Review Of The Flaring Management Guidance For The Oil And Gas Industry, 2022

PROEM

Nigeria has been listed as one of the top gas-flaring countries in the world[1], with an estimated two million people living less than 4 km away from a flare site and also with over Six Hundred and Eighty-five Million United States Dollars ($685, 000, 000.00) worth of natural gas reportedly flared since January 2022, despite penalties being at two Dollars ($2) per 1,000 standard cubic feet.

On its part, the Federal Government of Nigeria (FGN), in recognition of potential values of flared gas that could be harnessed to stimulate economic growth, drive investments, and provide jobs in oil producing communities and indeed for Nigerians through the utilization of widely available innovative technologies, has, approved the Nigerian Gas Flare Commercialisation Programme (**"NGFCP"**) which is designed to eliminate gas flaring through technically and commercially sustainable gas utilization projects developed by competent third–party investors, invited to participate in a competitive and transparent bid process whilst permanently addressing the environmental problem in Nigeria.

An interesting development has also been the making of the draft Gas Flaring and Venting (Prevention of Waste and Pollution) Regulations, 2022, which is to replace the existing Flare Gas (Prevention of Waste and Pollution) Regulations, 2022, and as of the date of writing, is awaiting its gazette with the following objectives:

(a) Reduction of the environmental and social impact caused by the flaring and venting of natural gas;

(b) protection of the environment;

(c) prevention of waste of natural resources

(d) enhance energy transition in Nigeria[2]; and

(e) creation of social and economic benefits from gas flaring and venting capture.

Furthermore, the FGN has ratified the Paris Climate Change Agreement, and is now a signatory to the Global Gas Flaring Reduction Partnership (GGFR) principles for global flare-out by 2030, whilst committing to a national flare-out target by year 2025.[3]

THE GUIDANCE

As a global effort to eliminate gas flaring, the International Petroleum Industry Environmental Conservation Association (IPIECA)[4] in collaboration with the International Association of Oil & Gas Producers (IOGP) and the GGFR, has also released the Flaring Management Guidance, 2022 (the **"Guidance"**) for the Oil and Gas Industry.

The Guidance, which has the objective of providing a broad guideline on flaring management that is relevant to governments and regulatory bodies as well as the oil and gas industry, outlines new flaring management and reduction developments, and examines industry experiences with eliminating flaring, new technologies, business models, operational improvements, and regulatory policy. This article examines the Guidance and summarizes its key provisions, as part of the footprints for attaining an environment friendly global oil and gas industry.

GENERAL OBJECTIVES OF THE GUIDANCE

Net zero is an international scientific consensus that, in order to prevent the worst climate damages, global net human-caused emissions of carbon dioxide (CO2) need to fall by about forty-five percent (45%) from 2010 levels by 2030, reaching net zero around 2050.

The objective of the Guidance is therefore to:[5]

a. Assist governments, companies, and others in playing their part to deliver on Zero Routine Flaring commitments, the Paris Agreement, and the United Nations (UN) Sustainable Development Goals;

b. Raise awareness, and increase the understanding and adoption of natural gas flaring reduction best practices in the oil and gas industry and among external stakeholders, such as governments and regulatory agencies and financial institutions;

c. Identify and explor options for the deployment of flaring reduction technology, including operational improvements and good practices developed by the industry on both routine[6] and non-routine flaring[7] management;

1. The Cable, 'World Bank: Nigeria Among Top 10 Countries Responsible for 75% of Gas Flaring Worldwide'. Available at https://www.thecable.ng/world-bank-nigeria-among-top-10-countries-responsible-for-75-of-gas-flaring-worldwide. Accessed March 22, 2023.

2. This item (d) is not one of the objectives in the 2018 Regulation.

3. Gas flaring, the burning of natural gas associated with oil extraction, occurs due to a range of issues, including technical issues (e.g. initial start-up testing of a facility, unplanned equipment malfunctions, etc.), market and economic constraints (e.g. insufficient demand, low gas prices, etc.), or a lack of appropriate regulation and political will. The practice results in various pollutants released into the atmosphere, including carbon dioxide, methane, and black carbon (soot).

