



Methane to Markets

The State of the Partnership

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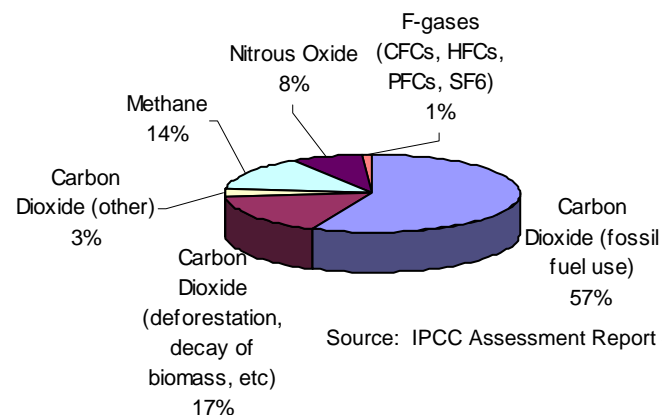
Overview

- Importance of Methane
- Overview of the Methane to Markets Partnership
- Partnership Accomplishments
- Looking Forward
- The Expo

Methane (CH₄)

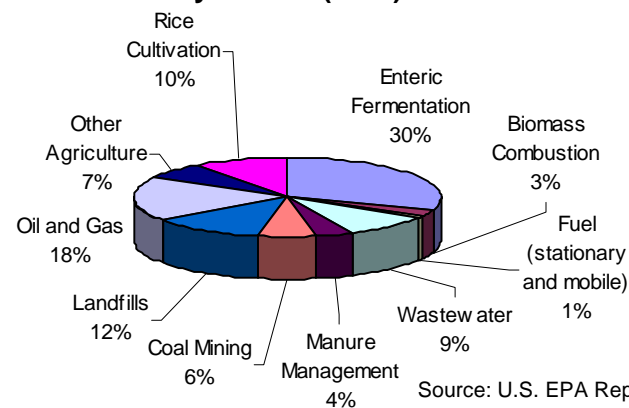
- Basic information
 - 100-year GWP = 25
 - Lifetime = 12 years
- Primary component of natural gas.
- Many natural and anthropogenic sources
 - energy, agriculture & waste sectors
 - 50 - 70% anthropogenic
- Concentration of methane in the atmosphere has increased by 150% in the last 260 years
- After about a decade of slow growth (thru 2007), global average methane concentrations have started to increase

Global Anthropogenic GHG Emissions by Gas (2004)



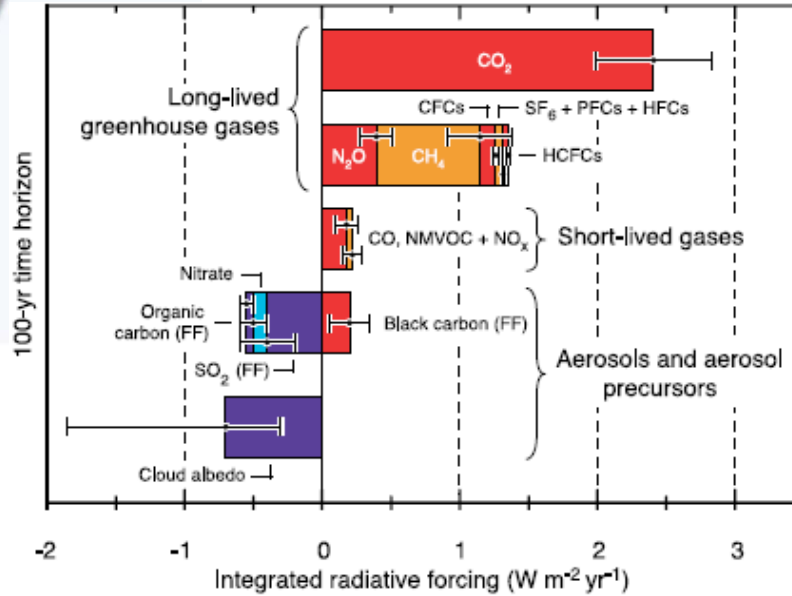
Source: IPCC Assessment Report 4 (2007)

Global Anthropogenic Methane Emissions by Source (2005)

