



Trading Emissions PLC

Third Floor, Exchange House, 54/62 Athol  
Street, Douglas, Isle of Man, IM1 1JD, British  
Isles

[t: +44 \(0\) 1624 681200](tel:+441624681200)

**Ref: Response to request for review for project activity “Daning Coal Mine Methane Power Generation Project in Jincheng City Shanxi Province, China” (1922)**

08 December 2008

UNFCCC Secretariat  
Martin-Luther-King-Strasse 8  
D-53153 Bonn  
Germany

Attention: CDM Executive Board

Dear Sir or Madam,

We were informed that our project “Daning Coal Mine Methane Power Generation Project in Jincheng City Shanxi Province, China” (1922) was requested for review by CDM Executive Board. As required by the Executive Board and on behalf of the project participants, we would like to answer the questions and clarify the issues raised in the requests as follows:

**1. The DOE should clarify how the prior consideration of the CDM was validated in line with EB 41, Annex 46, para. 5 (a) and (b).**

**PP’s response:**

Besides the DOE response we would like to add that in section B.5 of the PDD it is clearly described that CDM was considered prior to the project start date and CDM development has been carried out in parallel to project development. Supporting evidences were made available to the DOE and these were confirmed in the validation report as appropriate. This judgement was based on:

EB 41 Annex 46 para 5 which reads as follows.

*Proposed project activities with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are required to demonstrate that the CDM was seriously considered in the decision to implement the project activity. Such demonstration requires the following elements to be satisfied:*

*(a) The project participant must indicate awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project. Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a CDM project activity.*

CDM was considered almost a year before the actual implementation of the project and it has been a decisive factor for the project. The timeline table is presented at the end of the response to question 1.

### **January 2005**

The Project Proponent (PP)'s CDM awareness was substantiated by the correspondence between the PP and the Natural Gas Utilisation Development Committee (CNUDC) on 10/01/2005.

During the time of the feasibility study stage, the project owner had also consulted Jincheng Municipal CMM and Natural Gas Utilisation Development Committee regarding its CDM development plan in January 2005. The Committee provided supportive opinion on the CDM project development.

It is quoted from the validated letter that "... Considering the hindrance to the project development, in order to overcome the financial difficulty, we would like to apply for the Clean Development Mechanism to utilize the coal mine methane..." The Committee replied with its endorsement and advised the project owner to proceed as soon as possible.

### **February 2005**

FSR was completed with the consideration of CDM. The FSR concluded that the project cannot be viable without CDM assistance.

As quoted in the conclusion of the financial analysis, "When the CMM price is zero, the profit margin is small. When the CMM price is 0.15RMB/m<sup>3</sup>, the project is not viable." The project is independent of the coalmine and therefore in this instance the project has to pay for the gas.

The FSR indicated that "The project contributes to the development of clean energy. CDM plays an important role for the project implementation. With the assistance of CDM under the current global and national political environment and regulations the project would achieve considerable economic performance and social benefits Otherwise with various persistent conditions, the project implementation is not economic viable."

### **April 2005**

The PP engaged the Agenda 21 Management Centre for CDM advisory service. The letter of engagement has been validated by the DOE.

### **December 2005**

Construction started after serious consideration of CDM. The construction contract (11/12/2005) has been reviewed and validated by the DOE.

Based on the above prior CDM consideration was validated in line with EB 41 Annex 46 para 5 (a).

Para 5 (b) of EB 41 Annex 46 is as follows:

*(b) The project participant must indicate, by means of reliable evidence, that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation. Evidence to support this should include, inter alia, contracts with consultants for CDM/PDD/methodology services, Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds), evidence of agreements or negotiations with a DOE for validation services, submission of a new methodology to the CDM Executive Board, publication in newspaper, interviews with DNA, earlier correspondence on the project with the DNA or the UNFCCC secretariat.*

After consideration of CDM and reviewing the recommendation of the FSR, the PP made the decision of pursuing the project with CDM assistance. Such milestone can be substantiated by the PP's engagement with the CDM advisory agent.