4. IPIECA is the global oil and gas industry association for advancing environmental and social performance. It convenes a significant portion of the oil and gas value chain and brings together the expertise of members and stakeholders to provide leadership for the industry on advancing climate action, environmental responsibility, social performance and mainstreaming sustainability.

5. It is an international scientific consensus that, in order to prevent the worst climate damages, global net human-caused emissions of carbon dioxide (CO2) need to fall by about 45 percent from 2010 levels by 2030, reaching net zero around 2050.

6. Routine gas flaring is a significant source of Greenhouse gas (GHG) emissions from upstream oil and gas operations and is estimated to account for up to 9 percent of the oil and gas industry's emissions. It happens when the market value does not support a positive return on the investment needed to bring the associated gas from the producing field to a value-added consumptive use.

7. Non-routine flaring is distinguished from routine flaring by the cause, magnitude, frequency and duration of flaring events. Non-routine flaring is generally characterized by infrequent occurrence, high-emission rates and short event durations (each company has its own internal definition for the duration of a non-routine flaring event, ranging from sub-hourly to several days). By its very nature, non-routine operational flaring can be difficult to predict and track in the absence of adequate flare metering. Unexpected process upsets that are outside normal steady-state plant process and equipment operations, equipment breakdowns, and miscommunication between operations personnel and service providers are among the reasons why such flaring occurs and can contribute to its unpredictability.

d. Explore market approaches and business models for monetizing associated gas[8], the barriers to commercial implementation, and the important lessons learned.

e. Review examples of regulatory approaches in different parts of the world and identifying principal features of an effective regulatory framework to facilitate reduced flaring; and

f. Document and share gas flaring reduction case studies, regulatory development scenarios and best practices in the oil and gas industry, in different countries.

Thus, the Guidance goes beyond climate protection to exploring possible economic advantages that may be exploited by stakeholders. It seeks to help build a shared understanding of the wide range of potential benefits among all stakeholders, including owners, operators, financiers, regulators and governments, whilst encouraging them to work together and overcome the barriers to reducing flaring and using the gas as an energy source to meet up with global energy demand and reduce energy poverty in countries, or to conserve it.

One of the ways through which the Guidance seeks to achieve these objectives is by streamlining the wide range of benefits that is associated with non-flaring of gas, as this would encourage cooperation among stakeholders and spur their commitment towards finding solutions to the problems associated with gas flaring, especially with fiscal policies put in place to encourage utilization of associated gas.

KEY FEATURES OF THE GUIDANCE

The Guidance provisions cut across the roles to be played by individual key players in the sector in ensuring that there is proper flaring management. Some of these provisions are summarized below:

a. Economic Benefits of Associated Gas

The Guidance outlines some monetary benefits that could be derived from associated gas in a well-functioning market. On one hand, economic benefits accrue to producers who find valuable uses within their own operations. For example, they can use associated gas to generate electricity on-site, and stoppage of work during periods of grid collapse. On the other hand, gas companies could provide facilities and services to capture the associated gas and deliver it to satisfy customers' demand. Also, producers could get market advantage such as preferred bidder status on energy projects sponsored by a host government. This is because the company would have built a reputation to satisfy other stakeholder expectations by demonstrating actions to reduce gas emissions as a commitment to net zero flaring.

b. Relationship between Non-flaring and Sustainable Development Goals

The United Nations (UN) General Assembly 2030 Agenda for Sustainable Development aims to address some of the world's pressing economic, social, and environmental challenges. With ihe oil and gas industry's operations intersecting with a few of the Sustainable Development Goals (SDGs), such a communities, ecosystems and economies, the Guidance therefore encourages governments, oil companies and other stakeholders in the oil and gas industry to commit to building a market that is economically viable and environment conscious, whilst it also identifies solutions to the technical and regulatory challenges to flaring reduction by developing flaring reduction programs, conducting research, sharing best practices, raising awareness, increasing the global commitments to end routine flaring, and advancing flare measurements and reporting system.

c. The Role of Oil and Gas Operators

The Guidance identifies that the first point of call for oil and gas operators in successfully using flared gas for more productive use is commitment, followed by a disciplined approach of organization, planning and implementation. The volume of associated gas that is being produced is one of the cardinal points of a viable flare reduction solution. It determines the level of facility and finances required in order to appropriately convert associated gas into alternative energy source. It also helps in evaluating optimal technology solutions and evaluate the market nuances with respect to demand and supply.

