



Methane to Markets

Coal Mine Technical Subcommittee Report to Steering Committee

Subcommittee Co-Chairs:

Dr. Huang Shengchu, China

Dr. A.K. Singh, India

Dr. Pamela Franklin, United States

**30 September 2010
Mexico City, Mexico**

Overview

- Subcommittee Activities Update
 - New Delhi Subcommittee Meeting highlights
 - Recent accomplishments
- Subcommittee responses to Steering Committee directives
- Next Steps
- Appendix: Country Activities Update

Subcommittee Activities Update

- **11th Session of the Coal Subcommittee**
 - 5 March 2010, New Delhi, India, in conjunction with 2010 Methane to Markets Partnership Expo
 - Over 35 attendees representing 11 countries
 - 10 Partner countries and several Project Network members provided updates on CMM activities

- **Leadership Review**
 - Subcommittee voted unanimously to promote Dr. Huang Shengchu of China from Vice-Chair to Co-Chair
 - Additional leadership review tabled until Subcommittee meeting on 21 October 2010

Subcommittee Activities Update *(continued)*

- **New, updated technical reports available**
 - *Best Practices Guidance for Effective Methane Drainage and Use in Coal Mines*
 - Document developed by panel of international technical experts; underwent two rounds of peer review.
 - Sponsored by UNECE and Methane to Markets (funded by US EPA).
 - Published in spring 2010 in electronic and hard copy. Also available via free download from UNECE website and hard copies in UN bookstores.
 - UNECE will hold series of workshops to disseminate the Best Practices findings, planned for China, Ukraine, and Kazakhstan.
 - *Global Overview of Coal Mine Methane Opportunities*
 - Newly updated and revised (September 2010).
 - Profiles of 37 coal producing countries globally, including their current activities and potential for coal mine methane projects.

Subcommittee Activities Update *(continued)*

- **International CMM Projects Database**
 - Updated, revised information for 309 projects in 16 countries (September 2010)
 - User-friendly features allow searching and exporting data
 - Project information can be updated or added to database by global CMM community
 - New features added in 2010:
 - Greenhouse gas emissions reduction calculator
 - Default emission reduction values provided where project-specific data are limited

Subcommittee Activities Update *(continued)*

- **Project Opportunities Highlighted**
 - 33 CMM project opportunities in 8 countries showcased at 2010 Partnership Expo in New Delhi
- **Country-specific coal sector strategies have been developed by seven countries**
 - Posted on Methane to Markets website

Subcommittee Responses to Steering Committee Directives

- The Subcommittee is open to including methane abatement in the framework of the Partnership
 - Needs to consider potential issues with flaring of drained gas at active coal mines, particularly concerns about safety and compliance with country-specific safety regulations
 - Mitigation (destruction only) of ventilation air methane (VAM) through oxidation is already ongoing at several sites globally
- The Subcommittee is seeking ways to more effectively engage the Project Network
- The Subcommittee will discuss how to make country-specific action plans more robust and current, especially how to incorporate reporting on targets and progress

Next Steps

- Upcoming Subcommittee Meeting:
 - 21 October 2010 in Beijing, China
 - In conjunction with 10th International Symposium on CBM/CMM on 19-20 October 2010

- Issues to Address
 - The role of methane abatement (flaring and destruction only) and challenges with its implementation in the coal sector
 - Creating, updating, and implementing country-specific action plans and strategies
 - Process for evaluating leadership roles in the Subcommittee
 - Technological, regulatory framework, and financing challenges to the commercial development of CMM

Summary and Conclusions

- The Subcommittee welcomes participation from new Partner countries Indonesia and Turkey
- The Subcommittee looks forward to working more closely with the private sector to promote CMM projects globally
- The Subcommittee will focus renewed attention on abatement opportunities, especially for ventilation air methane

Appendix: Country Activities

- **Australia**
 - New government initiatives underway
 - Carbon Pollution Reduction Scheme
 - Fugitive emissions from coal mines will require permits
 - Emissions trading scheme to cover fugitive emissions from coal mines
 - \$270 million Coal Sector Abatement Fund to provide grant funding for abatement projects, particularly for power generation
 - \$1.23 billion Coal Mining Transitional Assistance Fund to provide free permits to the most gassy coal mines
 - Technology dissemination internationally through Partnership, especially in China

Appendix: Country Activities

■ **China**

- China Coalbed Methane Clearinghouse (hosted by China Coal Information Center) serves as nodal information center
- 83 projects at active mines (as of September 2010)
- Full-scale CMM project feasibility assessments (US EPA funded)
 - Completed at Songzao mines, Liuzhuang mines
 - Based on study, Chongqing Energy Investment Group recently announced plans to build world's largest CMM to LNG facility
 - Studies near completion (by December 2010) at Linhua Mine, Guiyang, Guizhou Province and Tai Xi Mines, Alashan, Inner Mongolia
- CSIRO (Australia) mitigating and utilizing dilute methane with a monolithic catalytic combustor at Tiefu (US EPA funded grant)
- Assessments of degasification technologies in Shanxi Province underway
- National and regional capacity building efforts (Shanxi, Guizhou)

