Photo Credit: Nick Simonite

FLARING FLATLINE:

Commitments on natural gas flaring outpace progress

The global oil & gas industry is failing to use a key lever to reduce climate-warming emissions from flaring, the wasteful and climate-polluting practice of burning natural gas that is associated with oil production. Despite growing recognition of the business and environmental reasons for ending routine flaring, updated figures from the World Bank's Global Gas Flaring Tracker indicate surprisingly little progress in reducing the practice.

Summary:

- Despite widespread commitments to reduce natural gas flaring, 2021 saw a net increase in flaring emissions.
- Significant flaring reduction In the US (-25%) and Algeria (-13%) was more than offset by flaring increases in Iran (+31%) and Mexico (+14%).
- The 8 large oil companies that have reported 2021 flaring volumes also saw mixed progress. Declines from Equinor (-41%), Total (-14%) and Repsol (-14%) were offset by gains from Eni (+21%), Shell (+18%) and bp (+16%). However a few companies did increase their commitments on flaring including Shell, ExxonMobil and Hess.

EDF + BUSINESS

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Takeaways From the World Bank Flaring Data Update

In 2021, natural gas flaring was up slightly on the previous year and essentially unchanged over the past decade. The lack of progress in reducing flaring is disappointing for two reasons:

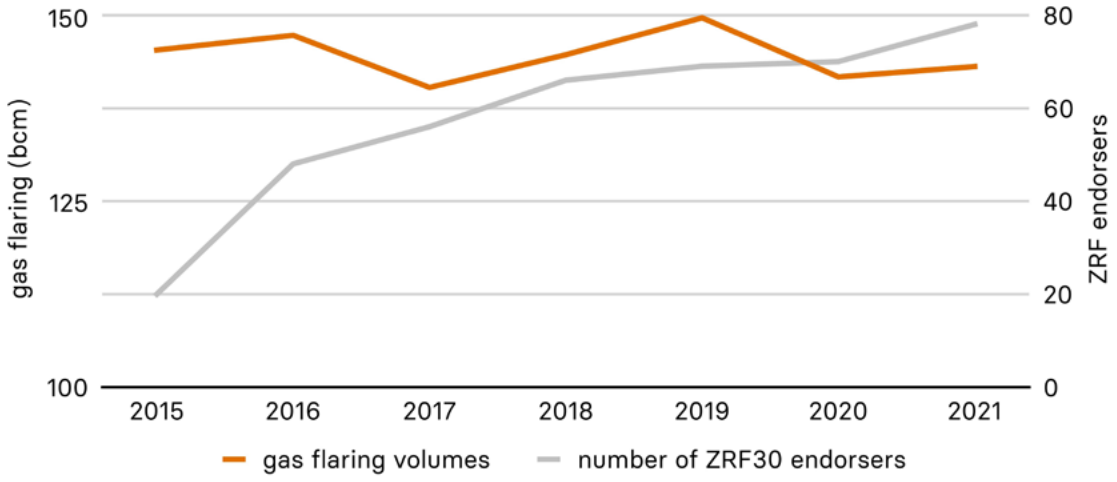
- **Many oil producers have publicly committed to eliminate routine flaring.** Since its founding in 2015, membership in the World Bank's Zero Routine Flaring by 2030 initiative has grown steadily. As of May 2022, 34 governments (including 3 of the 5 highest-flaring countries: Iraq, Russia and the U.S.) and 53 oil companies had endorsed a target of eliminating routine flaring by the end of this decade.
- **Last year more than 100 countries signed the Global Methane Pledge, aimed at reducing global methane emissions at least 30 percent from 2020 levels by 2030.** As discussed in our ESG By EDF report, The Burning Question: How to Fix Flaring, unlit and malfunctioning flares are a significant source of methane emissions globally. According to the International Energy Agency, the elimination of non-emergency flaring and venting could reduce oil & gas methane emissions by 20%.

These prominent commitments reflect growing understanding that emissions of methane – which has more than 80 times the warming power of carbon dioxide over the first 20 years after its release – are both dangerous and, for the energy sector, largely avoidable.

The World Bank Flaring Data Update

The World Bank's latest flaring data was collected through satellite observation and shows that 144 billion cubic meters of natural gas were flared last year resulting in an estimated 400 million tonnes of carbon dioxide-equivalent emissions - an increase of 0.7% over the previous year (Figure 1).

