
Project Title	Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project
ERM CVS Project Reference	1901.v1
Client Name	Gazprom Marketing & Trading Singapore Pte. Ltd.
Client Address	10 Collyer Quay #41-00 Ocean Financial Centre Singapore

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Version Control	Date
Version 01	13 December 2010 (Draft Validation Report)
Version 02	02 July 2012 (Final Validation Report)
Version 02.1	06 November 2012 (Revised version based on incompleteness request)

Project Title:	Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project		
Project Location	Baiyin City, Gansu Province		
Country:	The People's Republic of China (P.R. China)		
Project Parties	The People's Republic of China United Kingdom of Great Britain and Northern Ireland		
Project Participants	Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. and Gazprom Marketing & Trading Singapore Pte. Ltd.		
Methodology used	ACM0008 (Version 07) - " <i>Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through flaring or flameless oxidation</i> "		
Methodology version number	07		
Estimated Annual Average Emission Reductions	101,472 tCO ₂ e (averaged over the crediting period)		
Crediting Period Dates	10/11/2012 – 09/11/2022 (fixed)		
GSP PDD Version	Date: 22 July 2010	Final PDD Version	Date: 17 October 2012
	Version Number: 01		Version Number: 4.0
	Start date of GSP:		
	03 September 2010		

Summary:

ERM CVS was commissioned by Gazprom Marketing & Trading Singapore Pte. Ltd. to validate the Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project (hereafter referred to as 'the project' or 'the project activity') on the basis of UNFCCC criteria for the Clean Development Mechanism (CDM), as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board, including the Validation and Verification Manual.

The validation consisted of the following three phases: i) a desk review of the project design documents, ii) site assessment and follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Based on the work performed, it is ERM CVS's opinion that the project as described in the Project Design Document Version 4.0, dated 17 October 2012, meets all necessary criteria and requirements of the CDM, correctly applies the methodology ACM0008 version 07 and is expected to result in real, measurable and long term emission reductions. The DNA of the host Party has confirmed that the project assists in meeting sustainable development criteria.

ERM CVS therefore requests that the CDM Executive Board registers the project as a CDM project activity.

Client:	Gazprom Marketing & Trading Singapore Pte. Ltd.		
Client Representative:	Sophie Duconloner		
Report approved by:			Signature 
Name Melanie Eddis			
Date: 06 November 2012			

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Abbreviations

A/R	Afforestation / Reforestation
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP	Conference of Parties
DNA	Designated National Authority
DOE	Designated Operational Entity
DRC	Development and Reform Committee (local level - China)
EIA	Environmental Impact assessment
GHG	Greenhouse Gas
GSP	Global Stakeholder Period
FAR	Forward Action Request
FSR	Feasibility Study Report
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of Approval
MOP	Meeting of Parties
MP	Monitoring Plan
NDRC	National Development and Reform Committee (National level - China)
NWCPG	Northwest China Power Grid
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual
SV	Site Visit

1. Introduction

1.1. Validation Objective

The purpose of a validation is to provide a thorough independent third party assessment of proposed CDM project activities to ensure that the proposed CDM project activity meets all the identified and applicable criteria for registration of projects under the Clean Development Mechanism. In particular, the project's baseline, additionality demonstration, applicability to an approved CDM methodology, monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reductions (CERs). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board. The validation will result in a conclusion as to whether the project should be submitted to registration. The final decision on whether to register the project rests with Executive Board and the Parties involved.

1.2. Scope

The validation scope is defined as an independent and objective review of the project Design Document (PDD) and associated documentation. The PDD and associated documentation is reviewed against the criteria and requirements stated in the CDM Validation and Verification Manual (CDM-VVM) (EB 44, updated at EB 55) and Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, as well as relevant decisions by the CDM Executive Board. The validation scope also included an assessment of completeness and accuracy of documentation, evaluation of evidences, information and assumptions made in the PDD and supporting documentation.

1.3. CDM Project Description

Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project ('the project' or 'the project activity') is a coalmine methane (CMM) utilisation project at Weijiadi and Dashuitou coal mines of Jingyuan Coal Group, which are located in the Pingchuan District, Baiyin City, Gansu Province, P.R. China. The project is developed and operated by Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. ('the project owner'), which belongs to the Jingyuan Coal Group.

