

## **Oil and Gas Sector Action Plan – Revised February 2013**

### **United States Oil and Natural Gas Action Plan for the Global Methane Initiative**

#### **1) Country Background and overview of Methane Emissions**

The U.S. oil and natural gas industry encompasses the extraction and production of raw natural gas and crude oil from wells to the delivery of processed gas and petroleum products to consumers. These segments use energy and emit greenhouse gases (GHGs). The oil and natural gas operations that emit significant quantities of methane can generally be separated into four sectors: oil and natural gas production, natural gas processing, natural gas transmission, and natural gas distribution. The EPA has two programs – the U.S. Inventory of Greenhouse Gas Emissions and Sinks and the Greenhouse Gas Reporting Program (GHGRP) - that quantify methane emissions from oil and gas operations.

The U.S. Environmental Protection Agency (EPA) develops a national greenhouse gas inventory each year to track the national trends in emissions and sinks since 1990. The Inventory of U.S. Greenhouse Gas Emissions and Sinks is submitted to the United Nations in accordance with the Framework Convention on Climate Change. According to the inventory released in 2012 methane emissions from U.S. oil and natural gas systems are estimated to be approximately 250 million metric tons of carbon dioxide (CO<sub>2</sub>) equivalent (MMTCO<sub>2</sub>e) in 2010. This equates to over 600 billion cubic feet (Bcf) of methane. Oil and gas production accounts for the largest portion of methane emissions, followed by the natural gas transmission, distribution, and processing sectors.

The EPA's Greenhouse Gas Reporting Program (GHGRP) requires facilities conducting petroleum and natural gas systems activities and that emit 25,000 metric tons or more of CO<sub>2</sub> equivalent per year to report greenhouse gas data to the EPA annually. In February 2013, the EPA released for the first time greenhouse gas data for petroleum and natural gas systems collected under the GHGRP. These data represent a significant step forward in better understanding greenhouse gas emissions from petroleum and natural gas systems. EPA's easy-to-use Facility Level Information on GreenHouse gas Tool (FLIGHT) allows users to view GHG data from petroleum and natural gas systems in a variety of ways, and is accessible at <http://epa.gov/ghgreporting/ghgdata/index.html>.

#### **2) Characterization of Public and Private Sector Involvement**

The U.S. oil and natural gas industry involves a number of key actors, both public and private, who actively participate in and continue to seek methods to achieve methane emissions reductions. Groups such as oil and gas company owners/operators, federal and state governments, vendors/service providers, and trade associations all play key roles in facilitating reduction opportunities. These opportunities allow companies to reduce methane emissions cost-effectively, while increasing both operational efficiency and revenue, from the additional amount of saleable gas.

The EPA's Natural Gas STAR Program (described briefly below and in Section 4) provides a vital bridge between the public and private sectors to facilitate project collaboration, exchange of ideas and technologies, sharing of successful experiences, and networking with key officials on each side. 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,

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such as insufficient infrastructure and poor access to local and international energy markets, particularly in developing countries.

In addition to the voluntary activities to reduce methane emissions, there are also several federal and state level agencies and programs that regulate the oil and gas industry in the U.S. Federal regulatory agencies, such as

- Environmental Protection Agency (EPA)
- Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)
- Bureau of Land Management (BLM)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)
- Federal Energy Regulatory Commission (FERC)
- Department of Transportation (DOT)

EPA serves to write and enforce regulations that protect human health and the environment. Related to air emissions from oil and natural gas operations, EPA has undertaken a review of Clean Air Act New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP), which resulted in a final rule, signed on April 17, 2012, that includes a revised NSPS regulation for smog-forming volatile organic compound (VOC) emissions. A significant environmental co-benefit of this rule is that it will also reduce methane emissions. EPA estimates the following combined annual emission reductions when the rules are fully implemented:

- VOCs: 190,000 to 290,000 tons;
- Air Toxics: 12,000 to 20,000 tons; and
- Methane 1.0 to 1.7 million short tons [about 19 to 33 million tonnes of CO<sub>2</sub> equivalent (CO<sub>2</sub>e)]

More information on these actions can be found at the following links:

<http://www.epa.gov/airquality/oilandgas/actions.html> and <http://www.epa.gov/airquality/oilandgas/>.

A Fact Sheet can be found at <http://www.epa.gov/airquality/oilandgas/pdfs/20120417fs.pdf>.

