Gas Flaring Reduction - A Global Perspective

Natural Gas Star Program
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World Bank
Background of Global Flaring

- Global venting and flaring level over 100 bcm/year, equal to:
  - current African flare volumes (37 Bcm) could produce about 50 percent of the current power consumption in Africa and more than twice the level of power consumption in Sub-Saharan Africa (excluding South Africa).
  - >10 percent of committed emission reductions by developed countries under the Kyoto Protocol for the period 2008-2012.

- This level has stayed constant for the last 20 years

- 80% of global venting and flaring occurs in fewer than 15 countries

- Reliability of available data varies widely
Global Gas Flaring Reduction Partnership

- GGFR was formed at the World Summit on Sustainable Development in Johannesburg in August 2002
- Objective is to support the efforts of national governments and the petroleum industry to reduce flaring and venting of associated gas
- Leading to sustainable resource development
  - Promoting efficient use
  - Reducing environmental effects
  - Reducing poverty
# Current GGFR Public and Private Partners

## Countries/NOCs
- Algeria (Sonatrach)
- Angola
- Cameroon (SNH)
- Chad
- Ecuador
- Equatorial Guinea
- Indonesia
- Nigeria
- Khanty Mansiisk (Russia)
- Kazakhstan

## IOC's
- BP
- ChevronTexaco
- ENI
- ExxonMobil
- Marathon Oil
- Norsk Hydro
- Shell
- Statoil
- Total

## Donors
- Canada
- Norway
- UK (Foreign Commonwealth Office)
- USA

## Multilateral Organizations
- The World Bank
- OPEC Secretariat
Global Gas Flaring - Provisional Data

BCM/year

1. GGFR Partners - 57 BCM
2. Other GGFR Partners - OPEC - 26 BCM
3. Non GGFR Partners - 37 BCM

Russia excludes Khanty Mansiysk
Non GGFR Partners figure includes other flaring countries not shown
Gulf Of Guinea 1992-2003

Source NOAA: DMSP-OLS Annual Composites of Nigeria and Cameroon
Western Siberia 1992-2003

Key GGFR Accomplishments

• **Global deliverables**
  - Regulatory Best practices
  - A global standard for flaring and venting
    - Agreed among Partners May 2004
  - Carbon credit financing

• **Demonstration projects with all Partners**
Work Program First 2 ½ years: From Global deliverables to Country and Local PPPs

- Flaring and Venting Reduction Activities
- Commercialization
- Carbon Credits
- Standards
- Regulations

Phase I

Phase II

Phase III

Country Deliverables and Demo projects

Sustainable Gas Flaring Reduction

2003

Today

2006
Regulation in 44 countries

• WB carried out study of 44 oil producing countries

• **Objective**: regulations and other factors that effected the flare and venting volume

• **Findings**: countries that managed to reduce flaring and venting volumes adopted a combination of
  - Efficient regulation
  - Other incentives (fiscal policies & reform of energy markets)
Flaring and Venting Regulation

• Many countries that flare gas have inadequate institutional capabilities
  • often overlapping responsibilities
  • clear and transparent operational processes and efficient regulatory procedures are lacking

• Issues
  • contractual rights to assoc. gas (preemptive rights)
  • lack of effective regulatory procedures for monitoring, measuring, and enforcing
  • lack of financial resources and technical expertise to introduce comprehensive monitoring programs
The Standard

- Provides framework for governments, companies, and other key stakeholders
  - to consult each other and take collaborative/complementary actions
  - Reduce barriers to associated gas utilization
- Encourages integrated approach
  - market and infrastructure development, commercialization, legal and fiscal regulations, carbon credits
- Allows for flexibility to local conditions,
  - balancing ambitious timescale with realistic constraints
Adoption of the Global Gas Venting and Flaring Reduction Voluntary Standard means that the stakeholders:

- **Endorse the principles** set forth in the Standard
- **Support collaboration with other stakeholders** toward the utilization of associated gas and the reduction of flaring and venting
- **Agree to publish flaring data** through the government for transparency
Carbon Credits

- Assisting with demonstration projects
  • facilitating linkages to carbon finance
- Capacity building for stakeholders
  • improving methodology issues
- Creating a forum for best practice
  • on flare reduction and CDM/JI
- Providing technical assistance
  • to help host countries in national approval processes and sustainable development
- Encouraging donors and providing study funding to support reduction projects (PI Ns - PDDs)
<table>
<thead>
<tr>
<th>Partner Countries</th>
<th>Projects</th>
<th>Carbon credit options</th>
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<tbody>
<tr>
<td>Algeria</td>
<td>3 fields: Ohanet, TFT and In Amenas</td>
<td>Exploring carbon credits for the same three fields</td>
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<td>Nigeria</td>
<td>2 projects: Gas Pipeline and Gas to power</td>
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<td>AFAM, Kwale</td>
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<td>Angola</td>
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<td>Cameroon</td>
<td>Rio del Rey pipeline to Limbe</td>
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<td>Equatorial Guinea</td>
<td>Zafiro pipeline to ELNG</td>
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<td>Gulf of Guinea</td>
<td>Regional Gas Transport system</td>
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<td>Chad</td>
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<td>Russia</td>
<td>Gas projects in Khanty Mansiysk</td>
<td>Gas to Power Surgut, TNK-BP</td>
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<td>Indonesia</td>
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Lessons Learned

• The GGFR development of best practices for regulation, Carbon credits, the standard and commercialization were very effective.

• As for the Partner organizations
  - country buy-in and high level government support for active participation in the GGFR Partnership is essential.
  - Ownership and leadership within the key stakeholder organizations

• An effective local partnership is a key
  - stakeholders involved in all aspects of associated gas utilization

Even with all of the above factors present, it takes time, effort and persistence to effect change.
Thank you

http://www.worldbank.org/ggfr
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<td>Rest of the World</td>
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<td>World Total</td>
<td>81.0</td>
<td>110.3</td>
<td>120.3</td>
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Process to Determine Feasibility of Flaring Alternatives

- Investigate alternatives for utilization of associated gas from the production facility.

- Broaden the project boundary by engaging in discussions with other producers, consumers, and/or infrastructure owners.

- Modify the economic approach or improve the incentives to enhance the viability of alternatives to utilize associated gas.

- Is the most attractive alternative to eliminate gas flaring feasible?
  - Yes
    - Agreement on feasibility of project to utilize associated gas and development of plan for its utilization.
  - No
    - Agreement that project is not feasible. Government flaring approvals, consistent with existing regulations and agreements.