in 2025, illustrating the strength of the economic signal facing operators.⁵⁹

This distinction is highly relevant to Nigeria. The Norwegian framework demonstrates the principle that emissions should have an identifiable economic cost, while the Nigerian 2023 Regulations demonstrate the complementary principle that gas that would otherwise be wasted should be made available for commercial utilisation. There would thus be progressive development of a system where the economic cost of flaring and venting will include the cost of waste of resources as well as the environmental cost.

In Norway, the case of flaring is especially significant since flaring of natural gas is only allowed where it is necessary because of safety considerations. Permits for flaring are granted by the Ministry of Energy. This is more stringent than a regulation regime where routine flaring is allowed if a relevant financial penalty is paid. The flaring in Norway is thus seen to be more of an exception based on safety considerations than an alternative of production with economic cost.

It implies that in Nigeria, a financial penalty should not be used in place of stopping unnecessary flaring. Where the cost of penalty is still economical compared to the cost of collection and utilization of the gas, an economically efficient company will continue with flaring.

Norway's experience is also particularly relevant because stringent carbon regulation has not prevented it from remaining a major gas producer and exporter. In 2025, Norway exported approximately 122 billion cubic metres of natural gas, equivalent to more than 30 per cent of the combined gas consumption of the European Union and the United Kingdom. Norway is currently the world's fourth-largest gas exporter.⁶⁰

This is perhaps the most important lesson for Nigeria. Norway demonstrates that carbon pricing and gas commercialisation are not inherently contradictory. The relevant question is not whether carbon pricing makes gas production more expensive—it does—but whether the regulatory

⁵⁷ Norskipetroleum, 'Emissions to Air', <<https://www.norskipetroleum.no/en/environment-and-technology/emissions-to-air>> accessed 16 August 2026

⁵⁸ Climate Action, 'Scope of EU ETS', <https://climate.ec.europa.eu/areas-action/carbon-market/scope-eu-ets_en> accessed 16 August 2026

⁵⁹ Norskipetroleum, 'Everything you Need to Know about Norwegian Petroleum Activities', <<https://www.norskipetroleum.no/en/utskrift>> accessed 16 August 2026

⁶⁰ Norskipetroleum, 'Exports of Norwegian Oil and Gas', <<https://www.norskipetroleum.no/en/production-and-exports/exports-of-oil-and-gas>> accessed 16 August 2026

framework creates sufficient incentives for producers to improve efficiency, reduce emissions and continue investing in commercially viable gas production.

The Norwegian model also demonstrates the importance of resource conservation. Gas that is not sold is not necessarily wasted. Norway reports that some gas is used for power generation on fields, while some is re-injected into reservoirs to maintain pressure and improve recovery, with the possibility of future recovery.⁶¹ Only small quantities are flared for safety purposes. This illustrates a broader resource-management principle: the objective should be to maximise the economic value of produced gas rather than simply maximise immediate production.

For Nigeria, this principle could be incorporated into the implementation of the 2023 Regulations. Regulation 3's requirement for a Flare Elimination and Monetisation Plan could be developed into a more rigorous resource-management instrument requiring producers to demonstrate why gas cannot reasonably be captured, re-injected or commercially utilised before routine flaring is permitted.

Lessons for Nigeria

1. Nigeria should move from a penalty-based approach towards an integrated carbon-pricing system.
2. Flaring should increasingly be treated as an exception rather than an economic option.
3. The cost of venting should reflect its environmental significance.
4. Carbon pricing should not operate without gas-commercialisation incentives.
5. Emissions measurement must precede sophisticated carbon pricing.
6. Carbon pricing should be designed around energy security rather than treated solely as an environmental tax.