The project is a new power generation plant with total installed capacity of 5.5 MW. The power generation consists of 11 sets of gas engines with a unit capacity of 500 kW. Of all the 11 sets of gas engines, six sets are installed for the Weijiadi Coal Mine and five sets are installed for the Dashuitou Coal Mine. All the generation sets were installed and commenced operation in January 2009. CMM extracted from the two coal mines is utilised by the project activity for power generation, and 10,008,999 m³ of methane is expected to be consumed by the project annually [Doc 01]. The project is expected to generate 27,805 MWh of electricity (net) annually [Doc 01], which will be supplied to the Weijiadi and Dashuitou coal mines, and replace the power that would have been supplied by Northwest China Power Grid (NWCPG), which is dominated by fossil fuel fired power plants. There will be no surplus of electricity from project activity as the power generation will only supply a portion of the total mining activity electricity demand. The historical power demand at the mines was validated by ERM CVS: the validation team verified with the NWCPG Supplier Company (i.e. Baiyin Power Supply Company Pingchuan Branch) [Doc 122] that the annual consumption of electricity by Jingyuan Coal Group from the NWCPG was 204,711 MWh in 2006, 209,780.6 MWh in 2007, and 215,604.8 MWh in 2008, and the annual average over this three year period was 210,032 MWh. Therefore the electricity supplied by the proposed projects to the mines represents only 13% of the total electricity used by the mines from the grid in recent years. Therefore ERM CVS can confirm that the power generated by the project activity is consumed by the mines where the project activity is implemented.

The project activity includes also the utilization of waste heat generated during the power generation process, with the purpose to supply heat for household heating of Jingyuan Coal Group employees. The process consist of using high temperature exhaust for water heating and the heated water being used for heating purpose within domestic activities. This displacement of fossil fuels has not been included into the project boundary and will not claim emissions reductions. The project activity does not include CBM or VAM destruction/utilisation and will not claim emission reduction for displacement of fossil fuels for heating generation.

The baseline scenario is the same as the scenario existing prior to the start of the project, i.e. all CMM extracted from the coal mine (below 30% CH₄) is released into the atmosphere directly, and the same amount of electricity generated would be supplied by the NWCPG. This baseline is in accordance with the baseline scenario specified in the methodology ACM0008 Version 07 [Doc 28]. Prior to project activity implementation, ERM CVS confirmed that Jingyuan Coal Group operated two sets of 2,000kW gas engine generators using high concentration CMM (above 30%) for power generation supplied by Dashuitou and Weijiadi coal mines, since 2004. However, a retrofitting of the post-mining drainage systems was carried out between 2006 and early 2008 for safety reasons [Doc 138, 139], which included the installation of moveable pumps underground and fixed pumps above ground to extract coal mine methane at the upper corners of the mining panels and goafs, to extract additional CMM [Doc 139]. As result of these activities, the total methane concentration was dramatically reduced and the CMM could not reach the minimum generator requirement anymore (i.e. 30% CH₄); therefore, the high CH₄ concentration power generators operation was ceased and formally stopped on 1 February 2008. The old high concentration CMM power generation system (principally consisting of the two sets of 2,000kW gas engine generators and gas storage tanks) has been abandoned and sold in 2011 [Doc136, 137, 138 and 139].

Dashuitou Coal Mine was established in 1958 with the current annual production capacity as 2,200,000 tonnes, and the remaining service life of Dashuitou Coal Mine is 43 years [Doc 02]. Weijiadi Coal Mine, which was put into operation in 1989, has an annual production capacity of 1.5 million tonnes, and the remaining service life of Weijiadi Coal Mine is 105 years [Doc 01]. In the absence of the project, the extracted CMM in Danshuitou Coal Mine is released to the atmosphere with a capacity of 31.04 m³/min, and the extracted CMM in Weijiadi Coal Mine is released into the atmosphere with a capacity of 55.05 m³/min [Doc 01].

The project description has been validated against the detailed Feasibility Study Report (FSR) of the project, developed by an independent third party, Shandong Shengdong Gas Power Generation Engineering Design Consulting Co., Ltd., dated April 2008 [Doc 01]. The FSR was approved by Baiyin Municipal Development and Reform Commission on 26 May 2008 [Doc 2]. The project description was also cross checked against the physical layout of the project activity during the site visit, which included a tour of the project activity areas including the location of the coalmine methane extraction house and power plant. The project description was further cross checked against the Environmental Impact Assessment (EIA) Form prepared by Lanzhou Coal Mine Design Institute [Doc 03], the corresponding EIA approval issued by Baiyin Municipal Environmental Protection Bureau (EPB) [Doc 04], and the key contracts for construction of the project activity [Doc 73]. The description was found to be consistent.