Figure 1:
Global Gas Flaring

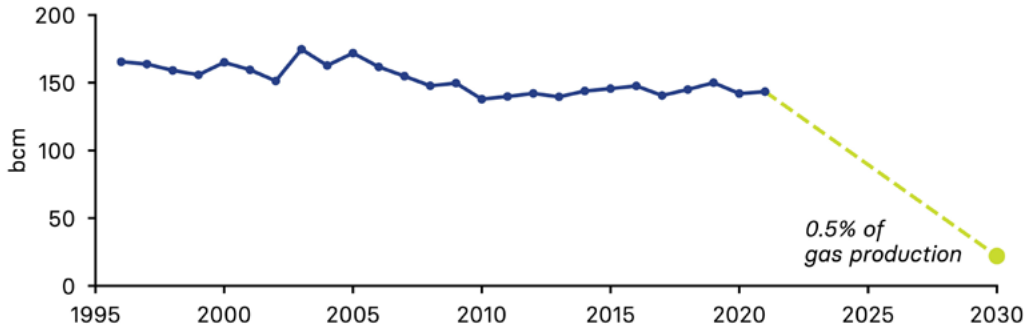


That is a lot of gas that is being wasted: over 3.5% of all gas produced, worth $40b if sold at spot prices (Henry Hub). Flaring leads to two major types of emissions: CO_2 as a product of the gas combusted, and methane that escapes combustion at the flare. The total climate impact of last year's flaring activity may have reached 1GT of CO_2e, more than the annual emissions of Germany.

The data reflects a missed opportunity for oil and gas companies looking to reduce their scope 1 emissions. Flaring — and the associated GHG emissions — can often be reduced at low cost, making flaring abatement an attractive option for near-term decarbonization.

The latest data shows that achieving zero routine flaring industry-wide in 2030 is increasingly implausible: flaring volumes would need to decline by 19% per year through 2030 to achieve zero routine flaring from all global oil production.[1]

Figure 2:
Annual flared volumes and implied ZRF by 2030 global target



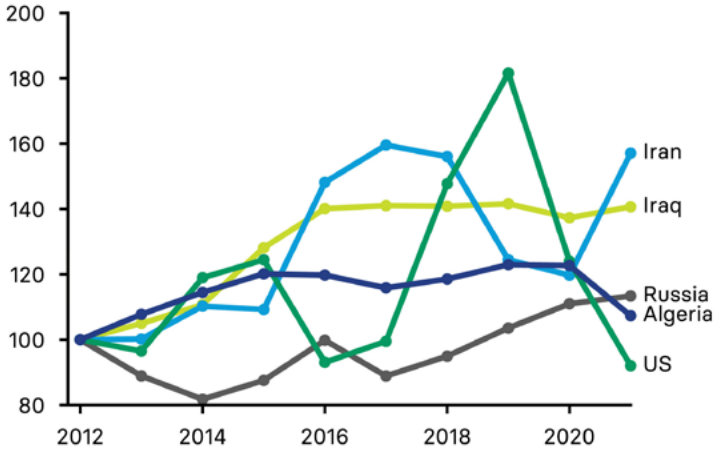
The lack of progress on flaring also raises questions about the credibility of the industry's pathway to achieving lower emissions through other means as well. If the industry is struggling to reduce flaring, how credible are pledges to implement more costly or complex emissions reduction strategies?

U.S. progress on flaring: Pipelines, regulation playing a role

The new data showcases at least one positive story: the U.S. has seen significant reduction in flaring – down 25% YOY and 50% over 2 years. U.S. flaring volumes fell 8% over the past decade even as oil production rose sharply, leading to 46% lower flaring intensity. The completion of midstream natural gas infrastructure in the Permian, Eagle Ford, and Bakken Basins increased takeaway capacity for captured gas and played a large role in this. But so did an increased regulatory focus on the issue, including recently adopted Colorado and New Mexico rules banning routine flaring, as well as rising investor pressure.

Going forward, regulators, providers of finance and a range of other stakeholders are likely to be increasingly resistant to any new oil production brought online without gas utilization or takeaway capacity in place.

Figure 3:
10y flaring volumes from 5 highest-flaring countries, 2012-2021



Rising flaring in Iran, Mexico

Among the top flaring countries, just one other country saw real progress last year: Algeria, with a 13% decline in flared volumes. Although encouraging, this improvement still leaves Algeria with one of the world's highest flaring intensity rates (20m^3/bbl), amid other evidence of significant methane leakage. Gains in the U.S. and Algeria were more than offset by setbacks such as rising flare volumes in Iran (up 31%) and Mexico (up 14%).

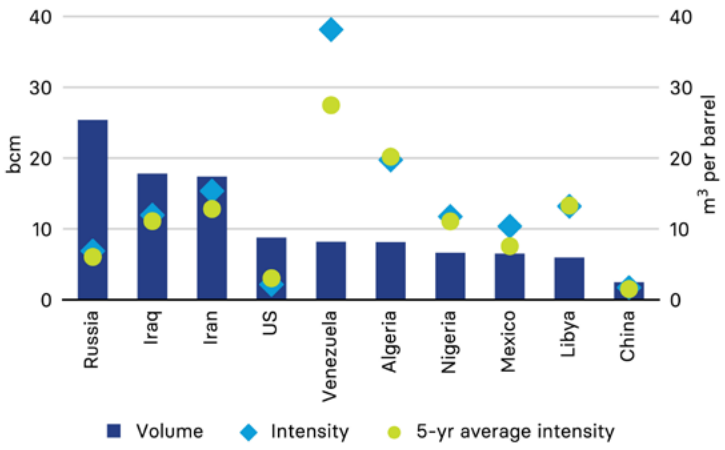
[1]This calculation is based on a flaring rate of 0.5% of produced gas. However, analysts including Rystad Energy have found flaring above 0.2% to be excessive and unnecessary.

