

Unlocking the Value of Wasted Natural Gas

1. Background

An estimated 150 billion cubic meters of natural gas (gas associated with oil production) are being flared and vented annually mostly in developing countries. This is equivalent to 25 per cent of the United States' gas consumption or 30 per cent of the European Union's gas consumption per year. And the annual 35 bcm of gas flared in Sub-Saharan Africa alone could generate half of that continent's power consumption.

The World Bank-led [Global Gas Flaring Reduction partnership \(GGFR\)](#) works with oil producing countries and companies to reduce the waste of natural gas that is being burned or flared by bringing down the barriers that prevent a higher rate of associated gas utilization. The Partnership brings around the table representatives of governments of oil-producing countries, state-owned companies and major international oil companies so that together they can overcome the barriers to reducing gas flaring by sharing global best practices and implementing country-specific programs. It has currently around 35 partners, including the oil majors and most of the Top 20 gas flaring countries in the world.

Gas flaring also has a global impact on climate change by adding some 400 million tons of CO₂ in annual emissions. Furthermore, the Methane to Markets partnership estimates that some 100 bcm of methane is vented or lost through fugitive emissions in the oil and gas sector each year. As methane is a more potent greenhouse gas than CO₂, this adds the equivalent of over 1 billion tones of carbon dioxide annually. Altogether, annual emissions from flaring and venting (1.4 billion tones) are equivalent to more than twice the potential yearly emission reductions from projects currently submitted under the Kyoto Protocol's clean development mechanisms.

2. Aims

Thus, both upstream gas flaring and downstream methane leakage reductions are very relevant in today's debate on energy issues. In this debate, everyone is obviously looking for win-win solutions that mitigate climate change, increase access to energy and foster economic growth. And this is precisely what gas flaring and venting reduction can achieve: lowering CO₂ emissions and methane leakages opens new economic opportunities through gas utilization; it improves energy efficiency and it enhances energy security by increasing available supplies.

Countries and companies, however, often face significant barriers to reduce gas flaring and venting, including: limited access to international gas markets as well as incipient local markets to commercialize the gas; lack of funding to put in place the necessary infrastructure to use the associated gas that comes with oil production; and an ineffective regulatory framework for using the associated gas.

In brief, the article will focus on how to unlock the value of currently wasted natural gas to improve energy efficiency, expand access to energy, and contribute to climate change mitigation hence promoting sustainable development.

3. Results

GGFR first gave a presentation on its program at the WGC in Tokyo in 2003 when the partnership initiated its work. Now 6 years into the program, it is important to look at what has been accomplished, including lessons learned and best practices.

- Seventeen major oil companies, the OPEC Secretariat, EU and more than 15 developing countries that contribute a significant share of the world's total flaring (about 50 percent) have already joined GGFR.
- The majority of partners have endorsed the Global Standard for gas flaring reduction

- GGFR has implemented demonstration projects for associated gas utilization in eight countries.
- GGFR is assisting Cameroon, Equatorial Guinea, Kazakhstan, Nigeria, and Qatar to meet identified dates for minimum flaring, through increased collaboration between operators, the national oil company and the regulator.

The paper also aims to address the following issues:

- Opportunities for the gas industry to unlock the value of wasted natural gas
- Links between associated gas utilization, climate change, and energy efficiency
- Best practice regulation
- Operational best practices
- Lessons learned from around the world on gas utilization projects
- Use of satellite imagery to improve the data collection on gas flaring estimates
- The way forward and what it means for oil and gas producing countries

4. Conclusion

Over the past six years GGFR partners have accumulated a wealth of experience, lessons and best practices about gas flaring reduction, so they now better understand the barriers they need to overcome, including:

- Better data to gauge the magnitude of the practice at the country and company levels.
- Governments need to have not only effective regulations in place but also clear policies with the right incentives for operating companies, so that the necessary infrastructure is put in place and markets for gas utilization are developed.
- Country buy-in, high-level support and an effective local partnership between government and industry are key ingredients to ensure success in gas flaring reduction. There should not longer be any doubt that government and private sector need to work as real partners if tangible results are to be achieved.
- Leadership and commitment play a critical role in both the public and private sectors in order to sustain progress over the long term.
- And new and small-scale gas utilization technologies need to be nurtured to commercialization, to provide additional economic options to flaring.

Thus, “unlocking” the value of wasted gas requires a concerted effort by governments and industry, as well as other stakeholders including multilateral financial institutions and technology developers.

The IGU magazine is also carrying an article on this topic in 2009.