

# COAL MINE METHANE PROJECT OPPORTUNITY

## Parbatpur CMM Project

### Electrosteel Casting Ltd

#### Jharia Coalfield, Jharkhand, India

### OVERVIEW OF COAL MINE METHANE PROJECT:

The Parbatpur CMM Project is located in the Parbatpur Mine of ECL in the Jharia Coalfield, near Dhanbad, Jharkhand, India. The CMM project covers an area of approximately 8.8 km<sup>2</sup> and has an estimated gas resource of 5.31 BCM (187.5 Bcf). The project area includes 18 regional coal seams (I-XVIII) of the Barakar formation. Geological studies at the mine determined that the Barakar coal measures may contain up to 80 meters of cumulative thickness at depths between 200 and 1,100 meters. Longwall mining is planned for the upper seams XVI and XV. Pre-degasification of these upper seams is ideal for future mining. The potential for degasification of the virgin seams below (XIV – I) also exists. The coal rank ranges from low to medium volatile bituminous and has a gas content of up to 11m<sup>3</sup>/t DAF (388 scf/ton). Data dossiers encompassing all details related to geology, mining history, and gas resource have been prepared.

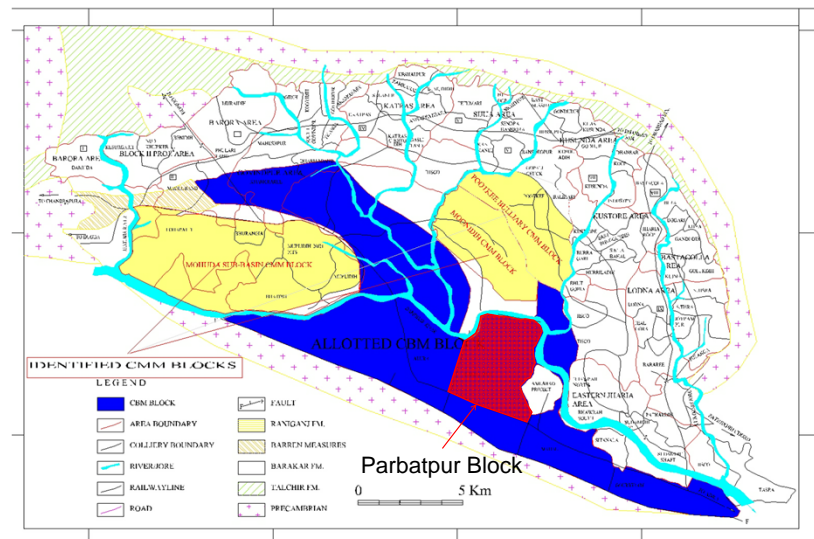
**ESTIMATED ANNUAL EMISSION REDUCTIONS: 0.161 MMTCO<sub>2</sub>E**

## PROJECT DETAILS

- Name of Project: Parbatpur CMM Project
- Name of Mine: Parbatpur Underground Mine
- Type of Ownership: Private
- Target coal seams: Planned longwall mined seams and virgin seams below

## MINE INFORMATION

- Mine owner : Electrosteel Casting Ltd
- Parent company: Electrosteel Casting Ltd
- Status and type of mine: Active, underground
- Mining Method: Longwall



## PROJECT FINANCES

- Assumptions: US\$5-\$7/Mcf
- Estimated revenue: US\$25-30 Million
- Projected capital costs: Approximately US\$15 Million

# HISTORICAL AND PROJECTED MINE DATA

## HISTORICAL COAL PRODUCTION AND METHANE EMISSIONS

This is a virgin coal block and there is no historical coal or methane production to date.

## PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

YEAR	2014	2015	2016	2017	2018	2019	2020
<i>Coal (tonnes/yr)</i>	150,000	220,000	650,000	1,000,000	1,500,000	2,000,000	2,000,000
<i>Methane (Mm<sup>3</sup>/yr)</i>							
Emitted from ventilation system(s)	2.038	2.989	8.508	12.650	18.975	25.300	25.300
Liberated from drainage systems	1.019	1.494	4.254	6.325	9.487	12.650	12.650
Vented to atmosphere	2.038	2.989	8.508	12.650	18.975	25.300	25.300
Total Methane Emissions	2.038	2.989	8.508	12.650	18.975	25.300	25.300

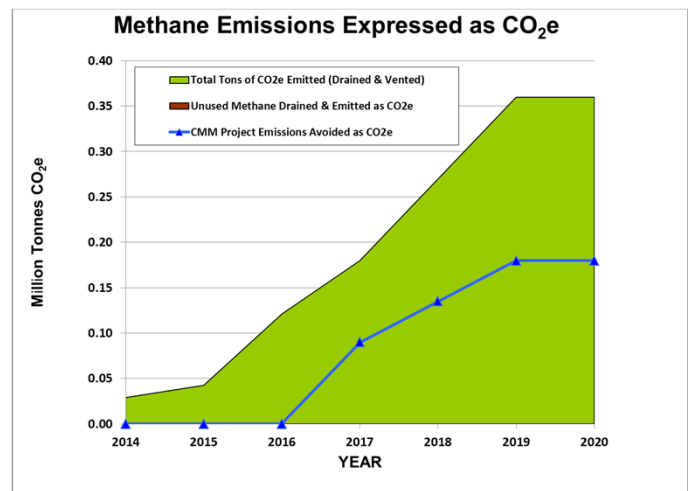
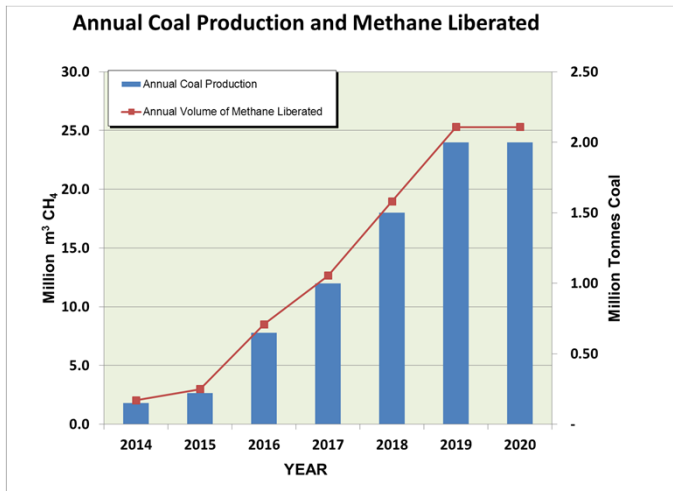
## GREENHOUSE GAS EMISSION REDUCTIONS

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	2014	2015	2016	2017	2018	2019	2020
Total CH <sub>4</sub> recovered and utilized (Mm <sup>3</sup> /year)	1.019	1.494	4.254	6.325	9.487	12.650	12.650

## COAL PRODUCTION AND METHANE EMISSION CHARTS



# MARKET ANALYSIS / DEMAND ANALYSIS

The CMM produced after implementation of the Parabatpur 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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