USEPA and the Global Methane Initiative in Mongolia and the Region

Mongolia Coal Mine Methane Recovery and Utilization Workshop

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Why is Methane (CH$_4$) Important?

- Short-lived climate forcer:
  - 100-year GWP = 25
  - Lifetime = 12 years.
- Primary component of natural gas.
- Many natural and anthropogenic sources:
  - Energy, agriculture & waste sectors
  - 50 - 70% anthropogenic
- Atmospheric CH$_4$ concentrations have increased by 150% in the last 260 years.
- Global anthropogenic methane emissions are projected to increase by more than 18 percent from 2010 to 2030.
Methane Reductions are Win-Win-Win

Methane is a potent, well-mixed greenhouse gas in the atmosphere, so reducing methane emissions anywhere has equal impact on climate.

Reducing methane has other very important benefits:

- **Economic**
  - Mitigation costs are lower than for CO2 and can often be cost-effective.

- **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. Reducing methane concentrations improves worker safety in the coal and oil & gas sectors.
Coal Mine Methane (CMM)

- Methane released as a result of coal mining activities
- Methane is a greenhouse gas and coal mines are one of the largest anthropogenic sources of methane
- CMM emissions are growing with increased coal production in emerging economies and as mining moves to deeper, more geologically complex coal seams

### Global CMM Emissions 2000-2030

- Rest of the World
- Kazakhstan
- India
- Ukraine
- Australia
- Russia
- US
- China

Source: USEPA
EPA’s Domestic Methane Programs

- EPA’s domestic voluntary methane programs provide unique and widely-recognized expertise
  - Strong relationships with key industry sectors
  - Robust technical knowledge of mitigation options, deployment challenges

- Objectives
  - Partnering with companies, governments, communities, and organizations to achieve cost-effective emissions reductions
  - Helping partners implement GHG-reducing technologies, processes, and best-management practices – yielding economic and environmental benefits

- Accomplishments
  - Reduced GHG emissions by 66 MMTCO2e in 2009 alone
  - Since 1993, substantial energy benefits have been achieved across the U.S. economy
US EPA Coalbed Methane Outreach Program (CMOP)

- **Our Mission**
  - To work with the private sector to cost-effectively reduce CMM emissions through recovery and use projects

- **Our Focus**
  - Greenhouse gas emission reduction opportunities: coal mine methane (CMM) rather than coalbed methane (CBM)

- **Our Activities**
  - Identify profitable opportunities for CMM recovery
  - Identify and help overcome market, regulatory, technical barriers
  - Offer technical and analytic support where appropriate
  - Conduct direct outreach to coal mines

- **Our Accomplishments**
  - The U.S. CMM industry is robust. Over 80% of methane from U.S. coal mine degasification systems is recovered and used today, compared to ~25% in 1993.
Global Methane Initiative (GMI)

- Started as Methane to Markets (M2M) Partnership in November 2004 with 14 countries – Mongolia became 24th member in 2008
- USEPA serves as the secretariat for GMI and hosts the Administrative Support Group (ASG), by providing administrative and logistical support and serving as an information clearinghouse
- Focus on methane emission reductions in 5 sectors including coal mining
- Focus on methane because emission reductions are cost-effective and are high impact due to a higher global warming potential than CO2
GMI Partners

- Grown from 14 to 42 countries, plus European Commission
- 9 of top 10 coal producing countries including top 6 coal producing countries accounting for 81% of global coal production
- Represent nearly 70% global anthropogenic methane emissions
GMI Strategies for Success

- Promote international cooperation on methane reduction
- Facilitate the availability of reliable methane emission data
- Support capacity building in partner countries
- Assist in the removal of barriers for methane project development
- Identify cost-effective opportunities for methane projects
- GMI activities support data collection and feasibility studies, etc. to build a “pipeline of projects” and other capacity building efforts – not direct project investment
GMI Coal Mines Subcommittee

- Co-Chaired by China, India and the U.S.
- Forum for discussing technical, policy issues; showcasing project opportunities and technologies

- Support the development of online tools:
  - International coal mine methane (CMM) database of over 300 projects
  - CMM Country Profiles of 37 coal-producing countries
  - Technology (end use) database
  - Flaring position paper
  - Technical presentations and Fact Sheets

- In Mongolia, Coal Subcommittee members include the Ministry of Mining, the Mineral Resources Authority, and MNEC
GMI Project Network

