

# COAL MINE METHANE PROJECT OPPORTUNITY

## Asnapani-Jarangdih CMM Project

### Central Coalfields Ltd

#### East Bokaro Coalfield, Jharkhand, India

### OVERVIEW OF COAL MINE METHANE PROJECT:

The Asnapani-Jarangdih CMM block is located in the central part of East Bokaro Coalfield near the Bokaro Steel City township in Jharkhand, India. The CMM block covers an area of 4 km<sup>2</sup> and has an estimated coal resource of 620 MT. The gas resource is estimated to be 6.2 BCM (219 Bcf). There are 22 coal seams (Seam Karo-I to Jarangdih Top) in the area. Jarangdih U/G mines are actively mining the upper Jarangdih group by bord and pillar method. The virgin seams, Sawang 'C' through Karo-VI, are the target seams for CMM recovery. The coal rank ranges from low to medium volatile bituminous and has an average gas content of over 10m<sup>3</sup>/t (353 scf/ton). A commercial CBM project operated by ONGC near Asnapani-Jarangdih is in pilot phase and has shown encouraging CBM prospects. Data dossiers encompassing all details related to geology, mining history, and gassiness has been prepared.

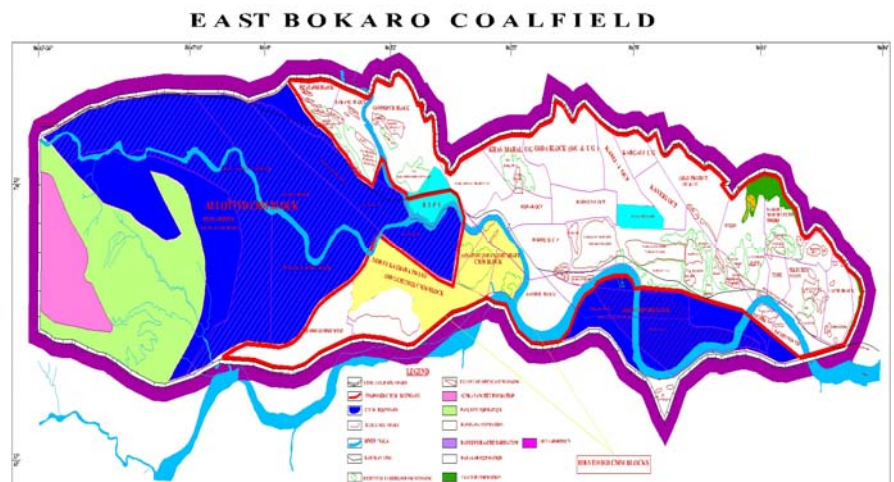
**ESTIMATED ANNUAL EMISSION REDUCTIONS: 0.881 MMTCO<sub>2</sub>E**

## PROJECT DETAILS

- Name of Project: Asnapani-Jarangdih CMM Project
- Name of Mine: Jarangdih U/G Mine
- Type of Ownership: Public Sector Undertaking
- Target coal seams: Virgin seams lying below the mined out coal seams
- Type of assessments performed: A detailed data dossier is under preparation, which will form part of bid document

## MINE INFORMATION

- Mine owner : Central Coalfields Ltd
- Parent company: Coal India Ltd
- Status of mine: Active
- Type of mine: Underground
- Mining Method: Bord & Pillar



## PROJECT FINANCES

- Assumptions : \$5-\$7/Mcf
- Estimated revenue : \$22-27 Million
- Projected capital costs: Approximately \$16 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
<b>Methane (Mm<sup>3</sup>/yr)</b>						
Emitted from ventilation system(s)	0.617	0.777	0.914	1.060	0.571	0.521
Liberated from drainage systems						
Vented to atmosphere						
Total Methane Emissions	0.617	0.777	0.914	1.060	0.571	0.521

## PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

YEAR	2012	2013	2014	2015	2016	2017	2018	2019
Coal (tonnes/yr)	125,000	150,000	175,000	200,000	200,000	225,000	250,000	250,000
<b>Methane (Mm<sup>3</sup>/yr)</b>								
Emitted from ventilation system(s)	0.571	0.685	0.799	0.914	0.914	1.028	1.142	1.142
Liberated from drainage systems		5.0	15.0	30.0	45.0	55.0	62.0	62.0
Vented to atmosphere	0.571	0.685	0.799	0.914	0.914	1.028	1.142	1.142
Total Methane Emissions	0.571	0.685	0.799	0.914	0.914	1.028	1.142	1.142

\*2011-2019 Annual coal production estimated based historic data

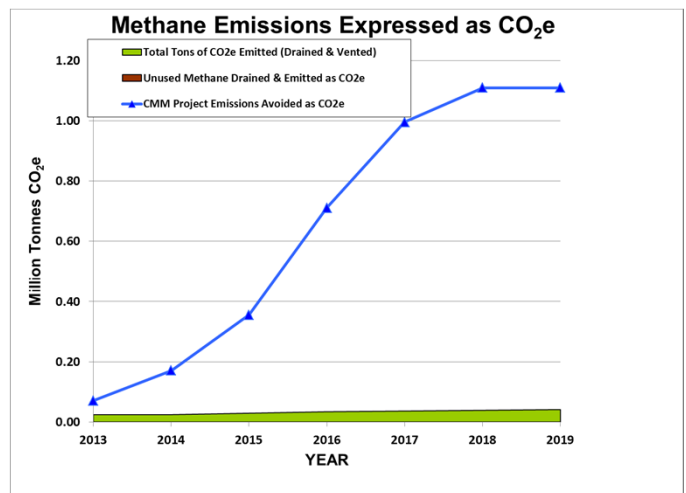
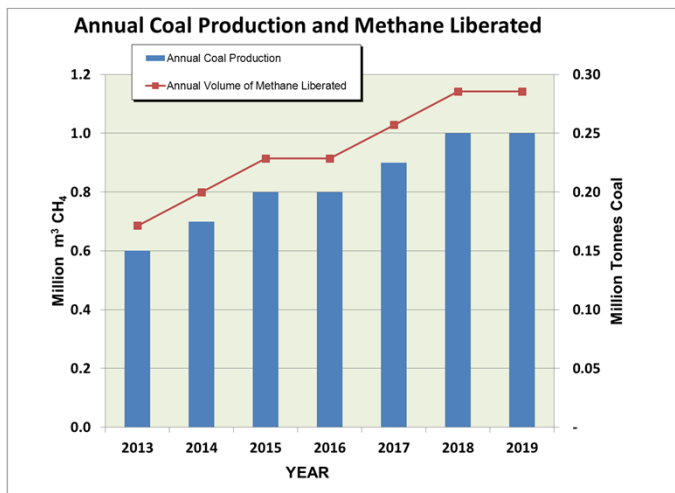
## GREENHOUSE GAS EMISSION REDUCTIONS

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 operating 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 <sub>4</sub> recovered and utilized (m <sup>3</sup> /year)	5.0	15.0	30.0	45.0	55.0	62.0	62.0

## COAL PRODUCTION AND METHANE EMISSION CHARTS



# MARKET ANALYSIS / DEMAND ANALYSIS

The CMM produced after implementation of the Asnapani-Jarangdih 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.



**Well Drilling Rig Unit**



**Gas-based Power Generator**

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