

Global Gas
Flaring Reduction
Partnership:

**TOWARDS A
WORLD FREE
OF FLARES**



THE WORLD BANK



GGFR

Global Gas Flaring Reduction
A Public-Private Partnership



GLOBAL GAS FLARING REDUCTION PARTNERSHIP: TOWARDS A WORLD FREE OF FLARES

Although the burning of natural gas, or flaring, is the safe and effective method of disposing of excess natural gas associated with oil production, flaring also wastes a valuable clean energy resource and emits carbon dioxide, a greenhouse gas.

The World Bank estimates that over 150 billion cubic meters (or 5,3 trillion cubic feet) of natural gas are being flared and vented annually. That is equivalent to 25 per cent of the United States' gas consumption or 30 per cent of the European Union's gas consumption. And the annual 40 bcm (or 1,4 trillion cubic feet) of gas flared in Africa alone is equivalent to half of that continent's power consumption.

Flaring gas also has a global impact on climate change by adding about 350 million tons of CO₂ in annual emissions. This is more than the potential yearly emission reductions from projects currently submitted under the Kyoto mechanisms.

But countries and companies often face barriers to reduce gas flaring, including: limited access to international gas markets as well as weak local markets to commercialize the gas; lack of funding to put in place the necessary infrastructure to use the associated gas; and an undeveloped regulatory framework for using that gas.

Thus, reducing gas flaring requires a global and concerted effort by governments and industry, as well as financial institutions, energy utilities and local communities.

OVERCOMES BARRIERS

GGFR OVERCOMES BARRIERS TO REDUCING FLARING

Launched at the World Summit on Sustainable Development in August 2002, the Global Gas Flaring Reduction public-private partnership (GGFR) 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.

The GGFR partnership, a World Bank-led initiative, facilitates and supports national efforts to use currently flared gas by promoting effective regulatory frameworks and tackling the constraints on gas utilization, such as insufficient infrastructure and poor access to local and international energy markets, particularly in developing countries.

Poverty reduction is also an integral part of the GGFR program, which is developing concepts for how local communities close to the flaring sites can use natural gas and liquefied petroleum gas (LPG) that may otherwise be flared and wasted. The program has already evaluated opportunities for small-scale gas utilization in several countries.