1.4. Validation Personnel

Validation Team	Role	Technical area	Financial Expertise	Host country experience	Participated in site visit?
Trista Chen	Lead Validator	Full		Full	Yes
Chris Wang	Validator	Partial		Full	Yes
Li Zhang	Sector Expert	Full		Full	Yes
Angus McEwin	Financial Expert		Full		No

Technical Review	Role	Knowledge relevant to the technical area
Miguel Cortes	Technical Reviewer	Yes
Jonathan Avis	Technical Reviewer	Yes

Trista Chen is a Lead Auditor based in Shanghai City, P.R. China. She has over 5 years experience in environmental health and safety (EHS) assessment and has participated in more than 10 CDM validation and verification projects, including in the sectors of hydropower, wind power, Coal Mine Methane (CMM) and biomass. In the mining sector, she has participated in seven CMM Validation projects and two CMM Verification projects. Ms Chen has conducted over 80 environmental, health and safety assessment in China covering a large number industrial facilities in China, including acting as project managers/ lead auditor for five due diligence audits at coal mines, in Shaanxi Province. Ms Chen has completed the ERM CVS CDM Validation and Verification training course.

Chris Wang is an Auditor based in Chengdu City, P.R. China. He has over 7 years experience in environmental health and safety (EHS) assessment and has participated in more than 4 CDM validation and verification projects, including in the sectors of hydropower, wind power and Coal Mine Methane (CMM). In the mining sector, she has participated in two CMM Validation projects. Mr Wang also led two EHS assessment projects for a total of six coal mines in China. Mr Wang has completed the ERM CVS CDM Validation and Verification training course.

Li Zhang is an external sector expert for coal mine projects, based at the China Coal Industry Development Research Centre, with over 10 years direct working experience on methane extraction and utilization technology in coal mines, and has participated in about 20 CMM/CBM utilization projects as a technical expert. Mr Zhang holds a Bachelor's degree in Mine ventilation and Safety from Shanxi Mining Institute, a Master's degree in Mining Engineering from Taiyuan University of Science and Technology, and a PhD in Safety Technology and Engineering from China University of Mining and Technology. He has extensive coal mine methane experience.

Angus McEwin is a financial expert for ERM CVS and has over ten years experience of economic analysis and environmental auditing in the UK, Australia and Vietnam. In his previous work experience as an independent contractor, Angus worked in a range of roles in the financial services and investment banking sector in London, including carrying out analytical and operational roles for several large financial sector clients. Over the last six years Angus has worked as an environmental and socio-economist for ERM within the natural resources and environment sector in Southeast Asia, where his financial experience includes economic impact assessments in Australia and Singapore and numerous environmental assessments in Vietnam.

Miguel Cortes has five years of experience in CDM projects, nine years as Environmental Manager in the Cement Industry and two years of academic research in Environmental Studies. Highly qualified for technical assessment and handling of GHG emission reduction and carbon offset projects in Energy and Manufacturing Industries, Mining and Waste Water Management. He has in-depth knowledge of Organizational Environment Management Systems including air emission and waste water monitoring, air quality and noise characterization, audit processes for law compliance and performance, community stakeholder relationship management and land-cover restorations. Miguel is an expert for design of Clean Development Mechanism (CDM)

methodologies and administrator of technical, professional and economic resources for environmental projects. His CDM experience includes.

- Design and development of CDM methodology AM0040 "Baseline and monitoring methodology for project activities using alternative raw materials that contain carbonates in clinker manufacturing in cement kilns" (The methodology was consolidated with AM0033 under ACM0015)
- Conduct many GHG and CDM project analyses in China, Mexico, Brazil, India, Argentina, Colombia, Bolivia, Macedonia, Egypt, Thailand and the Middle East
- Experience as Technical Reviewer of coal mine methane, waste heat recovery and hydroelectric CDM projects

Jonathan Avis is CDM Business Manager for ERM CVS, and a GHG Auditor and Technical Reviewer with over 6 years experience in the carbon market. His previous work experience includes screening and due diligence of carbon projects, Project Design Document (PDD) development, quality assurance and technical review of CDM project documentation, the development of carbon monitoring plans, and management of carbon projects through the validation, registration and verification stages. He has worked on the development and quality control of carbon projects in numerous sectors including hydroelectricity, wind energy, landfill gas, waste gas and heat, coal mine methane, biomass-to-energy and composting. Since joining ERM CVS Jonathan has worked as a Technical Reviewer and GHG auditor on numerous CDM validations.

