

COAL MINE METHANE PROJECT OPPORTUNITY

Pootkee-Bulliaiy CMM Project

Bharat Coking Coal Ltd

Jharia Coalfield, Jharkhand, India

OVERVIEW OF COAL MINE METHANE PROJECT:

Pootkee-Bulliaiy CMM Project is located in the Pootkee-Bulliaiy U/G Mine of BCCL in the Jharia Coalfield, near Dhanbad, Jharkhand, India. The CMM block covers an area of 16 km² and has an estimated coal resource of 820MT. The gas resource is estimated to be 7.0 BCM (247 Bcf). The project area includes 18 regional coal seams (I-XVIII). The Upper seams XVIII to XVI are actively mined by bord & pillar method. The X to II coal seams, which are targeted for CMM recovery, are below seams XVIII to XVI. The coal rank ranges from low to medium volatile bituminous and has an average gas content of over 10m³/t (353 scf/ton). The commercial CBM project operated by CIL-ONGC near the Pootkee CMM area has proved commercial production on a limited scale and is expected to reach full-scale commercial production by 2013. Data dossiers encompassing all details related to geology, mining history, and gas resource have been prepared.

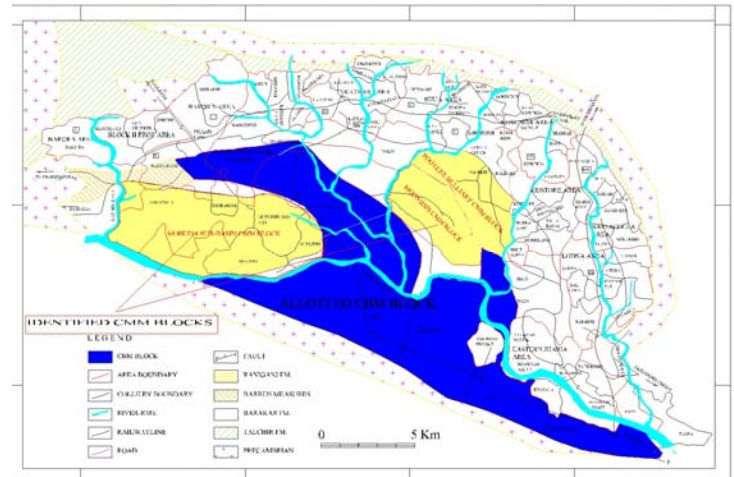
ESTIMATED ANNUAL EMISSION REDUCTIONS: .995 MMTCO₂E

PROJECT DETAILS

- Name of Project: Pootkee-Bulliaiy CMM Project
- Name of Mine: Pootkee-Bulliaiy U/G Mine
- Type of Ownership: Public Sector Undertaking
- Target coal seams: Virgin seams lying below the mined out coal seams

MINE INFORMATION

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



PROJECT FINANCES

- Assumptions : \$5-\$7/Mcf
- Estimated revenue : \$25-30 Million
- Projected capital costs: Approximately \$18 Million

HISTORICAL AND PROJECTED MINE DATA

HISTORICAL COAL PRODUCTION

YEAR	2006	2007	2008	2009	2010	2011
Coal (tonnes/yr)	135,000	170,000	200,000	232,000	125,000	114,000
Methane (Mm³/yr)						
Emitted from ventilation system(s)	0.461	0.580	0.683	0.792	0.427	0.389
Liberated from drainage systems						
Vented to atmosphere						
Total Methane Emissions	0.461	0.580	0.683	0.792	0.427	0.389

PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

YEAR	2012	2013	2014	2015	2016	2017	2018	2019
Coal (tonnes/yr)	213,000	500,000	500,000	600,000	700,000	750,000	800,000	850,000
Methane (Mm³/yr)								
Emitted from ventilation system(s)	0.727	1.707	1.707	2.049	2.390	2.561	2.732	2.902
Liberated from drainage systems		5	12	25	50	60	70	70
Vented to atmosphere	0.727	1.707	1.707	2.049	2.390	2.561	2.732	2.902
Total Methane Emissions	0.727	1.707	1.707	2.049	2.390	2.561	2.732	2.902

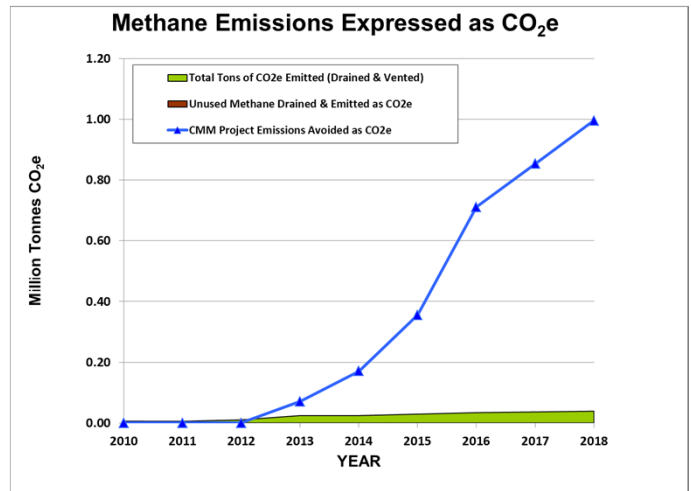
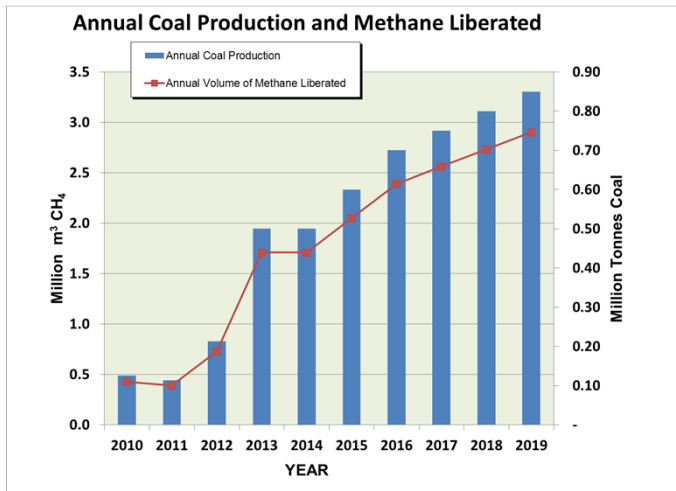
GREENHOUSE GAS EMISSION REDUCTIONS

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	60	70	70

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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