

# COAL MINE METHANE PROJECT OPPORTUNITY

## Comprehensive Utilization Project of VAM and CMM at Xiaodongshan Shaft of Sihe Mine

### Jincheng Anthracite Mining Group

### Jincheng Mining Area, Shanxi Province, China

#### OVERVIEW OF COAL MINE METHANE PROJECT:

Recent records indicate that the ventilation flow rate of Xiaodongshan Shaft is approximately 16,000 m<sup>3</sup>/min, with the average methane flow rate of 38 m<sup>3</sup> per minute. Annually, 19.7 million m<sup>3</sup> of pure methane is directly emitted to the atmosphere. There is a low quality CMM drainage station besides the Xiaodongshan Shaft, with the drainage concentration floating between 20%~28%, and the CH<sub>4</sub> flow rate of 97.7 m<sup>3</sup>/min. Approximately 50.6 million m<sup>3</sup>/a of pure methane is directly emitted to the atmosphere. The project plans to add the low-quality CMM into VAM and increase the methane concentration to between 1% - 2%. The mixed gas will be oxidized by 12 sets of thermal oxidizers and used for power generation (24 MW power plant) through steam turbines. The estimated annual emission reduction will be 735,920 tonnes of CO<sub>2</sub> equivalent. The total investment of the project is 360 million RMB. The operation and maintenance costs for the fully implemented project is 22.4 million RMB.

#### ESTIMATED ANNUAL EMISSION REDUCTIONS: 0.74 MMTCO<sub>2</sub>E

#### PROJECT DETAILS

- Name of Project: Comprehensive Utilization Project of VAM and Low Quality CMM at Xiaodongshan Shaft of Sihe Mine
- Name of Mine: Sihe Mine
- Type of Ownership: State-owned
- Type(s) of assessments performed: Pre-feasibility study
  - By whom: China Coal Information Institute

#### MINE INFORMATION

- Mine owner: Jincheng Anthracite Mining Group
- Percent ownership: 100%
- Status and type of mine: Active underground coal mine
- Mining Method: Longwall
- Service Life of Mine: 41 years

#### PROJECT FINANCES

- Projected capital costs: US\$57.88 million (360 million RMB)
- Projected operation and maintenance (O&M) costs for fully implemented project: US\$ 3.06 million (22.4 million RMB)





# HISTORICAL AND PROJECTED MINE DATA

## HISTORICAL COAL PRODUCTION AND METHANE EMISSIONS

YEAR	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<i>Coal (tonnes/yr)</i>	2000000	5000000	8000000	10800000	10800000	10800000	10800000	10800000	10800000	10800000
<i>Methane (Mm<sup>3</sup>/yr)</i>										
Emitted from ventilation system(s)	23903000	59756000	69799500	79843000	34914000	17668000	15652000	18935000	22000000	19700000
Liberated from drainage systems	14230000	23258000	68000000	81247000	82156000	56742000	55658000	52365000	51000000	50600000
Vented to atmosphere	14230000	23258000	68000000	81247000	82156000	56742000	55658000	52365000	51000000	50600000
Total Methane Emissions	38133000	83104000	135798500	161090000	117070000	74410000	71310000	71300000	73000000	70300000

