Global Gas Flaring Tracker Report

JUNE 2026



GFMR
Global Flaring and Methane Reduction Partnership

MANAGED BY THE
WORLD BANK GROUP

© 2026 International Bank for Reconstruction
and Development / The World Bank Group
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

This work is a product of the staff of The World Bank Group with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank Group, its Board of Executive Directors, or the governments they represent.

The World Bank Group does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank Group concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank Group, all of which are specifically reserved.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank Group encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to

World Bank Publications,
The World Bank Group,
1818 H Street NW,
Washington, DC 20433,
USA

Cover Photo : Solodov Aleksei
Used with the permission
Further permission required for reuse

Contents

Foreword	6
Acknowledgments	8
Abbreviations	10
Executive Summary	13
Key Findings	21
Benefits of Flaring Abatement	22
Energy Security	22
Energy Access	26
Environmental Benefits	28
Economic Value	30
Translating Benefits into Action	30
Global Gas Flaring in 2025	32
Focus on Top Nine Flaring Countries	38
Changes in Smaller Flaring Countries	39
Changes in Countries that Have Committed to ZRF and Those that Have Not	41
Spotlight Countries	43
Imported Flare Gas Index	48
New and Improved Data Methodology	50
Overview	50
Three Methodology Improvements this Year	50
Setting the Stage for Renewed Action	55
Improved Data with New Methodology	56
Concluding Remarks	59

Figures

Figure 1. Global gas flaring and flaring intensity at upstream oil and gas facilities, 2012–2025 13

Figure 2. Global gas flaring and energy security, 2025 14

Figure 3. Translating benefits into action: Policies, technologies, barriers, and examples of success 15

Figure 4. Change in global gas flaring volumes and flaring intensity at upstream oil and gas facilities, 2024–2025 16

Figure 5. Changes in gas flare volumes and flare intensity for countries that have committed to the ZRF initiative and other countries, 2012-2025 17

Figure 6. Flare volumes in the top 30 flaring countries for 2021–2025, in order of 2025 flare volume with the top 9 countries indicated 18

Figure 7. Global gas flaring and energy security, 2025 22

Figure 8. Countries with high flaring volumes and high dependency on natural gas imports 24

Figure 9. Per capita electricity consumption and volumes of flared gas 26

Figure 10. Comparison of value of flared gas and cost of reducing flaring 30

Figure 11. Translating benefits into action: Policies, technologies, barriers, and examples of success 31

Figure 12. Global flare volume and flaring intensity at upstream oil and gas facilities, 2012–2025 33

Figure 13. Flare volumes in the top 30 flaring countries, 2021-2025 (in order of 2025 flare volume) 35

Figure 14. Flaring intensity of the top 30 flaring countries, 2021–2025 (in order of 2025 flare volume) 35

Figure 15. Significant changes in flare volume across countries, and rest of world, 2024-2025 37

Figure 16. Changes in flaring intensity, 2024-25, ordered by change in flare volume 37

Figure 17. Change in gas flaring volumes and flaring intensity for countries committed to the ZRF initiative and other countries, 2012-2025 41

Figure 18. Flare volume and intensity in Mexico, 2021-2025 43

Figure 19. Flare volume and flaring intensity in the United States, 2021-2025 44

Figure 20. Flare volumes in the Permian, Eagle Ford, and Bakken basins and the rest of the United States, 2021-2025 45

Figure 21. Flaring intensity in the Permian, Eagle Ford, and Bakken basins, and the rest of the United States, 2021-2025 45

Figure 22. Flare volume and flaring intensity in Angola, 2021–2025 46

Figure 23. OECD countries with high IFG indexes (including breakdown by country of origin) 48

Figure 24. IFG Index versus volume of crude oil imports in countries importing more than 200 thousand bbl/d 49

Figure 25. Satellite use for flaring data 51

Figure 26. More precise flare locations and numbers 52

Figure 27. Better identification of flaring situations: examples from the multiyear catalog 53

Figure 28. Flare volume estimates using previous and new methodologies, 2012–2024 56

Figure 29. Top flaring countries with new and old calibration (listed in rank order using the new methodology) 57

Boxes

Box 1. Energy security enables job security 25

Box 2. Flare gas volume estimates explained 32

Box 3. Flaring intensity explained 34

Box 4. Main differences in flaring trends in unconventional and conventional oil developments 40

Box 5. Our mission 60

Foreword

Global gas flaring reached 167 billion cubic meters (bcm) in 2025, the highest level since 2019 and the third consecutive annual increase. We are moving in the wrong direction, and the scale of natural resource waste and economic loss is staggering. The gas flared in 2025 was worth an estimated US$54 billion — and represented more gas than all liquified natural gas (LNG) exported from the Persian Gulf that year (112 bcm). For many, it's difficult to understand why the gas currently flared is not being used to boost energy security and address supply shortages, especially in developing countries that can least afford it. This is particularly important today given recent geopolitical and market uncertainties.

This year's Global Gas Flaring Tracker introduces a significantly improved methodology for estimating flare volumes, developed in partnership with the Colorado School of Mines, which now draws on three satellites rather than one, more than doubling nightly observation coverage, improving flare locations and the accuracy of flare estimates at both ends of the operational flare volume spectrum.

Last year, we described the upward trend in flaring as a warning signal that could not be ignored. What satellite data now confirms is that 2023 and 2024 were not anomalies. They were part of a pattern, one in which the historical decoupling of flaring from oil production has broken down, and increases in output are now translating directly into flaring increases.

The gas flared in 2025 was also burned at a moment when over half a billion people still lack access to reliable electricity, and when economies across the developing world are forfeiting investment, productivity, and jobs because the power they need is simply not there. World Bank Group studies show that electricity outages are associated with a 13.5 percent reduction in employment across Africa.[1]

The technologies, policy and regulatory strategies, and financing mechanisms needed to capture and utilize associated gas are readily available. What is missing, in far too many places, is the leadership commitment, prioritization, and governance needed to put them into practice, creating access to markets and infrastructure.

There are reasons for measured encouragement. The United States achieved the largest absolute reduction in flare volumes of any country in 2025 — 0.4 bcm, or 7 percent — while also reducing its flaring intensity, the amount of gas flared per barrel of oil produced, by 10 percent. Kazakhstan continued its multi-year downward trajectory, registering a 16 percent decline through consistent and sustained application of regulatory standards. Also, countries and companies committed to the Zero Routine Flaring by 2030 (ZRF) initiative continue to outperform those that have not.

But these gains are being overwhelmed by increases elsewhere. Russia, the world's largest flaring country at 18 percent of global flaring volumes, increased flaring by 9 percent without a corresponding rise in oil production. Nine countries together account for 83 percent of global flare volumes while producing only 46 percent of the world's oil. This concentration means that targeted action by a small number of governments and operators could yield disproportionate and significant results.

The time for incremental progress has passed. With four years remaining to achieve ZRF, the gap between the current trajectory and ending routine flaring is widening. The Global Flaring and Methane Reduction (GFMR) Partnership remains committed to supporting governments and state-owned entities with the catalytic grant funding and technical assistance needed to close that gap.

The analysis in our annual Gas Flaring Tracker Report is intended to inform, to hold a mirror up to current performance, and to catalyze action. The opportunity to capture the gas currently wasted, use it productively, generate power, create jobs, and reduce emissions is real. The cost of continued inaction is not abstract: it is measured in billions of dollars of wasted resources, millions of tonnes of unnecessary emissions, and the lost economic potential of communities that could be powered by the gas we are burning.

Zubin Bamji

Manager

Global Flaring and Methane Reduction (GFMR) Partnership

The World Bank Group



Photo: Ed Kashi

Acknowledgments

This report was prepared by a team led by Alexandrina Platonova-Oquab of the GFMR Partnership at the World Bank Group. The core team included Meredydd Evans (lead author), Martyn Howells, Vineet Tyagi, and Brent Sinanan. The work was conducted under the guidance of Zubin Bamji (GFMR Manager, Energy Department) and Demetrios Papathanasiou (Global Director, Energy). The team greatly benefited from excellent advice and guidance from the following peer reviewers: Harshit Agrawal (World Bank Group), Ignacio de Calonje (International Finance Corporation, IFC), Meghan Demeter (United Nations Environment Programme's International Methane Emissions Observatory, UNEP's IMEO) and Christophe McGlade (International Energy Agency, IEA).

The team is also grateful for the input provided by GFMR staff, including Jason Fish, Sandu Ghidirim, Carlos Lopez, Martin Oswald, Mohammed Qaradaghi, and Robert van der Geest, and other World Bank Group staff including Raihan Elahi. The report was made possible thanks to a long-standing collaboration with Christopher Elvidge, Mikhail Zhizhin, and the team at the Earth Observation Group, part of the Payne Institute for Public Policy at the Colorado School of Mines. This team provided the flared gas volume estimates that form the basis for this report, which are based on their analysis of data from the US National Oceanic and Atmospheric Administration's (NOAA) satellites. The analysis undertaken for the report also uses oil production data from the US Energy Information Administration (EIA) and other data from the IEA and the UN. Adam Pollard provided editing and communications support. Muhammad Usman Aziz was responsible for the design and typesetting of the report. Financing for this report was provided by the GFMR Partnership. GFMR is supported by governments and energy companies, including: bp, Eni, Equinor, Norway, Occidental (Oxy), Shell, TotalEnergies, the United Arab Emirates, and the United States.

i. This report has been updated to incorporate the latest Tracking SDG 7: The Energy Progress Report and to address typographical corrections.



Photo: Kamran Akif / Shutterstock

Abbreviations

bbl	Barrels (of oil produced)
bcm	Billion cubic meters (of gas)
CO_2e	Carbon dioxide equivalent
EIA	Energy Information Administration (US Department of Energy)
GFMR	Global Flaring and Methane Reduction Partnership
GOR	Gas-to-oil ratio
IEA	International Energy Agency
IFG Index	Imported Flare Gas Index
IMEO	International Methane Emissions Observatory
kWh	Kilowatt hours
LNG	Liquified natural gas
LPG	Liquified petroleum gas
m^3/bbl	Cubic meters of gas flared per barrel of oil produced
MMbbl/d	Million barrels of oil per day
MMBtu	Million British thermal units
MMRV	Measurement, Monitoring, Reporting, and Verification
$MMtCO_2e$	Million tonnes of carbon dioxide equivalent
NOAA	National Oceanic and Atmospheric Administration (US Department of Commerce)
OECD	Organisation for Economic Co-operation and Development
OGCI	Oil and Gas Climate Initiative
PEMEX	Petróleos Mexicanos
SNPP	Suomi National Polar-orbiting Partnership satellite
UNEP	United Nations Environment Programme
VIIRS	Visible Infrared Imaging Radiometer Suite of detectors
ZRF	Zero Routine Flaring by 2030 initiative

This report uses the shortened names of the following countries to improve the readability of the figures:

Brunei	Brunei Darussalam
Congo, Rep.	Republic of the Congo
Egypt	The Arab Republic of Egypt
Iran	The Islamic Republic of Iran
Russia	The Russian Federation
Venezuela	República Bolivariana de Venezuela
Syria	Syrian Arab Republic
Yemen	The Republic of Yemen



Photo: Matyas Rehak / Shutterstock

Photo: Leonid Ikan / Shutterstock

Executive Summary

In 2025, global flare volumes rose to 167 bcm, the highest level since 2019, continuing the upward trend in flaring that began in 2023. Compared to 2012,[ii] this represents a 16 percent increase, or 23 bcm more flared gas. Almost half of that growth (10 bcm) was in 2025 alone. Flaring intensity, the amount of associated gas flared per barrel of oil produced, also grew almost 3 percent in 2025 (figure 1).

Figure 1. Global gas flaring and flaring intensity at upstream oil and gas facilities, 2012–2025

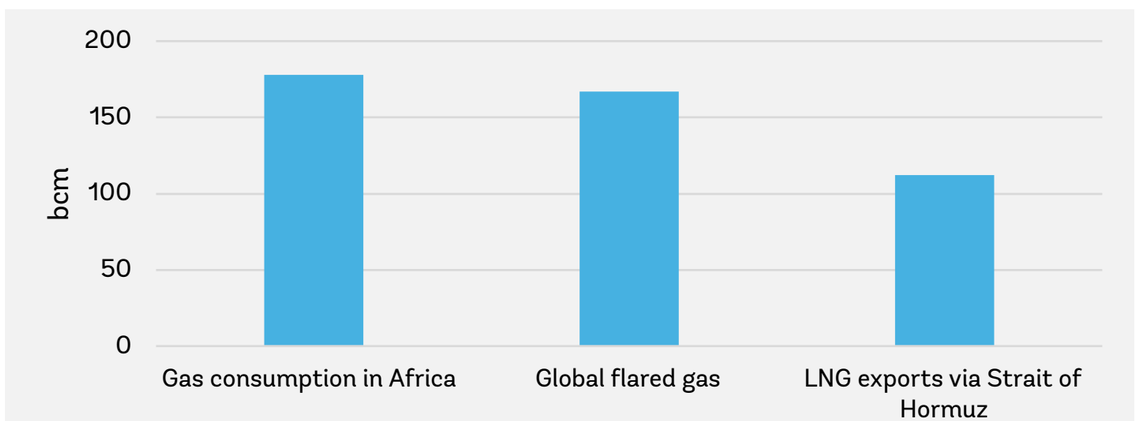
Source: NOAA, Payne Institute and Colorado School of Mines, US Energy Information Administration (EIA), and World Bank Group.

Benefits of Flaring Abatement

The increasing waste of associated gas through flaring occurs at a time of heightened risks to energy security and persistent challenges providing reliable energy access to more than a half billion people in developing countries. The amount of associated gas lost in 2025 is comparable with the total gas consumption in Africa.[iii] Globally, more gas is flared than passes through the Strait of Hormuz (figure 2). Several nations simultaneously import significant volumes of natural gas while flaring substantial domestic gas. This trend presents a valuable opportunity for countries like Egypt, India, and Iraq, to capture and utilize flare gas to enhance their national energy security.

ii. Prior to 2012, estimates were made using data from NOAA's Defense Meteorological Satellite Program (DMSP). These data are somewhat less consistently reliable than the post-2011 Visible Infrared Imaging Radiometer Suite (VIIRS) estimates.
iii. In 2025, Africa's gas consumption reached 174 bcm. Energy Institute, Statistical Review of World Energy, 2023, https://www.energyinst.org/statistical-review.

Figure 2. Global gas flaring and energy security, 2025



Sources: https://www.energyinst.org/statistical-review, NOAA, Payne Institute and Colorado School of Mines, World Bank, https://www.iea.org/about/oil-security-and-emergency-response/strait-of-hormuz.
Note: Gas consumption for Africa in 2024 reached 6.4 exajoules or 178 bcm. LNG exports via the Strait of Hormuz are based on 2025 IEA data.

Utilizing associated gas can also support national goals to expand energy access. This is true both for electricity and clean cooking. Associated gas can help with the availability, affordability, and reliability of electricity. Countries such as Angola and the Republic of Congo have low per capita electricity consumption and significant wasted associated gas. Liquified petroleum gas (LPG), a clean cooking fuel and energy source for small industry, can be produced from associated gas.

The cost of addressing flaring is only 2 times the value of flared gas if brought to market. The revenues that could be generated by ending routine flaring are estimated at US$54 billion.[iv] On average, this represents the majority of the approximately US$70-100 billion in upfront spending needed to achieve flaring reductions in line with both World Bank Group estimates and the International Energy Agency's (IEA) Net Zero Emissions by 2050 Scenario.[v] These revenues and costs are also comparable to the US$50 billion pledged by Mission 300 partners in support of increasing energy access across African countries.[vi] Yet what holds back progress is not technical but structural — weak regulation, insufficient capital, limited markets, and a failure to treat flaring reduction as a priority.

iv. Assumes gas flared has a higher heating value of 1,020 British thermal units per standard cubic foot (BTU/scf), that 1 cubic meter equals 35.315 standard cubic feet and that recovered gas would achieve a price range based on US Henry Hub (3.52 $/MMBtu), European Union Dutch Title Transfer Facility (13.4 $/ MMBtu) and Asia LNG Platts Market-on-Close for Japan-Korea-Taiwan-China region (13.8 $/MMBtu). Each of the flaring countries were mapped to one of the benchmarks to calculate the value of gas flared.

v. World Bank Group, "Zero Routine Flaring by 2030 (ZRF) Initiative", referencing a 2018 desktop study, https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/qna#32; IEA, Emissions from Oil and Gas Operations in Net Zero Transitions, June 2023, https://www.iea.org/reports/emissions-from-oil-and-gas-operations-in-net-zero-transitions.

vi. Mission 300 is Powering Africa, World Bank, https://www.worldbank.org/en/programs/energizing-africa/overview, accessed on May 12, 2026. Note that this comparison doesn't reflect the costs of collection, treatment, and takeaway capacities to bring the gas to markets.

Reducing flaring can also have a positive impact on jobs by supporting stable, affordable electricity supply and the availability of clean cooking. Consistent, affordable, and reliable access to power is a foundational enabler of job creation. When firms have reliable electricity, they can invest in capital, expand output, and hire more workers. Across Africa, firms lose about 8 percent of total annual sales to power outages,[vii] and electricity shortages are associated with a 13.5 percent reduction in employment and a 19 percent reduction in skilled employment.[2] Shortages of affordable LPG are also causing economic and employment disruptions in many countries, which require families (typically women) to spend time collecting biomass for cooking, further impacting employment.

Translating these benefits into action requires the focused attention of companies and policy makers alike, recognizing that persistent barriers to flaring reduction remain, including competing demands for capital, lack of gas infrastructure, financing, and weak domestic gas markets (figure 3).