Flaring intensity has now moved above the 5-year average for 7 of the 10 largest flaring volume countries (Figure 4).

In most of the countries with flat or rising flaring volumes, production is controlled by national oil companies, often with limited public ownership or accountability to investors. This highlights the importance of engagement by a range of other stakeholders who can play a role in raising the importance of flaring abatement, including international oil company joint venture partners, bond investors and lenders.

Figure 4:

2021 flared volumes and intensities, 10 highest-flaring countries



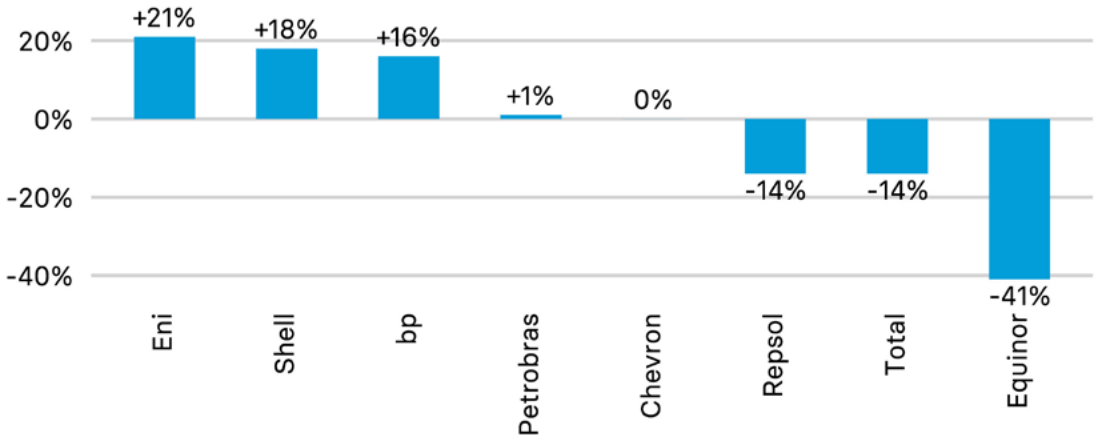
Oil majors: Mixed picture

Listed oil companies have been releasing flaring data for 2021 as part of their sustainability reports, and these updates indicate a lack of progress overall that is consistent with the World Bank data. Flaring volumes rose 3.2% on aggregate for the 8 large oil producers that have reported flaring volumes. Eni, bp and Shell saw an increase; Repsol, Equinor and TotalEnergies saw a decrease; and Chevron and Petrobras were flat (Figure 5).

The case of Shell is a cautionary tale of the challenges facing oil companies in their efforts to manage flaring. Although Shell has achieved a relatively low flaring intensity across its operations (1.4% in 2020) and has set an industry-leading target to eliminate routine flaring by 2025, 2021 was not a good year – flaring volumes rose 18%. This was due, according to Shell's 2021 Sustainability Report, to delays in repairing a flexible joint at the Bonga offshore support vessel in Nigeria, where "a large amount of gas was therefore flared while the FPSO continued to produce oil." This description, suggesting that a significant portion of Shell's 300M cubic meters of increased flaring may have been due to a long-running event at a single facility, is a reminder of the need for operational safeguards so that when flaring does occur, it is curtailed quickly.

Figure 5:

2021 change in reported flaring volumes, 8 large oil companies



New corporate commitments

Although 2021 was not a good year for flaring reduction, it did bring a few notable new commitments on flaring, as well as improved disclosures from large oil companies. Commitments and disclosures are summarized in Figure 6, with changes highlighted in orange. Most notable: Shell announced a global zero routine flaring target of 2025; ExxonMobil announced a target of zero routine flaring in the Permian Basin by 2022; and Hess announced a zero routine flaring target of 2025. Critical will be translating these commitments on routine flaring into actual material reductions in overall flaring over the course of this year.

Figure 6:

Survey of commitments and disclosures on flaring of 20 large oil companies

		Commitments			Disclosures		
		ZRF30 Global	ZRF25 Permian or global	Flaring intensity target	Flaring volumes	Flaring intensity	Routine flaring
Majors	bp	✓	✓		✓		✓
	Chevron	✓		✓	✓	✓	
	ConocoPhillips	✓			✓	✓	
	Eni	✓	✓		✓		✓
	Equinor	✓			✓	✓	✓
	ExxonMobil	✓	✓	✓	✓	✓	
	Repsol	✓			✓		✓
	Shell	✓	✓		✓		✓
	Total	✓			✓		✓
Independents	Apache		✓	✓	✓	✓	
	Devon Energy	✓		✓	✓	✓	
	EOG Resources	✓			✓	✓	
	Hess	✓	✓	✓	✓	✓	
	Occidental	✓			✓	✓	✓
	Pioneer	✓		✓	✓	✓	
NOCs	CNOOC Ltd						
	Petrobras	✓			✓		
	PetroChina						
	Rosneft	✓			✓	✓	
	Saudi Aramco	✓				✓	

Orange shading = policy change since October 2021