In furtherance of the above, the Guidance, through an empirical approach, measures and estimates associated gas production viz a viz utilization to produce other sources of energy. It was discovered, first, that there is no accurate data on the volume of associated gas because while oil production at a facility is measured, gas production is not. Therefore, the Guidance states that one of the ways of solving the problem of flaring is by having concrete data on the volume of gas that is being produced, and this duty falls on the individual operator.

Furthermore, the Guidance identifies the various ways through which flaring occurs and presents ways through which individual operators can prevent it. It is analysed that flaring occurs in different ways – conventional and unconventional, and having been first committed to emission reduction, there is need for operators to have thoughtful planning prior to the start of operations. This should be followed by a utilization strategy as well as identification of necessary commercial project activities and strategies to monetize flare gas that go beyond use within the producer's operations.

Additionally, the GGFR's research has shown that the overwhelming majority of flared gas (and thus the largest contribution to GHG emissions from flaring) results from the continuous flaring of large amounts of associated gas as part of the regular operations of an oil production facility. Controlling this source of flaring often requires major capital investments in new equipment to manage, process or export the gas.

Strategies to monetize flare gas that go beyond use within the producer's operations may involve significant capital expenditure, regulatory authorizations, coordination with downstream off-takers, stakeholder engagement and, sometimes, external financing. For such major projects, the producer may be the initiator and a key sponsor; however, when the flared gas transfer price at upstream facilities is low the project initiator and/or sponsor may be a third party.

However, to be effective, any initiative to reduce non-routine flaring should be built upon a robust policy and management system to drive implementation. It should begin with a clear commitment from management to minimize, or aim for the complete elimination of, nonroutine flaring, except for those instances that are safety related. A signed statement that frames the goals and establishes a target date for implementation with interim milestones is a powerful motivator to the rest of the organization.

8. Associated gas is the natural gas that is produced as a co-product with oil during oil extraction. Significant volumes of associated gas are flared annually at oil production sites around the globe, contributing to climate change by releasing CO2 and CH4 into the atmosphere. Much of this flaring occurs on a routine (typically, continuous) basis.

This message should be communicated to the internal stakeholders that have the operations responsibility, and to the planning/finance sections along with critical support groups such as engineering, supply chain, information technology, asset reliability, and environment and safety staff.

d. The Role of Government and Regulatory Bodies

The Guidance importantly states that adequate regulations and incentives play an important role in greenhouse gas emission.

On one hand, constraints on allowable legal flaring activities, and conditions placed on the utilization of natural gas, are important considerations that frame any flaring reduction plan Therefore, compliance with local and regional regulations and policies covering environmental protection, safety/risk management, land access, etc. is essential. On the other hand, incentivizing flaring reduction projects by proposing favorable fiscal policies such as reduced royalties, accelerated depreciation, investment credits, and tax credits or deferments could be used to encourage the consideration of all gas utilization options. To de-incentivize the practice of gas flaring, consideration should be given to setting a volume-based fee on all gas that is routinely flared. Volumes flared for safety purposes could be exempted and fee levels could be set so that investment in flare and vent reduction is more attractive than paying the fee.

The Guidance also notes that applicable legal structures and commercial conditions covering gas resource and gas infrastructure ownership can significantly impact the choice of flaring reduction project activities. As a result, first, there should be a proper institutional set-up with greenhouse gas reduction as its primary objective. The creation of an institution for this purpose is crucial because it helps to bring on board both internal and external stakeholders. This includes the relevant government ministries, companies, relevant civil society organisations that operates globally and promote good practices in the area of environmental protection. In the same vein, the institution must ensure accountability from every angle to foster effective capacity building process which will encourage participation by all those involved.

According to the Guidance, in a mature governmental framework, agencies or ministries that regulate hydrocarbon production and environmental impacts of gas flaring exhibit the following characteristics:

a. They will have clearly defined responsibilities and are accountable for their fulfillment.

b. They are independent from regulated operators.

c. They adopt clear and efficient regulatory processes concerning gas flaring and venting.

d. They will be properly staffed and financed to execute responsibilities and enforce compliance with regulations.