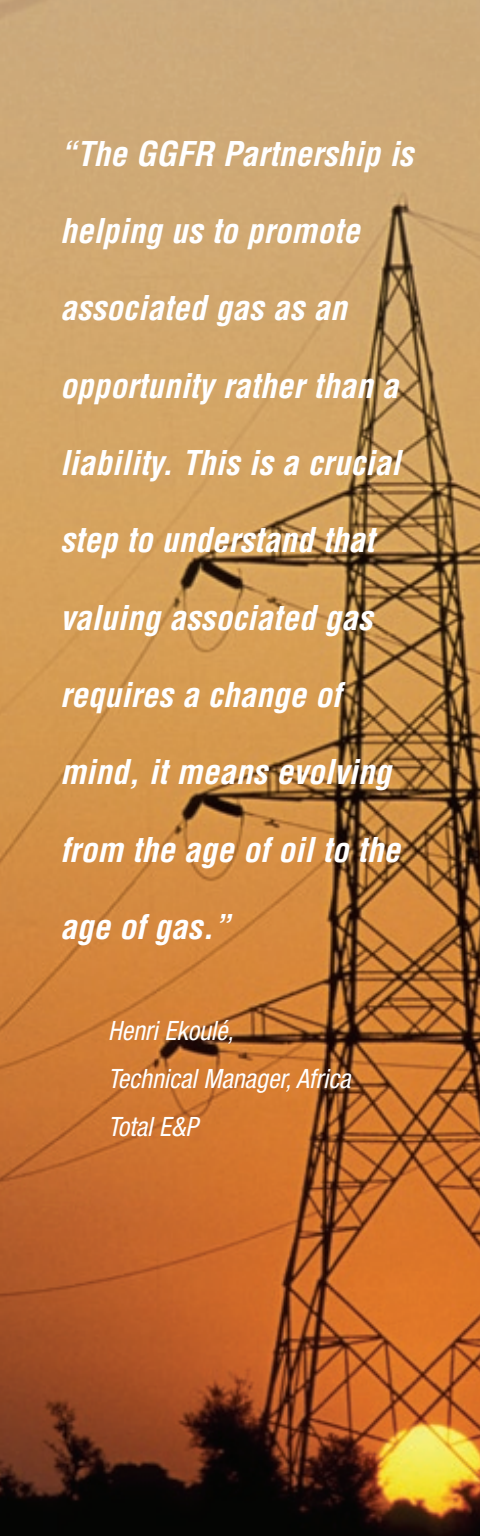
COLLABORATIVE EFFORT

GGFR'S COLLABORATIVE EFFORT

In July 2005, the Group of eight most industrialized nations (G8) joint statement at Gleneagles, Scotland, called for GGFR work program to be extended beyond 2006, and in July 2006 the G8 reaffirmed its support for GGFR's role in reducing gas flaring in a statement issued in St Petersburg, Russia. With such explicit support, the GGFR partners have now agreed to continue on with their gas flaring reduction efforts and programs until end of 2009, when the future of the Partnership's role will be re-defined by all stakeholders involved. There is broad acceptance of the flaring and venting global Standard introduced by the partnership, and the collaborative approach it encourages.

Effecting change in flaring and venting practices, however, requires time, effort and persistence. GGFR has been most successful where there is country buy-in, high-level support and an effective local partnership between government and industry, as well as ownership and leadership within the participating organizations.

To learn more about GGFR, visit our website at: www.worldbank.org/ggfr



“The GGFR Partnership is helping us to promote associated gas as an opportunity rather than a liability. This is a crucial step to understand that valuing associated gas requires a change of mind, it means evolving from the age of oil to the age of gas.”

*Henri Ekoulé,
Technical Manager, Africa
Total E&P*

AREAS OF ACTION

GGFR'S FOUR KEY AREAS OF ACTION

“The global flaring challenge requires the strength of collaboration, through a Partnership like GGFR, combined with an effective regulatory framework to achieve the goal of reducing flares.”

*Jim Dilay, Board Member
Alberta Energy Resources
Conservation Board*

The GGFR action plan for reducing gas flaring and venting focuses on four key areas:

Commercialization of associated gas

To reduce gas flaring, the GGFR provides assistance in developing domestic markets for associated gas, and in gaining access to international markets. The GGFR team facilitates demonstration projects for associated gas utilization by establishing partnerships between the relevant stakeholders. It also provides advice to governments (on fiscal legislation), to oil companies (on best practices and carbon credits trading), and to potential gas customers (on market development and gas agreements).

Regulations for associated gas

International experience shows that effective enforcement of regulations and the provision of the right incentives are crucial to reducing flaring. A recent study on the role of regulation in gas flaring and venting in 44 oil-producing countries found, however, that most developing countries lack efficient, effective regulations on flaring and venting. In many of these countries institutions have inadequate capabilities and overlapping responsibilities. The GGFR Partnership's work on regulations also has focused on enabling the use of associated gas by helping governments create the right incentives such as proper regulatory structures governing pricing, distribution, shared transport, export facilities, etc.

Other important regulatory procedures also include those for approving flaring and venting permits, monitoring flaring and venting volumes, and enforcing operational standards.

Implementation of the global flaring and venting reduction Standard

The majority of GGFR partners have now agreed to endorse a voluntary Standard to eliminate venting and reduce flaring significantly within five to ten years, by finding commercial uses for the associated gas through increased collaboration between countries. The Standard also implies that countries and companies that have endorsed it will avoid flaring in new oil developments, if economically feasible.