## PROJECTED COAL PRODUCTION AND METHANE EMISSIONS

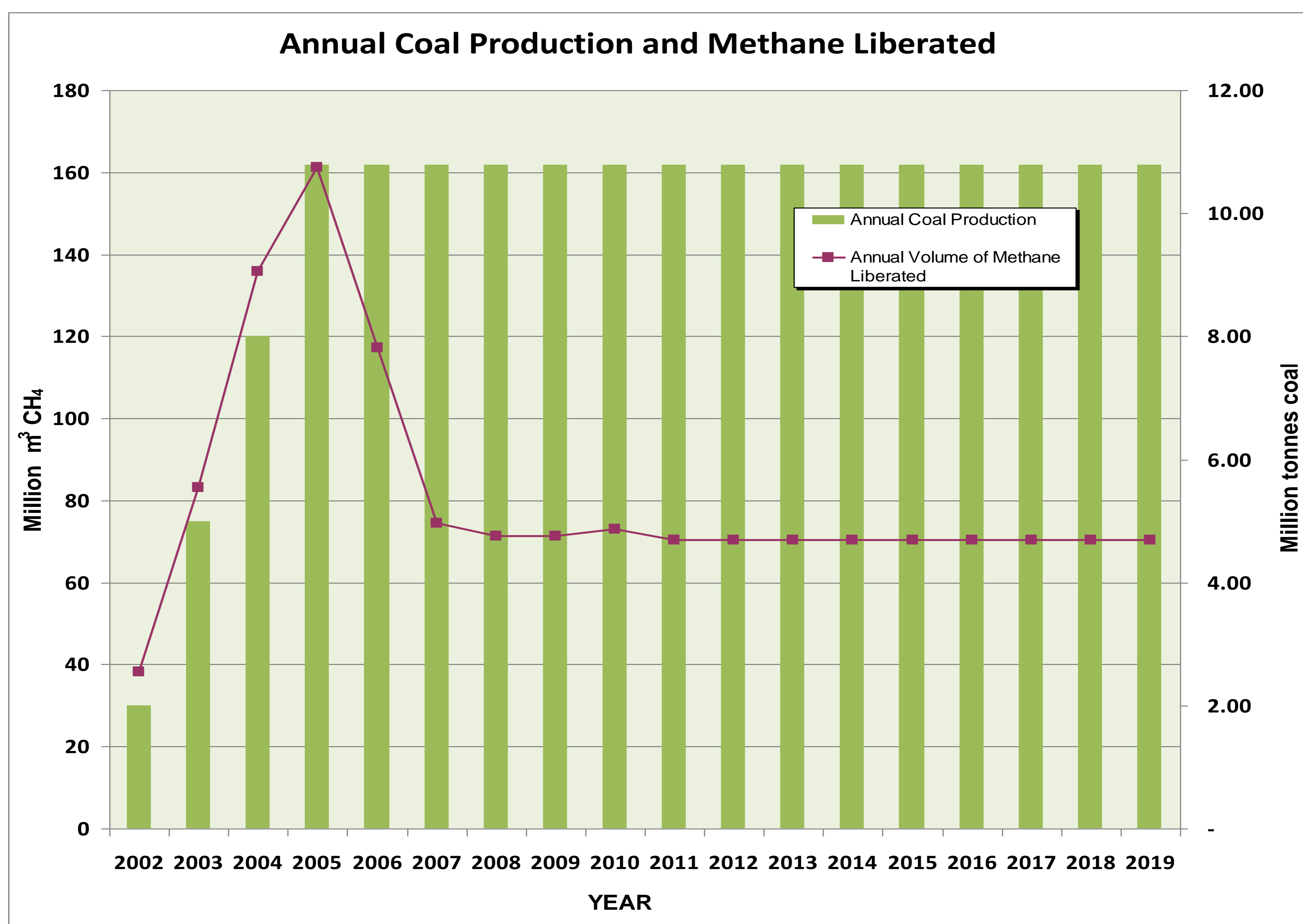
YEAR	2012	2013	2014	2015	2016	2017	2018	2019
<i>Coal (tonnes/yr)</i>	10800000	10800000	10800000	10800000	10800000	10800000	10800000	10800000
<i>Methane (Mm<sup>3</sup>/yr)</i>								
Emitted from ventilation system(s)	19700000	19700000	19700000	19700000	19700000	19700000	19700000	19700000
Liberated from drainage systems	50600000	50600000	50600000	50600000	50600000	50600000	50600000	50600000
Vented to atmosphere	14060000	14060000	14060000	14060000	14060000	14060000	14060000	14060000
Total Methane Emissions	14060000	14060000	14060000	14060000	14060000	14060000	14060000	14060000