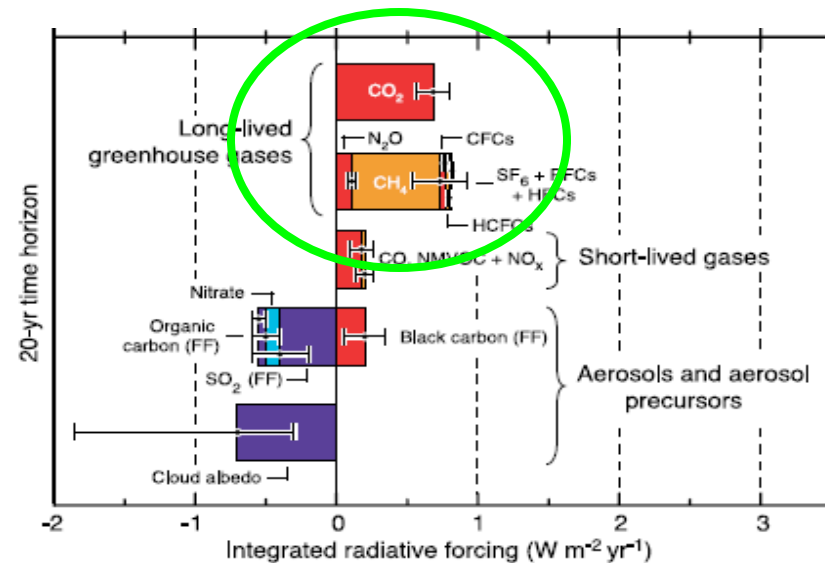


Source: U.S. EPA Report (2006)

Comparative Effects of GHGs over 20 and 100 year time horizon



Methane has a much larger influence on near term effects



Co-Benefits of Methane Reduction

Methane to Markets is a climate change initiative with a goal reducing global warming – but importantly it also helps:

- **Energy Supply and Reliability**

- Mitigation makes methane available for local energy purposes, thereby strengthening energy security, enhancing local economies and fostering sustainability

- **Environmental Quality and Public Health**

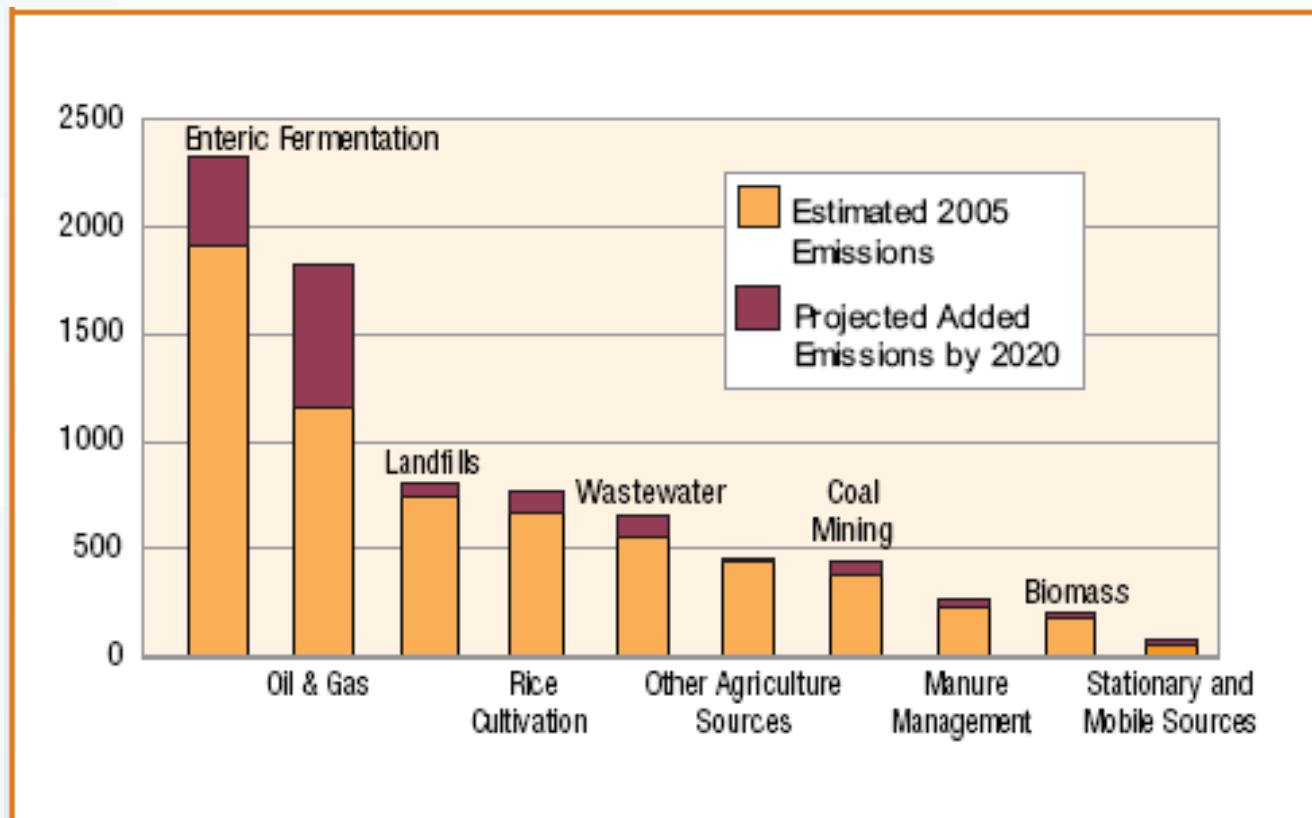
- Local water quality improvements due to improved management of agricultural wastes
- Reduction of local emissions of VOCs from landfills, agriculture, and oil and gas systems
- Reduction of ground-level ozone through reduced methane emissions

