

Non-CO₂ Greenhouse Gases: Methane

Source/Sectors: Petroleum Systems (Production Field Operations)

Technology: Associated gas (flared) mix with other options (A.1.1.1.3)

Description of the Technology:

Petroleum production field operations account for the majority, approximately 97%, of CH₄ emissions from the petroleum systems (USEPA, 2006a). The measures to reduce methane emissions from the petroleum systems can be grouped into prevention, recovery and re-injection, recovery and utilization, and recovery and incineration (Hendriks & de Jager, 2001).

Instead of venting or flaring, emissions can be reduced by using the associated gas for re-injection into the field for enhanced oil recovery, or for consumption within the facility.

Effectiveness: Good

Implementability: Good

Reliability: Good

Maturity: Good

Environmental Benefits: It recycles and reduces the associated gas and reduces methane emission.

Cost Effectiveness:

Technology	Lifetime (yrs)	MP (%)	RE (%)	TA (%)	Capital cost	Annual cost	Benefits
Associated gas (flared) mix with other options ¹	15	100	95	14-15	\$66.61	\$2.21	\$3.71

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT_{CO₂-Eq.}

1: USEPA (2004) & IEA (2003)

Industry Acceptance Level: Widely accepted

Limitations: Additional investment on equipment is needed.

Sources of Information:

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7. U.S. Climate Technology Program (2005) "Technology Options for the Near and Long Term", U.S. Department of Energy, <http://www.climate-technology.gov/index.htm>, August 2005.
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11. U.S. Environmental Protection Agency (2006a) "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2004", Office of Atmospheric Programs, United States Environmental Protection Agency, EPA-430-R-06-002, June 2006.
12. U.S. Environmental Protection Agency (2006b) "Global Mitigation of Non-CO₂ Greenhouse Gases", Office of Atmospheric Programs, United States Environmental Protection Agency, EPA-430-R-06-005, June 2006.