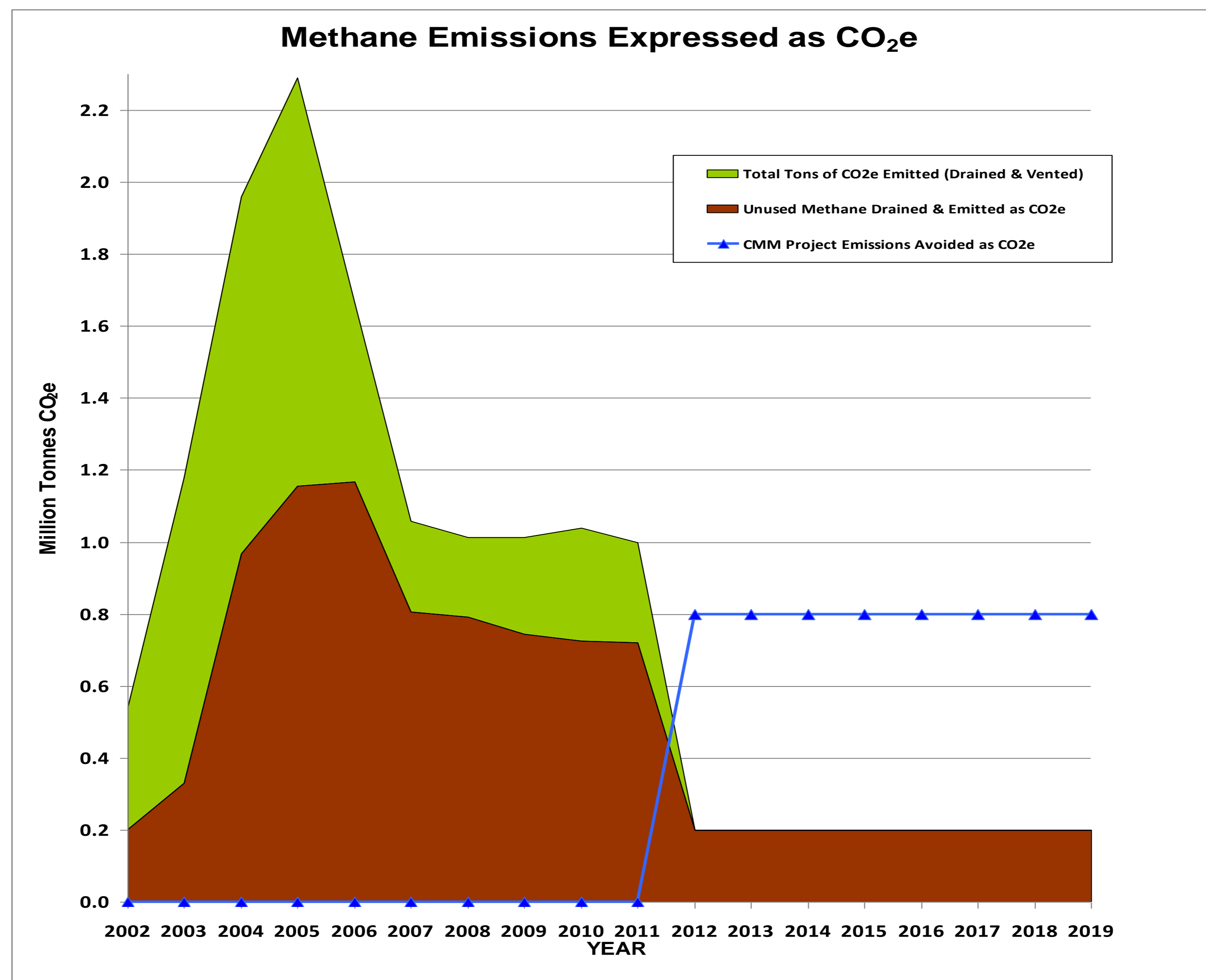
# GREENHOUSE GAS EMISSION REDUCTIONS

## TOTAL VOLUME OF METHANE EXPECTED TO BE RECOVERED/UTILIZED

YEAR	2012	2013	2014	2015	2016	2017	2018	2019
Total CH <sub>4</sub> recovered and utilized (m <sup>3</sup> /year)	56240000	56240000	56240000	56240000	56240000	56240000	56240000	56240000

# COAL PRODUCTION AND METHANE EMISSION CHARTS





## MARKET ANALYSIS / DEMAND ANALYSIS

The product of this project is electricity and Certified Emission Reductions (CERs). After full implementation, the project will generate 735,920 MTCO<sub>2</sub>E, and supply 160 million KWh of electricity every year. Recently, along with the global economic depression, the price of CERs in the European market is lower than 1Euro, and the market outlook is far from bullish. The project will mainly benefit from the revenue of power generation.

## TYPE(S) OF ASSISTANCE SOUGHT

- Financial Assistance: Preferential loans from banks are needed, and the amount of funding sought is US\$ 34.73 million (216 million RMB).

## FOR MORE INFORMATION, CONTACT:

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*DISCLAIMER: The information and predictions contained within this poster are based on the data provided by the site owners and operators. The Global Methane Initiative cannot take responsibility for the accuracy of this data.*