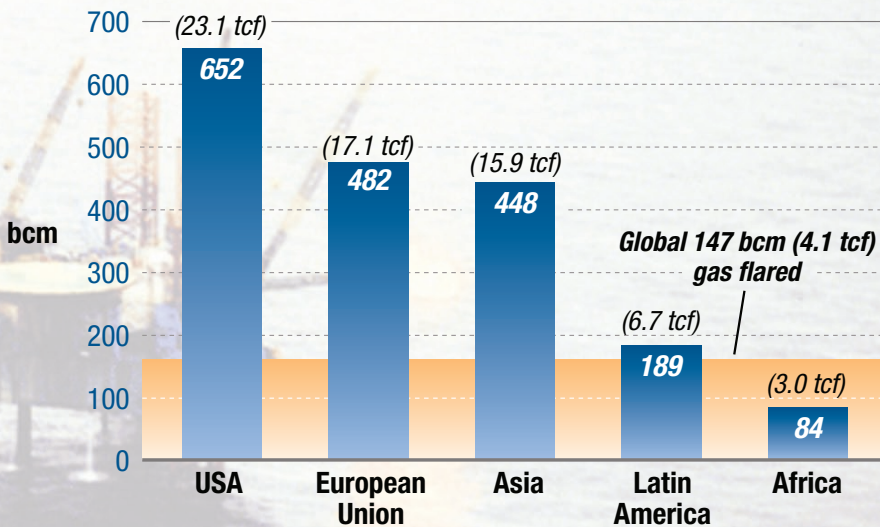
The voluntary Standard, which was developed by operators and governments, also encourages an integrated approach to the utilization of associated gas and provides a framework for governments, companies, and other key stakeholders to consult with one another, take complementary actions, and publish figures about flaring and venting volumes in a unique web-based data tool developed for GGFR partners.

Capacity building to obtain carbon credits for flaring/venting reduction projects.

In 2002, the GGFR released a report on Kyoto Mechanisms for Flaring Reductions which attempts to overcome financial constraints on projects to reduce gas flaring by designing innovative financing mechanisms, including carbon credit trading.

GGFR has facilitated flare reduction demonstration projects in Angola, Algeria, Indonesia, Nigeria, and Russia to evaluate their potential to earn greenhouse gas credits through the CDM/JI structure, and to show how carbon credit trading can improve the economic viability of gas flaring reduction projects.

Gas Consumption vs Global Flaring 2007



Source: BP Statistical review, GGFR

WHAT IS GAS FLARING?

When crude oil is brought to the surface, gas associated with the oil comes to the surface as well. The gas may be used at the installation as fuel for generators, may be transported via pipelines and sold elsewhere, or may be injected into the ground. But in areas of the world lacking gas infrastructure and markets, this associated gas is usually released into the atmosphere, ignited (flared or burned) or un-ignited (vented).

Flaring and venting is also an important safety measure at oil production facilities, safely disposing of gas during emergencies, power and equipment failures, or other upsets in oil production that might otherwise pose hazards to workers on nearby residents. But in many oil-producing countries the practice goes far beyond normal operational and safety levels.

“Reducing gas flaring is a major undertaking in the Nigerian oil and gas industry that requires significant effort and investment for gas gathering and market development. The GGFR Partnership has helped to build the coalition required to achieve results on the ground.”

Basil Omiyi, Country Chair, Shell in Nigeria, and Managing Director, Shell Petroleum Development Company.

DELIVERS RESULTS

GGFR DELIVERS RESULTS

- Ten major oil companies, the OPEC Secretariat and 14 countries that contribute a significant share of the world's total flaring (about 70 percent) have already joined GGFR.
- The majority of partners have endorsed a Global Standard for gas flaring reduction
- GGFR is implementing demonstration projects for associated gas utilization in eight countries.
- GGFR is assisting Algeria, Cameroon, Equatorial Guinea, Kazakhstan, Nigeria, and Qatar to meet identified dates for zero flaring, through increased collaboration between operators, the national oil company and the regulator.
- Potential avoided flared gas, through GGFR facilitated carbon projects, is approximately 12 billion cubic meters per year (or 423 billion cubic feet), equivalent to 115 million tons of CO₂ emissions reduction by 2012.
- GGFR has developed a unique web-based tool to report flared and vented data by country. The data tool will be implemented in GGFR partner countries, starting with Cameroon, Nigeria, Algeria and Qatar.