Both BOEMRE and BLM are agencies under the Department of the Interior, with BOEMRE managing and overseeing environmentally and economically responsible development of the U.S. offshore oil and gas operations and BLM administering the U.S.'s onshore oil and gas operations on federal land. PHMSA, under the Department of Transportation, oversees the U.S.'s pipeline infrastructure. Under the Department of Energy, FERC has jurisdiction over natural gas pricing and also reviews and authorizes projects for interstate natural gas pipelines. These agencies are some of the key players. Regulations also exist in the U.S. on the state level, where methane is often affected indirectly or secondarily. Examples include regulations by the California Air Resources Board (CARB) and the Colorado and Wyoming state governments. CARB's most recent reporting regulation for GHGs became effective this year, while Colorado and Wyoming have existing regulations for activities such as well completions of hydraulically fractured gas wells.

### **3) Challenges to Mitigation or Abatement of Methane Emissions**

Although there are many effective ways to voluntarily reduce methane emissions in the oil and gas

sector, several factors are important to successful project development. Some of the key challenges that must be addressed to promote methane emission reductions in the U.S. include:

- Improving awareness of emission sources and volumes as well as methane emission reduction opportunities
- Highlighting the importance and benefits of methane emission reduction projects to raise their profile for oil and natural gas companies that have limited resources for voluntary (ie. non-regulated) environmental activities
- Promoting flexible approaches to project opportunities, seeking to maximize economic, operational and environmental benefits and make projects profitable in areas where natural gas prices are low
- Improving and facilitating access to capital, or promoting unique approaches to financing, to support project investment
- Promoting policies that encourage project development

#### **4) Activities to Promote Methane Mitigation and Abatement (internally and externally)**

EPA has both regulatory and voluntary programs related to the oil and natural gas sector that affect accounting, reporting, and reductions of methane emissions. Given that GMI is a voluntary partnership that promotes voluntary action to reduce methane emissions, this section will focus on voluntary activities.

##### **Natural Gas STAR Program**

The EPA manages the Natural Gas STAR Program, started in the U.S. in 1993, which is a partnership between EPA and oil and natural gas companies that promotes cost-effective methane emission reduction technologies and practices among all sectors of the oil and gas industry ([www.epa.gov/gasstar](http://www.epa.gov/gasstar)). The Natural Gas STAR Program is a voluntary partnership between EPA and oil and gas companies that promotes cost-effective methane emission reduction technologies and practices among all sectors of the oil and gas industry. Under the Global Methane Initiative, EPA launched Natural Gas STAR International in 2006, to expand on the success of its domestic program and promote methane emission mitigation activities in oil and natural gas operations worldwide. Through nearly 20 years of collaboration with oil and gas companies, EPA has built a comprehensive suite of technical information on methane mitigation activities that have been successfully implemented by oil and natural gas companies. The Natural Gas STAR Program to date has over 130 oil and gas corporate partners, 14 of which are international partners, and has achieved methane emission reductions of over one billion cubic feet (Tcf) domestically and internationally.

Under these programs, the U.S. EPA seeks collaboration with oil and gas companies in order to promote awareness of methane emission sources and volumes as well as voluntary implementation of technologies and practices that have been proven to reduce methane emissions from oil and gas operations. Technology transfer is achieved when partner companies share information on their methane mitigation activities, such that EPA and other companies can learn from their successes. To accomplish these goals, U.S. EPA provides the following services and resources to partner companies:

- Technical documents describing over 60 technologies and practices that can achieve cost-effective reductions in methane emissions from all sectors of oil and gas operations.

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- Technical workshops to raise awareness about the sources and volumes of methane emissions, as well as available technologies to identify, measure and reduce emissions.
- One-on-one assistance for partner companies interested in targeted assistance in analyzing profitable methane reduction opportunities. This type of assistance can range from desktop assessments to estimate key emission sources and reduction opportunities to leak surveys and measurements studies to quantify actual emissions.

### **5) Policy, Market and Legal Drivers to Advance Methane Project Development**

Sections 1, 2, and 4 describe U.S. policy frameworks that affect methane emission accounting, reporting, and mitigation activities.

### **6) Country Priorities**

Through the Natural Gas STAR Program and the Global Methane Initiative, the U.S. EPA will continue to support oil and gas industry methane emission identification, quantification, and reduction activities both in the U.S. and abroad. Continuing existing work, and building new relationships, technology transfer and capacity building activities will continue in many GMI countries, including Mexico, China, India, Indonesia, and Colombia. New/expanded collaborative relationships will also be sought with other developed countries, as well as development banks, industry associations, and other stakeholders.