Figure 3. Translating benefits into action: Policies, technologies, barriers, and examples of success



Source: GFMR 2025 Global Gas Flaring Tracker Report available at: https://www.worldbank.org/en/programs/gasflaringreduction/publication/2025-global-gas-flaring-tracker-report; GFMR database on country flaring policies available at: https://flaringventingregulations.worldbank.org/.

vii. World Bank Enterprise Surveys (2018), as cited in IEA, World Energy Outlook 2019: Special Focus on Africa, p. 455.

Changes in Flaring

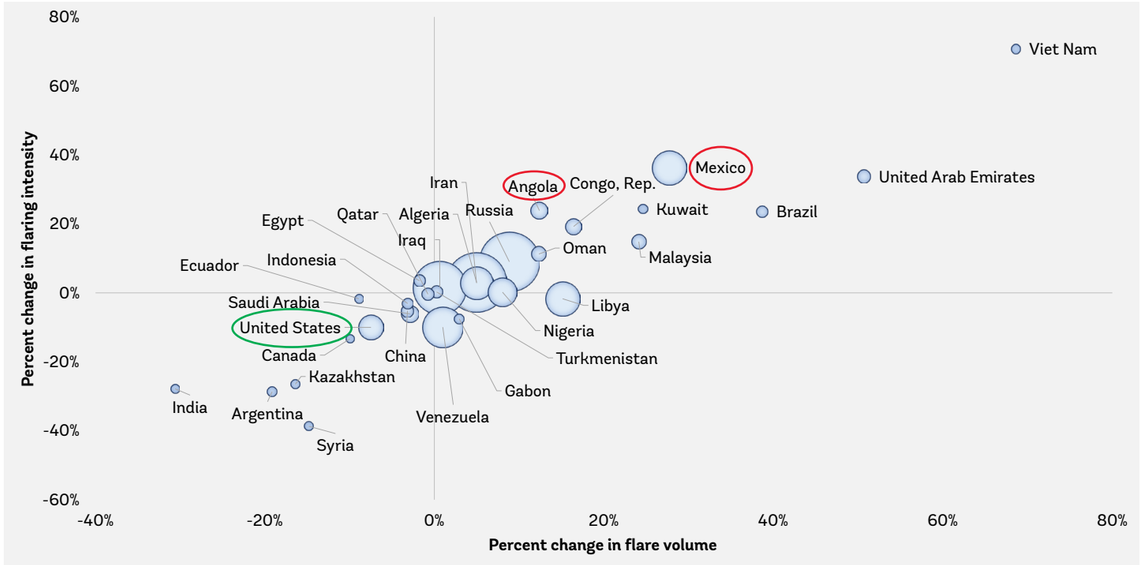
The share of total flaring from the top nine flaring countries – Russia, Iran, Iraq, Venezuela, Mexico, Libya, Algeria, Nigeria, and the United States – represents 83 percent of total flaring in 2025 (figure 4). The flaring in the remaining 90+ countries represents 17 percent of the total, and 54 percent of global oil production. This underscores it is possible to produce oil with very low levels of flaring, for example, in countries ranging from Kazakhstan to Norway and Saudi Arabia.

All but two of the top flaring countries saw an increase in their flaring intensity compared to 2024. Mexico, the Republic of Congo, and Viet Nam also saw particularly large increases.

In contrast, some other major oil-producing countries, such as Kazakhstan, Saudi Arabia, and the United States, successfully reduced their flare volumes. All of them also either reduced flaring intensity or kept it flat.

Countries that have committed to and endorsed the ZRF initiative have collectively shown markedly better performance compared to those that have not made the commitment (figure 5). However, in 2025, ZRF endorsers overall did see an increase in flaring. Concerted action to reduce flaring is particularly important now, given global energy security concerns.

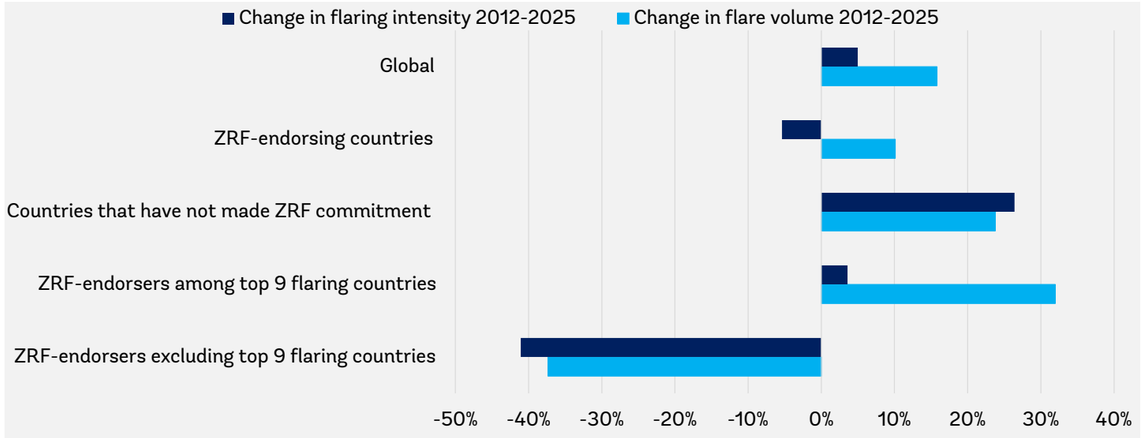
Figure 4. Change in global gas flaring volumes and flaring intensity at upstream oil and gas facilities,[viii] 2024–2025



Source: National Oceanic and Atmospheric Administration (NOAA), Payne Institute and Colorado School of Mines, EIA, and World Bank Group.
Note: In this report, upstream oil and gas facilities include oil and gas production facilities and LNG liquefaction plants. The size of the bubbles represents the flaring volume in 2025. Countries circled are included as Spotlight countries; red indicates growing flaring volumes and green declining.

viii. Upstream oil and gas facilities in this report include oil and gas production and processing facilities, and facilities that liquefy natural gas.

Figure 5. Changes in gas flare volumes and flare intensity for countries that have committed to the ZRF initiative and other countries, 2012-2025

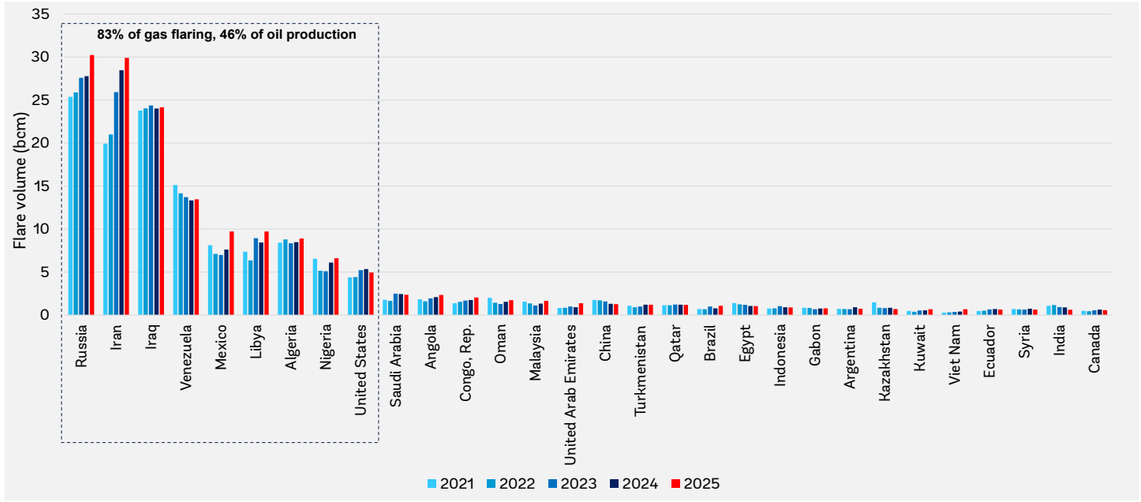


Source: NOAA, Payne Institute and Colorado School of Mines, EIA, and World Bank Group.
Note: Countries endorsed the ZRF initiative on various dates between the start of the ZRF Initiative in 2015 and 2025. Many have, therefore, had a shorter duration as a ZRF endorser than others. The assessment of the progress of ZRF-endorsing countries is constrained by limitations in the data self-reported by the governments, particularly regarding routine flaring. Therefore, as a proxy, estimated total flare volumes derived from the VIIRS satellite observations have been used to compare performance between 2012 and 2025. It is considered very likely that, given the sustained high levels of gas flaring in many countries, this flaring largely comprises routine flaring.



The largest increases in flare volumes in 2025 occurred in Russia, Mexico, and Iran (in order of the flare volume increase). Together, these three countries accounted for over 6 bcm of the additional gas flared (figure 6). They also increased their flaring intensities in 2025.

Figure 6. Flare volumes in the top 30 flaring countries for 2021–2025, in order of 2025 flare volume with the top 9 countries indicated



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank.

In Russia, which remains the highest flaring country in the world, flaring increased by 9 percent, or 2.5 bcm. The largest flare volume increases in Russia over the past few years have occurred in East Siberia, where major oilfield developments are ongoing. In 2025, this region contributed 56 percent of Russia's total flaring and saw a 10 percent increase in gas flaring.

Mexico had a flaring increase of 2.1 bcm, a 28 percent jump. Infrastructure and reliability constraints, compounded by capital limitations, have been the primary drivers of flaring growth. Flare volumes at the Cactus and Perdiz gas processing plants have been particularly significant. Intensifying maintenance at the Cantarell offshore complex continued to drive episodic increases, while a mismatch between fields with increasing oil production and related gas infrastructure capacity also contributed.

Iran's flaring grew by 5 percent (1.4 bcm). Iran has announced new investments in associated gas recovery, but target timelines appear to have been pushed back.

The United States saw the largest global drop in flare volumes (0.4 bcm, or a 7 percent-reduction). A key driver was the completion of a new pipeline, the Matterhorn Express, that exports Permian associated gas, relieving a bottleneck.

The gas flared globally in 2025 resulted in 429 million tonnes of carbon dioxide equivalent ($MMtCO^2e$) emissions, including 50 $MMtCO^2e$ in the form of unburned methane.[ix] However, when accounting for flares that may be operating inefficiently and flares that may be unlit and venting, methane emissions could be much higher. If the "effective" destruction efficiency of flares is as much as 4 percent lower (94 percent), the methane emissions from gas flaring would be triple the conventional estimates.

Amid rising global flaring levels, the 2024 Imported Flare Gas (IFG) Index highlights that members of the Organisation for Economic Co-operation and Development (OECD)[x] continue to be exposed to high flaring intensities through their crude oil imports. The index serves to inform governments and operators of the possible implications of emerging carbon policies and programs that impact imports.

GFMR and the Colorado School of Mines this year introduced an improved methodology for estimating flaring data. The major improvements include expanded data from more satellites, which improves observation frequency; more precise flare locations; and an enhanced calibration method drawing on measured flare volume data. These improvements allow us to more accurately report flaring volumes and provide more specific information on when given flares may be routine, non-routine, or unlit. The new methodology has slightly increased global flaring volumes estimates, but in specific countries and specific years, volumes may be higher or lower. A leading driver of changes in the data is the fact that large flares are now more accurately associated with larger gas volumes and small flares with smaller gas volumes. Updated data using the new methodology are available from 2012 on our website.

Proven Approaches to Flaring Reduction

Despite mounting international awareness and scrutiny of flaring as a wasteful oil and gas industry practice, persistent challenges continue to hinder the prioritization and implementation of routine gas flaring reduction efforts by both governments and operators. Without clear, long-term leadership and prioritization, well-known barriers to routine flaring reduction cannot be effectively, swiftly, or sustainably overcome.

Yet a growing number of examples from a widespread set of countries demonstrate how these challenges can be addressed through a combination of enabling policies, regulatory frameworks, and market-based approaches. These solutions range from transparent regulations and well-designed fiscal tools established by governments, to long-term master plans and collaborative infrastructure strategies developed by operators.

ix. In this report, the conventional approach to estimating greenhouse gas (GHG) emissions is used based on two core assumptions: i) that flares have a methane destruction efficiency of 98 percent, resulting in 2 percent of the methane in the flare gas stream being emitted to the atmosphere un-combusted; and ii) that flares are lit and operating properly 100 percent of the time. This is based on measurements at testing facilities, national regulatory policies, and global reporting systems. While there is evidence that this methane destruction efficiency figure may be overstated, there is no consensus yet on alternative global estimates. See 2023 Global Gas Flaring Tracker Report for additional details.

x. The OECD has 38 member countries, https://www.oecd.org/en/about/members-partners.html. OECD accession criteria include a range of economic, social, policy, and standards issues.



Photo: Lubor Zelinka / Shutterstock

Key Findings

1. Global gas flaring increased from 157 bcm in 2024 to 167 bcm in 2025, a 6 percent increase, the highest level since 2019 and the third consecutive annual increase, while oil production grew by only 3.3 percent, meaning flaring rose at a faster rate than output.
2. Flaring volumes in 2025 were larger than LNG exports via the Strait of Hormuz, and matched Africa's annual gas consumption.
3. Global average flaring intensity rose 2.7 percent, from 5.3 to 5.4 m^3/barrels of oil produced (bbl), and has remained essentially unchanged for fifteen years, a signal that associated gas management is not being built into production planning at the scale required.
4. Nine countries (Russia, Iran, Iraq, Venezuela, Mexico, Libya, Algeria, Nigeria, and the United States) accounted for 83 percent of global flare volumes in 2025 while producing only 46 percent of the world's oil. Targeted action by a small number of governments could yield disproportionate and significant results.
5. The gas flared in 2025 was worth an estimated US$54 billion, roughly three quarters of the estimated cost of ending routine flaring entirely. Yet despite the tools needed to end routine flaring being well established, it persists; what holds back progress is not technical but structural — inadequate regulation, insufficient capital, limited market infrastructure, and a failure by operators and governments to treat reduction as a priority.
6. Since 2012, global flaring has wasted more than 2 trillion cubic meters of gas. This is more than half of global gas consumption in 2024.
7. Flaring in 2025 generated 429 $MMtCO_2e$ in total emissions, of which 50 $MMtCO_2e$ came from unburned methane due to incomplete combustion.
8. The United States achieved the largest absolute reduction of any country, driven primarily by completion of the Matterhorn Express pipeline in the Permian Basin. Flaring dropped by 7 percent while flaring intensity dropped by 10 percent.
9. Kazakhstan reduced flaring by 16 percent in 2025 through regulatory enforcement and infrastructure investment, bringing total volumes down 87 percent since 2012 — one of the most sustained improvement records among major producing nations.
10. Russia, the world's largest flaring country and responsible for 18 percent of global volumes flared, increased flaring by 9 percent despite flat oil production — a significant deterioration.
11. Over 60 percent of the global increase in flaring occurred in just three countries — Russia, Mexico, and Iran — whose combined 6.0 bcm rise was nearly 3 times the total reductions achieved by all countries that cut their flaring in 2025.

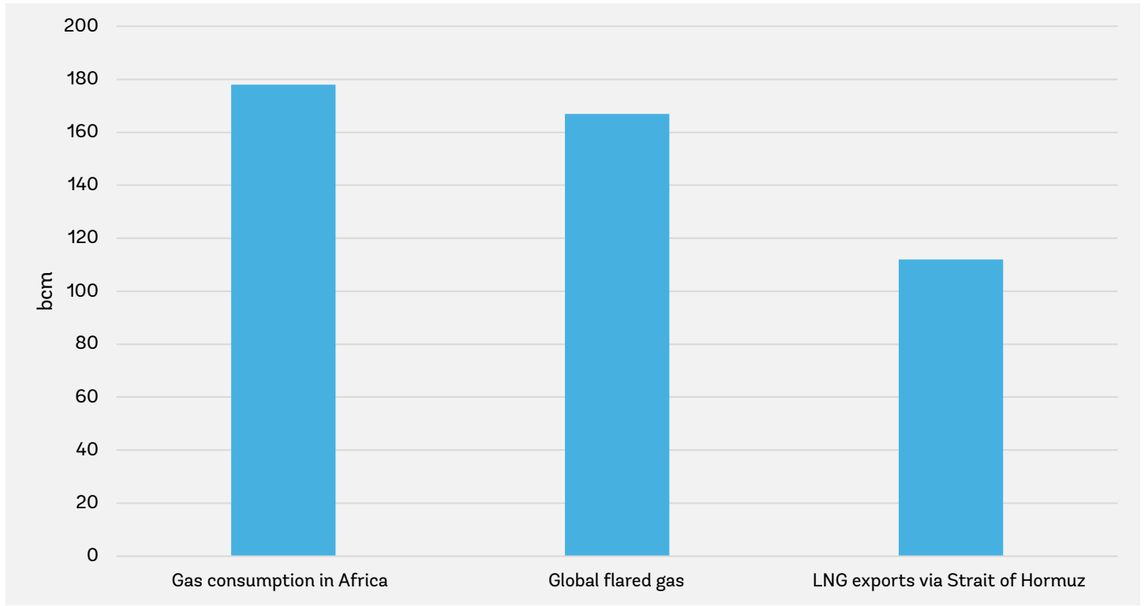
Benefits of Flaring Abatement

Understanding the benefits of flaring abatement in the current economic and market environment is critical to taking action. 2025 saw the second largest increase in flaring volumes since GFMR began tracking flaring in 2012. The value of abating this gas is particularly relevant in the context of the energy security, energy access, and economic challenges many countries face today. Moreover, where flaring occurs, it releases harmful pollutants and emissions, including methane and carbon dioxide, which can often be cost-effectively mitigated. Encouragingly, the value of the associated gas, if brought to market, is commensurate with the scale of investments needed to mitigate routine flaring globally.