Helping Nigeria meet its flaring reduction objectives

Nigeria is the leading gas flaring country in the world, with around 24 billion cubic meters of gas flared in 2004 (847 billion cubic feet), or 45 percent of its total gas production. As a GGFR partner since the start of the initiative, Nigeria has set the ambitious target of eliminating gas flaring in the next few years.

With the assistance of the World Bank's GGFR partnership, the Nigerian government has developed a gas sector strategy for its domestic market; has drafted a Downstream Gas Act as part of its gas sector policy work; and is revising the country's oil and gas fiscal system. These initiatives will be major stimuli to increasing the effective use of gas in Nigeria.

Moreover, the GGFR program has supported carbon credit capacity building and the development of demonstration projects for carbon credits and small scale projects. A large number of export projects based on associated gas as well as other gas sources are planned, some of which already under implementation.

DID YOU KNOW THAT...

- Fewer than 20 countries account for more than 85 percent of gas flaring and venting.
- Just four countries—Iraq, Iran, Nigeria and Russia—together flared about 60 billion cubic meters of associated gas in 2004.
- In 2004, the 150 billion cubic meters (or 5,3 trillion cubic feet) of natural gas flared were equivalent to 30 per cent of the European Union's gas consumption, 25 per cent of the U.S. gas consumption, or 75 per cent of Russia's gas exports.
- Every year oil producers flare and vent gas equivalent to more than the combined gas consumption of Central and South America.
- The gas flared annually in Africa could produce 200 terawatt-hours of electricity, about more than twice the current power consumption of Sub-Saharan Africa (excluding South Africa)
- For the past 20 years, overall global flaring levels have remained virtually constant, despite many individual governments and companies successes in reducing flaring. These efforts have been limited not only because of the increase in global oil production and the associated gas production, but also because of the major constraints that hinder the development of gas markets, gas infrastructure, and flaring reduction projects.

“GGFR’s collaborative approach has been instrumental in helping to create access to international markets, to develop local markets for associated gas, and to overcome upstream regulatory constraints.”

Prof. Anthony O. Adegbulugbe, Former Special Adviser to the President on Energy, Nigeria

GGFR AT A GLANCE

- The GGFR partnership was launched at the World Summit on Sustainable Development in Johannesburg in 2002.
- GGFR aims to support efforts to use the associated gas and to reduce flaring and venting by bringing together the public and private sectors.
- GGFR focuses on four key areas: commercialization of associated gas; regulations for associated gas; a voluntary standard for associated gas flaring and venting reduction; and carbon credits.
- A small team of World Bank staff and industry secondees based in Washington, DC, coordinates and implements the GGFR work program.



KEY GGFR PARTNERS

Countries

Algeria
 Angola
 Azerbaijan
 Cameroon
 Chad
 Ecuador
 Equatorial Guinea
 Gabon
 Indonesia

Iraq
 Kazakhstan
 Khanty-Mansiysk
 (Russian
 Federation)
 Nigeria
 Qatar
 Uzbekistan