#### **April 2005**

The PP engaged the Agenda 21 Management Centre for CDM advisory service. The correspondence has been verified by the DOE during validation.

Project owner contacted the Agenda 21 Management Centre for advisory on CDM development. The Centre accepted the project on 08/04/2005.

In response to the project owner, the Centre indicated the project would be used as a pilot project to initiate the CDM service development on 08/04/2005.

#### **November 2005**

It should be noted that at the time of decision making, there was no CMM methodology approved for the PP and their CDM advisors to start project design and documentation. The first version of ACM0008 was not published until 28/11/2005.

It can be seen that the PP's action taken in CDM development occurred prior to the project's implement. The CDM development has since then been carried out in parallel with the project development.

#### **December 2005**

Project construction started on 11 December 2005. And the Project Owner was actively communicating with the potential CDM partners from Annex I countries. With the intention of developing a bilateral CDM project, validation could not start until engaging a CER buyer.

In 2005, CDM capacity building has just started in China. There was lack of domestic competency/capacity in CDM development.

## July 2006

Project Owner started formal negotiation with the current Annex I PP. A non-disclosure agreement was signed between the two parties.

## January 2007

The PPs reached closure of the CER sales negotiation. The signed term sheet (08/01/2007) has been reviewed by the DOE.

## May 2007

With the assistance from the Annex I PP, the first version of PDD was soon published.

Based on the above the continuous CDM development can be seen and it has been verified by the DOE that is in line with EB 41 Annex 46 para 5 (b).

The timeline of the project is presented in the PDD as below.

	Dates	Key documents	Approval	Remarks
Initial consideration	08/2004	FSR 1 (25MW)	No approval	The project owner initially considered a 25MW installation with several stages of development. 5MW was planned as the first stage of the development. The FSR approval has been pending.
	16/10/2004	EIA 1 (5MW)	09/11/2004	Only the first stage (5MW) was submitted for and received the EIA approval.
CDM consideration and decision-making	14/10/2004	CMM methodology (NM66 published for comment)	Consolidated on 28/11/2005	The first CMM methodology was proposed.
	10/01/2005	Correspondence with the CNUDC regarding CDM	n/a	The project developer consulted the Jincheng Municipal CMM and Natural Gas Utilisation Development Committee (CNUDC) regarding its CDM development plan in January 2005. (Please refer to the translation below.)
	02/2005	FSR 2 with CDM consideration (16.3MW)	07/06/2005	A FSR was conducted for the installation of 16.3MW with CDM consideration. (Please refer to the translation below.) The extension approval was granted since there has been a pending application for the stage I installation. Considering the submitted FSR and the EIA approval granted for 5MW, this approval covers the pending application (08/2004) and the latter FSR (02/2005) covering the total 16.3MW.
	13/03/2005	Requested for CDM development advisory	08/04/2005	Project owner contacted the Agenda 21 Management Centre for advisory on CDM development. The Centre accepted the project on 08/04/2005.  In response to the project owner, the Centre

				indicated the project would be used as a pilot project to initiate the CDM service development on 08/04/2005. The CDM development has been in parallel with the project development.
	28/11/2005	ACM0008 version 1 published	n/a	ACM0008 version 1 was published
Implementation	11/12/2005	Construction contract	n/a	The signing of the construction contract was considered as the start of the project activity. The construction contract specified the construction was to start in December 2005; and stage I installation was expected to be operational by March 2006.
	22/12/2006	ACM0008 version 3 published	n/a	During the negotiation with potential CER buyer, the PDD was revised according to the latest methodology version at the time.
	12/07/2006	Non-disclosure agreement signed with CER buyer	n/a	
	08/01/2007	CER purchase term sheet signed	n/a	
	05/2007	PDD published with 25MW	n/a	<p>The start of the CDM application process enhanced the project owner's confidence in the project. Instead of the approved 16.3MW design, the project owner considered to develop the project in a larger scale and planned to follow up with a new 25MW feasibility study.</p> <p>At the time of submission for validation, since no new design of 25MW installation has been conducted, the initial FSR (08/2004) was used as the basis of the financial analysis in the published PDD. Even the analysis demonstrates the financial unattractiveness of the project, this data source was later considered inappropriate in the validation process for the reasons below:</p> <ul style="list-style-type: none"> <li>- The FSR (08/2004) did not receive a government approval or result in the actual project implementation;</li> <li>- The financial analysis of the FSR only covered the 5MW units. It is inaccurate to assume the financial performance of a 25MW project to be proportional to a 5MW installation.</li> </ul> <p>Given the reasons above, the financial analysis in the published PDD was revised with valid data in a later stage of the validation.</p>