Energy Security

As global gas supplies tightened in early 2026, many countries have faced intensified energy security challenges. In 2025, global flaring volumes closely matched Africa's total annual gas consumption and were 50 percent higher than the annual LNG exports through the Strait of Hormuz.[xi] Figure 7 illustrates the scale of this missed opportunity. Energy security has remained an enduring challenge in recent years, and developing countries are often the most significantly impacted because of their greater economic sensitivity to higher prices.

Figure 7. Global gas flaring and energy security, 2025



Sources: https://www.iea.org/about/oil-security-and-emergency-response/strait-of-hormuz; https://www.energyinst.org/statistical-review.
Note: Gas consumption for Africa in 2024 reached 178 bcm. LNG exports via the Strait of Hormuz are based on 2025 IEA data.

xi. 20% of global LNG supply transited through the Strait of Hormuz in 2025. Specifically, 112 bcm transited through the Strait compared to global flaring of 167 bcm in 2025. (IEA Strait of Hormuz Factsheet, https://www.iea.org/about/oil-security-and-emergency-response/strait-of-hormuz and GFMR data).

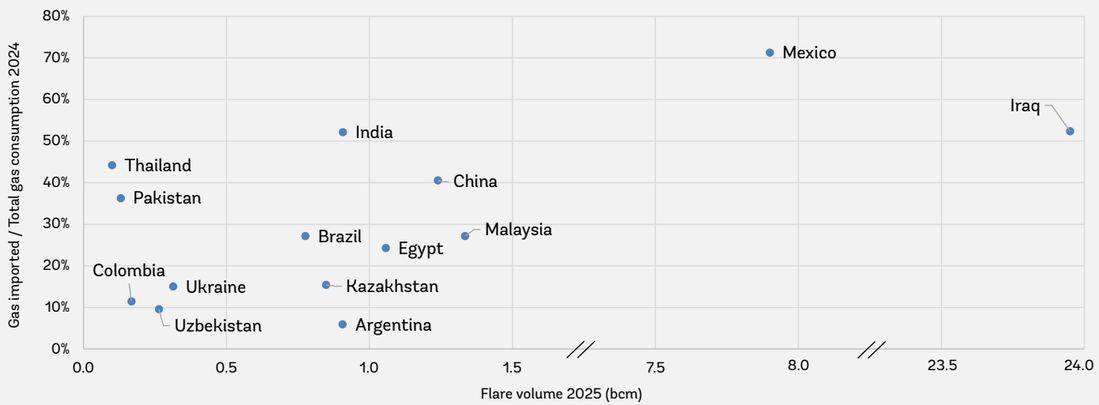


Photo: nagmulislam41633 / Shutterstock

Capturing and utilizing today's flared gas could play a meaningful role in enhancing energy security at the global and country level, particularly with focused policies and investments that can stimulate real change over the next few years.

Figure 8 highlights countries with significant dependency on gas imports where flared gas utilization can in time represent a valuable substitution opportunity.

Figure 8. Countries with high flaring volumes and high dependency on natural gas imports



Sources: NOAA, Payne Institute and Colorado School of Mines, IEA, and World Bank Group.
Note: Developing countries that flared more than 0.1 bcm and imported more than 1 bcm of natural gas were included in the analysis. The figure includes imports of natural gas via LNG tanker and pipeline but not LPG, as it is a related but different product.

Egypt. **India**, and **Iraq** all have significant opportunities to reduce costly gas imports by utilizing flared gas.[xii]

Egypt currently imports 14 bcm of gas,[3] while also flaring over 1 bcm. This represents a considerable volume of wasted energy at a time when the country faces rising demand from the power sector, industry, and importing countries, especially in Europe. Supply disruptions in the region have compounded the pressure, pushing up prices for natural gas, which makes up over half of the country's energy mix. Egypt has an extensive natural gas network and existing gas-fired power infrastructure, which could facilitate associated gas utilization. It has also committed to ZRF and actively invested in flaring mitigation in recent years.[4]

India imports gas as LNG and LPG, with 76 percent of the total coming from countries in the Persian Gulf.[5] The country is dealing with significant supply constraints, and LPG supply disruptions are leading to shortages and creating economic hardships for households, small businesses and food vendors. There exists an opportunity to optimize domestic gas capture that could help mitigate the impact of global supply chain vulnerabilities on local households and small businesses. As noted below, India has adopted new policies to limit flaring, which combined with investment and follow-through, can help make more associated gas available.

xii. Individual projects can take longer (or shorter) to repay and implement based on project specifics.

In 2024, Iraq imported 9 bcm of gas from Iran which fell to 6 bcm in 2025. These volumes are significantly less than the contracted amount. This resulted in gas shortages for power. So far in 2026, gas imports from Iran have already dropped by 70 percent, which is further impacting the power sector.[6] Despite these costly imports and persistent shortages, Iraq also flared 24 bcm in 2025, 4 times the amount of gas that it imported, even after significant efforts in recent years to bring wasted gas to productive use.[7]

These examples are not rare occurrences; in fact, they highlight the considerable untapped potential that associated gas utilization offers to boost global energy security, which in turn enables jobs (box 1).

Box 1. Energy security enables job security

Secure and reliable energy supply is a foundation of economic development and job creation. When firms have access to reliable electricity, they can invest in capital, expand output, and hire more workers.[i] Capturing and utilizing associated gas can support this process while also creating jobs directly linked to the use of the captured gas.[i]

The employment consequences of energy insecurity are often severe. Across Africa alone, electricity outages are associated with a 13.5 percent reduction in employment, and a 19 percent reduction in skilled employment. These outages slow the shift toward higher-productivity and higher-wage sectors that drive long-term economic growth.[8]

Energy security is ultimately a precondition for a functioning labor market. Without it, the cost of doing business rises, firm productivity falls, new investment is deterred, and both the quantity and quality of jobs suffer. Ending routine gas flaring and reducing methane emissions in the developing world are an economic necessity. Capturing gas that would otherwise be wastefully flared can expand access to affordable, reliable power; unlocking multiplier effects across local economies and generating jobs well beyond the energy sector itself. In a context where the volume of flared gas rivals an entire continent's consumption, the opportunity cost of inaction is enormous.

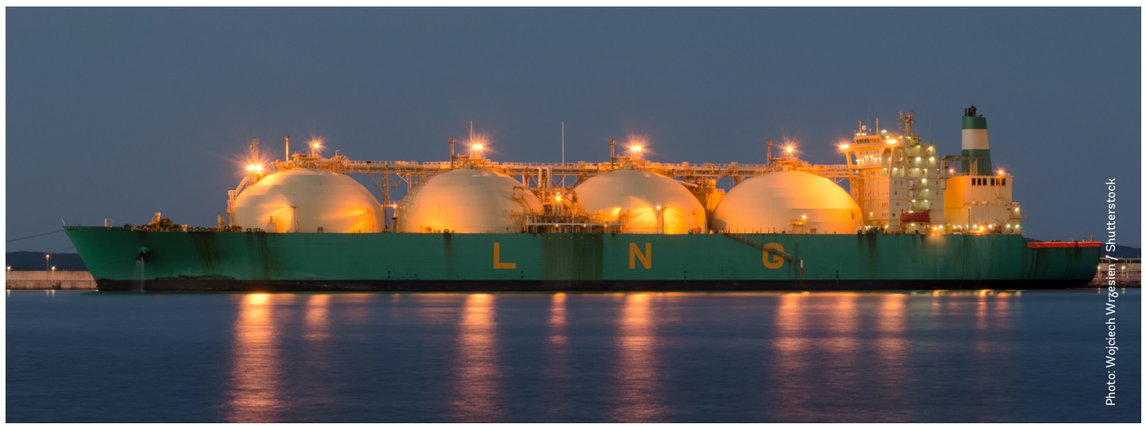


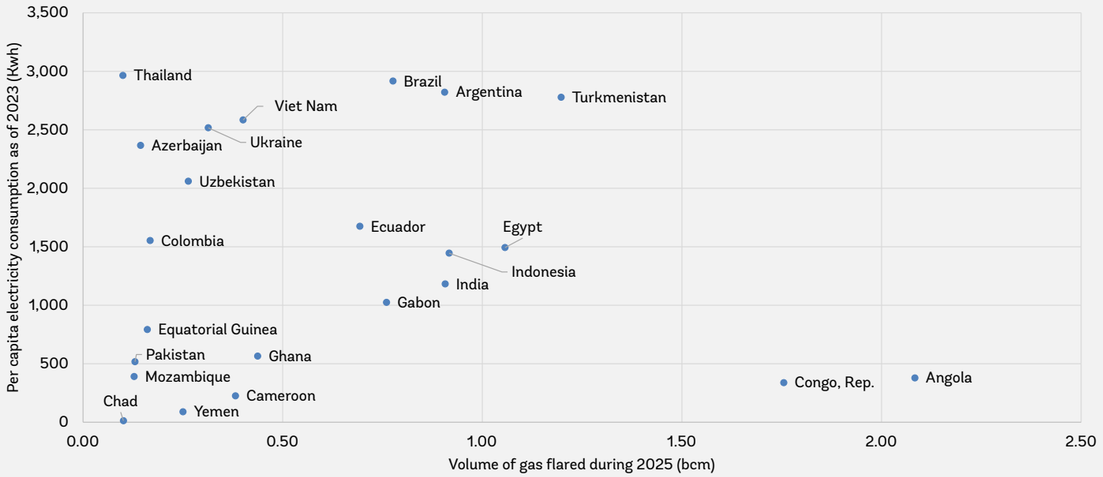
Photo: Wojciech Wrgesien / Shutterstock

Energy Access

The United Nations Sustainable Development Goals recognize the need for affordable energy access, including electricity and clean cooking — yet significant gaps remain.[xiii] Despite progress in recent years, access to affordable and reliable electricity remains a challenge, with about 655 million people globally lacking access to electricity and about 2 billion people without clean cooking solutions.[9] Capturing associated gas offers a direct pathway to address both of these gaps: it can be processed into LPG, one of the most widely used and effective clean cooking fuels available and converted into electricity for domestic power generation.[xiv]

Figure 9 illustrates countries with low per capita electricity consumption where associated gas continues to be wasted through flaring, revealing a striking overlap. The places that flare the most are often the same places with the greatest energy access deficits. In many of these cases, there are opportunities to improve energy access by bringing currently flared gas to support power generation as part of the broader energy mix, which also typically includes renewables. To put the scale in perspective, 1 bcm of gas can generate around 4 billion kWh of electricity, against a global average per capita electricity consumption in 2023 of approximately 3,500 kilowatt hours (kWh). Beyond electricity, utilizing associated gas rather than flaring can ease price volatility in times of supply disruptions and reduce harmful emissions.

Figure 9. Per capita electricity consumption and volumes of flared gas



Source: World Bank, "Electric Power Consumption", https://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC as accessed from the IEA (for electricity data); NOAA, Payne Institute and Colorado School of Mines and World Bank Group (for flaring data).
Note: Per capita electricity consumption in 2023, the most recent year available.

xiii. Sustainable Development Goal 7 focuses on energy access. Within that, 7.1.1 targets electricity access while 7.1.2 seeks to expand access to clean cooking fuels. https://www.un.org/sustainabledevelopment/energy/.
xiv. LPG is widely used in Asia and other parts of the developing world. It is more expensive than traditional biomass, which often requires significant daily labor to procure.



Photo: Pamela Ranya / Shutterstock

In **Angola** and the **Republic of Congo**, for example, significant volumes of gas are flared while approximately 50 percent of the population lacks access to electricity. In Angola, over 25 percent of the power is fossil-fired (both oil and gas), meaning there is infrastructure to utilize natural gas for power at least in some areas.[10] The Republic of Congo relies heavily on thermal power where additional domestic low-emission gas supply could help lower costs and expand access.[11] It is also important to recognize that in many countries, electricity access is also impacted by broader sectoral challenges including the management structure of state-owned entities, cost of connections, affordability, and other issues that associated gas alone will not solve.

Clean cooking is another critical energy access challenge where associated gas can offer a practical solution. LPG, often made from associated gas, is substantially cleaner than traditional biomass[12] and can reduce the time and health burden of collecting and burning biomass such as firewood, improving both lives and livelihoods. The global LPG market has been immensely impacted by supply disruptions from the Persian Gulf, underscoring the importance of associated gas utilization. LPG is also used in small industrial enterprises (such as food processing), which can support job growth.

Environmental Benefits

Abating flaring also has clear environmental benefits, including reducing emissions of carbon dioxide, unburned methane, and other air quality pollutants that are harmful to local communities and the global climate. In addition, if flares are unlit or less efficient than assumed, the actual emissions could be higher than current estimates suggest, highlighting the connection between flaring and methane abatement and the value of the Global Methane Pledge.[13] Utilization of previously flared gas can assist in bringing lower-carbon fuels to markets without the need to produce additional volumes of natural gas from the ground, making sustainable long-term energy transition more attainable. Gas flaring's local environmental impact are also substantial. Flaring emits large amounts of dangerous particulates, sulfur dioxide, nitrogen oxides as well as other substances that harm human health and the environment. Mitigating these emissions, including those from traditional biomass for cooking, can save lives and billions of dollars in health and other expenses.[14]



Photo: Firgal Ramzy / Shutterstock



Photo: Watch The World / Shutterstock

Economic Value

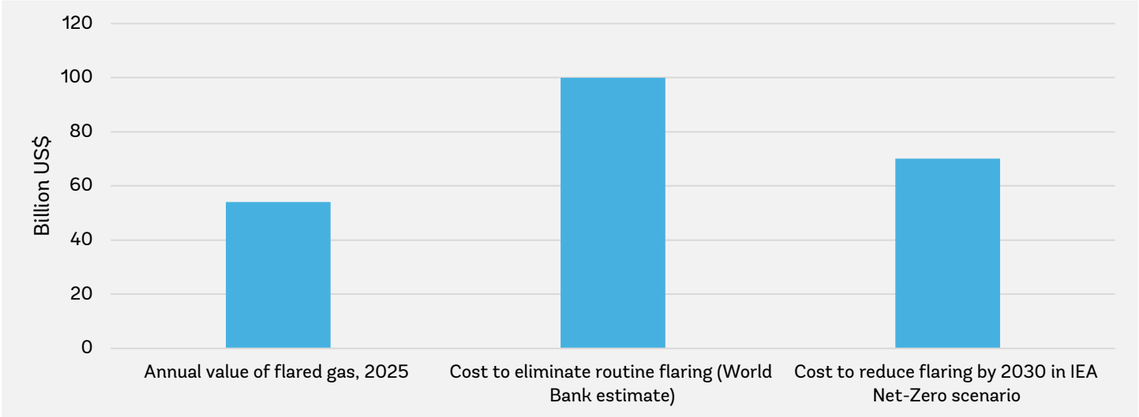
Flaring abatement can bring significant economic value to countries and companies, assuming that a market and appropriate commercialization policies are in place. Figure 10 compares the 2025 average potential value of flared gas[xv] to previous estimates of the cost of reducing flaring globally. The cost of addressing flaring is only twice the market value of the gas itself, highlighting the critical need for market access, policies that support national and company flaring abatement goals, and financing to generate action.

Policy support is particularly important because flaring reduction projects must often compete with other investment priorities in environments where capital is limited. This is especially relevant for national oil companies, which allocate capital based on financial returns as well as factors like production mandates and energy security objectives. In other words, the estimated annual value of flared gas is large relative to global abatement costs, but not all abatement projects have short payback periods. Even where flaring mitigation offers positive returns, project implementation may be delayed if the enabling conditions are not in place. The cost effectiveness of individual projects depends on these kinds of country and market-specific details.

Translating Benefits into Action

There are several technology approaches that companies have deployed to reduce flaring. These include gas-to-power (for either onsite industrial needs or grid power), natural gas system connections to supply gas to domestic or export markets, LPG production (which can meet clean cooking needs), and oil well reinjection (enhancing oil recovery and reducing waste).[xvi]

Figure 10. Comparison of value of flared gas and cost of reducing flaring



Sources: World Bank Group, "Zero Routine Flaring by 2030 (ZRF) Initiative", referencing a 2018 desktop study, https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/qna#32; IEA, Emissions from Oil and Gas

xv. See the section on "Global Gas Flaring in 2025" for additional information on this estimated value. As noted there, this figure does not represent net revenue.

Policy options that have successfully unlocked these economically and socially beneficial projects involve a range of sectoral, environmental, and market-focused measures. These include enforced limits on routine flaring, environmental policies with fiscal incentives, tax policies, public-private partnerships for common infrastructure such as pipelines and gas processing capacity, and fair access rules for utilizing this infrastructure to connect to markets, including pricing that allows for a reasonable return on investment (figure 11). Critically, it is important to assess what the key barriers are in a given market to ensure that the measures adequately respond to those challenges. Where market access is not freely available, stronger regulatory, tax, or other policies may be required.

Progress is often held back by persistent barriers, including low prioritization of associated gas utilization, infrastructure and market access constraints, financing challenges, and offtake risks in weak domestic gas markets.

While year-to-year changes in flaring are often triggered by operational factors such as maintenance, commissioning, or new field developments, these typically reflect deeper structural issues related to gas infrastructure, commercialization frameworks, enforcement, and financing, and planning. Effective policy responses therefore are needed to improve market conditions, strengthen regulatory incentives and enforcement, support shared infrastructure solutions, and de-risk investment.