- **Industrial Safety**

- Methane is explosive - improved worker safety in the coal and oil & gas sectors

Projected Methane Increase to 2020

Global anthropogenic methane emissions are projected to increase by 23 percent to 7,904MMTCO₂E by 2020



What is Methane to Markets?

- International public-private partnership to reduce greenhouse gas emissions by increasing the capture and use of methane.
- Encourages development of cost-effective methane recovery and use opportunities in the agriculture, coal mine, landfill, and oil & gas sectors.

OBJECTIVES

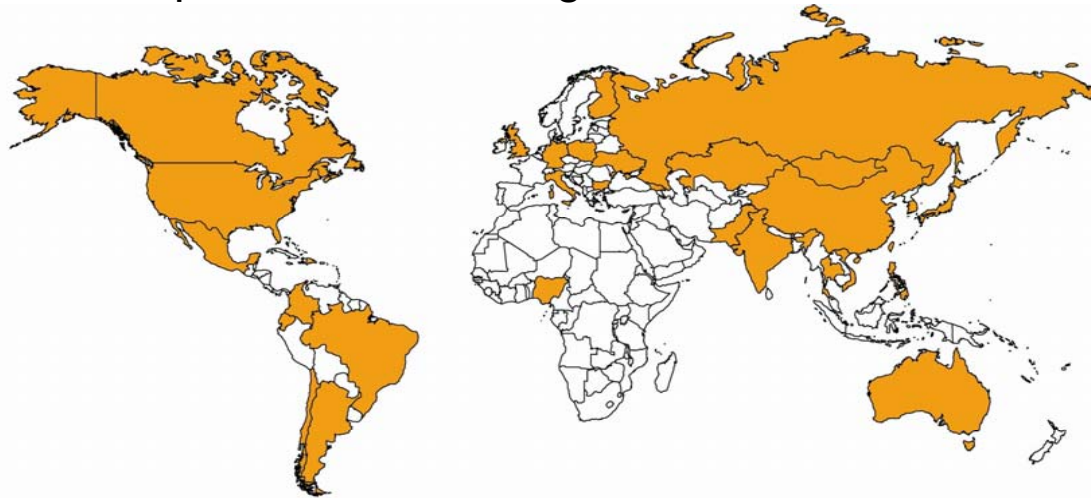
- Advance the recovery and use of methane while:
 - Enhancing economic growth
 - Promoting energy security
 - Improving local air quality and public health.