	09/2007	EIA 2	01/11/2007	An EIA was conducted retrospectively for the installation extension. In addition to the initially approved 5MW, another 11.8MW was assessed and approved.
	05/2008	PDD revised as 16.3MW	n/a	At this stage of the validation, the project owner has decided to develop the 16.3MW project as designed and approved. No new feasibility study will be conducted for a 25MW installation. The PDD is revised to include the 16.3MW installation only.

**2. The DOE should clarify how it has validated the appropriateness of the input values to the investment analysis, including the: (a) CMM price, considering that it was vented into the atmosphere in the baseline; (b) electricity tariff assumed and why it was considered as fixed throughout the project's lifetime; and (c) the O&M costs, which is about 17% of the total investment excluding the CMM cost.**

**PP's response:**

In addition to the response provided by the DOE the PPs would like to clarify as follows.

**(a) CMM price (considering that it was vented into the atmosphere in the baseline)**

It is noted EB has raised same question to a similar project - Jincheng Fengrun CMM Utilisation from Nine Mines in Jincheng City Shanxi Province China (Fengrun Project, ref. 1928). The proposed project is same project owner (an independent power company), same business model (purchasing the CMM at government regulated price and selling electricity to the grid) in the same region (Jincheng City, Shanxi Province). Please refer to PP's and DOE initial response for Fengruan Project also. <http://cdm.unfccc.int/Projects/DB/DNV-CUK1214933294.15/history>

DOE has validated and confirmed for the Daning project follows:

- CMM Price of 0.15 RMB/m<sup>3</sup> is stipulated by Jincheng City Price Administration Bureau who is the price regulating authority.
- CMM purchase and supply agreement defined a fixed price of 0.15 RMB/m<sup>3</sup> for a period of 10 years (from January 1, 2006 to January 1, 2016). Given that the energy price trend in China is increasing, it is conservative to use the fixed price in the investment analysis for the whole lifetime of the project.
- By checking Price Law of the People's Republic of China and the Notice on CMM Price, it is confirmed that the price determined for CMM considers the average market price for CMM in the region of Jincheng City.
- None of the additional costs associated with the extraction and supply were considered in the financial analysis by checking the breakdown of the total investments in the feasibility study researches for the project.

The CMM purchase and supply agreement for proposed project has been submitted to DOE.

Considering the concern of CMM was vented into the atmosphere in the baseline we would hereby like to further clarify:

- The CMM extraction is usually included as a part of the investment borne by the coalmine owner as mandatory safety requirement. Such extraction system would be sufficient for venting of CMM. Once the mandatory safety extraction systems have been put in place, it has become a sunk cost and the running cost of venting the CMM from the coal mine into the atmosphere is relatively inexpensive.
- In order to utilize the CMM commercially, the additional extraction and supply costs are necessary to improve the efficiency of capturing the CMM through retrofitting the existing venting system, pre-treatment of captured CMM for utilization by power plant and construction of the pipeline from the coal mine to the point of delivery.
- Given difficulties to segregate extraction costs occurs due to commercial CMM utilization from the total costs (which also consists the costs for mandatory CMM venting), we believe, Jincheng City Government Price Administration Bureau published the Notice on CMM Price in order to regulate the market and encourage the CMM utilisation in the purpose of promotion in energy efficiency and reduction in greenhouse gas emissions.

