

Coal Breakout Session Planning

GMI Coal Subcommittee Meeting

Sydney, Australia

5 September 2012

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Overview of Coal Breakout Sessions Held at Past Expos



2007 Beijing Expo: Coal Breakout Sessions

- SESSION 1: Coal Mine Methane Projects and Technologies
 - Part 1: Overview and Technology Case Studies
 - Part 2: Technology Case Studies: Methane Capture, Processing, and Utilization
- SESSION 2: Coal Mine Methane Project Case Studies
- SESSION 3: Policy and Finance Issues: Financing CMM Projects and Addressing Project Financing Risks
 - Panel Discussion 1 - Financing CMM Projects: Overcoming Political and Project Risks
 - Panel Discussion 2 - UNECE Case Studies: Developing Investment Documents for CMM Projects in the Former Soviet Union and Eastern Europe - Lessons Learned
 - Panel Discussion 3 - Roundtable on Policy Issues Affecting CMM Development, including: (1) Formulation of Legal Framework for Concurrent Coal Mining and CBM Recovery, and (2) Policies in Japan and the Effect on the Carbon Business



2007 Beijing Expo: Featured Projects

Project Name	Country
Hebi CMM Power Generation Project	China
Jixi CMM Drilling and Power Generation Project Assistance, China	China
Longfeng and Honglin Coal Mine Methane Power Generation Project, China	China
Pingdingshan No. 4 Coal Mine: VAM to Energy Project, China	China
Pingdingshan No. 8 Coal Mine: CMM Drainage and Utilization Project, China	China
Shigang Mine CMM Gas Purification, Liquefaction & Utilization Project, China	China
Shigang Coal Mine VAM Utilization Project, China	China
Shihao Coal Mine VAM Power Generation Project, China	China
CMM Purification & Utilization Project at Songzao Coal Mining Area, China	China
Korba Coalfield CMM Project Opportunity, India	India
Mimosa Mines Power Generation and Flaring Project, Mexico	Mexico
Okpara Mine Power Generation Project Opportunity, Nigeria	Nigeria
CMM Capture and Utilization Project Opportunity at Kirovskya Mine, Ukraine	Ukraine
CMM Capture and Use Project Opportunity at Holodnaya Balka Mine, Ukraine	Ukraine
Modernizing and Expanding of Degasification Activities at Bazhanov Mine, Ukraine	Ukraine
Coal Methane Utilization Project in Kalinina Mine, Donetsk, Ukraine	Ukraine



2008 New Delhi Expo: Coal Breakout Sessions

- SESSION 1: Policies and Regulation Impacting Coal Mine Methane (CMM) Projects
- SESSION 2: Status and Trends in CMM Project Development
- SESSION 3: Policy and Regulation in India
- SESSION 4: Technology Development in the CMM Sector: Rich Gas
- SESSION 5: Technology Development in the CMM Sector: Lean Gas or Ventilation Air Methane (VAM)
- SESSION 6: Best Practices Guidance for CMM Drainage and Utilization



2008 New Delhi Expo: Featured Projects

Project Name	Country
CMM Purification & Utilization Project at Songzao Coal Mining Area, China	China
CMM Power Generation Project in Fangzhuang No. 2 Mine	China
CMM Utilization at Hebi Mine No. 6	China
CMM Liquefaction Project at Hezuo Mining Area	China
CMM Power Generation Project at Jiulishan Coal Mine	China
CMM Drainage and Utilization Improvements at Liuzhuang Coal Mine	China
CMM Capture and Utilization Project at Songshutan Coal Mine	China
Tianfu Methane Recovery and Use Project	China
VAM Utilization Project at Xiaodongshan Shaft of Sihe Mine	China
Demonstration Project of Low-Quality CMM Utilization in Yangquan No. 1 Mine	China
Chongqing Datong Coal Mine VAM Destruction and Utilization Project	China
Alashan Methane Recovery and Utilization Project	China
Tkibuli-Shaori Mine CMM Recovery and Utilization	Georgia
CMM Project at Asnapani-Jarangdih Mine	India
CMM/AMM Activities at Bhatdee and Murulidih Collieries	India
CMM/AMM Utilization at Kalidaspur Deep Block	India
CMM Utilization at the Korba Coalfield	India
CMM Electricity Generation at the Moher Sub-Basin in Singrauli Coalfield	India
CMM Project at Mohuda Sub-Basin	India
CMM Project at Moonidih Underground Mine	India

