



Gas Flaring in Nigeria: What can be done to curb it?

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Table of Content

1. History and Situation of Gas Flaring in Nigeria
2. Adverse Effects and Impact of Gas Flaring in Nigeria
3. Efforts to Solve Gas Flaring in Nigeria
4. Recommendations for Reducing Gas Flaring in Nigeria
5. A Nigerian Future with Zero Routine Gas Flaring

1. History and Situation of Gas Flaring in Nigeria

Gas flaring, the burning of natural gas associated with oil extraction¹, has been a prevalent practice in Nigeria. Natural gas brought to the surface, especially where there is no infrastructure to put this "associated gas" to productive use is burnt for disposal thus making it a wasteful and generally polluting practice. Having spanned centuries, the world over since the beginning of man's exploitation of the earth's natural resources for oil production, this ongoing practice despite its obvious negative impacts has remained in the Nigerian oil extraction space since the beginning of commercial exploration and production of crude oil in 1958.²

Since 1958 this intentional combustion of flammable gases during oil extraction has remained a constant practice in Nigeria. According to the National Oil Spill Detection and Response Agency (NOSDRA), in the first half of 2022, Nigeria's gas flaring attributed to operations of oil and gas companies stood at a whopping 126 billion square cubic feet with a loss of \$441.2 million (about N183.54billion).

As far back as 1984, Gas flaring has been illegal in Nigeria. In 2005, the Federal High Court of Nigeria upheld that Gas flaring was a 'violation of the constitutional right to life and dignity'⁴. So how has this evolved into a 'convenient norm' that is yet to be eradicated despite the widely recognized standpoint that Nigeria cannot rein in waste and pollution, a natural consequence of gas flaring? Between 1969 and 2020, ten deadlines to end routine gas flaring have been set and none was met⁵, which begs to question if the goal post will ever stop shifting and the efficiency of historic policies vis-à-vis implementation and the general willingness of political administrations and local and international industry players to curb this practice. According to the world bank report, in recent years Nigeria has shown significant progress, reducing gas flaring by about 2 billion cubic meters from 2012 to 2015⁶. As of 2012, Nigeria was among the top seven countries flaring gas. However, between 2021 and 2022, Nigeria retained its position on the world scale as the 10th chief gas flaring nation behind other top nine Countries, although with a -3.0bcm positive decline in recorded gas flaring (World Bank, 2022)⁷. Nevertheless, Nigeria continues to miss its gas-flaring deadlines as imposed by the government. Currently, Nigeria's latest deadline as published in its National Climate Change Policy for ending routine gas flaring has been set for 2030.

Is this too ambitious considering previous trends of unaccomplished target dates? Drawing projections from historic trends predict so. Currently, there are still calls by activist groups for drastic measures to be adopted in order to implement bans on flaring by shutting in non-compliant fields. However, this would come at a cost of "revenue cut" as Nigeria is largely an Oil dependent country. Nevertheless, the big question remains, can Nigeria afford to adopt this cutting-edge approach? Or would a more subtle approach involving incentivization of gas commercialization & collaboration and the creation of inclusive binding policies by the government be more effective in driving Nigeria towards its Zero routine flaring targets?

In April 2019, The Group Managing Director of the Nigeria National Petroleum Corporation (NNPC), Dr. Maikanti Baru, emphasized that "no new gas project will be approved without zero gas flare modalities"⁸ during his meeting with the national leadership of Host Communities of Nigeria (HOSTCOM). Recently, H.E Timipre Sylva the Nigeria Minister of State for Petroleum Resources also reiterated Nigeria's commitment to the actualization of a zero-gas flare era during his address to reporters after a meeting with US climate envoy John Kerry where he stated that "We are trying to bring down gas flaring. Gas flaring commercialization Programme is at an advanced stage, which is going to take out about 15 million tonnes of CO2 from the atmosphere, which is one of our biggest contributions to global gas emissions"⁹



Figure 1: A Gas Flaring Site In Nigeria

2. Adverse Effects and Impact of Gas Flaring in Nigeria

An economy that promotes carbon emission through flaring wastes valuable energy products, increases health disparities and fuels climate change, a far-cry from the Global United Nations

Sustainable Development Goals 7 (Affordable and Clean Energy), 11 (Sustainable cities and communities), and 13 (Climate Action). We explore the effects and impact of Gas flaring under the following themes:

