



# US Support of the Global Methane Initiative

*GMI Side Event – COP 16, Cancun, Mexico*

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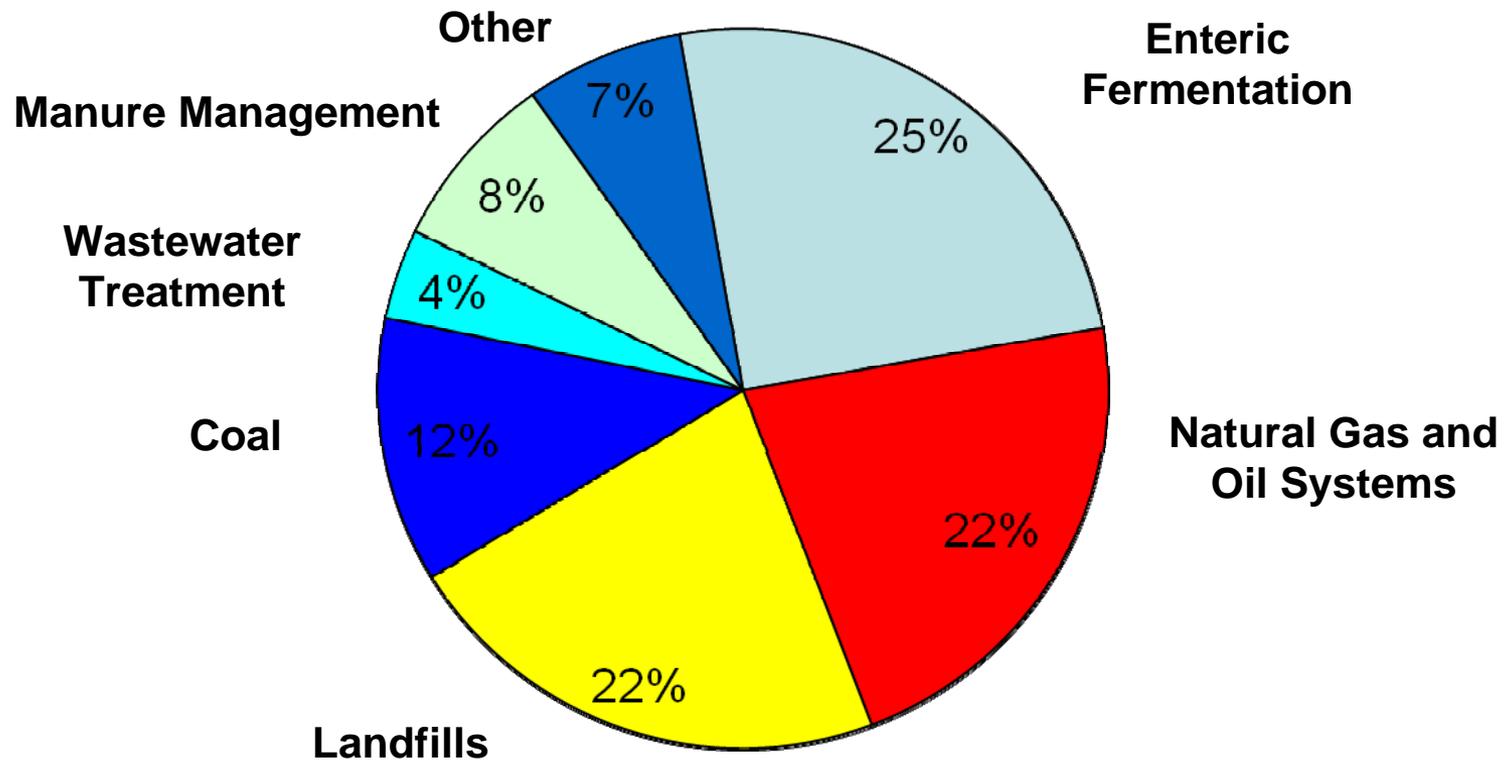


# Overview

- Methane Emissions in the U.S
- Domestic Mitigation Efforts
- US Activities in Support of M2M and the Global Methane Initiative
  - Projects and Activities
  - Key Accomplishments
- Next Steps – Support of GMI

# Methane Emissions in the US

*Methane accounted for approximately 8 percent of total anthropogenic GHG emissions in 2008.*