Appendix: Country Activities

■ **India**

- CBM / CMM Clearinghouse
 - Hosted by Coal Mine Planning and Design Institute (CMPDI)
 - Study tour to US (summer 2010) sponsored by US EPA
 - Recently generated VAM-specific data for several mines
- CBM infrastructure development
 - GAIL is building gas pipeline through North and East; will pass through coal regions
 - Allotment of 26 CBM blocks by the government of India
 - Coal India Ltd.-ONGC commercial CBM projects in Jharia and Raniganj
- CMM project activities underway
 - 13 CMM project opportunities showcased at New Delhi Expo
 - CMM/CBM recovery demonstration projects ongoing at Moonidih and Sudamdih mines
 - Assessment of VAM potential underway
- Memoranda of Understanding (MOU) signed between Australia and India to support resources cooperation

Appendix: Country Activities

■ **Japan**

- Japan's New Energy and Industrial Technology National Development & Development Organization (NEDO) and China's National Development & Reform Commission (NDRC) are collaborating to implement CMM projects in China
 - Japan to engage in site selection, feasibility analysis, design, and acquiring major equipment
 - CMM town gas model at Tiefu
 - CMM/VAM power generation model project at Fushun
 - CMM concentration technology development project at Fuxin
 - VAM turbine project in China (operational second half of 2011)
 - China to implement construction
 - Training program for coal sector engineers

Appendix: Country Activities

■ **Mexico**

- Studies underway to conduct core samples for CBM exploration at a number of sites in Mexico
- MINOSA CMM recovery and utilization project (power generation) underway at 3 mines
 - Will offset 7MW of electricity consumed by the mine and improve overall operating costs
 - Greenhouse gas emissions reductions: will generate Certified Emission Reductions (CERs) equivalent to 549,922 tons CO₂ per year
- Ventilation air methane mitigation project underway
 - 4 MEGTEC Vocsidizers and 6MW turbines planned

Appendix: Country Activities

■ **Mongolia**

- Pre-feasibility study of potential CMM project at closed underground Nailakh mine (completed 2010) (U.S. EPA funded)
- Based on study findings, Korean-Mongolian governments are sponsoring core drilling, gas resource assessment underway to evaluate potential CBM or CMM project
- US EPA sponsored technical workshop on CMM in Mongolia (August 2010) in Ulaanbaatar for Mongolian government, coal industry officials
- Revised legal / regulatory framework is needed to support future CBM and CMM project development

Appendix: Country Activities

■ **Poland**

- Large potential for CMM: 30 operating underground coal mines (most of these are gassy)
 - 20 mines drain methane
 - 14 mines recover and utilize drained methane
- Research project underway (funded by U.S. EPA) to quantify VAM emissions at 10 gassy coal mines
- Feasibility study underway to evaluate pre-mine drainage at a Polish mine (funded by US EPA)
- Poland's first VAM utilization project is being developed

Appendix: Country Activities

■ **Ukraine**

- Large potential for CMM: over 100 very deep and gassy underground mines
- Key legal and regulatory developments
 - Law on Coal Mine Methane defines ownership rights for CMM
 - Follow on legislation, if passed, would require mines to capture and use CMM
 - Green Tariff Law provides incentives for project development and guarantees access to local grid for electricity sales
- Project development driven by Clean Development Mechanism (CDM) and Joint Implementation (JI) funding
 - 14 Ukrainian JI projects have been approved, 8 operational
 - About 8 projects in development, including VAM
- Alternative Fuel Center has begun to work on a VAM survey for a range of Ukrainian mines

Appendix: Country Activities

■ **United States**

- US EPA's Coalbed Methane Outreach Program focuses on promoting domestic, international CMM projects
- Currently US CMM projects at 13 active underground coal mines, about 30 abandoned underground mines, 1 surface mine
 - 2008: CMM recovered and used (mostly for natural gas pipeline injection projects) avoided emissions ~ 20 MMTCO₂e
 - Includes 1 active technology demonstration for VAM abatement, 2 others recently announced, underway
- Established Greenhouse Gas Reporting Program
 - 40 CFR Subpart FF (finalized 2010) requires reporting of greenhouse gas emissions from gassy underground coal mines that are already subject to quarterly reporting to Mine Safety Health Administration
 - For underground coal mines subject to the rule, monitoring to begin 1 January 2011, first reporting due in March 2012.
- International CMM activities supported:
 - Capacity building activities in China, India, Ukraine, Mongolia
 - Five feasibility studies completed or underway in China
 - Pre-feasibility studies, technology demonstrations and assessments completed or underway in China, Poland, Mongolia, Ukraine
 - Have awarded 17 CMM related grants since 2007