- **People Impact:** Oil-rich communities across the Niger Delta have a disproportionate exposure to the resultant impact of gas flaring especially on public health. Although research specific to the Niger-delta to quantify the effect of resultant health hazards due to gas flaring are still underway, flares generally are known to release toxins and contribute to noise and light pollution, surface, and groundwater contamination. The effect of these on public health span reproductive harm and birth defects, respiratory problems, sleep and hormone disruptions, skin, eye, and nose irritation as well as adverse cognitive effects.¹¹
- **Economic Impact:** Gas flaring costs the global economy. It is an abundant waste of energy resources. Being a developing nation with fluctuating strides in economic progress, every year, Nigeria loses the benefits to its economy achievable by harnessing its rich natural gas resource
- **Environmental Impact:** Gas flaring is the second most destructive environmental pollutant in the Niger Delta after oil spillage. Flaring is a chief source of greenhouse gas emissions and contributes to the overall burden of global warming. This burning of excess natural gas accentuates the effect of Climate Change and impacts the environment through methane, CO2 emission, black carbon (soot), and other pollutants causing acid rain which contaminates the air and soil with resulting negative impact on agriculture.¹²
- **Global scale comparison:** Continued flaring would rob Nigeria of its place as a player in the global energy transition. As the world innovates towards a low-carbon future, emission-intensive practices such as gas flaring would stamper the country's effort to accelerate towards a cleaner energy future using natural gas alongside other sustainable energy mixes as key drivers, even as it continues to use hydrocarbon resources of today to build the energy of tomorrow.

3. Efforts to Solve Gas Flaring in Nigeria

Despite the historic pattern of non-actualization of gas flare elimination target dates as set by the country, below are notable recent efforts geared towards eradicating the practice in Nigeria.

Government Initiatives

- The Flaring (Prohibition and Punishment) Bill, of 2010 prescribed stiffer penalties including closing down of oil fields that failed to comply with its provisions.¹³
- The Environmental Management Bill, of 2010 made the Directors of oil companies liable for gas flaring with ten years' incarceration or a fine of N500 Million on conviction but this Bill has not been passed into law.¹⁴
- Nigerian Gas Flare Commercialization Programme enacted in 2016 to promote technical and commercial sustainability of gas utilization in Nigeria through third-party investors to combat gas flaring and to enhance the market driven by a commercial structure that will enable flared gas to be merchantable in Nigeria and in other developed gas market.
- National Gas Expansion Programme introduced in 2020 which ushered entry of three streams of Autogas; Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) as alternative fuel choice for transportation using autos and other prime movers, as well as encouraged the use of Liquefied Petroleum Gas (LPG) as the fuel choice for cooking, captive power, and small industrial complexes.¹⁵
- Nigerian Decade of Gas initiative declared by the president in 2021 as part of the fresh moves by the Nigerian National Petroleum Company Limited (NNPC Ltd.) to address the challenges of gas flaring in the country by increasing the usage of gas as the energy of choice among Nigerians as a key Energy Transition driver for the nation's sustainable development goals. This closely follows the 2020 'year of gas' initiative which was deployed as a test-run.¹⁶

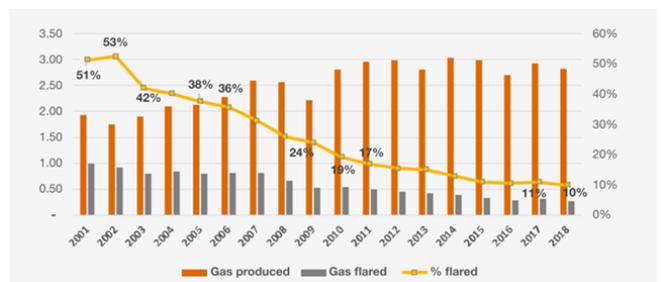


Figure 2: Gas produced and flared in Nigeria (PwC 2018)²²

Corporate/Gas & Oil Operators Initiatives

Although there have been widespread call-outs by environmentalist groups who posit there's a clear lack of appetite on the part of the oil operators in Nigeria to see to an end to gas flaring, in addition to the lacklustre implementation of sterner policies by government and regulatory agencies, local and international oil companies in Nigeria have continued to adopt this 'safe-yet-harmful' method of disposing of gas associated with the oil extraction process due to a range of issues, from the market and economic constraints to a lack of appropriate regulation and political will.

Nevertheless, with the current reviewed goals and strategy as published by most International and Local oil operators in the country which reveals a strong commitment to align with the global energy transition targets in line with the Paris agreement, it is anticipated that there will be keen efforts now and in the coming years by all key industry players to seek economically viable solutions to eliminate routine gas flaring in Nigeria by the 2030 deadline.

Individuals/Community Initiatives

- There have been several individuals and community class-action lawsuits brought before several courts of jurisdiction in Nigeria with regards to gas flaring, seeking to challenge the continued "violation of their fundamental rights to life (including healthy environment) and dignity of the person as enshrined in and guaranteed by Section 31 and 34(1) of the Constitution of Federal Republic of Nigeria, 1999"¹⁷. However, jubiliations over the most recent 2005 and 2021 court rulings upholding the 'illegality of gas flaring in Nigeria' are usually short-lived owing to a lack of enforcement of the aforementioned judgment.¹⁸
- There are also notable environmentalist groups across the country, especially in the oil-rich Niger-delta region who relentlessly continue to advocate for the rights of people living in gas flare hotspot locations to have clean, poison-free, pollution-free, and healthy environments.