**Total = 567 Tg CO<sub>2</sub>-eq**

# US Methane Experience

*EPA has reduced U.S. methane emissions from target sources to 14% below 1990 levels*



- **Oil and Natural Gas**
  - Over 100 companies (60% of industry) in program
  - Reduced emissions by 230 MMTCO<sub>2</sub>e, valued at over \$4.2 billion



- **Coal Mining**
  - 86% of mine degasification CH<sub>4</sub> is used (up from 25% in 1993)



- **Landfills**
  - Landfill Methane Outreach Program -Over 500 projects
  - CAA - New Source Performance Standards for large landfills



- **Agriculture**
  - AgSTAR - biogas recovery systems have doubled since 1994; over 180 projects - generating about 300 million kWh per year.

*EPA is pursuing new mechanisms to achieve deeper emission reductions*

- New Greenhouse Gas Reporting Program
- CAA NSPS requirements for large sources (oil and gas and landfills)
- Collaboration with other Federal partners (USDA and DOI)

# US Government Support



- EPA is lead agency and coordinates efforts with other Federal partners
- USG has provided \$50.5 M over five years since launch in 2004 - \$10.5 M in 2009
  - Support of the Administrative Support Group
  - Project Assistance - overcoming barriers and building a pipeline of projects –technical assistance, technology transfer, and capacity building

Figure 6: FY 2009 U.S. Expenditures by Type of Activity

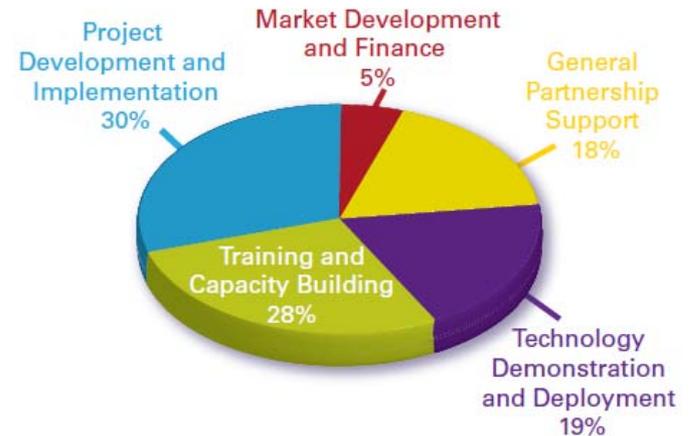


Figure 7: FY 2009 U.S. Expenditures by Recipient Country



# Agriculture

- **Focus: Animal manures and agriculture wastes to energy**
  - Significant co-benefits – local source of renewable energy, improvements in air and water quality, and reduction in odors
  - Providing capacity building, technical support and project development assistance – completed resource assessments in 10 countries

- **Key Success Stories:**

## Southeast Asia

- Livestock waste management projects underway supported by World Bank, FAO, EPA, and the governments of China, Thailand, and Vietnam.
  - To-date 10 projects are under construction, and approximately 20 more are in the planning stages
  - Implementing a carbon reduction Program of Activities through the Land Bank of the Philippines – enables smaller sources to take advantage of carbon markets
  - Overall M2M efforts in the Ag sector here could reduce emissions by 500,000 MTCO<sub>2</sub>E annually.

## Mexico

- SEMARNAT constructed a series of commercial scale demonstration projects around the country, and are now developing a national standard for anaerobic digesters (AD), performance verification methodologies for AD in Mexico, and an AD supplier certification program.



***Covered Animal Waste Lagoon in Mexico***

# Coal Mine Methane

- **Focus on recovery and utilization of coal mine methane to energy**
  - Significant co-benefits – local source of energy, improvements in air quality, and improved mine safety
  - Providing capacity building, technical support and project development assistance - China, Poland, India, Russia, Ukraine
- **Key M2M Success Stories:**

## China - Jincheng Sihe Power Plant

- World's largest CMM power generation project, with a total installed capacity of 120 MW.
- Funding provided by Project Network members, ADB and the World Bank, and the Japan Bank for International Cooperation.
- Caterpillar provided 60 modular gas internal combustion engines for the plant, which is operational and reducing emissions by approximately 3 MMTCO<sub>2</sub>E/yr.