Therefore for the proposed project as an independent power plant purchasing the CMM as fuel at government regulated price in the market to produce the electricity for the grid is deemed reasonable and justified.

**(b) Electricity tariff is fixed throughout the project's lifetime**

It is standard practice in China using fixed electricity tariff throughout the project's lifetime to assess a project's economic attractiveness.

For the proposed project all of the net electricity produced will be sold to the grid company on the basis of a fixed Power Purchase Agreement (PPA). The process for setting the tariff firstly involves the project owner negotiating the feed-in-tariff with the grid company, after which it is determined by the Pricing Bureau of the government. Once the electricity tariff is issued, it is strictly regulated by the government. Because the electricity tariff is strictly regulated it cannot significantly fluctuate without official approval. In the case of the project, the electricity tariff was issued by the Shanxi Provincial Pricing Bureau on 24 August 2006.

In late 2004, the Government announced the Coal-Electricity Price Linking Mechanism, which allows for periodic electricity price increases should thermal coal price increase 5% or more in the preceding 6 months. This is also reflected in the China's Management Rules on Feed-in-Tariffs issued by the NDRC (Article 10) which stipulates that the tariff could change when the coal inputs experience a significant increase. However, for the proposed project, which uses CMM for power generation, therefore the proposed project does not enjoy this preferential policy on tariff fluctuation which can be linked to the coal price. According to China's Management Rules on Feed-in-Tariffs the approved tariff therefore cannot be changed by the project owner or the grid company.

Subsequent to the FSR being completed and the investment decision being taken, the project obtained a feed-in tariff of 0.2754RMB/kWh (inclusive of VAT) confirmed by the official document of Adjustment on Electricity Price in Shanxi, published by Shanxi Provincial Pricing Bureau in 2004, which is the same as the fixed feed-in tariff used in the FSR and PDD. The official electricity tariff stipulated by Shanxi Provincial Price Bureau especially to Daning project (24/08/2006) is also found consistent to the local regulation and FSR, i.e. 0.2754RMB/kWh.

According to the above analysis, the fixed tariff used in the IRR calculation is reasonable during the whole operation period of the project.

The DOE verified this by checking the primary data source, i.e. the project's FSR (05/2005). The DOE further cross-checked the electricity tariff approval specifically issued to the project by the Shanxi Provincial Price Bureau (24/08/2006).

**(c) O&M cost – which is about 17% of the total investment excluding the CMM cost**

The O&M cost has been checked during the validation and considered to be reasonable. The value was assessed in line with EB 38 paragraph 54.

The O&M costs are calculated according to the data from the approved Final FSR conducted by Jincheng Engineering Consultancy Centre (02/2005). The Institute is accredited by the State's Construction Ministry as a Class A agency for feasibility study. The FSR was conducted based on strict code of conduct and regulations of the industry, the official reference used for the cost estimates are:

- *Shanxi Provincial Construction Project Consumption (2003);*
- *Power Electric Engineering Construction Investment Budgeting Index;*
- *Power Electric Engineering Construction Costing Index (2001); and*
- *Engineering Supervision and Management and Relevant Service Charges Regulations.*

The parameters included in the O&M cost are listed as below.