Figure 11. Translating benefits into action: Policies, technologies, barriers, and examples of success



Source: GFMR 2025 Global Gas Flaring Tracker Report available at: https://www.worldbank.org/en/programs/gasflaringreduction/publication/2025-global-gas-flaring-tracker-report; GFMR database on country flaring policies available at: https://flaringventingregulations.worldbank.org/.

xvi. This list is not meant to be exhaustive and highlights some of the most common, large-scale uses of associated gas. Other options for flexible, small-scale applications can be found in a recent GFMR study, https://documents1.worldbank.org/curated/en/099719503252436553/pdf/IDU1ed44ca241e2e4145df186ae14a6a3722ad13.pdf.

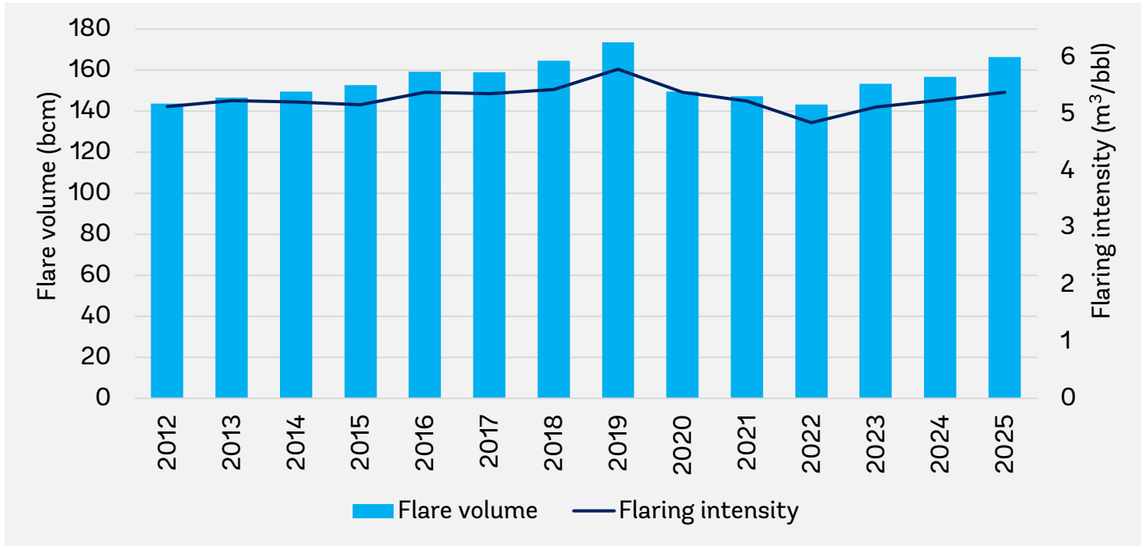
Global Gas Flaring in 2025

Box 2. Flare gas volume estimates explained

The World Bank Group, together with the Colorado School of Mines,[xvii] estimates flare volumes from individual oil and gas facilities around the world based on satellite-mounted Visible Infrared Imaging Radiometer Suite of detectors (VIIRS) Nightfire data. Over the years, we have developed advanced algorithms to distinguish flaring from other hot sources, and to estimate flare volumes, factoring in atmospheric conditions such as cloud cover.

The data presented in this report reflects an updated and improved methodology developed in 2025. The new methodology incorporates more data from three satellites, improves flare location accuracy by tracking sites across multiple years, and updates the conversion to gas volumes using new, rigorously measured calibration data. The new methodology has doubled the number of flares detected annually but does not significantly impact the global upstream flare volume trend. However, the details for individual countries and years can fluctuate: large flares are now more accurately associated with higher volume estimates, and small flares are associated with proportionally lower volumes. For example, Iran and Iraq, which have large flares, have higher estimates of flaring volumes under the new methodology, and the United State and Canada, with small average flares, have lower volumes. While satellite estimates of flaring cover from 1996 to 2025, the data acquired prior to 2012 is less accurate and not subject to re-calibration using the new methodology. Data presented here are estimates and do not reflect site measurements, which can have varying methodologies and are not typically public. A detailed explanation of this methodology and the complete historical dataset are available on our website.

Figure 12. Global flare volume and flaring intensity at upstream oil and gas facilities, 2012–2025



Source: National Oceanic and Atmospheric Administration (NOAA), Payne Institute and Colorado School of Mines, EIA, and World Bank Group.
Note: In this report, upstream oil and gas facilities include oil and gas production facilities and LNG liquefaction plants.

Satellite-based estimates (box 2) show that gas flaring at upstream oil and gas facilities increased from 157 bcm in 2024 to 167 bcm in 2025, an increase of almost 10 bcm (6 percent). This marks the third consecutive year of flaring increases, resulting in the highest estimated flare volume recorded since 2019 (figure 12).

In 2025, oil production rose by 3.3 percent from 82 MMbbl/d in 2024 to 85 MMbbl/d. With a 6 percent increase in flare volume, this resulted in an increase in flaring intensity (box 3) of 2.7 percent from 5.3 cubic meters per barrel (m^3/bbl) in 2024 to 5.4 m^3/bbl in 2025. This continued an upward trend for both flare volume and flaring intensity that started in 2022.



xvii. The World Bank Group collaborates with the Earth Observation Group, part of the Payne Institute for Public Policy at the Colorado School of Mines. For brevity and clarity, this report refers to the Colorado School of Mines as shorthand for the Earth Observation Group in the Payne Institute for Public Policy at the Colorado School of Mines.

Gas flaring around the world has been dominated for the past 15 years by nine countries: Russia, Iran, Iraq, Venezuela, Mexico, Libya, Algeria, Nigeria, and the United States.[xviii] In 2025, these top nine flaring countries were responsible for 83 percent of global flare volumes, while they accounted for only 46 percent of oil production (figure 13). The more than 90 other countries with recorded flaring account for just 17 percent of global flare volumes, despite producing 54 percent of the world's oil. Since 2012, global gas flaring has wasted an estimated 2.2 trillion cubic meters, equivalent to more than half (53 percent) of global gas consumption in 2024. The nine largest flaring countries account for 1.7 trillion cubic meters of that total.[15]

Among the top nine flaring countries, flaring intensity increased in Mexico (36 percent), Russia (9 percent), Algeria (3 percent), and Iran (3 percent). It dropped in Venezuela (-10 percent) and the United States (-10 percent), while remaining largely unchanged in Iraq, Libya, and Nigeria (figure 14).

Flaring intensity continues to be highest in countries affected by conflict and instability, such as Syria and Venezuela, although both countries saw flaring intensity declines in 2025 (figure 14). Flaring intensity was also already high, and increased further in 2025, in other oil-producing countries such as the Republic of the Congo and Turkmenistan.

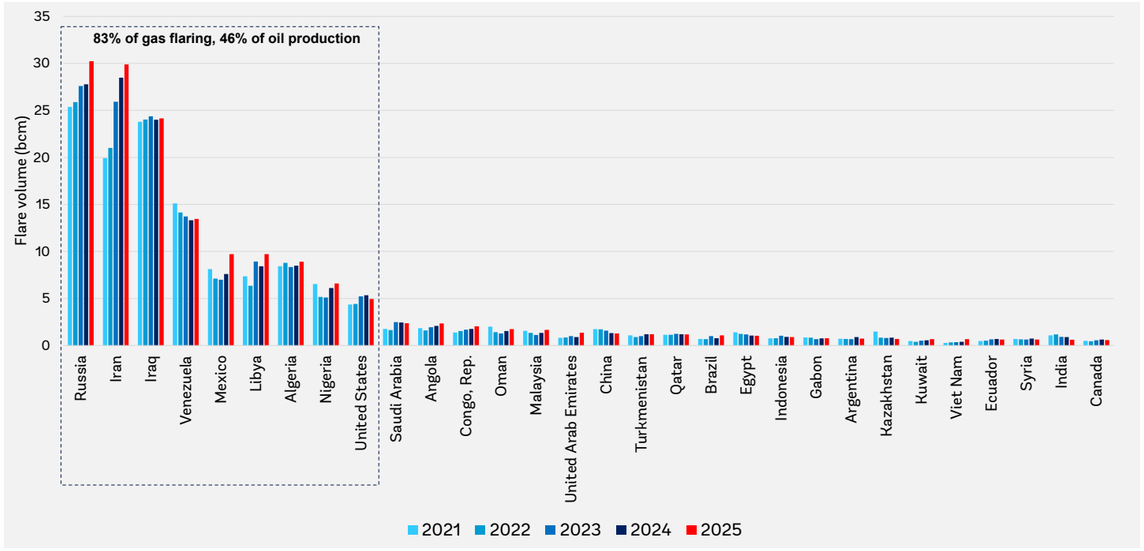
Box 3. Flaring intensity explained

Most gas that is flared is produced in association with crude oil (often called associated gas). Flaring intensity is the volume of gas flared, in cubic meters, per barrel of oil produced. It is typically calculated at a country level and, over time, serves as an indication of how well that country is doing to recover and use associated gas. If flaring intensity is declining (improving), it suggests a country is implementing measures to reduce gas flaring and effectively utilize the gas. If it is increasing, it suggests the country has opportunities to recover and utilize more of its associated gas.

The gas-to-oil ratio (GOR) of reservoirs varies significantly across basins and regions and, as a result, the amount of associated gas produced per barrel of oil varies. Countries with high GORs and limited gas infrastructure or domestic market capacity face challenges when finding ways to use larger gas volumes. Therefore, comparing the flaring intensity of one country with another can be subject to misinterpretation without understanding the context. Trends in flaring intensity are most meaningful when tracking performance within a country or region over time.

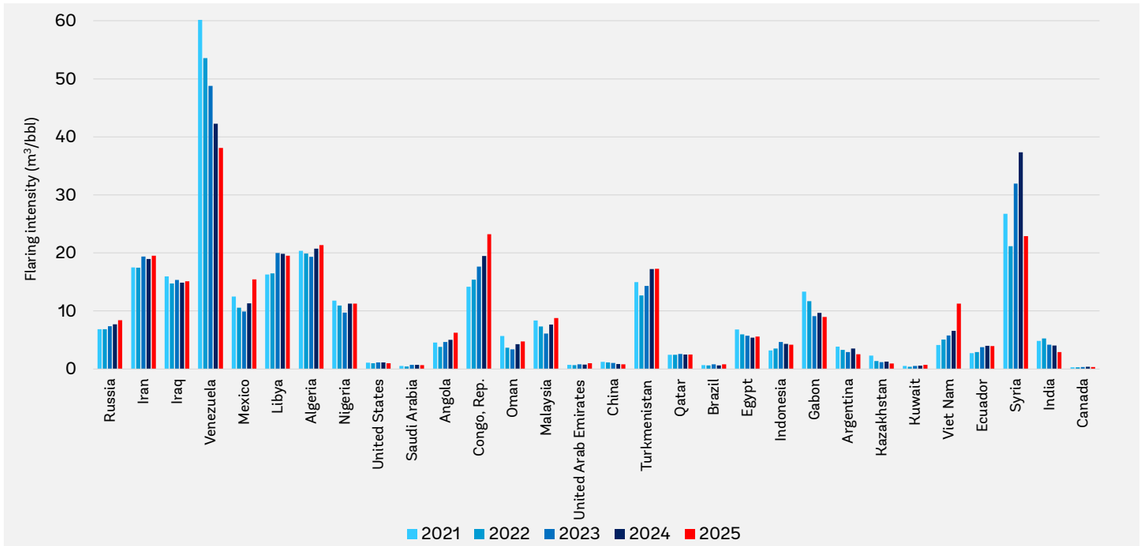
xviii. This order represents the volume in 2025. The order changed this year due to changes in flaring and the new methodology. In the Global Gas Flaring Tracker Report issued in 2025, the order was Russia, Iran, Iraq, the United States, Venezuela, Algeria, Libya, Nigeria, and Mexico. This comparison can support prioritization of flaring reduction opportunities. Country circumstances across this group can differ materially.

Figure 13. Flare volumes in the top 30 flaring countries, 2021-2025 (in order of 2025 flare volume)



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank Group.

Figure 14. Flaring intensity of the top 30 flaring countries, 2021–2025 (in order of 2025 flare volume)



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank Group.

Global flaring in 2025 resulted in total emissions of 429 $MMtCO_2e$. Of this, about 50 $MMtCO_2e$ was in the form of methane (1.8 million tonnes) because the average flare combustion efficiency is less than 100 percent.[xix] This represents an increase of 25 $MMtCO_2e$ from 2024, equivalent to putting approximately 5 million new petroleum-fueled cars on the road. This is on top of the equivalent of 2 million cars added in 2024 and the 5 million in 2023.

Based on prevalent prices in the different regional gas trading hubs, the value of the gas flared globally is estimated at about US$54 billion.[xx] To put this in context, the IEA estimates that eliminating routine flaring worldwide would require approximately US$70 billion in upfront investment, meaning the value of the gas wasted in a single year already amounts to roughly three quarters of the estimated cost of ending routine flaring.[16]

Between 2024 and 2025, over 60 percent of the increase in flaring occurred in just three countries (in order of the flaring volume increase): Russia, Mexico, and Iran (figure 15). Together, these countries accounted for a 6.3 bcm increase in flare volumes. This increase alone is almost 5 times greater than the total reductions achieved by all countries that cut their flaring in 2025 and exceeds the combined annual gas consumption of the Philippines and Viet Nam in 2024.[17] Countries that saw decreased flaring include the United States, India, Argentina, and Kazakhstan (organized by the size of the decline).

Considering the change in flaring intensity from 2024 to 2025, Syria and Uzbekistan stand out for their declines in flaring intensity (figure 16). In Syria the decline was driven by growing oil production; while in Uzbekistan it was tied to reductions in what were already modest flaring volumes. Mexico,[xxi] Viet Nam, and the Republic of Congo, on the other hand, all have increased flaring intensities as well as flare volumes.

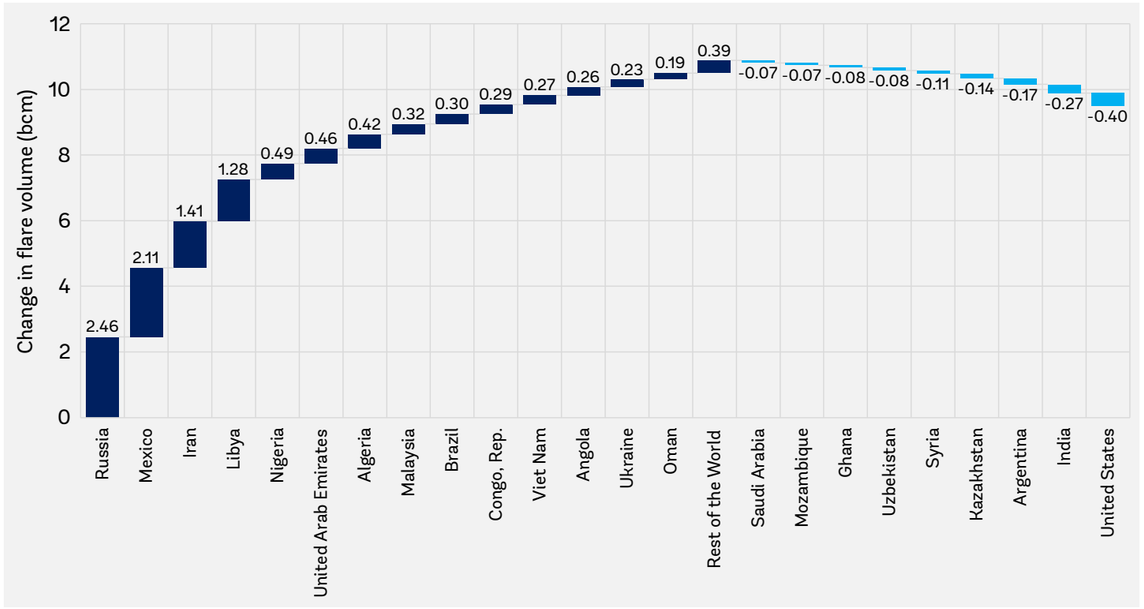


xix. In this report, the conventional assumption is used that flares are 98 percent efficient at burning methane. This does not account for methane emissions from unlit flares. This assumption is based on measurements at testing facilities, national regulatory policies, and global reporting systems. While there is evidence that this efficiency figure may be overstated, there is no consensus yet on alternative global estimates.

xx. Assumes gas flared has a higher heating value of 1,020 British thermal units per standard cubic foot (BTU/scf), that 1 cubic meter equals 35.315 standard cubic feet and that recovered gas would achieve a price of one of the three primary global benchmarks for natural gas pricing. The prices used for the value estimates are the 2025 average price at US Henry Hub (US$3.52/MMBtu), European Union Dutch Title Transfer Facility (US$13.8/MMBtu) and Asia LNG Platts Market-on-Close for Japan-Korea-Taiwan-China region (US$13.4/MMBtu). Each of the flaring countries were mapped to one of the benchmarks to calculate the value of gas flared. This is not intended to represent net revenue.