BENEFITS

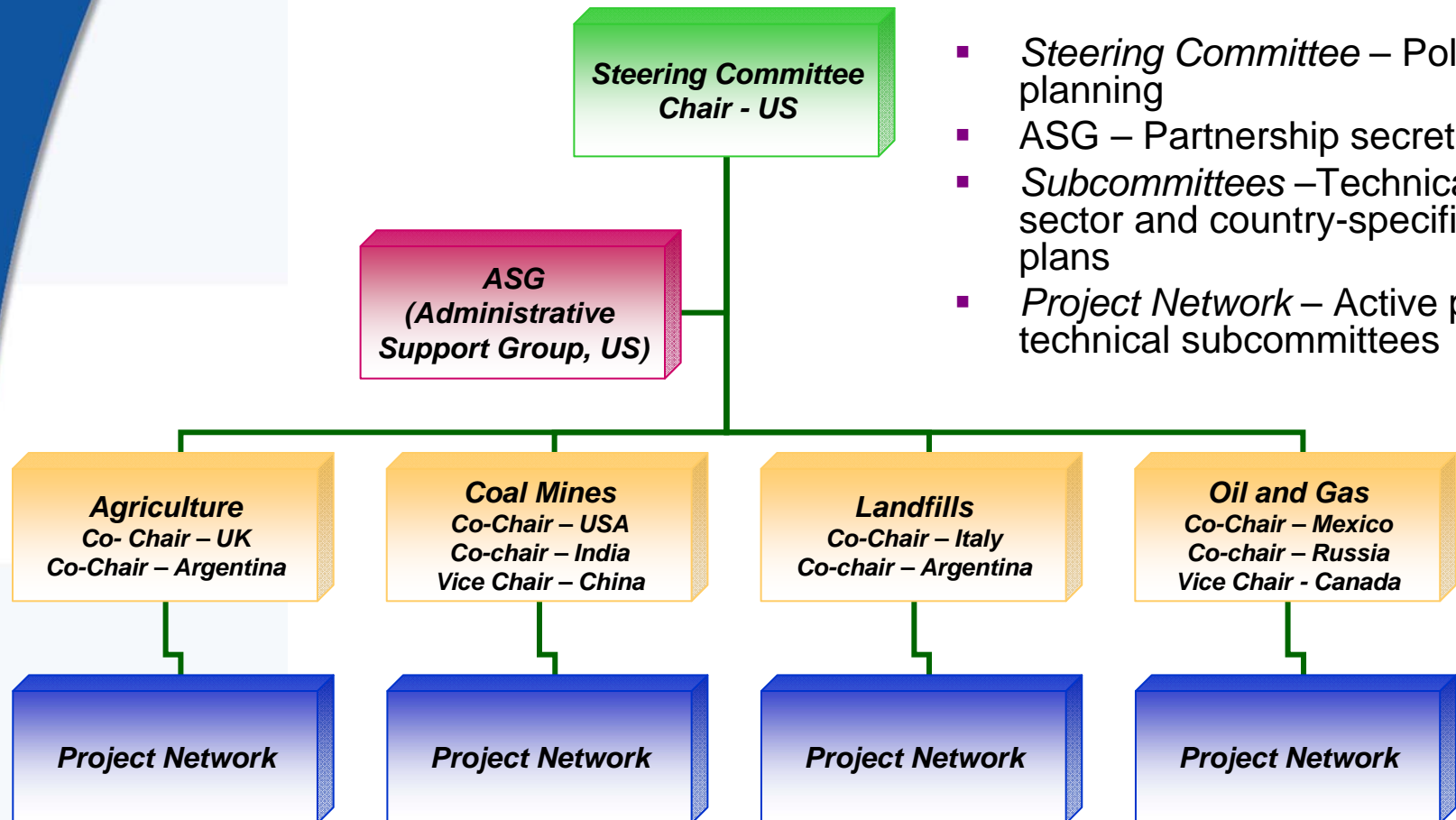
- Stabilization/Decline in Methane Concentrations will result in:
 - Sustainability
 - Energy security
 - Health and safety
 - Profitability

Methane to Markets Partners

- Grown from 14 to 33 Partner governments
- Represent nearly 65% global anthropogenic methane emissions
- 9 of the 10 top methane emitting countries



