中国清洁发展机制(CDM)大会论文
The paper of China CDM Meeting

铁法矿区矿井瓦斯(CMM)利用CDM项目
The CDM Project on CMM Utilization in Tiefa Mining Area

铁法煤业(集团)有限责任公司
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1. 项目目标
1. Objective of the project

本项目目标是将为了煤矿安全生产所抽放的煤矿区抽放瓦斯进行收集，并用作法库县陶瓷城的工业燃气，以替代煤气发生炉产生的煤气，同时部分用于替代煤炭和液化石油气作为法库县城市居民燃气，而不是直接排放到大气当中。

The objective of the project is to drain the methane gas from the coal seam for safe coal mining operation and utilize the drained gas for ceramic factories instead of coal gas from coal-gas producers, rather than venting it directly to the atmosphere.

2. 采用技术
Technologies to be employed

（1）采前煤层气的地面预抽技术
New surface drilling technology for extraction of methane from the coal seam prior to mining

（2）新型抽气管与封孔技术
New type of gas piping and bore sealing approach

（3）CMM长距离输送的新技术
The new technology of long-distance CMM delivery will be employed to deliver the CMM from Tiefa to Faku

（4）调整陶瓷生产线燃烧喷嘴
Change the burner nozzles of the ceramic production lines

3.项目面临障碍
Barriers and Constraints

如何解决煤矿区煤层气向法库县长距离输送的问题。

How to deliver the CMM through a long distance to the ceramic city, Faku?

4.全球和当地环境收益
Specific global & local environmental benefits

项目将产生多种环境收益，其中包括：据估计项目年平均减排2044吨SO_2 和3504吨飞灰；据估计当全部4973万m^3CMM输送到法库县时，项目年平均减排温室气体77万吨CO_2当量。

Various environmental benefits will result from the project. They include:
Annual SO_2 emissions and fly ash reductions are estimated to be 2,044 tons and 3504 tons, respectively;
Annual greenhouse gas (GHG) emission reductions are estimated to be around 770K tons of CO_2 equivalent when 49.73 Mm^3 of CMM per year are delivered as a fuel to the ceramic city, Faku.

煤层气替代煤气作为陶瓷生产线燃料，将使生产线不仅仅能够生产普通装饰用陶瓷，而且能够生产具有更高的附加值的家用高档陶瓷产品，为陶瓷城带来更多利润收益。

Once coal gas is replaced with CMM, they can not only produce ceramic tiles for decoration but also produce high-grade domestic ceramics. The new ceramic products have higher added value and can bring more benefit for them.

5.社会经济方面
Socio-economical aspects

项目的实施将为铁煤集团和法库县提供大约 500个工作岗位。促进煤矿安全生产，提供新能源。

The implementation of the project will lead to 500 jobs for Tiefa Coal Group and the ceramic city, Faku, and improve mine safety and provide new energy source.

6.项目基准线及额外性
Project baseline and additionality

与晋城CMM利用项目， 南山CMM利用项目和淮南潘三CMM项目相比，铁煤集团CMM项目具有相同的基准线和额外性。

Compared with Jincheng CMM utilization project, Nanshan CMM utilization project and Pansan CMM project, Tiefa CMM project has its additionality to the baseline scenario.

6.1基准线情景 铁煤集团绝大多数CMM都出于安全考虑被直接排入大气当中，将煤层气排空燃烧，从安全角度来看目前仍然不值得考虑，而且不具有资源利用优势。对CMM的利用的局限性主要是由于建瓦斯电厂、输送管路和储存系统的高额投资。

6.1Baseline scenario In Tiefa a small part of CMM drained has been supplied to the miners' residential area as household fuel. But most of the coal mine methane (CMM) will be vented to the atmosphere for mining operation safety. Utilization of the CMM will be limited to the households in the immediate vicinity of mines because of the high investment cost of power plants, transportation and distribution pipelines, and storage system.

而CDM的引入将项目使法库陶瓷城使用CMM替代传统的煤气发生炉煤气，替代煤或液化石油气作为城市燃气，将煤层气作为煤矿工业燃料和矿工家庭燃气使用，其余排空；因此只有在拥有CDM融资时才可行。

The CDM project will use CMM to replace coal gas from coal gas producers in Faku.

