# The Global Methane Initiative

### **Overview Presentation**

#### Mexico Technical Workshop on Science and Policy of Short-lived Climate Forcers

10 September, 2011 Henry Ferland, Director Global Methane Initiative Secretariat





- Why Methane
- Global Methane Initiative Approach
- Success Stories and Results
- Looking Forward
- Conclusions



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

- Potent greenhouse gas
  - 100-year GWP = 25
  - Lifetime = 12 years
  - Most important short-lived forcer based on emissions, accounts for >1/3 of current anthropogenic forcing
- Ozone precursor
  - Effects background ozone levels
- Clean energy source primary component of natural gas
- Many emission sources
  - energy, agriculture & waste sectors
  - 50 70% of are anthropogenic
- Concentration of methane in the atmosphere has increased by 150% in the last 260 years
- After about a decade of slow growth—as of 2007 global average methane concentrations have started to increase





# Methane Projects Deliver Significant Co-Benefits

### New Sources of Clean Energy

- Mitigation makes methane available for local energy purposes

### Air Quality Improvement

- Decrease in background ground-level ozone a 20% reduction in global methane emissions could avoid large Northern Hemisphere mortality (140,000 – 400,000 lives in 2030)
- Reduction of local emissions of VOCs and HAPs from landfills, agriculture, and oil and gas systems
- Odor reductions in the landfill and agriculture sectors

### Water Quality Benefits

- Local water quality improvements due to improved management of agricultural wastes and leachate in landfills
- Industrial Safety
  - Methane is explosive improved worker safety in the coal mining and oil & gas sectors



## **Global Methane Initiative (GMI)**

### **Mission:**

GMI is a voluntary, multilateral partnership that aims to reduce methane emissions and to advance the abatement, recovery and use as a clean energy source.

- Began in 2004 (as Methane to Markets)
- Targets Five Sector-Specific Areas for Methane Reduction
  - Agriculture, Coal Mines, Landfills, Municipal Wastewater, and Oil & Gas Systems
- Impact:
  - Participants cover nearly 70% of total global methane emissions
  - Since 2004, GMI has helped facilitate projects that have now reduced 151 MMTCO2e of methane



## **GMI Global Participation**

#### Membership:

- 40 Partner countries
- Multilateral Institutions including the ADB and IDB
- 1000 + public and private organizations
- Impact:
  - Since 2004, GMI has facilitated project development at more than 600 sites around the globe





## **The Project Network**

- Brings necessary actors together to implement reduction projects
- Over 1,000 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
  - Mitigate climate change
- The Partnership has leveraged more than \$480 million USD of private financing since 2004.





## 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



# Farms and Landfills— Providing Renewable Energy



Animal Waste to Cooking Fuel in Vietnam







Landfill Gas to an Infrared Heater in Ukraine







## Oil, Natural Gas and Coal Mining— Environment and Energy Solutions





Reducing Leaks and Losses from Natural Gas and Oil Operations— More Energy to Markets and less VOCs and HAPs





Capturing Methane from Gassy Mines—Clean Energy and Mine Safety







#### 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
- Strong potential in China/Asia, US, India, Brazil
- Key GMI Success Stories:

#### **Southeast Asia**

 Livestock waste management projects underway supported by World Bank, FAO, EPA, and the governments of China, Thailand, and Vietnam.



Covered Animal Waste Lagoon in Mexico

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## Global Methane Initiative

#### Mexico

 SEMARNAT has helped facilitate construction of a series of commercial scale demonstration projects around the country

# **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
- Strong potential in China, US, India, Ukraine, Russia, Australia
- Key GMI 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.

#### Assessing Technological and Economic Feasibility

 Full scale feasibility studies have been completed at sites in China, India, Poland, and Ukraine.



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







#### 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

#### Key GMI Success Stories:

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

 India's first landfill gas capture came online in summer 2009 with flaring, and plans to develop a beneficial use project.

#### Infrared heating project in Ukraine

 An infrared heating project at the Khmelnitsky landfill went online in winter 2010 is the first project of its kind in Ukraine

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

- Country Specific landfill gas models
- International Landfill Database





# **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 U.S., Russia, Ukraine, Mexico, Nigeria, Canada, India

#### Key GMI Success Stories:

#### **Central and Eastern Europe**

- Poland, Russia and Ukraine all working to identify and implement reduction projects.
- 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, including \$22 million effort to install dry seals on compressors, which will reduce emissions by 70,000 MTCO2E.







### **GMI - Delivering Results and a Model** for Future Success

- Delivering Results Today
  - Supporting work at over 600 sites
  - GMI total actual annual reductions of 38 MMTCO<sub>2</sub>e in 2010
  - Delivering environmental and energy co-benefits
- Strong support from key developing countries
- Creating Pathway for Future Success
  - Showcased 225 project opportunities at the 2007 and 2010 Project Expos
  - Complements UNFCCC

## Methane Emission Reductions from 2005 to 2010











# **Looking Forward**

### **Opportunities**

- Methane is the most abundant GHG after CO<sub>2</sub>
- Methane reduction has significant co-benefits with cost-effective solutions
- GMI is a wellestablished international effort

### Challenges

- Difficulties in gaining broader international attention and engagement on non-CO2 gases
- Level of GMI work is at a project level
- Few funding mechanisms exist for methane programs and/or projects



## Partnership-Wide Meeting 12-14 October 2011 – Krakow, Poland

- Plenary Sessions focusing on the reduction and capture of methane emissions
- Sector-Specific Site Tours
- Technical and Policy Sessions
- Steering Committee Meeting
- Networking Functions, including a special tour and dinner at the Wieliczka Salt Mine, a World Heritage Site
- For more information, please visit <u>www.globalmethane.org/krakow</u>







# Conclusions

The science on methane is clear - it is a critical part of the climate solution, offering tremendous opportunities for rapid mitigation to avoid near term impacts or tipping points

- Methane reductions can be cost-effective and achievable with existing technology
- Reductions can offer important co-benefits
- Finance alone is not enough—a need remains for training, technology transfer, and capacity building to get projects into the pipeline.
- Enhanced participation in the Global Methane Initiative is needed to accelerate reductions – to increase the infrastructure to build capacity and facilitate project development that fully supports country efforts and commitments under the UNFCCC



# **Additional Information**

- GMI maintains extensive website at <u>www.globalmethane.org</u>
- My Contact Information:

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