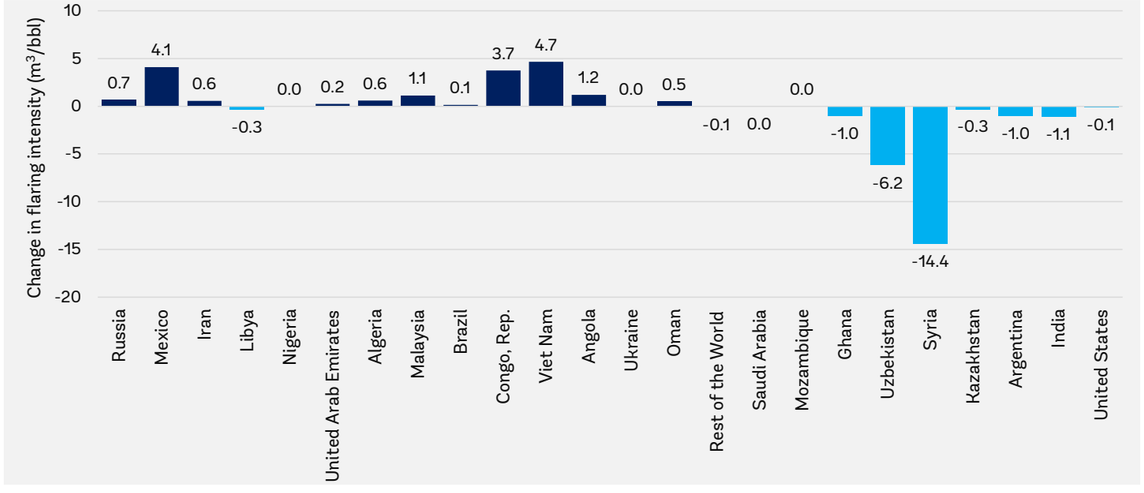
xxi. Mexico is discussed further in the report as a spotlight country.

Figure 15. Significant changes in flare volume across countries, and rest of world, 2024-2025



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group.

Figure 16. Changes in flaring intensity, 2024-25, ordered by change in flare volume



Source: NOAA, Payne Institute and Colorado School of Mines, EIA, and World Bank Group.

Focus on the Top Nine Flaring Countries

At the country level, a range of outcomes emerged across major gas-flaring countries in 2025. All the top nine flaring countries saw flaring volumes increase in 2025, except for the **United States. Mexico**, the **United States** and **Angola** are analyzed in greater depth in the spotlight section (organized by the volume of change).

In **Russia**, which remains the largest flaring country (18 percent of global flare volume in 2025), flaring increased by 9 percent despite oil production remaining flat. This led to a 9 percent increase in Russia's flaring intensity. Both flaring volumes and intensity have increased since 2021. In East Siberia, which continues to increase its oil and gas production and contributed 56 percent of Russia's total flaring in 2025, gas flaring increased by 10 percent, continuing the trend of the previous 3 years. There are opportunities to reduce flaring volumes, given the proximity of the flaring oil fields to several gas fields and export gas pipelines that are delivering gas to China. Russia signed an agreement with China in 2025 to build the Power of Siberia-2 gas pipeline and expand two other export lines.[18] However, to date, there is no evidence of investment in the infrastructure required to connect associated gas to these pipelines, and access would require negotiated terms with the pipeline operator.

Mexico saw a 28 percent increase in flaring volumes and a 36 percent increase in flaring intensity, driven partly by falling oil production.

In **Iran**, flaring volumes increased by 5 percent, while oil production grew 2 percent. As a result, Iran's flaring intensity grew by 3 percent in 2025. Iran has announced new targets and investments in associated gas recovery, but timelines appear to have been pushed back, based on information from Iran's Supreme Audit Court.[19]

In **Libya**, flaring volumes rose by 15 percent in 2025, tracking a 17 percent increase in Libyan oil production. Libyan flaring intensity declined by 1.7 percent because of greater stability in supply and processing.[20]

Nigeria also saw flaring volumes and oil production rise by 8 percent. Insufficient infrastructure to bring the associated gas to markets and aging gas processing plants with high downtime rates contribute to Nigeria's high flaring levels.[21]

Gas flaring increased in **Algeria** by almost 5 percent, with its flaring intensity rising by 3 percent, based on satellite estimates. This appears to be associated with infrastructure constraints and temporary operational disruptions at gas processing infrastructure.[22]

Iraq and Venezuela saw small increases in flare volumes (under 1 percent each).

Venezuela saw flaring intensity drop by 10 percent due to increased oil production, marking the fourth consecutive year of steep intensity decline. Despite this progress, Venezuela retains one of the highest flaring intensities in the world. Outdated infrastructure and bottlenecks in gas processing capacity contribute to its persistently high intensity; the outage of the Muscar-Soto line further limited gas processing throughput in 2025. Flaring volumes saw only a marginal increase of under 1 percent.[23]

In **Iraq**, flaring volumes grew slightly while oil production remained flat, with the increase also under 1 percent. Several investments to expand gas processing capacity in Southern Iraq were made in 2025, including projects at Ratawi and the Basrah Gas Company, the latter supported by the World Bank Group.[24]

Changes in Smaller Flaring Countries

Several countries with smaller volumes of gas flaring also saw significant changes in 2025 for a variety of reasons, including aging infrastructure with maintenance needs (described below in order of flaring volume change).

In the **United Arab Emirates**, which has one of the lowest flaring intensities globally, flare volume increased by 51 percent due primarily to increased flaring at gas processing plants, particularly on Das Island. Asset management, planned maintenance, and ongoing construction may have impacted flaring. In addition, the Integrated Gas Development Expansion Phase 2 project at Das Island was undergoing commissioning, which can create temporary flaring.[25] As part of the overall increase, gas flaring associated with oil production rose in line with the increased oil production, indicating that the flaring intensity at production sites remained stable.

Malaysia also saw flaring grow by 24 percent due to the maintenance of existing facilities and production enhancements on idle wells.[26]

The Republic of Congo saw flaring and flaring intensity continue to grow; flaring intensity has increased for the last 5 years. One of the reasons has been the increase in production and flaring at the Kayo field over the last several years. This trend is expected to slow due to a gas processing plant that came onstream in December 2025. The plant is now processing the Kayo field's associated gas for delivery to the domestic market. In addition, the upcoming Nguya floating LNG terminal could help further reduce flare volumes.

Viet Nam saw a 69 percent increase in flaring volumes, while flaring intensity grew by 71 percent. The increase was tied to delays in installing new gas infrastructure, as well as the development of new infill wells in existing fields.

Kazakhstan continued to see declining flaring (-16 percent) and flaring intensity (-26 percent) in 2025 through investments in associated gas capture and expanded market access, supported by effective regulations. Specifically, new permitting requirements entered into force requiring use of the best available technologies at facilities with the largest flares.[27] In total, flare gas volumes in Kazakhstan have declined 87 percent since 2012.



Photo: AhmadDanielZulhilmi / Shutterstock

Argentina, **India**, and **Syria** also experienced drops in flaring volumes. In **Argentina**, development of the Vaca Muerta shale-oil basin started in 2018 and oil production there has continued to grow rapidly since. Similar to the situation during the rapid development of the Permian shale-oil basin in the United States in 2019, bottlenecks in gas infrastructure have led to high levels of flaring (box 4). New pipelines and gas processing expansions have partially mitigated the situation in Argentina, and flaring intensity has gradually declined with a significant reduction in both flaring volumes and intensity in 2025.[xxii] **India** adopted new rules in 2025 mandating stronger monitoring and limits on flaring to 0.5 percent of field production.[28] In **Syria**, improved stability following the end of widespread conflict has allowed producers to stabilize operations.

Box 4. Main differences in flaring trends in unconventional and conventional oil developments

"Unconventionals" is an umbrella classification for oil and gas produced using non-conventional extraction methods, including hydraulic fracturing; shale (and tight oil/gas) are commonly treated as subcategories within unconventionals.

Several important characteristics of unconventional and shale oil developments affect the ability to manage the associated gas volumes produced with the oil, compared with conventional oil field developments. Increases in oil and the associated gas production have regularly run ahead of installation of adequate gas collection and export infrastructure capacity in all currently active shale oil basins, leading to protracted periods of high gas flaring.

In conventional developments, an oil field is typically appraised prior to its development to determine the characteristics of both the reservoir and the oil. This appraisal allows the operator to make early planning decisions on the size of gas infrastructure required to handle the gas associated with oil production over the field's lifetime. Typically, it allows the operator to identify and implement a well-defined single gas utilization option for the entire field, e.g., a gas treatment facility or a pipeline, constructed to handle the expected volume of gas.

In shale oil developments, however, instead of a single integrated activity, development often takes the form of drilling and producing large numbers of individual wells, each of which may have different reservoir and oil characteristics, and each well (individually or in small clusters) needs to be connected to the wider gas infrastructure. To sustain production levels, operators must continuously drill and bring new wells into production in quick succession, as the output from each shale oil well declines rapidly. In this context, planning and delivering sufficient infrastructure to handle the increasing gas volumes often becomes challenging.

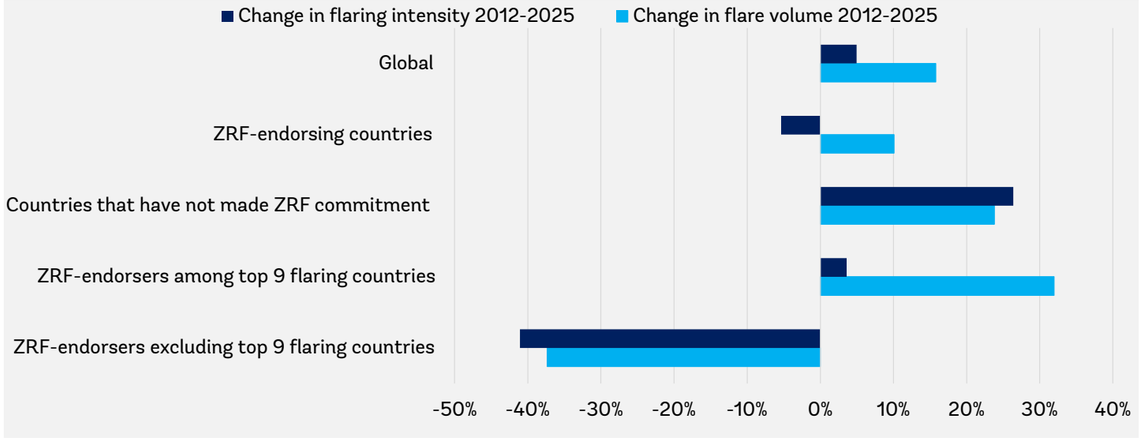
xxii. The Perito Moreno Gas Pipeline (formerly the Néstor Kirchner Gas Pipeline) began operating in 2023, with capacity on the Tratayén pipeline segment later increased in 2024. It expanded takeaway capacity for Vaca Muerta gas, including growing associated gas volumes from the basin. Likewise, processing capacity at the Tratayén gas processing plant increased in early 2025, further supporting offtake of associated gas from Vaca Muerta. https://portal.rystadenergy.com/article-detail/512183?qid=a8ed02599b9fe0ad1b70e1a8fb310877&oid=doc_512183; https://portal.rystadenergy.com/article-detail/379619?qid=04af9e3b5146846695700de0078d66117&oid=doc_379619; https://www.tgs.com.ar/en/tgs-has-completed-critical-expansion-works-in-vaca-muerta/.

Changes in Countries that Have Committed to ZRF and Those that Have Not

Launched in 2015, the ZRF Initiative commits governments and oil companies to end routine flaring no later than 2030. ZRF endorsers account for approximately 55 percent of total global gas flaring. Endorsing governments and oil companies commit to monitoring and annually reporting their flaring and progress towards the Initiative.[29] Viewed through the lens of ZRF commitments, flaring grew across countries with and without ZRF commitments in 2025, though the increase was more contained among countries that have made ZRF commitments than those that have not. Some progress is visible at the country level, with flaring intensity declining among ZRF endorsers with smaller flaring footprints, such as Kazakhstan and Uzbekistan. In several cases, this appears to be ongoing momentum from policy changes or corporate investment programs that have steadily reduced flaring.

While 2025 saw increases across countries both with and without ZFR commitments, the longer-term picture since 2012 remains more encouraging for ZRF endorsers (figure 17). Countries committed to ZRF have collectively outperformed non-endorsing peers since 2012, with a flaring increase of 10 percent among ZRF endorsing countries versus 24 percent growth among those that have not made the commitment. The increase in flaring in countries with ZRF commitments was driven by increases in large flaring countries, including Russia and Mexico. This serves as a reminder that the endorsement, while insufficient on its own, is associated with a stronger long-term trajectory.

Figure 17. Change in flaring and flaring intensity for countries committed to the ZRF initiative and other countries, 2012-2025



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, and EIA.
Note: Countries endorsed the ZRF initiative on various dates between the start of the ZRF Initiative in 2015 and 2025. Many have, therefore, had a shorter duration to achieve the objective as a ZRF endorser than others. The assessment of the progress of ZRF-endorsing countries is constrained by limitations in the data self-reported by the governments, particularly regarding routine flaring. As a proxy, estimates of total flare volumes derived from the VIIRS satellite observations have been used to compare performance between 2012 and 2025. It is considered very likely that, given the sustained high levels of gas flaring in many countries, this flaring largely comprises routine flaring.



Photo: Solodov Alexsei / Shutterstock

Spotlight Countries

Mexico

Flaring volumes in Mexico increased by 28 percent (2.1 bcm) in 2025, the second consecutive year of rising volumes.[xxiii] With oil production falling slightly, flaring intensity increased by 36 percent from 11.3 m^3/bbl in 2024 to 15.4 m^3/bbl in 2025; almost triple the global average. Mexico's flaring volume and flaring intensity have increased more than any of the other top nine flaring countries in percentage terms (figure 18).

Maturing fields in the Cantarell offshore complex and constrained capital investment across Petróleos Mexicanos' (PEMEX) upstream portfolio have also potentially impacted oil output and flaring intensity.

Infrastructure and reliability constraints, compounded by capital limitations, have been the primary drivers of increased flaring. A mismatch between fields with increasing oil production and related gas infrastructure capacity has also contributed.

Flaring at the Cactus and Perdiz gas processing plants and other facilities has been particularly significant, accentuated by underinvestment in supporting infrastructure and recurring outages and maintenance events. This flaring has been persistent and appears related to annual maintenance requirements due to issues at aged infrastructure.

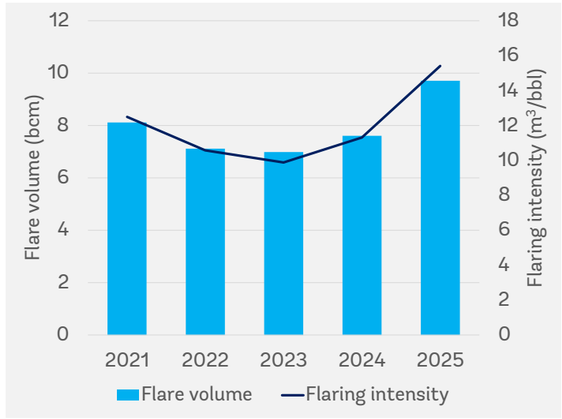
Process disruptions and unplanned maintenance events at the Cantarell offshore complex, recurring contributors to Mexico's flaring in previous years, continued to drive episodic increases in flare volumes in 2025.[30] Cantarell requires increasingly intensive maintenance interventions, and these operations frequently result in short-duration but high-volume flaring events when gas is purged from pipelines.

Onshore developments in the Sureste and Veracruz Basins came online in 2023 and 2024 without suitable gas infrastructure capacity in place. This has contributed to the increase in flaring.[31]

While both the Mexican government and PEMEX have committed to the ZRF Initiative, PEMEX's high level of indebtedness makes financing flaring mitigation challenging. PEMEX's aging infrastructure and declining petroleum sales create further financial pressure and limit the company's ability to invest. Despite these challenges, both the Mexican government and PEMEX are actively working on strategies to reduce flaring and methane emissions, including strategies around gas resource development, energy security, and infrastructure.[32]

In 2025, PEMEX, the Mexican Petroleum Institute, and GFMR held a joint workshop to identify collaboration project ideas on flaring mitigation and related methane emission opportunities.[33]

Figure 18. Flare volume and intensity in Mexico, 2021-2025



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, and EIA.

xxiii. PEMEX also reported a 33.8 percent increase in flaring in the first 9 months of 2025 to the Mexican Stock Exchange. "Pemex incrementa 34% la quema de gas natural en 2025", Momento Financiero, November 6, 2025, https://momentofinanciero.mx/pemex-incrementa-34-la-quema-de-gas-natural-en-2025/.

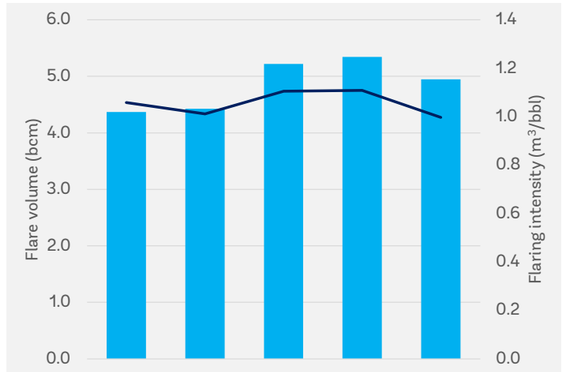
United States

The United States saw the largest drop in flare volumes globally (0.4 bcm or a 7 percent reduction), despite oil production increasing 3 percent (figure 19). This reduced flaring intensity by 10 percent from 1.1 m^3/bbl in 2024 to 1.0 m^3/bbl in 2025. The United States has one of the lowest flaring intensities in the world.

The major shale oil-producing basins – the Permian in Texas and New Mexico, the Bakken in North Dakota and the Eagle Ford in Texas – accounted for 86 percent of flaring in the United States. Despite a 4 percent rise in flare volumes in the Bakken, the United States saw an overall drop in both flare volumes and flaring intensity in 2025. This fall was driven primarily by the Permian, where flaring volumes and flaring intensity declined by 13 percent and 15 percent respectively (figures 20 and 21). The Eagle Ford contributed a smaller reduction, with volumes dropping by 4 percent.