The following concerns and their requisite regulatory options are also proposed:

Concerns	Regulatory Options
Ownership	• Ownership of the associated gas and/or flare gas. • Differentiate between associated gas for own consumption, associated gas taken to market with producer's investment, and flare gas that could be monetized by third parties.
Access to flare gas.	• Terms and conditions under which third parties can obtain access to flare gas. • Process to obtain permit/rights/ownership of flare gas. • Infrastructure interconnections terms and conditions between flare site and midstream flare monetization project.
Access to existing infrastructure with spare capacity.	• Free access to existing infrastructure with spare capacity against fair and established compensation.
Flare gas pricing.	• The associated gas price should be market-driven. • Consider the impact of subsidized fuels or derived products (such as electricity) on the demand for associate gas. • Where an abundant supply of non-associated gas is available, incentives to help prioritize utilization of associated gas should be considered.

The above notwithstanding, the Guidance recognizes that each country is unique with specific peculiarities and challenges. Thus, there is no best institutional alternative for how to effect control over flaring reduction. However, the Guidance presents three approaches that may be adapted to meet the specific local circumstances obtainable in every country, as follows:

a. ***A prescriptive approach***: This approach is based on specific and detailed regulatory requirements, procdures and operational processes. Strict enforcement tools and penalties are often applied to promote compliance.

A prescriptive approach can minimize the likelihood of failure to achieve the desired outcome (elimination of flaring by a certain date). However, the successful achievement of such a goal may come with high transactional costs because predetermined methods to achieve compliance may be inflexible, or technology implementation costs may be high.

b. ***A performance-based approach:*** This relies on consensus and cooperation between operators and the regulator in setting objectives and targets. The operator then has the responsibility to define a program to achieve these targets and to provide evidence demonstrating that it is complying with the agreement. Typically, the enforcement authority focuses on compliance assistance rather than the imposition of penalties or other sanctions, unless progress on targets stalls. A performance-based approach affords a great deal of flexibility to regulated companies in achieving the desired outcome (elimination of flaring), but it does not guarantee that it will occur by a particular date, if at all. Company costs can be much lower than under a prescriptive regime, and there is greater pportunity for innovation in practices and technologies. However, there is a greater burden on agencies to review plans, monitor progress and provide technical assistance than under a prescriptive approach.

c. ***An economic approach***: This approach relies on pricing mechanisms that harness the economic self-interest of the various entities in the marketplace to achieve the desired policy outcome (elimination of flaring). To encourage actions, market forces are supplemented by fiscal policies such as tax credits, investment incentives or, in the case of flaring, a carbon emissions tax or carbon credit instrument. It can be an efficient way to achieve changes in behavior. If structured appropriately, with reliance placed on market pricing as the primary driver for change, it requires little oversight from agencies. However, if market pricing alone is insufficient to achieve the desired outcome, or as the number and complexity of new fiscal instruments increases, so too does the level of oversight from government entities — from monitoring for fraud to administering new pseudomarket systems, e.g. carbon credit trading.

In all, there is usually the need for a durable organization for associated gas flaring reduction within the country's oil companies oil ministry or environmental protection ministry. Secondly, there could be a need to establish an interdisciplinary task force comprised of specialists from all relevant governmental bodies.

CONCLUSION

In line with the global net zero plan, the Guidance critically examines the issues relating to gas flaring in the oil and gas industry. It interrogates the associated challenges by providing nip-it-at-the-bud solutions to such challenges and extensively outlining the role of different key players in the sector. It was found out that the amount of flared gas across the globe is enough to satisfy the energy demand if associated gas is utilized and converted into alternative energy source. The Guidance also advises that non-flaring of associated gas is not only an environmental issue, but also an economically viable matter. To concretise its position on non-flaring of associated gas, the Guidance presents data, empirical reports, case studies and practical advice on related projects and energy activities. It is hoped that the Nigerian government, regulators and operators will take cognizance of the advisory from the Guidance as the world strives towards a net zero environment.

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