



# Methane to Markets

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## **The State of the Partnership**

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# Overview

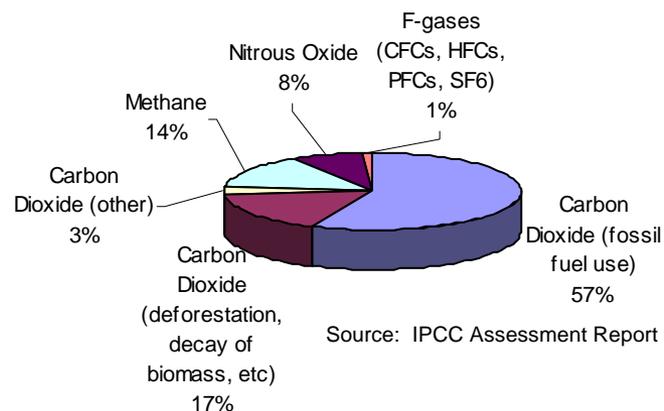
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- Importance of Methane
- Overview of the Methane to Markets Partnership
- Partnership Accomplishments
- Looking Forward
- The Expo

# Methane (CH<sub>4</sub>)

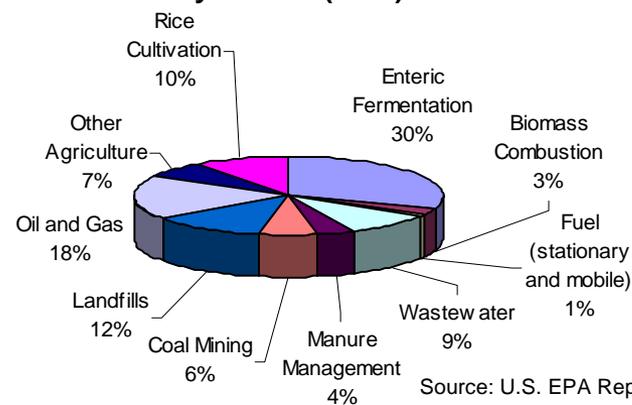
- Basic information
  - 100-year GWP = 25
  - Lifetime = 12 years
- Primary component of natural gas.
- Many natural and anthropogenic sources
  - energy, agriculture & waste sectors
  - 50 - 70% anthropogenic
- Concentration of methane in the atmosphere has increased by 150% in the last 260 years
-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

**Global Anthropogenic GHG Emissions by Gas (2004)**



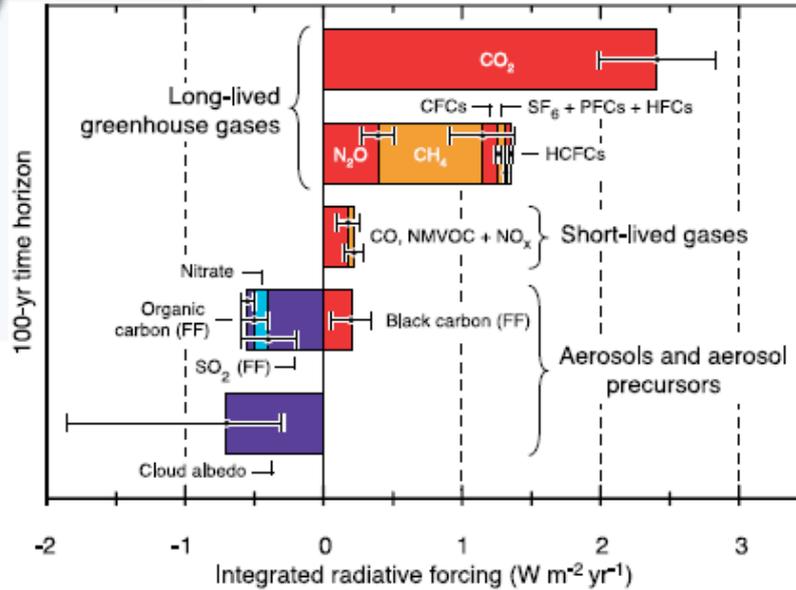
Source: IPCC Assessment Report 4 (2007)