Parameters	Value	Descriptions
Fuel cost	580,900 RMB	This consists of costs for machinery oils, additives and water.
Salary	684,000 RMB	Salary for 24 members of staff.
Maintenance	2,618,800 RMB	Maintenance cost for CMM power plant is expected to be high due to the operations of gas pipeline, pre-treatment system and power plant require high level of safety measures and continuous corrosion prevention efforts.  The Daning project, in particular, employs generator sets of 600kW and 2MW, which are new models manufactured by a new producer in the industry. These new models with higher capacity are less capital intensive but they are perceived to be more risky than the standard 500kW model (which is more widely used in the industry). Higher maintenance is expected.
Others Fees	3,098,400 RMB	Breakdowns as below.
other production	1,730,400 RMB	This mainly includes costs for overhaul cost, recovery from emergency and accidents.



other administration	1,368,000 RMB	This includes external consultancy fees, management bonus and staff welfare fund.
<b>Total O&amp;M cost</b>	<b>6,980,000 RMB</b>	

The O&M cost is estimated at 6,982,100 RMB/year. The O&M cost (excluding CMM cost) is about 17% of the total investment. This is assessed to be reasonable by the DOE for the reasons below:

- The items covered under the O&M costs are estimated in line with standard practice.
- The project's O&M cost per unit is 430,000 RMB/MW. This is significantly below, in fact less than of the average level, i.e. 900,000 RMB/MW of other registered CMM projects. In the case of this project, some items under the O&M cost are presented higher than others.
- It is common that CMM power generation projects require higher O&M cost compared to a conventional coal-fired power plant. Projects numbered 1250, 1230, 0770 and 1887 have O&M costs that are between 21% to 25% of their total investments.
- Among the CMM projects in China, there are also projects with low O&M cost in relation to total investment, i.e. projects 0892, 0840, 1613, 1614, 1603 and 1468. However, these projects have very high investment per unit, which is 3 to 4 times higher than the project activity<sup>1</sup>. There is a trade off in deciding which equipment will be installed for a project. Typically more capital intensive projects will have relatively lower O&M costs as more expensive capital equipment will tend to require less maintenance and be more automated.
- The Daning project, employs generator sets of 600kW and 2MW, which are new models manufactured by a new producer (Zhibo) in the industry. These new models with higher capacity are less capital intensive but they are perceived to be more risky than the standard 500kW model (which is more widely used in the industry). Higher maintenance is expected.

The analysis of CMM projects covers all the registered CMM power generation projects in China. Based on the DOE's local industrial expert's assessment, not only the O&M cost is sufficiently justified, the project is deemed to have conservative estimates on total investment and O&M cost. The assessment is in line with EB 38 para 54 (c).

The O&M value is consistent with the Feasibility Study Report (FSR), meeting the requirement of EB 38 para 54 (b). The FSR was completed in the same year as the project started construction. The period of time between the FSR and investment decision and actual implementation is sufficiently short. The DOE is able to confirm this is in line with EB 38 para 54 (a).

### **3. The PP/DOE should clarify the suitability of the 10% benchmark to the power sector.**

#### **PP's response:**

<sup>1</sup> Daning project's investment per unit is only 2.48 million RMB/MW. The investment per unit are 9.67million RMB/MW, 13.83 million RMB/MW, 15.41 million RMB/MW, 8.89 million RMB/MW, 22.13 million RMB/MW, 7.10 million RMB/MW, for projects 0892, 0840, 1613, 1614, 1603 and 1468 respectively.

The PP has chosen to use the equity IRR as the financial indicator. Given the project activity is to export electricity to the grid. A power sector benchmark is chosen. There are a number of such benchmarks in China, depending upon the technology to be employed. The benchmark for thermal power plants (oil and coal fired power stations) is set at 10% on an equity IRR basis where as that for gas fired CCGT is set at 12%. Although the project is utilising gas there is no CMM specific benchmark and so to be conservative a benchmark of 10% has been chosen. Please see the table below for the detailed benchmarks of different power generation technologies.

*Methods and Parameters for Economic Assessment of Construction Projects (3<sup>rd</sup> edition 2006)* is published by the Ministry of Construction and the National Reform and Development Committee. This official publication states that project IRR benchmark (before tax) for thermal (coal & oil) power plant should be 8% or equity IRR benchmark (after tax) should be 10%<sup>2</sup>. Since the PP calculated the equity IRR, the benchmark equity IRR of 10% is chosen. The reference has been checked and verified by the DOE.