4. Recommendations for Reducing Gas Flaring in Nigeria

To curb gas flaring there must be a unanimous alignment by all key stakeholders that gas flaring is an unsustainable process. We explore some notable solutions to reduce and eliminate the practice.

Short Term

- Oil operators can re-inject associated gas back into the ground.
- Develop and adopt a SMART country-specific gas flaring reduction programme that is practical, closely monitored, and adhered to. This should be tailored to fit the current realities of Nigeria in terms of our past and current gas-flaring trends, such that it is not just wishful thinking imposing unrealistic target dates which are never met.
- Promotion of local 'Flare to power' initiatives which would help accelerate the journey to zero routine flaring by increased use of Natural Gas associated with oil production through commercialization of existing gas projects and endorsement of only future projects with gas utilization strategies while creating an enabling and secure operating environment to attract and retain local and international investments.
- Impose and implement more laws, regulatory policies, and higher tax rates on gas flaring to further dissuade the practice amongst national and international oil operating companies in Nigeria thereby encouraging the development of innovative means of utilization.
- Collaboration between government agencies and environmentalist organizations to accurately measure and report the rate of flaring activities and raise awareness through periodic campaigns on the continued need for the total elimination of this practice in our quest for energy provision.

Long Term

- Government to incentives and collaborate with National Oil Companies (NOCs) and International Oil Companies (IOCs) by providing legal, regulatory, and investment support as well as a thriving business environment that would encourage new investments and partnerships for the development of critical gas infrastructure to utilize and monetize the gas currently being flared, thereby creating shared economic value, and cutting on CO2 emissions simultaneously.

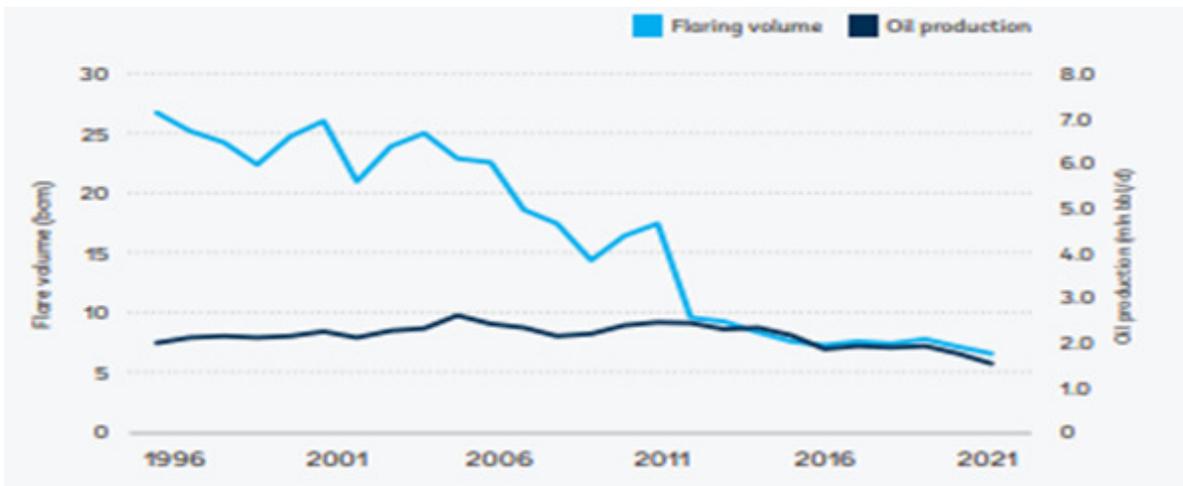
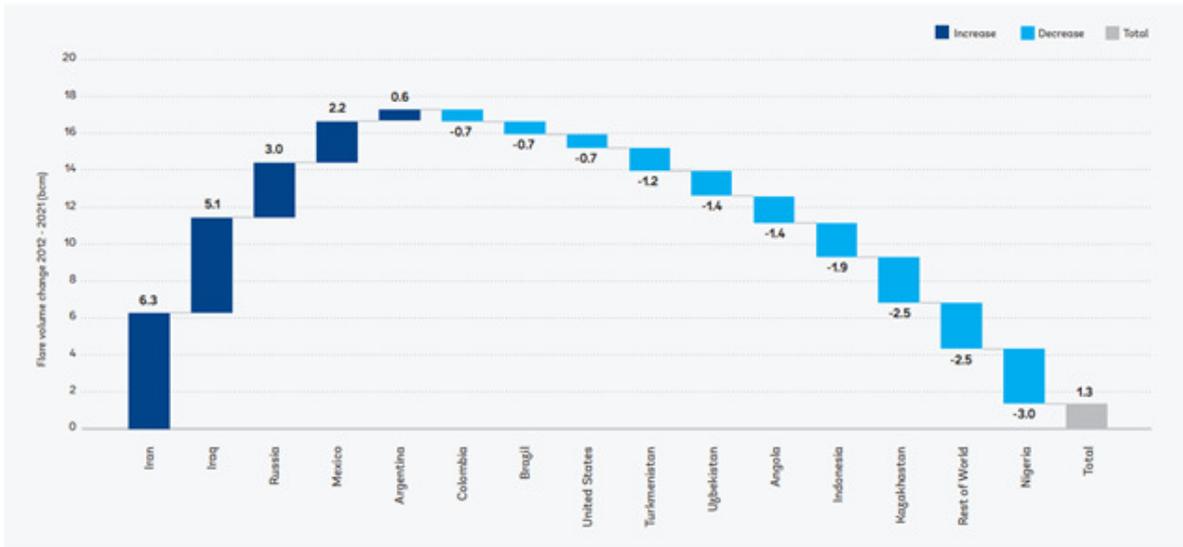