**Global Anthropogenic Methane Emissions by Source (2005)**

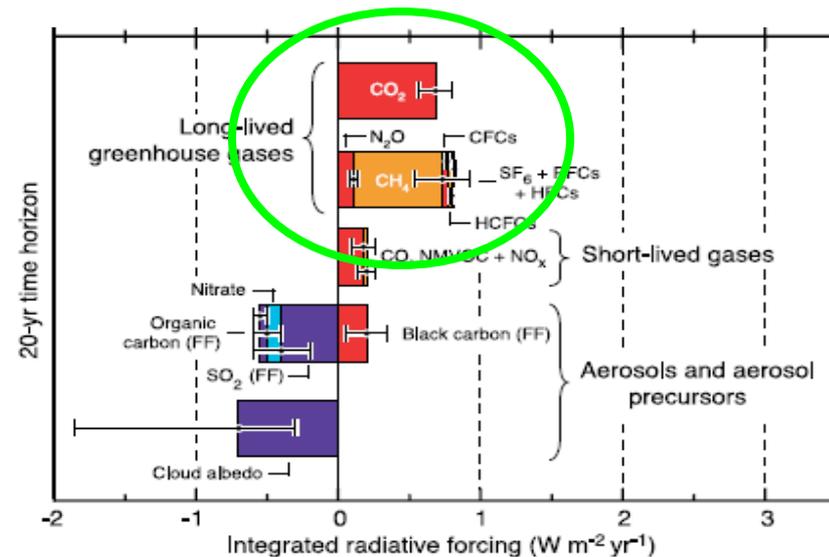


Source: U.S. EPA Report (2006)

# Comparative Effects of GHGs over 20 and 100 year time horizon



*Methane has a much larger influence on near term effects*



IPCC, 2007

# Co-Benefits of Methane Reduction

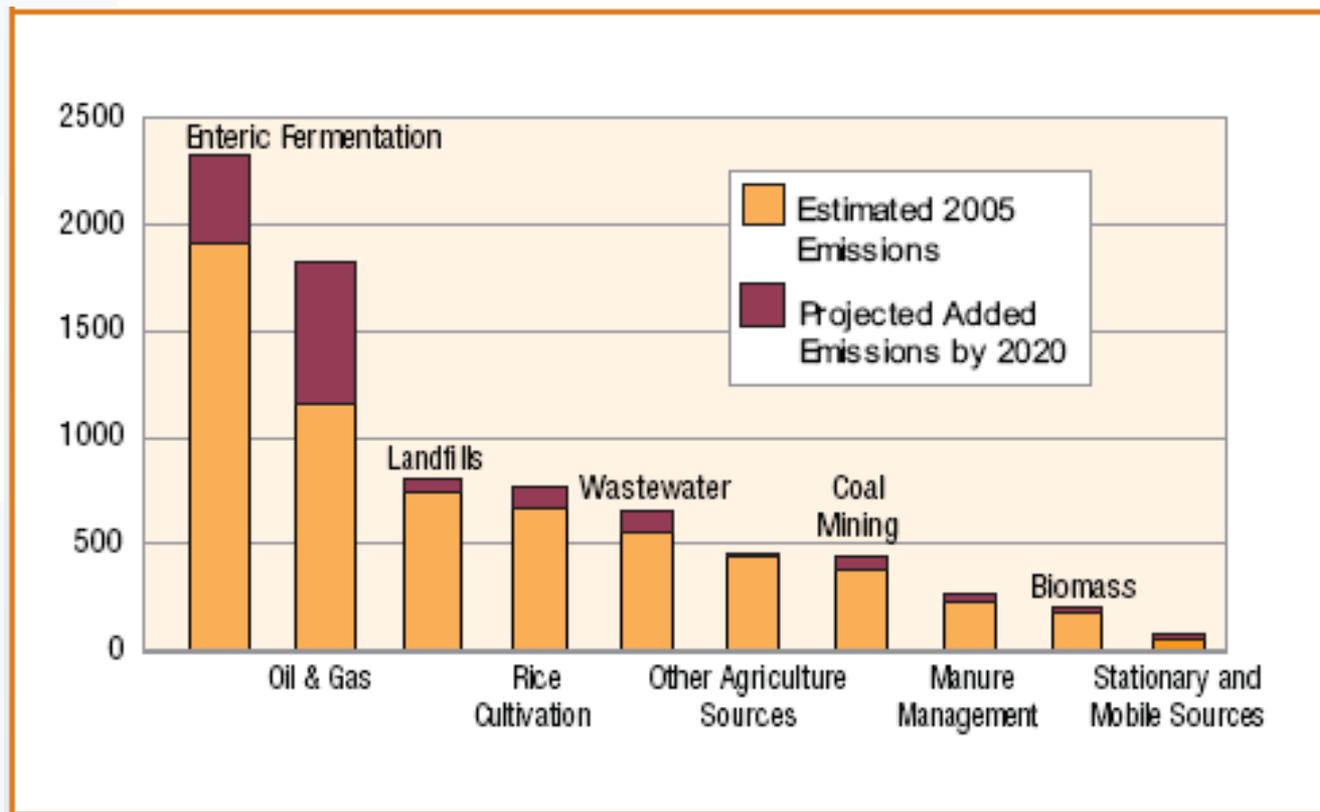
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**Methane to Markets is a climate change initiative with a goal reducing global warming – but importantly it also helps:**