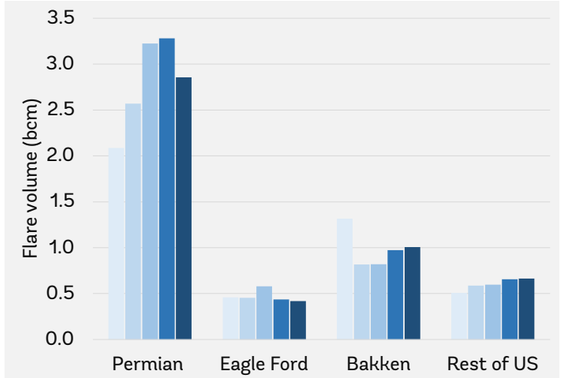
A key driver of the decline in flaring in the Permian was the Matterhorn Express pipeline, which came into service at the end of 2024 and provided a viable export route for associated gas from the Permian. Prior to its launch, a growing bottleneck in gas takeaway capacity across Texas and New Mexico had left producers with limited alternatives to flaring. By relieving that constraint, the Matterhorn pipeline enabled producers to directly export gas that would have been flared. Additional pipeline capacity under development is expected to sustain this trajectory in 2026.[34] A similar midstream trend is taking place in the Bakken where a new pipeline has recently begun operation.[35]

Figure 19. Flare volume and flaring intensity in the United States, 2021-2025



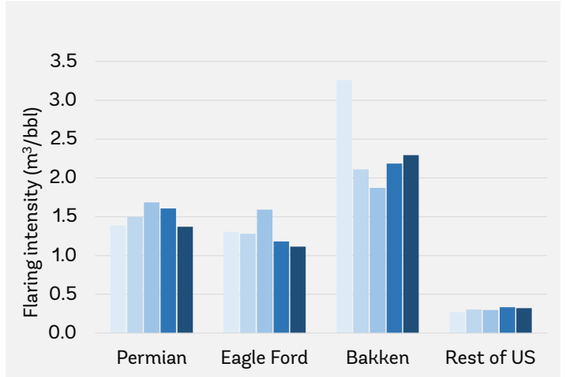
Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, and EIA.

Figure 20. Flare volumes in the Permian, Eagle Ford, and Bakken basins and the rest of the United States, 2021-2025



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank Group.

Figure 21. Flaring intensity in the Permian, Eagle Ford, and Bakken basins, and the rest of the United States, 2021-2025



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, and EIA.



Photo: Heidi Bauer / Shutterstock

Angola

Flare volumes in Angola rose by 12 percent in 2025 (0.3 bcm), while oil production dropped by 9 percent. This led to an increase in flaring intensity of 24 percent to 6.2 m^3/bbl (figure 22).

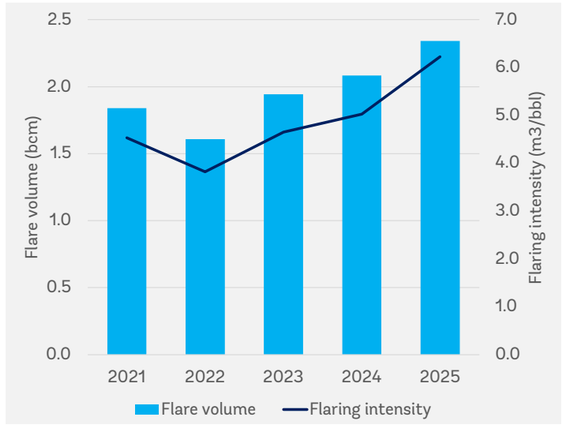
Angola's oil industry has multiple producers, including Sonangol (the national oil company), international oil companies and local producers. The Angolan LNG terminal at Soyo, in operation since 2016, allowed the country to capture substantial amounts of associated gas from its offshore oil fields.[36] This brought flaring volumes down from 6 bcm in 2016 to 1.6 bcm in 2022. Since 2022, however, flaring volume and intensity have increased, a trend continued in 2025.

Over the past 3 years, the Lombo East offshore area has increased its share of Angola's flaring from 6 percent to 37 percent. This is the result of drilling and redevelopment. A gas pipeline is in the planning stages to take the associated gas from this field to the Angola LNG plant. At the Cinguvu offshore production area (Ngoma complex), a major production gathering hub underwent reconfiguration in 2025, resulting in a 60 percent (0.1 bcm) increase in gas flaring.[37] Several other offshore fields also experienced small increases in flaring tied to commissioning operations and repairs.[38]

The recent experience in Angola highlights the importance of ongoing attention to changes in circumstance that can increase flaring rapidly and substantially. Steadily increasing associated gas volumes, as new wells are drilled at existing fields, require new or expanded gas infrastructure to deliver the gas to the LNG plant. There is spare capacity at the LNG plant to utilize this additional gas. However, to use it most effectively, integrated planning is essential; such planning should ensure the necessary gas gathering infrastructure is in place in time as gas production grows and shifts geographically. Angola does not have legal requirements restricting routine flaring, although it has set specific targets to reduce flaring in policy documents, and flaring is down significantly since 2012.[39]

Angola is certainly not unique in facing these challenges, which followed a period when flaring had been effectively reduced. Angola's experience highlights how quickly progress can unravel without continuous attention to evolving production conditions. As fields age and production profiles shift, sustained attention to gas infrastructure planning becomes essential to prevent a flaring resurgence.

Figure 22. Flare volume and flaring intensity in Angola, 2021–2025



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, and EIA.



Photo: Shafiq Hadgomi / Shutterstock

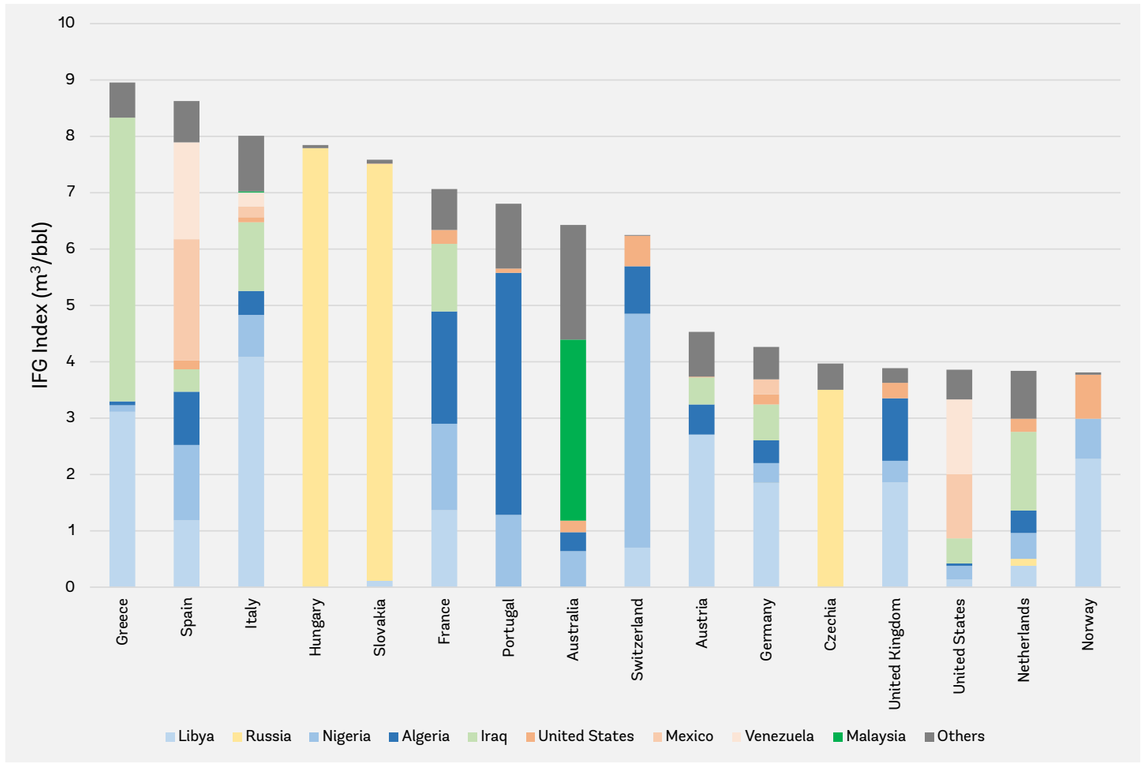
Imported Flare Gas Index

Alongside overall flare volume and flaring intensity, the World Bank Group produces the Imported Flare Gas (IFG) Index of crude-importing countries. The IFG Index is the average flaring intensity of oil imports weighted by import volumes from each country of origin. It is based on the premise that if a country is importing crude oil, it also shares responsibility for the flaring associated with its imports.

The IFG Index helps governments of oil-importing countries assess the environmental implications and costs of their crude oil imports, which may impact prices under future policy regimes. It can also help with policy design. The same data can also inform governments and operators in oil-exporting countries about potential emissions-related liabilities in the future.

Analysis of the 2025 data indicates that countries such as Greece, Spain, Italy, Hungary, and Slovakia were "exposed" to high levels of gas flaring associated with their imports of crude oil from countries with high flaring intensities, such as Iraq, Libya, Mexico and Russia (figure 23).

Figure 23. OECD countries with high IFG indexes (including breakdown by country of origin)

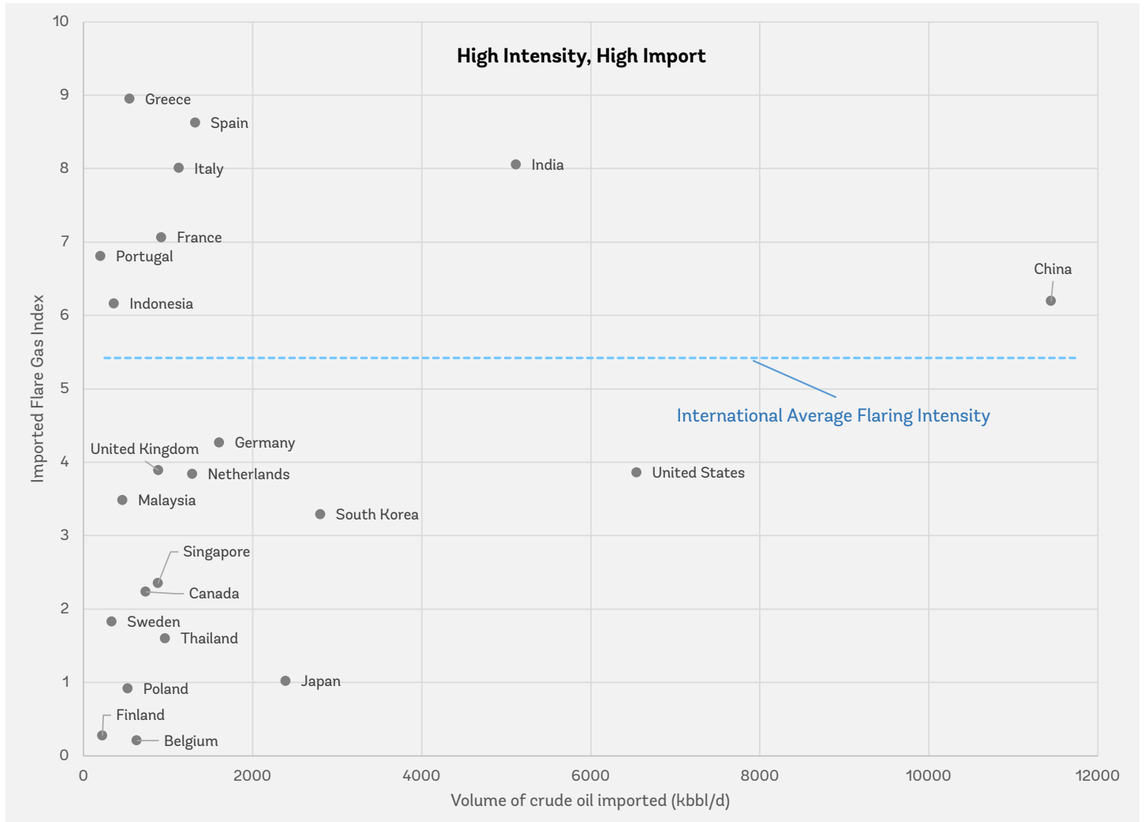


Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, COMTRADE, and EIA.

The largest changes in IFG Indexes in 2025 stem from underlying shifts in flaring intensities in producer countries. Algeria, Libya, Mexico, and Russia all saw increases in flaring intensity. The intensity increases in Mexico and Libya raised the IFG Index of Spain, while the IFG Indexes of Hungary and Slovakia rose because of their continued structural reliance on oil imports from Russia, where flaring intensity has increased.

The IFG Indexes of most OECD members are lower than the global average flaring intensity of 5.4 m^3/bbl (figure 24). However, for several Mediterranean countries, a significant share of crude oil imports originated from countries with above-average flaring intensities, pushing their IFG Indexes above the global average.

Figure 24. IFG Index versus volume of crude oil imports in countries importing more than 200 thousand bbl/d



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group, COMTRADE, EIA.
Note: The global flaring intensity indicated is 5.4 m^3/bbl.

New and Improved Data Methodology

Overview

The Global Gas Flaring Tracker and the associated data play a critical role in emissions transparency, which in turn drives mitigation action. Policymakers, industry, academia, and civil society all rely on this data, and it contributes to a growing number of decision-relevant datasets and analyses. These include, for example, the United Nations Environment Programme (UNEP)'s satellite analysis of methane emissions in the oil and gas sector, IEA's energy modeling, and independent tools and research on lifecycle greenhouse gases and related pollutants.[xxiv] The World Bank Group draws on this data to support the dialogue with flaring countries and country-level engagement on flaring reduction actions that are considered for GFMR grant funding and technical support. In short, GFMR's flare volume estimates provide an authoritative, independent, and comprehensive picture of global flaring trends; supporting mitigation action, policy decisions, and business investments.[xxv]

The Colorado School of Mines, a longstanding collaborator of the World Bank Group in producing this data, began using satellite information to understand flaring in the 1990s. The US National Atmospheric and Oceanic Administration, the industry-led Oil and Gas Climate Initiative (OGCI), and other partners have further contributed to strengthening the approach by sharing methods or data, including the series of real-world measured flaring data from operational flares. Both satellite detector technologies and interpretation methodologies have improved during this time. The data presented in this report reflects this continued evolution and the resulting improvements in accuracy and coverage it has made possible. This report includes revised data for years going back to 2012.

Three Methodology Improvements this Year[xxvi]

As part of our ongoing efforts to make the data more useful and actionable, this year the Global Gas Flaring Tracker and the related database incorporate three important enhancements[40]:

1. Improved data coverage
2. More precise flare locations
3. Enhanced flare volume estimates.

GFMR will use this methodology in future data as well.

Improved Data Coverage

Estimates are now derived from three satellites, each carrying NOAA's VIIRS detectors. This more than doubles the number of nightly observations compared to detections made by a single satellite. Each observation is relatively short in duration, and the increased number of observations improves the precision and accuracy of the flare location and volume estimates. Figure 25 outlines the evolution of the new VIIRS equipped satellites.

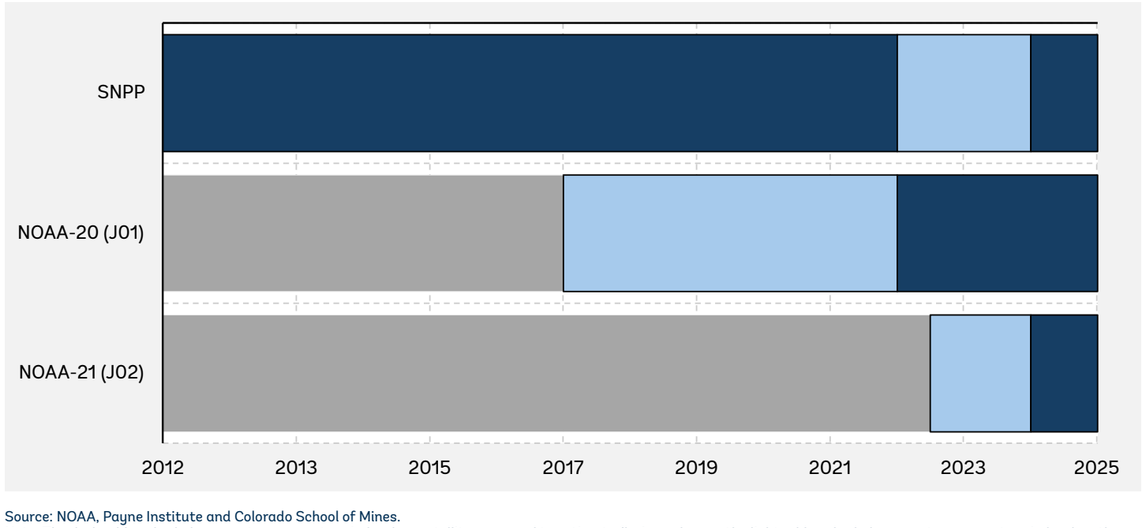
An increased number of satellites reduces data gaps, enhancing coverage and assessment of each flare.

xxiv. UNEP's IMEO publishes its flagship Eye on Methane report, which references GFMR data (e.g., https://wedocs.unep.org/rest/api/core/bitstreams/943c9f24-f050-405b-8f63-5c6b5581a61f/content); it also has a dashboard of science studies that at times refer to the GFMR data (https://www.unep.org/topics/energy/methane/imeo-methane-science-studies). The IEA publishes its Global Methane Tracker (https://www.iea.org/reports/global-methane-tracker-2026) and World Energy Outlook (https://www.iea.org/reports/world-energy-outlook-2025) annually drawing on this flaring data as an input. An example of a lifecycle assessment tool that relies on GFMR data is the Oil Climate Index plus Gas (OCI+, https://ociplus.rmi.org/).

xxv. Faruolo et al, "Gas Flaring: A review focused on its analysis from space", IEEE Geosciences and Remote Sensing Magazine, August 2020, https://doi:10.1109/MGRS.2020.3007232, provides a helpful overview of flaring studies. GFMR is the only global data that is updated annually.

xxvi. A more comprehensive description of the current methodology is available on the GFMR website.