Donors

Canada
 European Union
 France
 Norway
 United States

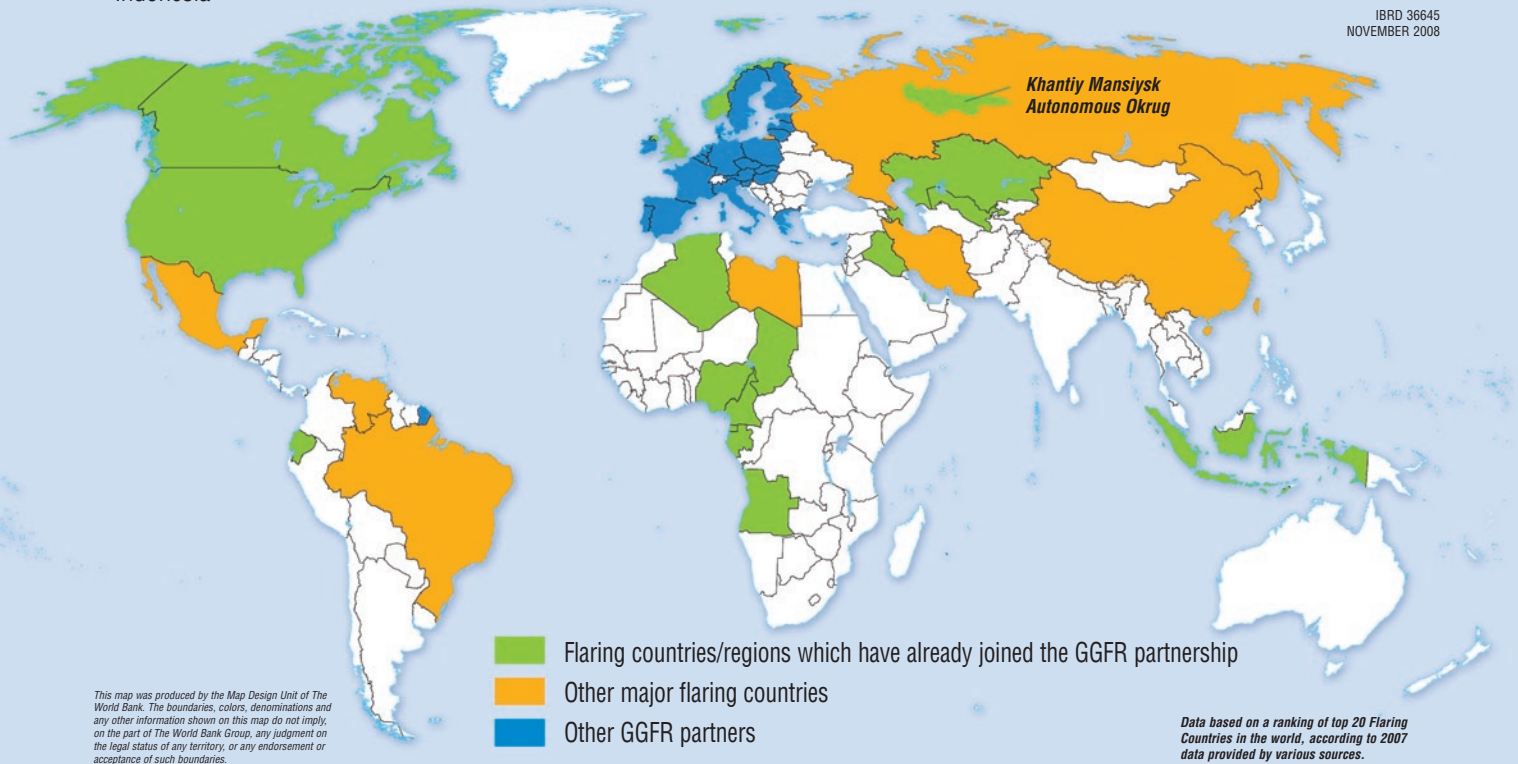
Oil companies

BP
 Chevron
 Eni
 ExxonMobil
 Marathon Oil+
 Shell
 StatoilHydro
 TOTAL

Sonatrach
 Sonangol
 SNH
 PetroEcuador
 Pertamina
 SOCAR
 NNPC
 Qatar Petroleum

Organizations

OPEC Secretariat
 World Bank
 IFC



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If you want to find out how the World Bank-led GGFR partnership can help your country or company reduce gas flaring, please visit us at www.worldbank.org/ggfr or contact us by writing to ogmc@worldbank.org or calling Josefina Regino-Suarez, at (202) 473-3272.