Figure 3 & 4: Nigeria flare volume versus oil production 1996 to 2021, demonstrating significant earlier progress to reduce flare volumes. Source: World Bank (2022)¹⁰

- Government agencies and local research institutes to invest in Research and development in collaboration with global institutes and Upstream Oil Companies to invent and implement viable country-tailored solutions for the elimination of routine flaring while providing cleaner energy solutions.
- Increased investments in the gas sector to enable continued capture, storage, processing, transport, and commercial distribution of the associated gas to markets both locally and internationally.
- Investment in physical infrastructure to convert current fuel and diesel-powered machinery to gas-powered systems to enable utilization of the abundant natural resource of the country.

5. A Nigerian Future With Zero Routine Gas Flaring

Imagine a future where we could capture all the yearly gas flared in Nigeria for utilization and monetization as opposed to flaring. This would help actualize the nation's goals of becoming a gas-prosperous nation capable of fully unlocking its economic possibilities. With natural gas being the cleanest fossil fuel, it would also play a key role in fueling the Energy Transition in Nigeria alongside other sustainable and renewable energy mixes. We analyze some of the inherent gains under the following themes:



Figure 5: A Gas Flaring Site in Nigeria's Niger-Delta Region (Source: National Daily Nigeria)

Revenue Generation

According to the World Bank, gas flaring costs the global economy US\$ 20 billion in 2018. In Nigeria, PwC estimates that the Nigerian economy lost N233 billion (US\$761.6 million) to gas flaring which translates to 3.8% of the global total cost in 2018.¹⁹ Also, between 2021 and 2022 Nigeria would have in eighteen months generated N891bn in revenue if this opportunity was not lost to flaring the gas instead according to data from the Nigerian Oil Spill Monitor, an arm of the Nigerian Oil Spill Detection and Response Agency, NOSDRA. The data shows that the country lost a total of N707bn in 2021 and N184bn in the first half of 2022, totaling N891bn.²⁰ This is because oil and gas companies operating in the country flared a total of 126 billion standard cubic feet of gas in the first half of 2022, which led to a loss of \$441.2 million, (about N183.54 bn) in the six-month period.²¹

Power Generation

In this ideal setting with zero routine flaring, Nigeria would be able to ramp up its local power generation for local consumption thereby tackling the currently prevalent Energy poverty plaguing several parts of the country. According to the World Bank's recent report, the amount of gas that was flared globally in 2021 at oil production sites worldwide – about 144 billion cubic meters – could power the whole of sub-Saharan Africa.²³

In the same vein, just in the first half of 2021, the quantity of gas flared in Nigeria would have been able to generate 14,000 gigawatt-hour of electricity and cut back on an equivalent of 7.4 million tonnes of CO₂ emission, however Nigeria under the current oil extraction modus operandi which still deploys the wasteful practice of gas flaring lost the chance to boost its electricity generation capacity just as has been the case historically since the 1950s.²⁴

Sustainable Development

Visualizing an ideal setting when this environmentally degrading process is curbed, Nigeria will achieve a historic decarbonization of its oil extraction process which will lead to the creation of an enabling and healthy environment where people can thrive, innovate, and contribute to the development of a sustainable economy. The 2012 research carried out by V.Ojeh to examine the impact of gas flaring on sustainable development using the Ebedei area of Ukwuani community in Delta State as case study revealed that “there is a significant relationship between ambient temperature and the gases (CO, NO₂, SO₄ and CH₄) flared in Ebedei”²⁵ emphasizing the fact that an economy that promotes carbon emission through flaring cannot truly attain sustainable development.

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