2. Methodology

The validation was carried out in accordance with the CDM-VVM, version 1.2 published at EB 44 and updated at EB 55. The validation process employed standard auditing techniques and undertook necessary cross-checks and follow-up actions to ascertain the correctness of the information. The validation team included staff with experience in the relevant sectoral scopes and technical areas within the sectoral scope, and included local host country expertise, sectoral knowledge, and financial expertise. The validation report and associated documents have undergone a thorough technical review by ERM CVS before being submitted to the CDM Executive Board for registration. The validation consisted of the following key phases:

- I. Upload of the PDD for Global Stakeholder Process (GSP), receipt of any comments from stakeholders (GSP started on 03 September 2010)
- II. Desk review of documentation including PDD, methodology and key supporting documents and references
- III. A visit to the project site, including interviews with personnel responsible for developing the project (the site visit took place on 03-05 November 2010)
- IV. Development of a draft validation report, identifying non-compliances including Corrective Action Requests (CARs) and Clarification Requests (CLs), taking into account findings of the GSP, desk review and site visit / interviews
- V. Resolution of outstanding issues (CARs and CLs) and development of a final validation report and validation opinion

2.1. Global Stakeholder Process consultation

The PDD version 01 dated 22 July 2010 [doc 17] was uploaded for global stakeholder comments. The global stakeholder period was 03 September 2010 to 02 October 2010, and no comments were received during the global stakeholder period. Relevant information can be found at <http://cdm.unfccc.int/Projects/Validation/DB/HW9ZSCSQLGFROE19F7T4UCAQEH27IS/view.html>.

2.2. Desk Review

The validation is based on the review of documentation and interviews with various personnel. A detailed desk review of the PDD, methodology and all other associated documentation and references took place in advance of the site visit, and additional documents that were not available for the desk review were requested for review during the site visit.

A list of documents reviewed is included in Appendix A.

2.3. Site visit

Interviews took place on site, via telephone or via email and include relevant stakeholders in the host country, personnel responsible for project design and implementation, and other stakeholders as applicable.

The site visit took place on 03-05 November 2010. Staff attending the site visit included Trista Chen (lead validator), Chris Wang (validator) and Li Zhang (sector expert). The site visit included a tour of the physical project site, including the coalmine methane extraction house and power plant. The site visit also included a visit to the main office of the project owner, i.e. Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd.

Staff from the project owner and the CDM consultant were interviewed, and document review took place at the conference room of the project owner. A list of interviewees, and the main topics discussed with each can be found in appendix A.

2.4. Reporting

A checklist of the key requirements for validation is included as Appendix B. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet.
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.
- It must also list project components/issues not covered in the validation engagement

The protocol describes the following:

Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
The requirements that the project should meet	The documents used to check the answer to the checklist question	This section is used to elaborate and discuss the conformance to the checklist question, and to explain the conclusion reached. It includes the means of validation,	This is either acceptable based on evidence provided (OK), or a <i>Corrective Action Request</i> (CAR) is required due to non-compliance with the checklist question. A request for <i>Clarification</i> (CL) is used when the validation	Indicates whether the CAR or CL has been closed out (OK).

		which explains how conformance with the checklist is justified. For example document review (DR) or interview (I). N/A means not applicable	team has identified a need for further clarification. A 'Minor Issue' may be recorded for typographical errors or similar minor errors that do not have an impact on the compliance of the project to the CDM rules but nevertheless should be corrected to improve clarity. A <i>Forward Action Request</i> (FAR) could be raised for issues to be addressed during first verification that do not form part of the registration requirements	
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Remediation Form: Clarification Requests (CL), Corrective Action Requests (CAR) and Forward Action Requests (FAR), plus minor issues

CARs, CLs, and FARs are raised in the draft validation protocol and detailed in a separate form using Table 3 (Appendix C). In this form, note is made of actions taken by the project Proponent to close outstanding CARs and respond to CLs and Forward Action Requests:

Draft report corrective action, clarification, or forward action requests, or minor issues	Reference to CDM Validation Protocol Checklist	Summary of project participants' response	Final conclusion
List of CARs, CLs and FARs (and minor issues)	Reference to the validation protocol checklist question	Summary of response during the communication with the validation team	Summary of validation team responses and final conclusion.