7. Challenges in Nigeria's Legal Framework

Nigeria's legal framework lacks detailed implementation mechanisms because of regulatory ambiguities across the Climate Change Act and the Petroleum Industry Act. Though the government has approved a national Carbon Market Framework, the absence of specific legislation defining carbon credit ownership, trading, and compliance enforcement creates critical investments risks.⁶² Several challenges hinder effective balancing of carbon pricing and gas commercialization in Nigeria. These are as follows:

⁶¹ Norskpipeline, 'Exports of Norwegian Oil and Gas', <<https://www.norskpipeline.no/en/production-and-exports/exports-of-oil-and-gas>> accessed 16 August 2026

⁶² N. Ole & ors, 'Legal Pathways for Carbon Compliance, Emissions, ESG Obligations & Climate Risks in Gas Projects', *Mondaq Legal 500* (2026) <https://www.mondaq.com> accessed 18 May 2026

i. Regulatory Fragmentation

There is overlap between the NUPRC and the NMDPRA, environmental agencies and authorities. There is also a lack of convergence between sector-specific emissions rules like the gas flare regulations, overarching climate change legislations and financial regulations.⁶³ This fragmentation creates uncertainty and inconsistent policy implementation.

ii. Lack of MRV Guidelines

Despite Nigeria's net-zero targets, the current laws lack Monitoring, Reporting and Verification guidelines required to effectively implement carbon tax or emissions trading schemes.

iii. Weak Enforcement

Despite the gas flare regulations and penalties, Nigeria is plagued with weak enforcement due to corruption or regulatory capture by these companies responsible for the emissions while penalties are not sufficient and cheaper to pay than the ETS or carbon tax.

iv. Absence of Comprehensive Carbon Pricing legislation

Nigeria presently lacks a unified statutory framework specifically regulating carbon taxation, emissions trading systems and nation-wide carbon markets. Nigeria still intends to establish clear regulations to govern the carbon markets in a way that supports the scaling of carbon credits provide flexibility for carbon transactions.⁶⁴ This creates uncertainty for investors and policy makers.

v. Carbon Asset Ownership

In Nigeria, the laws do not state categorically who owns the carbon credits derived from emissions reductions. However in practice, carbon credits are primarily owned by the project developers and the entities that fund them, while the federal government regulates the carbon markets.⁶⁵ Establishing clear ownership is foundational for market trust, preventing double-counting, and ensuring environmental integrity within both voluntary and compliance carbon markets.⁶⁶ Owning a carbon credit means holding the exclusive right to transfer the credit; hold it over time, retire it for climate claim and preventing others from exercising those rights.⁶⁷

9. Recommendation

Nigeria needs a staged and development sensitive carbon pricing approach. These are recommendations

⁶³ *Ibid*

⁶⁴ Climate and Sustainable Development, 'Carbon Market Framework', <https://csdevnet.org> accessed 18 May 2026

⁶⁵ Oyinkan Alakija & Odo E. Ugwu, 'Carbon Credits in Nigeria: Understanding its Operations and Challenges', *Mondaq Legal 500* (2024), <https://www.mondaq.com> accessed 18 May 2026

⁶⁶ Go Balance, 'Carbon Credit Ownership and Custody', <https://go-balance.com> accessed 18 May 2026

⁶⁷ Go Balance, 'Carbon Credit Ownership and Custody', <https://go-balance.com> accessed 18 May 2026

1. A staged approach is crucial. Carbon pricing should begin with activities that produce high levels of emissions such as routine gas flaring and not productive gas use.
2. Carbon revenue must be invested back into renewable energy, gas facilities, rural electrification and development of clean technology.
3. Nigeria needs to create a single carbon regulation approach to prevent fragmented institutions.
4. Transition allowances and incentives should be created for strategic domestic gas projects that contribute to electricity production and industrialization.
5. Methane monitoring and flare reduction systems need to be strengthened.
6. Nigeria should go for a hybrid system whereby there is carbon tax and only limited emissions trading mechanisms.

The central issue in Nigeria is not the lack of carbon pricing but institutional inefficiencies and lack of coherent policy making.

10. Conclusion

However, carbon pricing entails a set of both positive and negative implications for Nigeria's gas industry and energy security agenda. While a well-designed carbon price policy can help address the problem of flaring, enhance environmental governance and promote climate finance flows, an ill-designed mechanism might scare off investors, raise energy prices and hamper economic development. In conclusion, the carbon pricing tool per se is neither advantageous nor disadvantageous for the process of commercializing natural gas resources in Nigeria. Its effect depends on various factors related to the way carbon pricing is designed. That is why, Nigeria should strive towards finding a balance between its development imperatives and the need for sustainable energy in terms of introducing a carbon pricing scheme. Instead of blindly following the de-carbonization templates used by advanced countries, Nigeria needs to introduce a transition-friendly carbon pricing framework.