6.2项目额外性 我国的煤矿安全规程规定高瓦斯煤矿必须对瓦斯进行抽放，以确保煤矿的安全生产，但是没有对抽放瓦斯进行利用的规定。目前，由于没有强制性规定利用抽放瓦斯，对煤矿来说直接排空瓦斯是最经济和常规的做法。

6.2 Project Additionality There are some encouraging policies to use CMM but no practical incentives for developing CMM utilization schemes. At present these will not be included in the planned RE law or the revised Energy Conservation Law. And taking into account barriers to investment of CMM utilization project, the baseline scenario will be the ventilation of CMM and the coal gas as the fuel of Faku ceramic city, which are the business as usual.

目前虽然有些鼓励政策鼓励利用煤层气，但是没有实际鼓励机制来推动煤层气利用项目计划的实施，而且这将也不会被纳入修改中的可再生能源立法和改进能效的法律当中。两个煤层气电站的第二期工程将根据外方投资量来决定是否采用国际燃气发动机，这将意味着更多的投资，因此采用CER产生的收益将使项目更加可行。

In terms of project additionality, other alternative baseline scenarios, listed by likelihood, include: use CMM for households of Tiefa and Diaobingshan; flare CMM, not allowed for safety concern currently and also no productive use of resource so this would only be possible with CDM financing; use CMM for power generation.

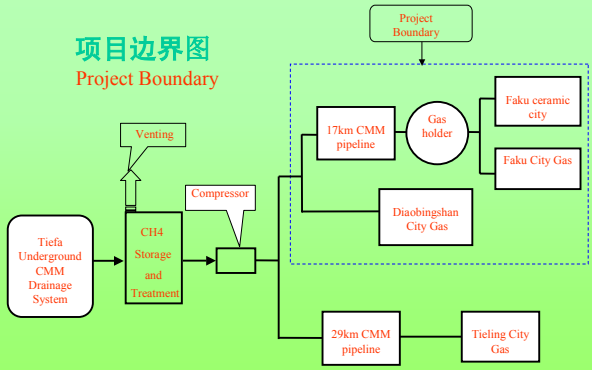
7.项目主要工程及边界

The main engineering and project boundary

- （1）井下和地面煤层气抽采;
- underground and surface coalbed methane recovery;
- （2）17km地下CMM输送管线;
- laying a 17km underground pipeline to deliver CMM;
- （3）调整陶瓷生产线燃烧喷嘴;
- changing the burner nozzles of the ceramic production lines.
- （4）向调兵山市20000户居民输配CMM。
- supplying CMM to Diaobingshan City

项目边界图

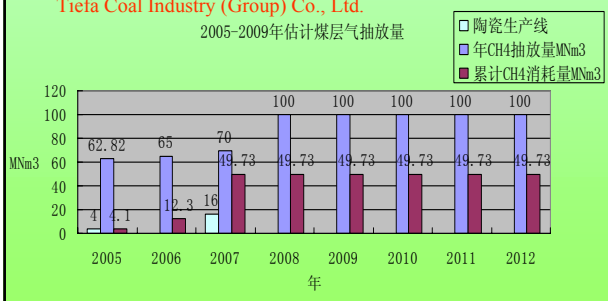
Project Boundary



8.项目实施机构 Project developer

铁法煤业（集团）有限责任公司

Tiefa Coal Industry (Group) Co., Ltd.



9 项目概述

The project outline

9.1项目开始时间（项目初期）

Earliest project start date

•项目的一期已于2005年8月8日试通气，二期预计2006年8月8日正式完工。

The 1st phase of the project is expected to be operational on August 8, 2005, and the 2nd phase is expected to be operational on August 8, 2006.