***120 MW power plant, Sihe Mine, Jincheng, Shanxi Province, China.***

## Assessing Technological and Economic Feasibility

- Ten full scale feasibility studies have been completed at sites in China, India, Poland, and Ukraine and 2 pre-feasibility studies have been completed in Ukraine and Nigeria.

# Landfills

- **Focus on recovery and utilization of methane to energy**
  - Significant co-benefits – local source of renewable energy, improvements in air and water quality, and reduction in odors
  - Providing capacity building, technical support and project development assistance
- **Key Success Stories:**

## **Gorai Landfill Project (Mumbai, India)**

- India's first landfill gas capture came online in summer 2009
- While flaring now, the landfill has plans to develop a beneficial use project.
- Project is earning \$5.2 million in carbon credits

## **Infrared heating project in Ukraine**

- An infrared heating project at the Khmelnytsky landfill went online in winter 2010, making it the first project of its kind in Ukraine

## **Developing Tools to Advance Landfill Gas Project Development**

- Country Specific LFG Models (China, Mexico, Ecuador, C. America, Argentina)
- International Landfill Database
- Online Landfill Biogas Bibliography



*Landfill gas in Ukraine*

# Oil and Gas Systems

- **Focus on preventing leaks and losses of natural gas**
  - Significant co-benefits –energy conservation and improvements in air
  - Strong potential in Russia, Ukraine, Mexico, Nigeria, India

- **Key Success Stories:**

## Gas STAR International

- Partnering with the private sector to reduce leaks and losses of methane
- Reduced over 26 MMTCO<sub>2</sub>e

## Central and Eastern Europe

- Poland, Russia and Ukraine all working to identify and implement reduction projects.
- EPA-EDF and Gazprom – emissions measurement and mitigation project
- Cherkassytranzgas of Ukraine has reduced emissions by > 1 million cubic meters.

## Mexico

- Mexican Petroleos (PEMEX) has been developing a program to systematically reduce methane emissions
- Project highlights include a \$22 million effort to install dry seals on compressors which will reduce emissions by 70,000 MTCO<sub>2</sub>e.

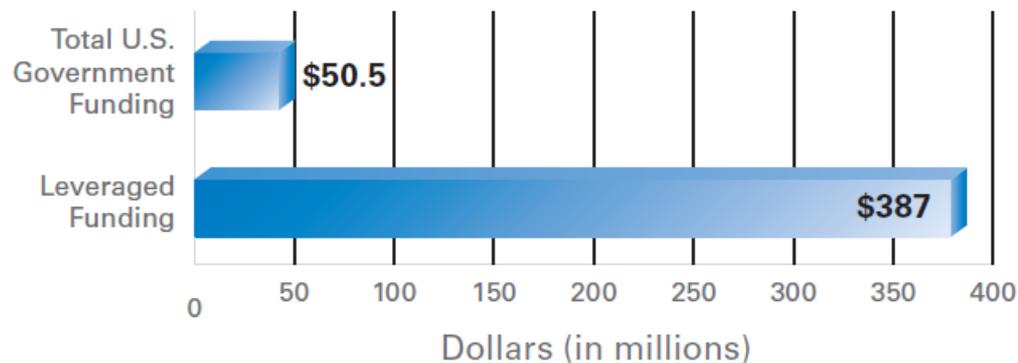


*Leak Detection and Measurement at PEMEX*

# Key Accomplishments

- Support over 300 projects and activities in 18 Partner countries
- Ongoing projects and activities have reduced GHG emissions by 40 MMTCO<sub>2</sub>E.
- USG funds have leveraged significant investment and engagement from the private sector

Figure 8: U.S. Government Funding and Leveraged Funding, FY 2005–FY 2008



# Next Steps - Support of GMI

- The US recognizes that more action must be taken to combat climate change and methane is an essential part of the solution
- The Obama Administration is urging more robust global action toward reducing methane emissions and we believe GMI is a critical mechanism
  - Over 70 percent of methane emissions
  - Focuses on practical, near-term results – Partner Action Plans and project development
  - Engages both the private and public sectors
  - Supports the UNFCCC
- USG intends to provide at least \$50 million over the next 5 years to ensure GMI success and is encouraging other Partners to provide support