M2M Partnership Organization

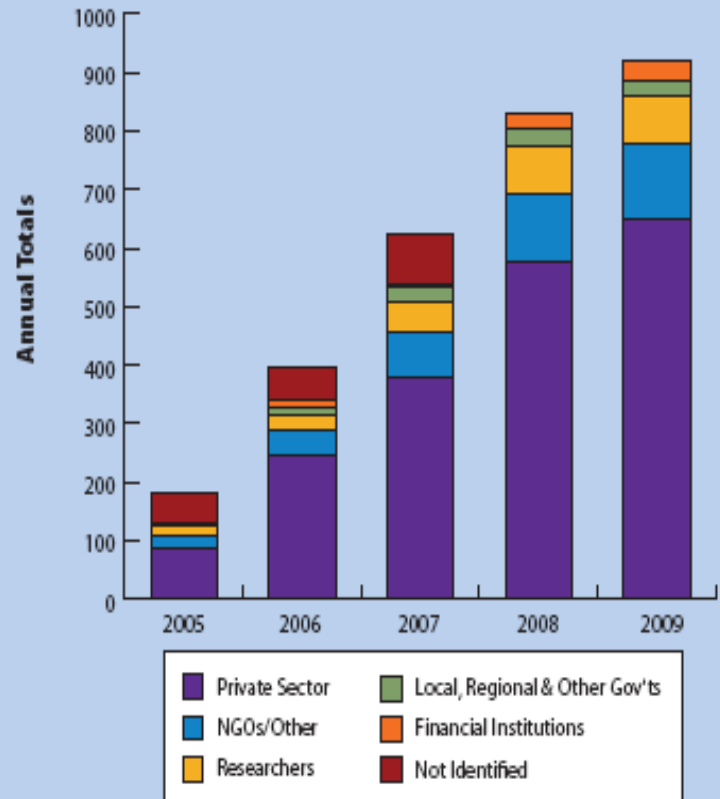


- *Steering Committee* – Policy and planning
- *ASG* – Partnership secretariat
- *Subcommittees* – Technical work, sector and country-specific action plans
- *Project Network* – Active part of technical subcommittees

The Partnership Project Network

- Brings necessary actors together to implement reduction projects
- Over **950** organizations
- Project Network members can:
 - Expand business and increase profits
 - Distinguish themselves in the marketplace
 - Identify financial and technical support for potential projects
 - Build capacity
 - Fulfill strategic goals
 - Mitigate climate change

Project Network Distribution and Annual Totals



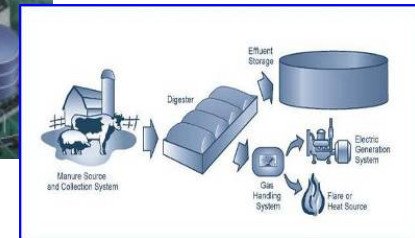
Partnership Approach to Project Development

■ Strategic Focus

- Conduct capacity building and outreach efforts with all Partner countries in relevant sectors
- Develop sector and country specific strategies to identify and overcome barriers to projects
- Leverage relationship with PN to advance projects

■ Key Activities

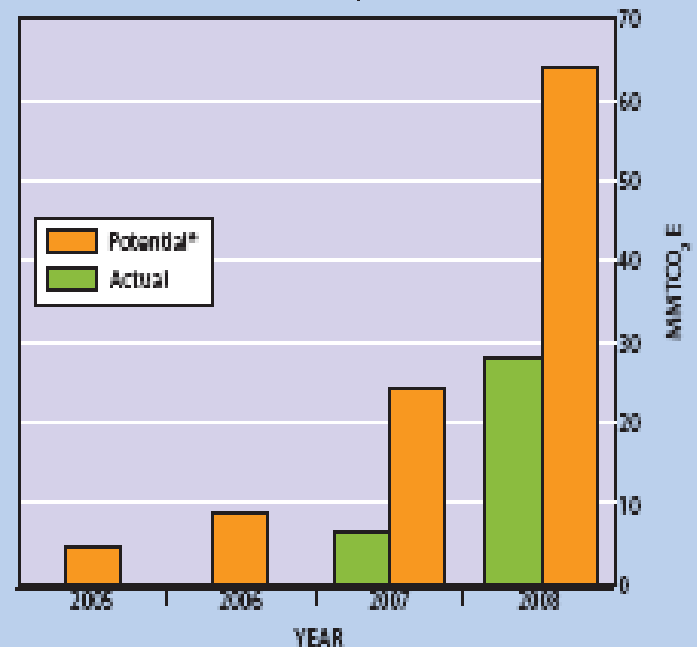
- Technical Assistance and Project Identification
 - Data collection, assessment reports, pre-feasibility studies
- Tool Development and Technology Transfer
 - LFG generation model, CMM and Landfill database
- Training and Capacity Building
 - Clearing houses, training workshops, study tours, peer matching



Methane to Markets: Five Years of Accomplishments

- Supported the development of 170 projects in Partner countries around the world that are already reducing emissions by 27 MMTCO₂E annually, and when fully implemented will reduce by more than 63 MMTCO₂E.
- Held more than 80 technology transfer and capacity building events in 23 countries.
- Has garnered financial support of \$84.3 million USD from Partner countries and leveraged nearly \$360 million USD from private companies and financial institutions.