- **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 7,904MMTCO<sub>2</sub>E by 2020



# What is Methane to Markets?

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- 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

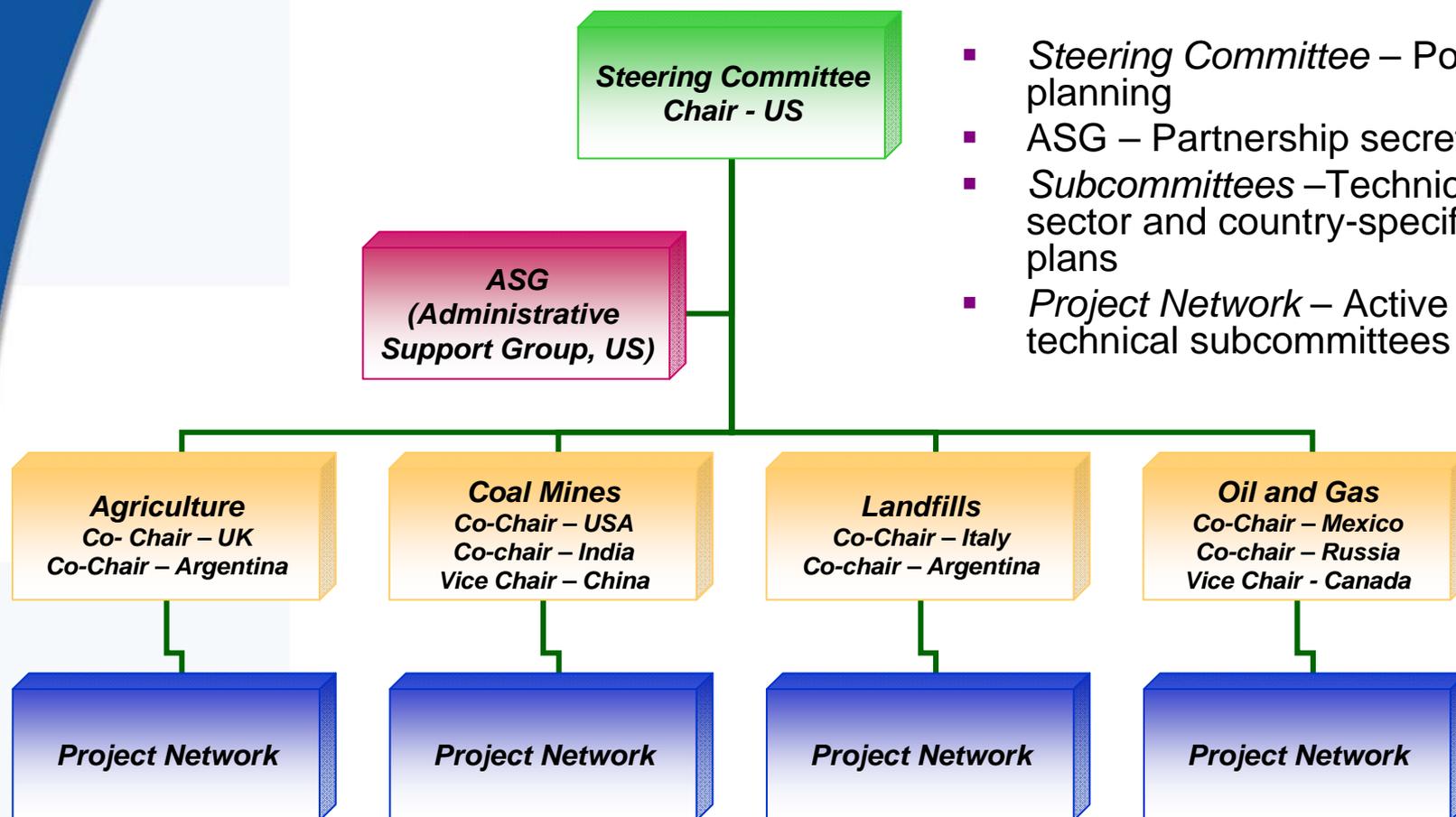
- Stabilization/Decline in Methane Concentrations will result in:
  - Sustainability
  - Energy security
  - Health and safety
  - Profitability

