

COAL MINE METHANE PROJECT OPPORTUNITY

Moonidih CMM Project

Bharat Coking Coal Ltd

Jharia Coalfield, Jharkhand, India

OVERVIEW OF COAL MINE METHANE PROJECT:

Moonidih CMM block is located in the Moonidih U/G Mine of BCCL in Jharia Coalfield, near Dhanbad, Jharkhand, India. The CMM block covers an area of 12 km² and has an estimated coal resource of 950MT. The gas resource is estimated to be 7.8BCM (275 Bcf). The project area includes 18 regional coal seams (Seam-I to XVIII) and several localized seams. The upper seams XVIII to XVI are actively mined by Longwall method. The virgin coal seams XV to II, which are targeted for CMM recovery, are below seams XVI through XVIII. The coal rank ranges from low to medium volatile bituminous and has an average gas content of over 10m³/t (353 scf/ton). A CBM/CMM recovery and utilization demonstration project operated by CIL is near the Moonidih project area. The demonstration project utilizes produced gas from 2 vertical wells in a 500 kw generator on the mine site. Data dossiers encompassing all details related to geology, mining history, and gas resource have been prepared.

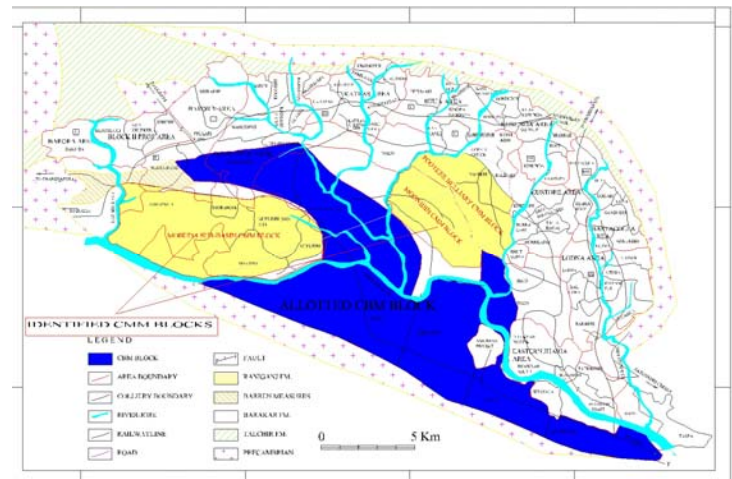
ESTIMATED ANNUAL EMISSION REDUCTIONS: 1.109 MMTCO₂E

PROJECT DETAILS

- Name of Project: Moonidih CMM Project
- Name of Mine: Moonidih U/G Mine
- Type of Ownership: Public Sector Undertaking
- Type of assessments performed: A detailed data dossier is under preparation, which will form part of bid document

MINE INFORMATION

- Mine owner : Bharat Coking Coals Ltd
- Parent company: Coal India Ltd
- Status and type of mine: Active, underground
- Mining Method: Longwall



PROJECT FINANCES

- Assumptions : \$5-\$7/Mcf
- Estimated revenue : \$30-35 Million
- Projected capital costs: Approximately \$20 Million

HISTORICAL AND PROJECTED MINE DATA

HISTORICAL COAL PRODUCTION

YEAR	2006	2007	2008	2009	2010
Coal (tonnes/yr)	327000	158000	196000	174000	252000
<i>Methane (Mm³/yr)</i>					
Emitted from ventilation system(s)	1.879	.908	1.126	1.000	1.448
Liberated from drainage systems					
Vented to atmosphere					
Total Methane Emissions	1.879	.908	1.126	1.000	1.448

PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

YEAR	2013	2014	2015	2016	2017	2018	2019
Coal (tonnes/yr)	200,000	300,000	350,000	1,100,000	1,100,000	1,100,000	1,100,000
<i>Methane (Mm³/yr)</i>							
Emitted from ventilation system(s)	1.149	1.724	2.012	6.322	6.322	6.322	6.322
Liberated from drainage systems	5	12	25	50	70	78	78
Vented to atmosphere	1.149	1.724	2.012	6.322	6.322	6.322	6.322
Total Methane Emissions	1.149	1.724	2.012	6.322	6.322	6.322	6.322

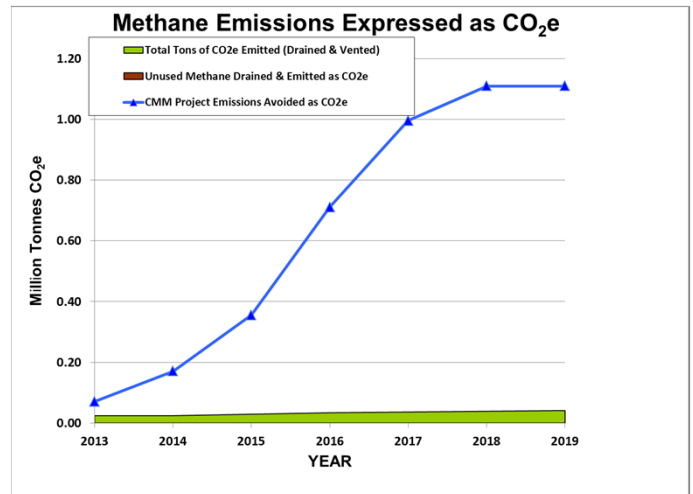
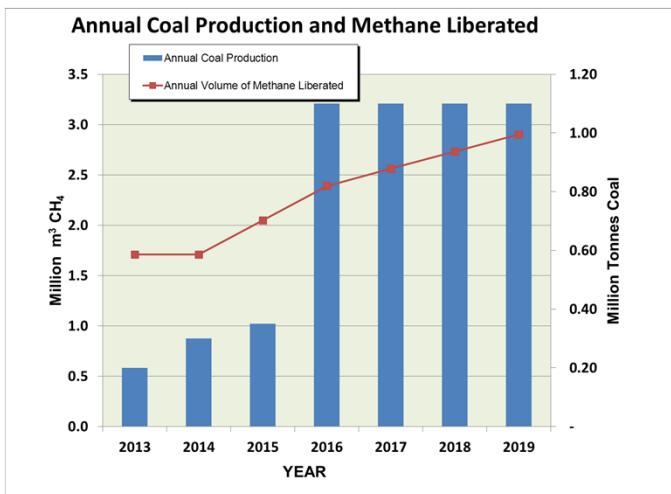
GREENHOUSE GAS EMISSION REDUCTIONS

At present there is no system of methane drainage and therefore, there is no utilization of CMM from the project area. There is no existing gas drainage system operational in the mine. To reduce the release of methane into the environment from the operating mine and to make future mining safe, this CMM project has been perceived.

TOTAL VOLUME OF METHANE EXPECTED TO BE RECOVERED/UTILIZED

YEAR	2013	2014	2015	2016	2017	2018	2019
Total CH ₄ recovered and utilized (m ³ /year)	5	12	25	50	70	78	78

COAL PRODUCTION AND METHANE EMISSION CHARTS



MARKET ANALYSIS / DEMAND ANALYSIS

The CMM produced after implementation of the Pootkee-Bulliyari CMM Project would have a ready market as it is located close to the developed, industrial area of Bokaro Steel City and Dhanbad. The produced CMM may be utilized in the Bokaro Steel Plant or other steel plants, or in other industries.

TYPE OF ASSISTANCE SOUGHT

Technical Assistance:

- CBM resource assessment in de-stressed coal seams
- Techno-economic evaluations of the project
- Adoption of suitable drilling technology

PROPOSED TECHNOLOGIES

To be adopted after careful examination of existing geo-mining conditions.



Long Hole Directional Drills



Gas-Powered Generator

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