Another official reference can be referred to is the *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project (2002)* published by the State's Power Corporation. The *Interim Rules* states that the project IRR benchmark should be 8% or equity IRR benchmark for power sector projects should be 10%.<sup>3</sup>

The benchmark applied by proposed project meets the criteria set out in the *Tool for the demonstration and assessment of additionality (Version 05.2)* approved by the EB which states in Step 2, Section (6), that benchmarks can be derived from a government/official approved benchmark where such benchmarks are used for investment decisions.

The decision to proceed with the investment is based on the return to the investors so the equity IRR (after tax) is most appropriate in this case. An official financial benchmark of equity internal rate of return (equity IRR) can be regarded as extremely conservative for this type of project, as China's national grid is dominated by investments in more traditional, state-owned and large-scale power plants which receive preferential access to debt finance and to the grid for the sale of electricity. By comparison the proposed project activity is small-scale and by a private entity.

Table: Possible Chinese Power Generating Industry Investment Benchmarks<sup>4</sup>

Energy Source	Project IRR	Equity IRR	Source
	before tax	After tax	
Generic benchmark for the power sector	8%	10%	<i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project</i>

<sup>2</sup> A more project-specific benchmarks can be found at the *Methods and Parameters for Economic Assessment of Construction Projects (3<sup>rd</sup> edition 2006)* which is available to the DOE for validation.

<sup>3</sup> A scan of the relevant page of *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project (2002)* has been made available to the DOE in support of this response.

<sup>4</sup> The relevant Power Generating Industry Investment Benchmarks from *Methods and Parameters for Economic Assessment of Construction Projects (3<sup>rd</sup> edition 2006)*

			(2002)
Thermal (coal & oil)	8%	10%	<i>Methods and Parameters for Economic Assessment of Construction Projects (3<sup>rd</sup> edition 2006)</i>
Natural Gas	10%	12%	
Nuclear	7%	9%	
Wind	6%	8%	
Tidal	8%	10%	
Geothermal	8%	10%	
Hydro (not run-of-the-river)	7%	10%	
Small Hydro	10%	10%	<i>Economic Evaluation Code for Small Hydropower Projects, issued by Ministry of Water Resources in 1995</i>
Waste Heat Recovery at clean type coke production for the power generation from coke sector	12%	12%	<i>The Notice on Benchmark Selection for Waste Heat Power Generation Projects in Coking Industry (May 2004)</i>

In line with the guidelines set out by the EB the appropriateness of the above documents has been validated and confirmed by the DOE. This led the DOE to conclude that the official power sector benchmark for this CMM utilisation project applied in the context of the underlying project activity can be considered suitable, and the calculation of equity IRR (after tax) is consistent with the selected equity IRR (after tax) benchmark.

**4. The PP/DOE should justify: a) why other fuels were not considered as baseline alternatives for power generation (e.g., renewable energy); and b) the elimination of baseline alternative 7 (project activity implemented by the coalmine, without CDM revenues).**

**PP's response:**

**a) Why other fuels were not considered as baseline alternatives for power generation (e.g., renewable energy);**

Coal is the most plausible alternative fuel for power generation in Shanxi Province. Renewable energy resources are rare in the Shanxi Province. Statistic shows that only 2.88% of the total installed capacity in Shanxi is hydro power, while the other 97.12% of the installed capacity is coal-fired thermal power.<sup>5</sup> It can be seen that hydro is very limited in Shanxi and no other renewable energy resource is available in the Province. Given the lack of

<sup>5</sup> Page 625, *China Electric Power Year Book 2007*

renewable resources and the abundance of coal and coal mine methane it is not reasonable to assume the baseline will be renewable energy.

**b) The elimination of baseline alternative 7 (project activity implemented by the coalmine without CDM revenues).**

The CMM utilization by the coal mine owners for grid-connected electricity generation should be eliminated as it is clearly not common practice in the province.