2008 New Delhi Expo: Featured Projects (cont'd)

Project Name	Country
VAM Pre-Feasibility Study at Moonidih Underground Mine	India
VAM Project at Muslia Mine	India
CMM/AMM Project Opportunity at the Muslia Unit of the Ghusick Colliery	India
CMM Project at North Kathara Phase I - III & Uchitdih	India
CMM Project at Pootkee-Bulliary Mine	India
CMM Utilization in the Trans Mand Raigarh Coal Basin	India
Expanded Degasification at Kazakhstanshaya Mine	Kazakhstan
CMM Recovery and Utilization at Mimosa Mines	Mexico
Advanced Gob Gas Drainage at Mimosa Mine	Mexico
CMM Project at Kharkhiraa Basin	Mongolia
Power Generation and Heating Project at Nalaikh Mine	Mongolia
Katowice Coal Holding Mines CMM Recovery and Utilization Concept	Poland
Economic Utilization of Methane at the Sosnica-Makoszowy Mine	Poland
Economic Utilization of Methane at The Szczyglowice Coal Mine	Poland
Krupinski Mine CMM Recovery and Utilization by Co-Generation System	Poland
CMM Recovery at Skochinsky Coal Mine	Ukraine
Degasification Modernization and Expansion at Yuzhuo-Donbasskay (South Donbass) No. 3 Mine	Ukraine
Degasification Modernization and CMM Recovery and Utilization at the Stakhanov Mine	Ukraine



Status of Planning for 2013 Expo Coal Breakout Sessions



Call for Papers

- Deadline for the call for papers posted on the GMI website <http://globalmethane.org/expo/abstracts.html> has passed
- Still need for additional papers. Session Planning Chairs will solicit additional papers.
- Subjects may include:
 - Conventional methane drainage techniques & end-use markets
 - New and innovative recovery technologies
 - Capture and use of methane from abandoned mines
 - Country-specific profiles and the global market
 - Financing methane mitigation projects
 - Policies and regulatory frameworks for supporting methane mitigation project development
 - Project case studies
 - Methane abatement



Committee to Organize Sessions

- Several well-known professionals have been invited to act as organizers of the technical and policy sessions
- Their responsibilities will be to:
 - Recommend and encourage potential speakers to submit abstracts
 - Review abstracts submitted to GMI for the coal sector and help fill holes in the roster if necessary
 - Chair the session or nominate others to chair part or all of the session



Proposed Structure of Coal Breakout Sessions

- Policy - Encouraging and Enabling Greater Use of CMM and VAM—Mr. Clark Talkington
- Best Practices - Safe and Effective Capture of CMM and VAM— Dr. David Creedy
- Technology - Innovation and Adaption of Technology for Cost-Effective Use of CMM and VAM— Dr. Hua Guo
- Financing - Carbon Markets, Incentives and Funding Sources— Mr. Michael Coté



Abstracts Received Under Review

Session	Presentation Title
Policy	Energizing the Electricity Market for Methane
	Current Situation of Development and Utilization of CMM and Potential during 12th Five-Year Plan in China
	Development of Coal Mine Methane in India: Opportunities & Challenges
	Coal Mine Methane Developments in the United States
Technology	Prospect of the Utilization of Coal Mine Methane with Low Concentration in China
	Development and Site Trials of a 25kWe Ventilation Air Methane Catalytic Combustion Gas Turbine Prototype Unit
	Long Term Experience of VAM Processing
	CMM Utilization Business Models After the Kyoto Protocol
Financing	Methane-to -Electricity Project to Recover Gas from Coal Mines to Produce Electricity, Reduce Greenhouse Gas Emissions and Support Sustainable Ski Tourism
	Integrated Coal production and Methane Extraction
Best Practices	Directional CBM Drillings Ahead of Mining - New Chance for Reduction of CMM Emissions in Poland
	Methane in Abandoned Coal Mines in China – An Unexploited Resource
	Preliminary Assessment of Methane Recovery from Sealed Off Areas of Moonidih Mine, India



Project Opportunity and Success Story Posters




Poster Sessions

- A key goal of the Expo is to connect project hosts with technical experts, equipment vendors, technical experts and sources of finance
- Historically accomplished via publication of posters describing the project and perceived needs i.e., investment, technology, expertise, etc.
- Need to identify project hosts that desire help with their project and are willing to submit project information to GMI for publication