- Brings private sector, NGO, multilateral investment community together to implement reduction projects.
- More than 1,200 diverse organizations from six continents.
- By joining the Project Network, you can:
  - Reduce costs and generate profits through methane abatement, recovery, and use projects
  - Participate in GMI activities & meetings
  - Gain direct access to technical expertise and assistance
  - Benefit from cutting-edge news and info
  - Identify and secure funding for projects
  - Submit project ideas and activities to the subcommittees

Project Network Annual Totals

<table>
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<tr>
<th>Month</th>
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<tr>
<td>May 2005</td>
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<td>Jun 2006</td>
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<td>Dec 2006</td>
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<td>Nov 2010</td>
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<td>July 2011</td>
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GMI Support for CMM Activities

- **Project identification, preliminary evaluations**
  - **Partnership-wide**
    - Conducted identification, initial data gathering for more than 100 potential CMM projects showcased at Project Expos
    - Recently launched 12 new pre-feasibility studies in China, India, Mongolia, Kazakhstan, Poland, Turkey, Russia and Ukraine
  - **China**
    - Comprehensive CMM feasibility studies at five sites
    - A summary of China’s Energy Markets in Anhui, Chongqing, Henan, Inner Mongolia and Guizhou Provinces
  - **Mongolia**
    - Conducted pre-feasibility studies on methane recovery and utilization for the Baganuur Mine, Naryn Sukhait Mine, and Nalaikh Coal Mine
    - Coal Mine Methane Resource Assessment and Emissions Inventory Development in Mongolia
  - **Poland**
    - Supported feasibility study and assessment of converting abandoned mine methane (AMM) to liquefied natural gas (LNG)
    - Funded study to characterize VAM emissions and mitigation potential from 10 gassy mines
GMI Support for CMM Activities

- **Capacity building: national and regional efforts**
  - CBM/CMM Clearinghouses created in China, India and Russia

- **Technology transfer, training, investment and policy forums**
  - **Turkey**
    - Assessment of coal mine degasification options for bituminous and lignite coal mines in Turkey, including development of database of relevant information
  - **Russia**
    - Technical workshops focusing on CMM technologies and practices
    - New effort underway to assess opportunities for ventilation air methane mitigation in the Kuzbass
  - **Ukraine**
    - International Investment Forum: Funding of CMM Projects in Ukraine (Donetsk, June 2010)
    - Training on degasification in advance of mining and utilization of ventilation air methane (Donetsk, September 2011)
    - Policy roundtables with Ukrainian Parliament to address CMM policy options
Best Practices Guidance for Effective Methane Drainage and Use in Coal Mines

- Drafted by international CMM technical experts; peer reviewed
- Collaborative project between GMI and UNECE Ad Hoc Group of Experts on Coal Mine Methane
- US EPA financially supported outreach workshops organized by UNECE in China (October 2010), Kazakhstan (May 2011), and Ukraine (September 2011)

Adoption of best practices will:
- Strive to achieve a goal of zero fatalities, injuries, and property losses from methane related accidents.
- Demonstrate global coal industry’s commitment to mine safety, climate change mitigation, corporate social responsibility, and good citizenship.
- Establish a global dialogue on CMM capture and use.
- Create critical linkages among coal industry, government, and regulatory officials.
- Incorporate effective CMM capture as a part of an effective risk management portfolio.

Coming soon in Mongolian!
GMI in Mongolia

- CMM pre-feasibility studies
  - Baganuur Mine
  - Naryn Sukhait Mine
  - Nalaikh Coal Mine

- Coal Mine Methane Resource Assessment and Emissions Inventory Development in Mongolia

- Capacity Building:
  - Developing capacity for professional testing services
  - Training sessions on data collection and testing procedures, CMM recovery and utilization opportunities
  - GMI in Mongolia publication

- Workshops on CMM Recovery and Utilization in 2008 and 2010

- Publications
  - GMI in Mongolia
  - Coal Mine Methane Opportunities in Mongolia

- GMI Coal Mine Methane Country Profiles and a global CMM projects database
Mark Your Calendar!

- **GMI Coal Subcommittee Meeting**
  - 22 October 2014, Geneva, Switzerland

- **2014 U.S. CMM Conference**
  - November 18-20, 2014 in Pittsburgh, PA, USA

- **9th Session of the UNECE Group of Experts on CMM**
  - 23 October 2014, Geneva, Switzerland

- **2014 International Symposium on CBM/CMM and Shale Gas**
  - 6-7 December 2013, Beijing, China
Contact Information

U.S. EPA Coalbed Methane Outreach Program
www.epa.gov/cmop

Global Methane Initiative
www.globalmethane.org

Get involved – join the Project Network!
http://www.globalmethane.org/project-network/index.aspx

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