# 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

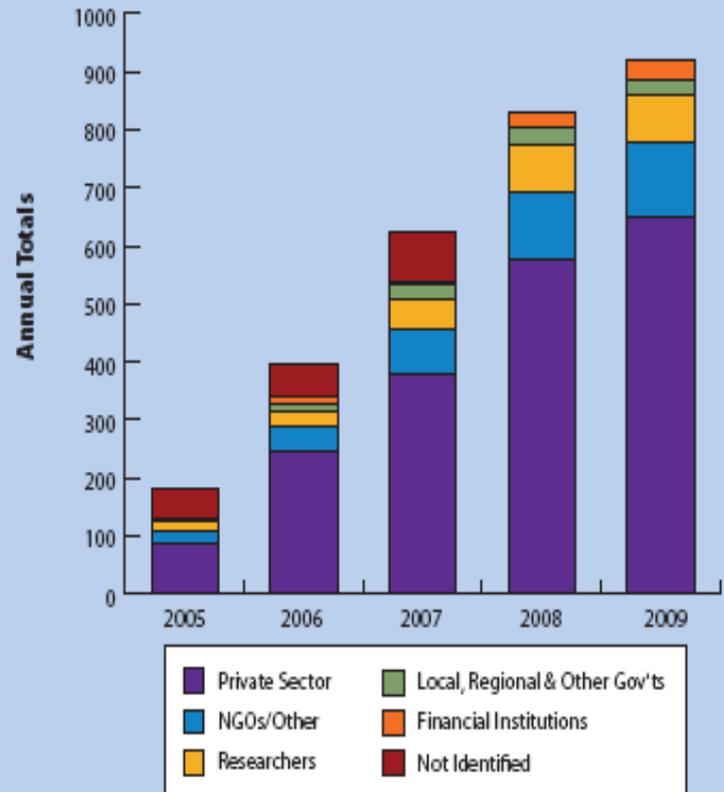


- *Steering Committee* – Policy and planning
- *ASG* – Partnership secretariat
- *Subcommittees* – Technical work, sector and country-specific action plans
- *Project Network* – Active part of technical subcommittees

# 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

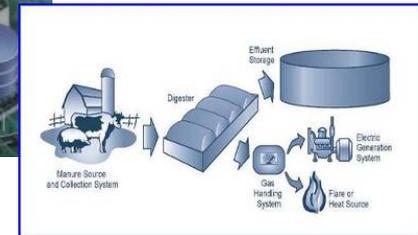
## Project Network Distribution and Annual Totals



# 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



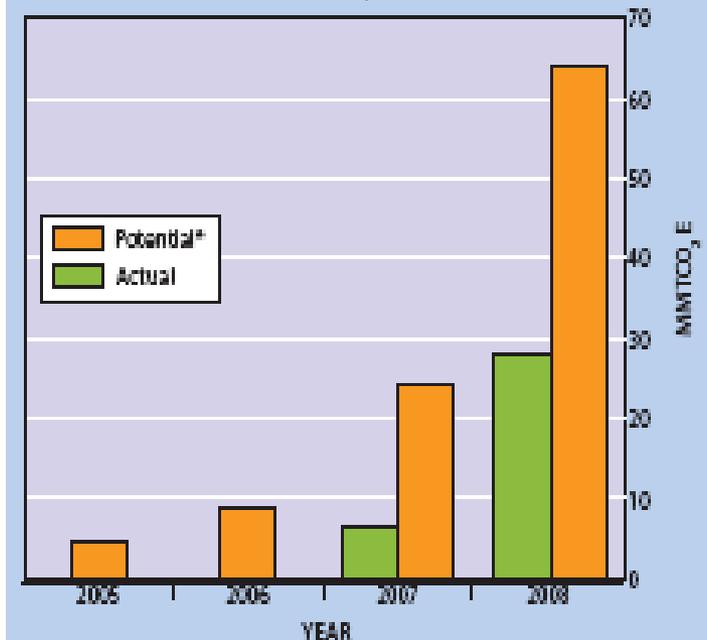
## ■ Key Activities

- 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 MMTCO<sub>2</sub>E annually, and when fully implemented will reduce by more than 63 MMTCO<sub>2</sub>E.
- 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 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.



# 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 MMTCO<sub>2</sub>E/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 MTCO<sub>2</sub>E.



# The Future of Methane to Markets

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- 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 MTCO<sub>2</sub>E 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.