Without the PP's implementation of the project, the previous practice of the coal mine to extract and vent the methane and to meet the minimum safety requirement would continue. No CMM power generation project in Shanxi has been identified where the coal mine owner owns the CMM utilisation project without CDM benefit.<sup>6</sup>

As it is discussed in Step 4 common practice analysis in Section B.5 of the PDD, China is the world's largest producer of coal and largest emitter of coal mine methane. However, to date, utilisation of the substantial CMM resources from China's coal mines has been limited. Research has estimated that China's total CMM emission was 11.674 billion cubic meters in 2003. In the same year, the CMM extracted by drainage systems was 1.521 billion cubic meters. Only 629.21 million cubic meters was utilised.<sup>7</sup> This accounts for less than 20% of the potential for capture. This is mainly due to technical and investment barriers and to prevailing market conditions, which mean that coal mines prioritise investment in increased coal production capacity over investments in technologies and systems for the utilisation of CMM.

At the same time, greater (and mandatory) attention to mine safety in China's coal mining industry in recent years has led to increased investments in methane drainage systems. Without accompanying investments in gas utilisation technologies, the utilisation rate of CMM drained in China has begun to decline dramatically. Between 1998 and 2004 the total amount of methane drained from China's coal mines increased by almost 1.1 billion cubic meters, while over the same period the amount of gas utilized increased by only 250 million cubic meters<sup>8</sup>. As a result, CMM utilisation rates are actually falling in China and this trend is expected to continue as more investments continue to be made in gas drainage systems.

This demonstrates this possible scenario (CMM utilisation by the coal mine owners) is unlikely and in practice has not occurred.

Some of the reasons why coal mine owners are so unwilling to invest in a grid-connected CMM power plant are explained below:

1. The current extraction and ventilation system is financially attractive given that it complies with current regulation and requires minimum maintenance costs. The coal mine is unwilling to take on the risks of such a novel project when the business-as-usual system satisfied the safety needs.

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<sup>6</sup> As discussed in the PDD, research has been conducted on projects utilizing CMM in the province. The research was conducted via internet research and interview with the Agenda 21 Office of the Shanxi Provincial Government as local governmental representative. Based on the information accessible to public, the projects below have been identified.

<sup>7</sup> Methane to Markets Partnership Coal Subcommittee, Table 7-4, *China, CMM Global Overview*

<sup>8</sup> <http://cdm.ccchina.gov.cn/english/upfile/file125.pdf>

2. The core business of the coal mine owners is coal production, which is a high return business. The minimum investment return benchmark in the Chinese coal industry is 15% compared to only 10% in the electricity sector.<sup>9</sup> Since 2004, with the soaring coal price, the profitability of coal mining has grown, further increasing returns<sup>10</sup>. Therefore, coal mining owners generally consider it more economically attractive to invest in their core business and expand production rather than invest in ancillary businesses such as small scale power production.
3. For the coal mine owners, investment in a power plant requires high level of additional technical know-how. The coal mine owners are not familiar with the electricity market. Power generation is not the expertise of the coal producers. Developing projects in a different sector imposes technical risk.

The barriers identified above are deemed sufficient to prevent implementation of baseline alternative 7.

Yours faithfully,

Philip Scales

Trading Emissions PLC

Third Floor, Exchange House, 54/62 Athol Street

Douglas, Isle of Man, IM1 1JD

British Isles

Tel: +44 (0) 1624 681200

Fax: +44 (0) 1624 681392

E-mail: [eb@tradingemissionsplc.com](mailto:eb@tradingemissionsplc.com)

**Note:**

*In case you have any further question or request during the review process, please do not hesitate to contact us by phone or e-mail to the persons listed below:*

Mr Desmond Godson

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<sup>9</sup> *Economical Assessment and Parameters for Construction Project*, 3<sup>rd</sup> Edition

<sup>10</sup> <http://www.coalinfo.net.cn/>

Tel: +44 7855 352 314

E-mail: [Des.Godson@eeafm.com](mailto:Des.Godson@eeafm.com)