- 预计从项目申请，通过审批到项目正式实施之前所需时间：财务款项（融资）所需时间：6个月；法律程序所需时间：3个月；商讨谈判所需时间：3个月；项目的工程建设所需时间：12～18个月

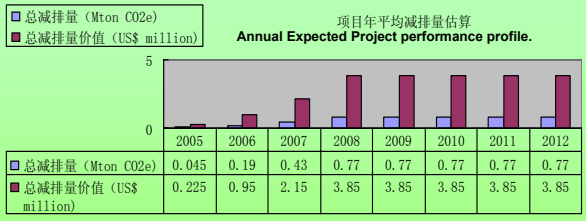
Time required before becoming operational after approval of the PIN
Time required for financial commitments: 6 months
Time required for legal matters: 3 months
Time required for negotiations: 3 months
Time required for construction: 12 - 18 months

9.2 项目实施年限和预估温室气体减排量/预估CO_2封存储量（吨/等量CO_2）

Project lifetime and Estimate of Greenhouse Gases abated / CO_2 Sequestered (in metric tons of CO_2 equivalent)

项目在第一个7年减排期内（2006～2012年）将产生451.5万吨CO_2当量的减排量，根据目前的“经核准的减排量”（CER）的指导性价格：5美元/CO_2e，项目《碳减排购买合同》的总价值大约是2260万美元。

The total production of emission reductions (ERs) during the first 7 years of the project (2006-2012) will be 4.52 million tons of CO_2 equivalent (CO_2e). Based on an indicative certified emission reduction (CER) price of US$5 per ton CO_2e from NDRC, the total Emission Reduction Purchase Agreement (ERPA) value will be approximately US$22.6 million.



	2005	2006	2007	2008	2009	2010	2011	2012
总减排量（Mton CO2e）	0.045	0.19	0.43	0.77	0.77	0.77	0.77	0.77
总减排量价值（US$ million）	0.225	0.95	2.15	3.85	3.85	3.85	3.85	3.85

- 减排量承诺期10年：664.5万吨CO_2e;
- Up to a period of 10 years: 6.645 MtCO_2-equivalent
- 减排量承诺期14年：972.5万吨CO_2e
- Up to a period of 14 years: 9.725 MtCO_2-equivalent

9.3项目实施运行现行状态
Current status of the project

目前该项目一期工程已完成，实现了初期供气，日供气量变10万m^3/天。

At present, feasibility study and environmental impact study have been finished and the 1st phase of the project has been completed. The supplied gas amount is 100 thousand cubic metres per day.

9.4东道主国家对项目的认可程度
Current status of host country acceptance

已向中国CDM主管机构国家发展与改革委员会汇报项目进展和项目碳减排购买方情况。

CCII handed in a report to the NDRC about the CDM developers and the project status.

作者简介：

李国君（1964年6月—），男，辽宁法库人，高级工程师， 1988年7月中国矿业大学矿井通风与安全专业毕业，现任铁法煤业（集团）有限责任公司副总工程师，中国矿业大学安全技术及工程专业博士研究生，中国煤炭劳保科技学会矿井通风专业委员会副主任委员，瓦斯防治专委会、安全专委会、煤层气专委会委员，《中国煤层气》杂志编委，煤科总院抚顺分院硕士研究生导师，曾于1995年3月～4月赴美国参加煤层气开发与利用技术培训，1999年8月赴日本参加煤层气回收与利用研修、考察，2001年9月～11月赴美国康州大学工商管理培训。自毕业以来，在《铁法科技》、《煤矿安全》、《煤炭科学技术》、《中国煤层气》、国内外学术会议上公开发表论文38篇。

The author:

Li Guojun, male, Senior Engineer, born in June 1964, graduated from China University of Mining and Technology in July 1988 majoring in ventilation and safety of coal mine. Now he is the deputy chief engineer of Tiefa Coal Industry Group, the doctoral candidate of China University of Mining and Technology, vice director of ventilation and safety committee of China Coal Industry Institute of Labor-Protection Science and Technology, editor of 《China Coalbed Methane》 journal and graduate advisor of Fushun Branch of CCRI. From March to April of 1995, he was in USA for CBM development and utilization technology training; from September to November of 2001, in Central Connecticut State University of USA for business administration training, and in August 1999, he was in Japan for CBM recovery and utilization study and investigation. Since graduation, he has published 38 papers.