GMI Project Expos- Posters Format



COAL MINE PROJECT OPPORTUNITY

Nalaikh Mine Power Generation and Heating Project
Tsagaan Shonkor Holding Company
Nalaikh District, Mongolia

OVERVIEW OF COAL MINE PROJECT OPPORTUNITY:
The Nalaikh mine is located in the Nalaikh District, Nalaikh Province, Mongolia. The mine has been operating since 1977 and is expected to continue to operate until 2027. The mine has a total capacity of 1.2 million tonnes per year. The mine is currently operating at a capacity of 0.5 million tonnes per year. The mine is expected to increase its capacity to 1.2 million tonnes per year by 2027. The mine is currently operating at a capacity of 0.5 million tonnes per year. The mine is expected to increase its capacity to 1.2 million tonnes per year by 2027.

ESTIMATED ANNUAL EMISSION REDUCTIONS: 64,399 tCO2e

PROJECT DETAILS

- Name of Project: Nalaikh Mine Power Generation and Heating Project
- Name of Mine: Nalaikh Mine
- Type of Deposit: Powder
- Have other projects or feasibility reports been prepared for this site? No

MINE INFORMATION


- Mine owner (name of company): Tsagaan Shonkor Holding Company
- Status of mine: Active
- Type of mine: Underground
- Mining Method: Longwall

TYPE OF ASSISTANCE SOUGHT

- Financial Assistance for drilling of boreholes in projected mine area (under 100M\$)
- Technical Assistance including resource assessment
- Developing legal/regulatory issues. Consisting of gas deposits or methane in natural occurring in geological area, separate from coal mines based according to national law

PROJECT FINANCES

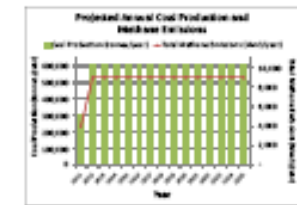
- Projected capital costs for first phase resource assessment and land location: 1,000,000 USD
- Projected capital costs for power project: 5,000 million




PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032
Coal Production (million tonnes)	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Coal Methane Emissions (million tonnes)	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Coal Production	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Coal Methane Emissions	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000

COAL PRODUCTION AND METHANE EMISSION CHARTS



Projected Annual Coal Production and Coal Methane Emissions



Total Methane Emissions from Coal Production

GREENHOUSE GAS EMISSION REDUCTIONS

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total Volume of Methane Expected to be Recovered (million tonnes)	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Total Volume of Methane Expected to be Recovered (million tonnes)	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200

PROPOSED TECHNOLOGIES




Proposed technologies for the Nalaikh project include a methane distribution system that will carry high, medium, and low quality gas to internal combustion engines. Given the preliminary resource assessment, it is estimated that two 1.5 MW engines will be deployed for a 3.0 MW power project.

MARKET ANALYSIS / DEMAND ANALYSIS

The primary end use for the methane would be for electricity generation to support the mine's power supply. A 3.0 MW power plant is anticipated. If enough methane is available for a second stage of the project, coal mine methane could also be supplied to the district heating plant, which is located nearby and currently uses coal. For this second stage of the project, the boiler would need to be converted from coal to gas and construction of a gas supply pipeline of 3 to 4 kilometers would be required.

Costs for implementation of the power project are estimated to be US\$5 million. Costs for the second stage district heating plant have not yet been estimated. The project would require capital investment.

FOR MORE INFORMATION, CONTACT:

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DISCLAIMER: The calculation and prediction contained in this report are based on the data provided by the site owners and operators. The data are in Mongolian. Participants assume full responsibility for the accuracy of this data.

Suggested Poster Content: Project Opportunity

- Contact Information
- Overview of Coal Mine Methane Project Opportunity
- The Main Opportunity
- Project Details
- Mine Information
- Market Analysis / Demand Analysis
- Project Financial projections
- Type of Assistance Sought
- Historical and Projected Mine Emissions Data
- Greenhouse Gas Emissions Reductions estimate
- Proposed Technologies
- Stakeholder / Main Point of Contact Information
- Pictures



Suggested Poster Content: Success Story

- Contact Information
- Overview of Operational Coal Mine Methane Project
- Project Details
- Mine Information
- Actual annual emissions reductions (tons of CO₂e)
- How long the project has been in operation
- Project Finances
- The Success Story
- Was this project featured at the Methane Expo in Beijing or in New Delhi?
- Pictures



Thank You

For more information...

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