Figure 25. Satellite use for flaring data



Source: NOAA, Payne Institute and Colorado School of Mines.
Note: The darker blue shaded segments represent periods when satellites are used to estimate flaring volumes; the lighter blue shaded segments represent periods when the satellites produced data that was not used for flaring volume estimation but only for validation purposes, grey segments represent periods before the satellite was operating. SNPP is the Suomi National Polar-orbiting Partnership satellite; NOAA-20 (J01) and NOAA-21 (J02) are NOAA satellites. All three satellites were used for the 2025 flare positioning and flare volume estimates.



Photo: Yalax / Shutterstock

More Precise Flare Locations

Flare locations are determined with greater certainty when large numbers of observations are used to identify them within each satellite pixel. The satellite pixels, at about 750 x 750 meters in size, are very large compared to the size of a flare but, by accumulating multiple detections of the flare over time, a more precise location within the pixel can be defined. Previously, the location of each flare detection was determined independently each year. The new methodology, instead, aggregates positional data for each flare detection nightly from 2012 to 2025. This produces a multi-year catalog that assigns a single, consistent location to each flare, enabling reliable tracking over time. The multi-year catalog also integrates statistical modeling to localize closely spaced flare stacks.

This improved and more precise location information makes the data more actionable. Specific benefits include:

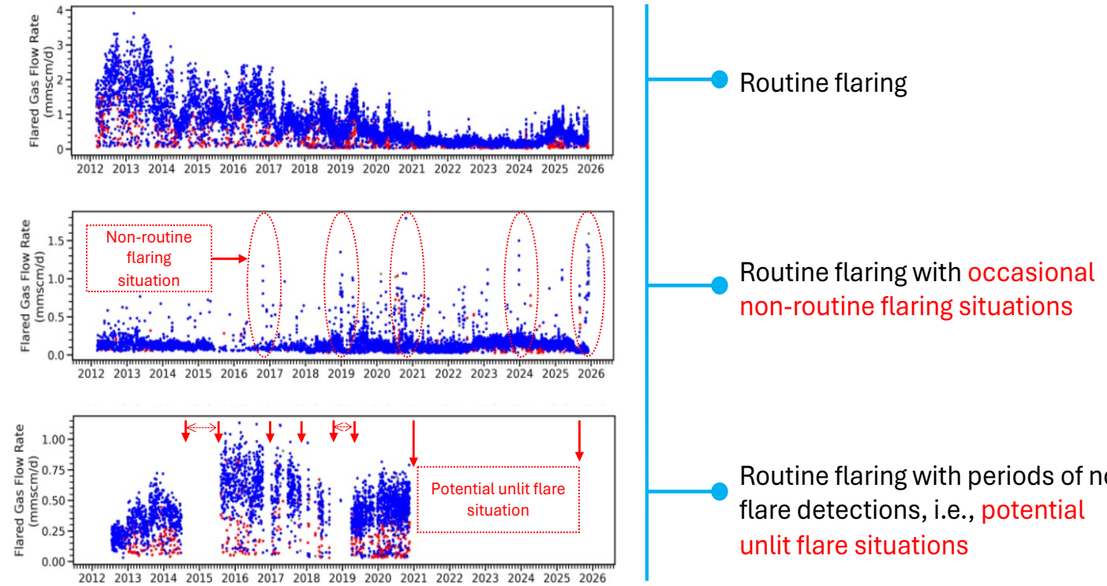
- More precise location of each individual flare;
- Enhanced identification of intermittent flares by clustering data across multiple years;
- Improved quality control, including the elimination of false flare detections and better identification of small flares (figure 26); and
- Better discrimination between routine and non-routine flaring to detect potentially unlit flaring situations, as seen in figure 27).

Figure 26. More precise flare locations and numbers



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group.
Notes: In the image above, on the left-hand side, the previous annual flare catalog listed a single flare in this location. With the multiyear catalog, three separate flares come into focus, which we can then verify against high resolution imagery, The new methodology is much better at resolving closely spaced flares, thus allowing for clearer identification of specific flare locations. This in turn allows us to better identify the number of flares present with more precision, which also improves the estimates of flaring volume and the operating status of flares.

Figure 27. Better identification of flaring situations: examples from the multiyear catalog



Source: NOAA, Payne Institute and Colorado School of Mines, World Bank Group.



Photograph of a large, metered flare at the John Zink testing facility, taken during acquisition of the satellite calibration data.



Photo: Iastdjedai / Shutterstock

Enhanced Flare Volume Estimates

The data in this report uses an improved calibration to estimate flare gas volumes from satellite images. The new, improved calibration draws on simultaneous measurements of VIIRS satellite flare radiant heat and accurately metered gas volumes of flares at the John Zink test facility in Tulsa, Oklahoma, United States. Previously, the calibration was based on country-level data of variable quality compiled by Cedigaz. The new approach provides a strong linear relationship between satellite observed radiant heat and gas volume. In essence, the new calibration recognizes that a larger heat signal in satellite data represents higher volumes of gas being burned. Oil and gas operator flare data over a wide range of flare volumes further supports the accuracy of the new calibration over virtually the entire range of flare sizes. The OGCI contributed this operator data in collaboration with its member companies.

The new calibration also reduces the uncertainty of satellite flare volume estimates over the entire range of flare sizes. Previously, gas volumes from large flares were underestimated, while small flares were overestimated. While total global estimates do not change significantly, there are differences for specific countries, particularly those with predominantly large flares (e.g., Iraq and Iran) or small flares (e.g., the United States and Canada).

Setting the Stage for Renewed Action

The new data sets the stage for renewed action on flaring. Improved flare volume estimates help in accurately identifying the volumes of flares for potential abatement, which in turn help in making the business case for investment. For example, the largest flares are now identified with higher volumes of gas, which may support ZRF endorsers to target action.[xxvii] The new data also makes it easier in many circumstances to identify methane emissions associated with unlit flares, which represent a major opportunity to reduce these potent emissions from the oil and gas sector. The enhancements provide robust, independent data to track progress at the national and site level. Combined, this means the data will better support policies and investments with a more accurate understanding of country-level and global trends.



Photo: Opsorman / Shutterstock

xxvii. A study in Canada found that unlit flares account for 13% of oil and gas sector methane emissions while a US study indicated that unlit and inefficient flares may account for 4 to 10% of methane emissions in the oil and gas sector. Tyner and Johnson, "Where the methane is—insights from novel airborne LiDAR measurements combined with ground survey data". Environ. Sci. Technol, 2021, https://doi.org/10.1021/acs.est.1c01572. Plant et al, "Inefficient and unlit natural gas flares both emit large quantities of methane," Science, 2022, https://doi/10.1126/science.abq0385.

Improved Data with the New Methodology

At the global level, the 2024 estimates are around 4 percent higher using the new methodology, and the overall trend in flare volumes between 2019 and 2024 remains broadly consistent with previous estimates (figure 28).[xxviii]

The revised methodology shows higher global flaring from 2016–2019, largely because estimates of flaring increased sharply in countries with large flares—especially Iran, Iraq, and Venezuela.

The drop in flaring in 2020 is associated with the COVID-related reduction in oil production, particularly in countries with large flares.

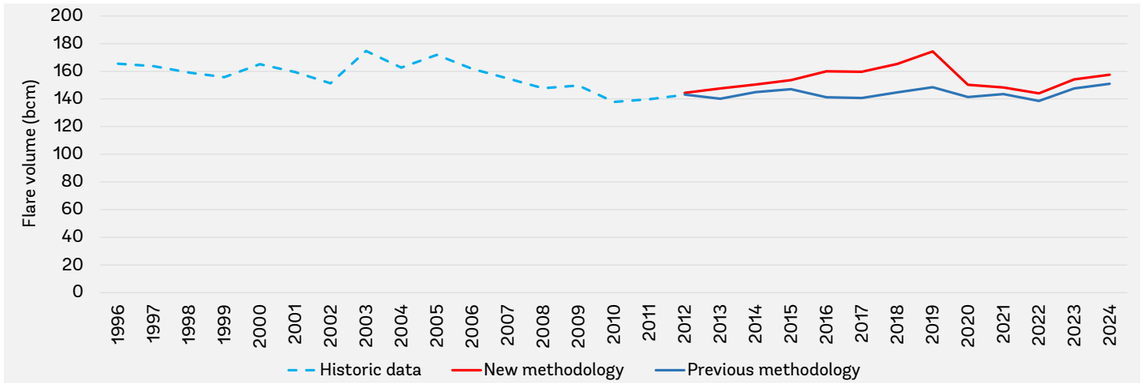
Countries with predominantly large or small flares see the largest changes in their total flaring volumes in the new calibration (figure 29). For example, Iraq and Venezuela both have higher flare volume estimates using the new methodology, better representing the volume of very large flares, whereas, the United States primarily has smaller flares, and these are now more correctly estimated to represent a smaller flaring volume.

Countries with a mix of flare sizes, such as Nigeria or Mexico, saw little or no change in total flare volume estimates (figure 29).

While the top nine flaring countries remain the same, the relative order has noticeably changed. For example, the United States ranking has dropped from fourth to ninth place, and Mexico has risen from ninth to fifth.

Readers should interpret country-level changes in the context of long-term trends, taking care not to misread methodological revisions as actual changes in flaring activity. For instance, the apparent increase in Iraq's historical flaring is a direct result of the change in methodology, not a reflection of recent activities. In fact, Iraq's flaring volume estimates changed by just 1 percent between 2024 and 2025.

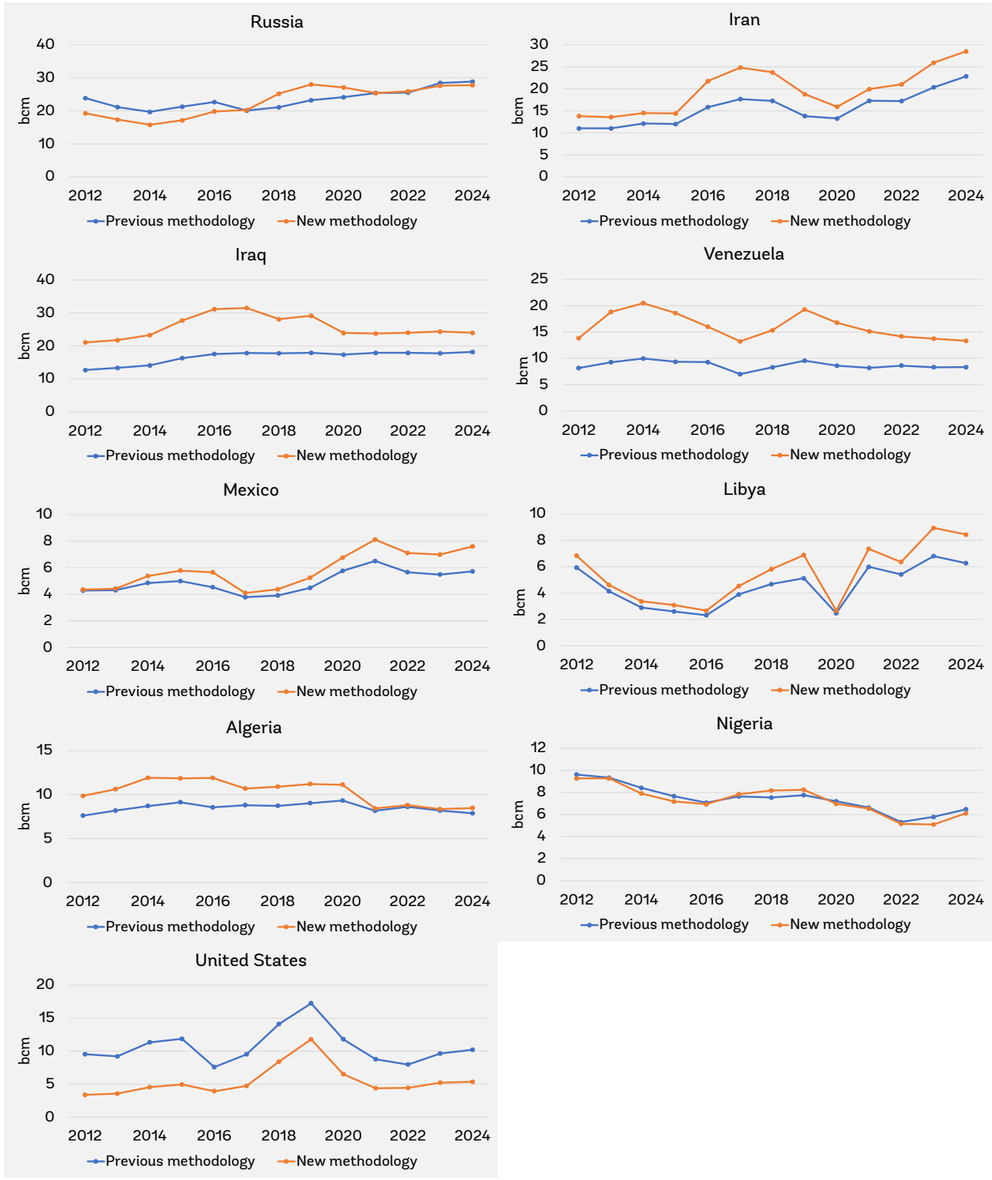
Figure 28. Flare volume estimates using previous and new methodologies, 2012–2024



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank Group.
Note: 1996–2012 data is from a previous generation of satellites which cannot be re-calibrated.

xxviii. As GFMR will not use the old methodology going forward, this comparison section provides data through 2024 only.

Figure 29. Top flaring countries with new and old calibration (listed in rank order using the new methodology)



Source: NOAA, Payne Institute and Colorado School of Mines, and World Bank Group.



Photo: kusjunianto / Shutterstock

Concluding Remarks

The overall picture from 2025 is sobering. Three consecutive years of rising global flare volumes have adversely affected economic development, effective environmental stewardship, and responsible natural resource management. This is amplified by the increasing concentration of the problem in a small number of countries, several of which face financial challenges and lack of infrastructure to act on flaring.

We have also seen the real-world impact of flaring come into focus as numerous flaring countries have experienced significant energy security challenges. This is affecting jobs and lives in countries across the globe.

Flaring abatement can be a powerful tool for governments and companies to reduce energy security risks, which in turn can foster enhanced energy access, jobs, and economic resilience. Evidence is clear that as electricity and energy supply become more reliable, employment grows.

Examples from countries like Argentina, India, Kazakhstan, and the United States demonstrate the possibility and positive impact of reducing flaring. While each country has found its own path to utilizing the gas, several key ingredients tend to be present when flaring goes down. These include making flaring mitigation a national and corporate priority with the resources and political will to backstop this priority. Investing in market access is also essential. We have seen the role that the Perito Moreno pipeline, the Matterhorn Express pipeline, and other infrastructure investments are playing in Argentina and the United States, respectively. Effective policy can also help stimulate investment, as we saw in India and Kazakhstan, each of which adopted new flaring regulations in 2025. And, of course, achieving challenging, meaningful goals requires monitoring results, including through efforts like the Global Gas Flaring Tracker and transparent corporate measurement and reporting.

As countries around the world respond to evolving energy pressures, we see both opportunities and challenges to push forward with dramatic reductions in flaring. Countries and companies can make a difference with their actions. The World Bank Group, through GFMR, is committed to supporting them on their journey to utilize this valuable resource (see box 5). In short, closing the gap between the current trajectory of growing flaring and the pathway to ZRF by 2030 will require stronger policy frameworks, better access to financing, and sustained technical support.

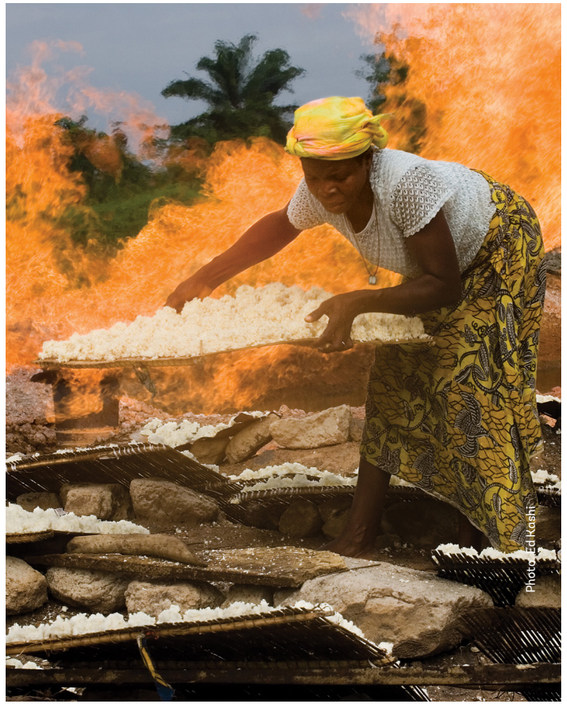


Photo: Ed Kashi

Box 5. Our mission

GFMR is a World Bank Group–managed multi-donor trust fund supported by governments, companies, and multilateral organizations committed to ending routine gas flaring and reducing methane emissions from the oil and gas sector.

GFMR works with developing countries to prevent the waste of a valuable natural resource that could boost economic development and improve energy access and security.

The World Bank Group announced GFMR at the 28th United Nations Climate Change Conference in the United Arab Emirates. The Partnership builds on the work of the Global Gas Flaring Reduction (GGFR) Partnership, widening its mandate to include addressing methane venting and leaks. GFMR is active in over a dozen countries, which account for over a quarter of the oil and gas sector's methane emissions, and nearly two-fifths of global gas flaring.