Annual Reduction of Methane Emissions from Partnership-Supported Projects, 2005–2008



*Potential emission reductions include actual reductions from Partnership-supported projects now online.

Methane to Markets: Five Years of Accomplishments

- Organized the 2007 M2M Project Expo in Beijing, China and the 2010 Expo in New Delhi, India.
- Has developed a suite of tools and resources to help overcome institutional and informational barriers to project development.
- Has served as a good complement to the Kyoto Mechanisms, providing technical assistance and capacity building necessary for long-term project success.



Agriculture



- **The Subcommittee has:**
 - Hosted meetings and workshops in 10 countries around the world
 - Assisted in the development of 13 country action plans and more than [x] resource assessments
 - Developed a draft international protocol on AD performance evaluation.

- **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
 - Overall M2M efforts in the Ag sector here could reduce emissions by 500,000 MTCO₂E 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.





Coal Mine Methane

- **The Subcommittee has:**
 - Hosted workshops and events in 12 countries
 - Completed country-specific action plans for seven Partners
 - Assisted in the development of the International coal mine methane (CMM) database and CMM global overview, which contains comprehensive country profiles of 32 coal producing countries around the world.
- **Jincheng Sihe Power Plant**
 - This is the 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 MMTCO₂E/yr.
- **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



- **The Subcommittee has:**
 - Hosted meetings and workshops in 18 countries around the world
 - Completed country specific action plans for 8 Partners

- **Gorai Landfill Project**
 - India's first landfill gas capture came online in summer 2009 at the Gorai landfill in Mumbai, India.
 - While flaring now, the landfill has plans to develop a beneficial use project in the near future.
 - 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





Oil and Gas Systems

- **The Subcommittee has:**
 - Hosted meetings and workshops in 14 countries around the world.
 - Completed country specific action plans for seven Partners.
- **Project Development in Central and Eastern Europe**
 - Poland, Russia and Ukraine all working to identify and implement emissions reduction projects.
 - The first M2M workshop was held with Gazprom and VNIIGAZ in October 2008.
 - GAZ-SYSTEM of Poland is conducting analysis to identify opportunities.
 - Cherkassytranzgas of Ukraine has already reduced methane emissions by more than 1 million cubic meters.
- **Mexico**
 - Mexican Petroleos (PEMEX) has been developing a program to systematically reduce methane emissions by focusing on three key components:
 - 1) identifying and implementing reduction projects,
 - 2) developing internal capabilities to detect and repair leaks, and
 - 3) developing company-specific methane abatement curves.
 - Project highlights include a \$22 million effort to install dry seals on compressors which will reduce emissions by 70,000 MTCO₂E.



The Future of Methane to Markets

- Growing interest in accelerating global methane efforts due to impacts in the Arctic and near-term multiple benefits of methane
- Methane to Markets is well positioned for the future due to the support of its growing membership and its ability to demonstrate results.
- The Methane to Markets Steering Committee is meeting concurrently with the Expo to agree upon the next phase of the Partnership's Charter.
 - A revised Terms of Reference (TOR) will be adopted in 2010.
 - A Ministerial-level meeting will be held later this year to provide an opportunity for countries to announce new commitments
 - As the UNFCCC process unfolds, the Steering Committee will ensure that the Partnership is linked appropriately to and complements these efforts
- The continued success of the Partnership depends on the individual efforts of everyone here today and your colleagues back home.



Methane to Markets Partnership Expo

New Delhi, India • 2–5 March 2010



- The Partnership Expo is the premier international forum for promoting methane recovery and use project opportunities and technologies.
 - 500 participants from more than 30 countries.
 - More than 150 project opportunities and success stories.
 - 30 agriculture, 39 coal, 54 landfill, and 9 oil & gas
 - 17.3 million MTCO₂E in annual reductions when implemented.
 - Impressive array exhibits from our esteemed international sponsors and Partner governments.
 - Technical, financial, and policy presentations on methane project development by more than 70 expert speakers from around the globe.