How We Help

To help reduce flaring and methane emissions, GFMR provides governments and state-owned entities with programmatic support. This includes catalytic grant funding, technical assistance, policy and regulatory reform advisory services, institutional strengthening, and mobilizing finance to jump-start the deployment of flaring and methane reduction solutions.

By leveraging the World Bank Group's country work programs, GFMR develops and implements comprehensive approaches to abatement projects and programs that will lead to cost-effective and sustainable reductions. Recipients of GFMR support commit to deploying the best industry standards and operational practices. These commitments ensure that a long-term, programmatic approach is established and that operators continue to address flaring and methane emissions well beyond the programs supported by GFMR.

Our Approach

GFMR works to end routine gas flaring and reduce methane emissions from the oil and gas sector through a multifaceted approach:

- **Supporting governments and state-owned entities** to identify, prepare, and implement projects, strengthen institutional capacity, and mobilize finance. This includes catalytic grant funding, financial due diligence, and the identification of de-risking solutions to crowd in both concessional and commercial finance.
- **Strengthening data and transparency** through the collection and reporting of flaring and methane emissions data; publication of the annual Global Gas Flaring Tracker; and advancing robust measurement, monitoring, reporting, and verification (MMRV) systems in line with industry standards.
- **Capturing and sharing global knowledge** by disseminating technical, policy, and regulatory best practices; and leveraging the World Bank Group's convening power to bring together governments, operators, and other stakeholders.
- **Raising awareness and building commitment** by supporting country-level engagement, advancing the ZRF Initiative, and championing global action to cut emissions.

For more information on our project portfolio and initiatives, visit our website.

Reference: GFMR Progress Update: Transforming Oil and Gas Operations to Curb Emissions, November 12, 2024, https://www.worldbank.org/en/programs/gasflaringreduction/brief/gfmr-progress-update-transforming-oil-and-gas-operations-to-curb-emissions.

End Notes

1. Justice Tei Mensah, "Jobs! Electricity Shortages and Unemployment in Africa," Policy Research Working Paper 8415, World Bank, 2018, https://documents1.worldbank.org/curated/en/659751524142624281/pdf/Jobs-electricity-shortages-and-unemployment-in-Africa.pdf.
2. Justice Tei Mensah, "Jobs! Electricity Shortages and Unemployment in Africa," Policy Research Working Paper 8415, World Bank, 2018, https://documents1.worldbank.org/curated/en/659751524142624281/pdf/Jobs-electricity-shortages-and-unemployment-in-Africa; IEA, Africa Energy Outlook 2019, 2019, https://www.iea.org/reports/africa-energy-outlook-2019.
3. IEA, "Natural Gas Information," updated April 2026, https://www.iea.org/data-and-statistics/data-product/natural-gas-information.
4. "Leadership on Flaring in Egypt: Recent Successes and Future Opportunities in the Lead-up to COP27," Capterio, 2022, https://cdn.catf.us/wp-content/uploads/2022/10/13092458/leadership-flaring-egypt-successes-future-opportunities-lead-up-COP27.pdf.
5. IEA, "Strait of Hormuz Factsheet," 2026, https://iea.blob.core.windows.net/assets/c8248eba-8689-46d9-ae4b-b858b59c0f1c/StraitofHormuz2026-Factsheet.pdf.
6. Amr Salem, "Iraq May Face Energy Crisis as Gas Supplies Fall," Iraqi News, April 28, 2026, https://www.iraqinews.com/iraq/iraq-may-face-energy-crisis-as-gas-supplies-fall/.
7. Jim Krane et al, "Iraq's Electricity Shortage and the Paradox of Gas Flaring", Baker Institute for Public Policy, Rice University, June 17, 2025, https://www.bakerinstitute.org/research/iraqs-electricity-shortage-and-paradox-gas-flaring; Amaresh Mishra et al, "Iraq's Gas Push Aims to Curb Iran Imports, but Delivery Risks Remain," Rystad Energy, February 12, 2026; "Iraq Faces Severe Electricity Shortfall Ahead of Summer 2026, Energy Report Warns," Kurdistan 24, May 3, 2026, https://www.kurdistan24.net/en/story/911768.
8. Justice Tei Mensah, "Jobs! Electricity Shortages and Unemployment in Africa," Policy Research Working Paper 8415, World Bank, 2018, https://documents1.worldbank.org/curated/en/659751524142624281/pdf/Jobs-electricity-shortages-and-unemployment-in-Africa; IEA, Africa Energy Outlook 2019, 2019, https://www.iea.org/reports/africa-energy-outlook-2019.
9. IEA, IRENA, UN Department of Economic and Social Affairs, World Bank, and World Health Organization, Tracking SDG7: The Energy Progress Report, 2026, https://trackingsdg7.esmap.org/downloads.
10. IEA, Energy Statistics, 2026, https://www.iea.org/countries/angola/electricity.
11. World Bank Group, Country Climate and Development Report: Republic of Congo, 2023, https://openknowledge.worldbank.org/entities/publication/7304e935-8400-4694-b7cf-aabe3ffa19e0; "Energy System of Congo," IEA Energy Statistics, 2026, https://www.iea.org/countries/congo.
12. ESMAP, The State of Access to Modern Energy Cooking Services, 2020, https://documents1.worldbank.org/curated/en/937141600195758792/pdf/The-State-of-Access-to-Modern-Energy-Cooking-Services.pdf; IEA, A Vision for Clean Cooking Access for All, 2024, https://iea.blob.core.windows.net/

assets/180b8bee-3d30-4436-abe0-9e93ca56b0bd/AVisionforCleanCookingAccessforAll.pdf.

13. World Bank, Global Gas Flaring Tracker Report, June 2024, https://thedocs.worldbank.org/en/doc/d01b4aebd8a10513c0e341de5e1f652e-0400072024/original/Global-Gas-Flaring-Tracker-Report-June-20-2024.pdf.
14. H. Tran et al., "Air Quality and Health Impacts of Onshore Oil and Gas Flaring and Venting Activities Estimated using Refined Satellite-based Emissions," GeoHealth, 8, 2024, https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2023GH000938; World Health Organization, "Air Quality, Energy, and Health," 2026, https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/health-impacts/types-of-pollutants; Grzegorz Peszko et al, Air Pollution and Climate Change: From Co-Benefits to Coherent Policies, World Bank Group, 2023, https://openknowledge.worldbank.org/server/api/core/bitstreams/b118f4d7-faab-523f-9e5a-13f1a5462c07/content.
15. Energy Institute, Statistical Review of World Energy, 2025, https://www.energyinst.org/statistical-review.
16. IEA, Emissions from Oil and Gas Operations in Net Zero Transitions, June 2023.
17. Energy Institute, Statistical Review of World Energy, 2025, https://www.energyinst.org/statistical-review.
18. Swapnil Babele, "Gas Power Shift: Russia's Eastern Pivot Deepens," Rystad Energy, 12 September 2025.
19. US Energy Information Administration, Iran, https://www.eia.gov/international/analysis/country/irn; IFP Editorial Staff, "Iran President Hails National Achievement in Associated Gas Recovery Project," Iran Front Page, August 17, 2025, https://ifpnews.com/iran-president-hails-natl-achievement-in-associated-gas-recovery-project/; "Iran's Supreme Audit Court Warns on Rising Flare Gas;" Iran Oil and Gas Network, 26 February 2026, https://www.iranoilgas.com/news/details.aspx?id=28575&title=Iran%E2%80%99s+Supreme+Audit+Court+warns+on+rising+flare+gas; "Iran's Flare Gas Recovery at 4 bcm per year: Minister," Press TV, March 17, 2025, https://www.presstv.ir/doc/Detail/2025/03/17/744614/Iran-flare-gas-recovery-figure-oil-minister-Paknejad.
20. Libya: Upstream Country Factsheet, Rystad Energy, January 2026.
21. Aniola Akinkuotu, "Nigeria: Seplat's ANOH gas plant stalls as OB3 pipeline delays drag on," The Africa Report, March 10, 2025, https://www.theafricareport.com/378637/nigeria-seplats-anoh-gas-plant-stalls-as-ob3-pipeline-delays-drag-on/; "Boost for Nigeria's Oil Production, as NNPC's Utapate Crude Grade Hits Global Oil Market," NNPC Group, November 20, 2024, https://www.nnpcgroup.com/insights/boost-for-nigeria-s-oil-production-as-nnpc-s-utapate-crude-grade-hits-global-oil-market-oml-13-asset-eyes-80-000-bpd-by-end-of-2025.
22. "Algeria's Sonatrach Contains Fire at Alrar Gas Processing Complex", Pipeline and Gas Journal, November 27, 2024, https://pgjonline.com/news/2024/november/algeria-s-sonatrach-contains-fire-at-alrar-gas-processing-complex; "Algeria: Sonatrach Partially Restarts Alrar Gas Complex," Energynew.pro, February 2025, https://energynews.pro/en/algeria-sonatrach-partially-restarts-alrar-gas-complex; James Cockayne, "Algeria: Alrar Restart," MEES, February 21, 2025, https://www.mees.com/2025/2/21/news-in-brief/algeria-alrar-restart/0c59dd00-f061-11ef-9658-27e92370627a.
23. "Venezuela Gas Complex Blast Hits Heavy Crude Dilution; Power Production: Report," Hellenic Shipping News, November 20, 2024, hellenicshippingnews.com/venezuela-gas-complex-blast-hits-heavy-crude-dilution-power-production-report/.

24. "'GGIP': A Multi-Energy Project to Support Iraq Towards its Energy Independence," TotalEnergies, 2026, https://totalenergies.com/company/projects/gas/ggip-multi-energy-project-Irak; "IFC Provides Landmark Loan to Reduce Gas Flaring, Boost Energy Access, and Power More Homes and Businesses Across Iraq", IFC, June 29, 2021, https://www.ifc.org/en/pressroom/2021/ifc-provides-landmark-loan-to-reduce-gas-flaring-boost-energy-access-and-power-more-homes-and-businesses-across-iraq.
25. ADNOC GAS plc Q4 and FY 2025 Results: Management Discussion and Analysis Report, ADNOC GAS, February 9, 2026, https://adnocgas.ae/en/investor-relations/results-reports; Lauren Holtmeier, "ADNOC Gas commissions Das Island IGDE-2 project, looks to expand capacity", S&P Global, August 6, 2025, https://www.spglobal.com/energy/en/news-research/latest-news/electric-power/080625-adnoc-gas-commissions-das-island-igde-2-project-looks-to-expand-capacity.
26. CS Ming, "Petronas Reveals Activity Outlook for 2025-27, but What Does it Mean for Key Players?", Focus Malaysia, January 31, 2025, https://focusmalaysia.my/petronas-reveals-activity-outlook-for-2020-27-but-what-does-it-mean-for-key-players/; "Petronas Fixing Output Interruptions at Bintulu LNG Complex", Business Today, April 21, 2025, https://www.businesstoday.com.my/2025/04/21/petronas-fixing-output-interruptions-at-bintulu-lng-complex/.
27. "Environmental Code of the Republic of Kazakhstan, No400-VI (as amended)" as published on March 10, 2025 in the IEA Policies database at https://www.iea.org/policies/12917-environmental-code-of-the-republic-of-kazakhstan-400-vi-as-amended.
28. "India now Mandates that Oil Producers Adopt Plans to Achieve Zero Routine Flaring by 2030", Gazette of India. Petroleum and Natural Gas Rules, 2025, https://thc.nic.in/Central%20Governmental%20Rules/Petroleum%20and%20Natural%20Gas%20Rules,%202025.pdf.
29. "Zero Routine Flaring by 2030 (ZRF) Initiative," GFMR, World Bank Group, 2026, https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/about.
30. "Informa CENAGAS evaluación de daños a ductos tras incendio en Centro Cactus y Cuxtal," SPR Informa, October 20, 2025, https://sprinforma.mx/ver/portada/informa-cenagas-evaluacion-de-danos-a-ductos-tras-incendio-en-centro-cactus-y-cuxtal.
31. Perla Velasco, "Flaring Increased at Ixachi", Mexico Business News, June 5, 2023, https://mexicobusiness.news/oilandgas/news/flaring-increased-ixachi; « Pemex inicia produccion en très pozos mas del campo Quesqui », La Jornada, September 17, 2023, https://www.jornada.com.mx/notas/2023/07/23/politica/pemex-inicia-produccion-en-tres-pozos-mas-del-campo-quesqui/.
32. PEMEX. Pemex: Plan Estratégico 2025-2035. August 5, 2025, https://www.pemex.com/acerca/planestrategico/Paginas/default.aspx; Bloomberg, "Mexico Plans $8 Billion in Gas Pipelines to Boost Power Sector," Energy Connects, May 27, 2026, https://www.energyconnects.com/news/utilities/2026/may/mexico-plans-8-billion-in-gas-pipelines-to-boost-power-sector/; "Mexico," GFMR, World Bank Group, 2025, https://flaringventingregulations.worldbank.org/mexico.
33. MBN Staff. "PEMEX, IMP Launch National Methane-Cut Plan with World Bank," November 24, 2025, Mexico Business News, https://mexicobusiness.news/sustainability/news/pemex-imp-launch-national-methane-cut-plan-world-bank.
34. Chris Newman, "Natural Gas E&Ps 'Scream from Rooftops' for More Permian Pipelines as Matterhorn

Begins Initial Start," Natural Gas Intelligence, September 6, 2024, https://naturalgasintel.com/news/natural-gas-eps-scream-from-rooftops-for-more-permian-pipelines-as-matterhorn-begins-initial-start/.

35. Mary Holcomb, "Bakken Gas Capacity Set to Rise as Bison Xpress Nears Full Service," April 15, 2026, Pipeline and Gas Journal, https://pgjonline.com/news/2026/april/bakken-gas-capacity-set-to-rise-as-bison-xpress-nears-full-service?oly_enc_id=9807J9454478D2T.
36. Rystad Energy, Upstream Country Factsheet: Angola, March 2026, Rystad Energy; "Angola Exported More Liquefied Ntural Gas to Europe and Less to Asia in 2022 and 2023," Today in Energy, US Energy Information Administration, April 9, 2025, https://www.eia.gov/todayinenergy/detail.php?id=64944.
37. "Angola's Largest E&P Firm Commences a Multi-well Drilling Campaign in Signature Block," Africa Oil and Gas Report, July 10, 2025, https://africaoilgasreport.com/2025/07/oil-patch-sub-sahara/angolas-largest-ep-firm-commences-a-multi-well-drilling-campaign-in-signature-block/.
38. "Cases: Flare Tip Repair – FFSO Girasol, Ponticelli Angola," Conbit, accessed on April 6, 2026, https://www.conbit.eu/cases/flare-tip-repair-fpso-girassol; A-C. Tokoto, et al., "Angola Block 17 Fuel Gas Reduction Screening Study: An Innovative Approach to Decarbonize Upstream Assets through Zero CAPEX Initiatives," ADIPEC, November 3, 2025, https://onepetro.org/SPEADIP/proceedings-abstract/25ADIP/25ADIP/D041S148R001/793614; "SMB Offshore Signs Contract Extension of FPSOs Mondo and Saxi Batuque," SBM Offshore, 17 December 2025, https://www.sbmoffshore.com/newsroom/sbm-offshore-signs-contract-extension-of-fpsos-mondo-and-saxi-batuque/.
39. "Angola," GFMR, World Bank Group, 2023, https://flaringventingregulations.worldbank.org/angola.
40. Zhizhin et al, "VIIRS Nightfire Super-Resolution Method for Multiyear Cataloging of Natural Gas Flaring Sites: 2012-2025," Remote Sensing, 2026, 18, 314. https://doi.org/10.3390/rs18020314; Zhizhin et al, "An Improved Calibration for Satellite Estimation of Flared Gas Volumes from VIIRS Nighttime Data," Energies, 2025, 18, 4765. https://doi.org/10.3390/en18174765.

Photo credits:
Cover Photo: © Solodov Aleksei
Page 7: © Photo: Ed Kashi
Page 9: © Photo: Kamran Ali / Shutterstock
Page 11: © Photo: Matyas Rehak / Shutterstock
Page 12: © Photo: Leonid Ikan / Shutterstock
Page 17: © Photo: Evgeny Haritonov/ Shutterstock
Page 20: © Photo: Lubor Zelinka / Shutterstock
Page 23: © Photo: nazmulislam41633 / Shutterstock
Page 25: © Photo: Wojciech Wrzesien / Shutterstock
Page 27: © Photo: Pamela Ranya / Shutterstock
Page 28: © Photo: Firyal Ramzy / Shutterstock
Page 29: © Photo: Watch The World / Shutterstock
Page 33: © Photo: GFMR
Page 36: © Photo: New Planet Eye / Shutterstock
Page 39: © Photo: AhmadDanialZulhilmi / Shutterstock
Page 42: © Photo: Solodov Aleksei / Shutterstock
Page 45: © Photo: Heidi Besen / Shutterstock
Page 47: © Photo: Shafiq Hadzami / Shutterstock
Page 51: © Photo: Y'alax / Shutterstock
Page 53: © Photo: Dr. Mikhail Zhizhin,
EOG Payne Institute for Public Policy, Colorado School of Mines
Page 54: © Photo: lastdjedai / Shutterstock
Page 55: © Opsorman / Shutterstock
Page 58: © Photo: kusjunianto / Shutterstock
Page 59: © Photo: Ed Kashi

Global Flaring and Methane Reduction Partnership
https://www.worldbank.org/en/programs/gasflaringreduction

GFMR
Global Flaring and Methane Reduction Partnership

MANAGED BY THE
WORLD BANK GROUP

Global Flaring and Methane Reduction (GFMR) Partnership Multi-Donor Trust Fund
1850 I Street NW, Washington, DC 20006