Clarification Requests (CL): Where insufficient or unclear information is available and clarification or new information is required. A CL is raised specifying what additional information is required.

Corrective Action Requests (CAR): Where a non-conformance arises the Assessor shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Mistakes have been made that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The CDM requirements have not been met; or
- There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

Forward Action Requests (FAR): FARs shall be raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

A '**Minor Issue**' may be recorded for typographical errors or similar minor errors that do not have an impact on the compliance of the project to the CDM rules but nevertheless should be corrected to improve clarity.

2.5. Internal Quality Control

The process of validation and decision of the validation team has been subject to an independent Technical Review. The scope of the Technical Review process is to independently assess that all procedures have been followed, necessary requirements have been met, and all conclusions are justified. The final validation decision is based on the findings and conclusions of the validation team, assessing the compliance of the project activity with the CDM requirements, and the technical evaluation of the independent technical reviewer. The final report is then approved and signed off by the qualified signatory / final decision maker within ERM CVS.

3. Validation findings

3.1. Main changes between the PDD version published for the global stakeholder comment period and the final version submitted for registration:

- Clarified that pre-mining and post-mining CMM share the same extraction drainage system
- Clarified information regarding project description, mainly information about details of the two coal mines, lifetime of the project, load factor, total electricity generation and net electricity generated and monitoring means
- Further explained the project scenarios before and after the project
- Clarified the project boundary, power supply scheme and project timeline
- Clarified the project baseline scenario options and the procedure of exclusion
- Further clarified the exclusion of Alternative 4, Alternative 5, and Alternative 6
- Added Step 5 to identify the most economically attractive baseline scenario alternative using investment analysis
- Further assess the suitability of benchmark applied for the project
- Clarified the investment analysis and common practice analysis, and revised the common practice analysis per the Tool for the demonstration and assessment of additionality
- Clarified the equipment maintenance and annual O&M cost
- Revised the efficiency of the baseline boiler, one of the input parameters to the financial analysis
- Clarified the training arrangement, monitoring equipment and monitoring program
- Traceable IRR and ER calculation spreadsheet provided with comprehensive parameters
- Changes as described in the CARs and CLs (see Appendix C)

3.2. Approval and Participation Requirements

The project participants are Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd., authorised by P.R. China, and Gazprom Marketing & Trading Singapore Pte. Ltd., authorised by United Kingdom of Great Britain and Northern Ireland. The host Party, P.R. China, and Annex I Party, United Kingdom of Great Britain and Northern Ireland, have both ratified the Kyoto Protocol. Both Parties have established their respective Designated National Authorities (DNA) as per the participating requirements for CDM under the Kyoto Protocol.

The host country Letter of Approval (LoA) has been issued by the National Development and Reform Commission (NDRC) of P.R. China, the DNA of P.R. China, on 30 September 2010 [Doc 05]. The LoA has been confirmed by ERM CVS via cross-checking against the list of approved projects on the website of the Chinese DNA (<http://qhs.ndrc.gov.cn/qfzjz/default.htm>). The letter confirms that:

- P.R. China ratified the Kyoto Protocol on 30 August 2002;
- Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. is authorised as a project participant by P.R. China to voluntarily participate in the project activity;
- The project activity complies with the permission requirements provided for in the Measures for Operation and Management of CDM projects in P.R. China, and assists China in achieving sustainable development;
- The LoA references the precise title of the project activity 'Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project'. This is consistent with the project title in the final PDD [Doc 17].

The LoA from P. R. China does not refer to a specific version of the validation report or PDD.

The Annex I Party LoA has been provided by the Department of Energy and Climate Change of the United Kingdom, which is the DNA of the United Kingdom of Great Britain and Northern Ireland, dated 07 December 2010 [Doc 48]. The LoA was received from the project participants and its authenticity is not doubted. The LoA from the United Kingdom of Great Britain and Northern Ireland has been checked and it clearly states that:

- Ratification of the Kyoto Protocol on 31 May 2002;
- Voluntary Participation;
- Reference to the host country approval;
- Reference to the precise project title in the PDD.

The LoA from the United Kingdom of Great Britain and Northern Ireland does not contain any additional specification or conditions regarding the project activity neither does it contain any reference to a specific version of the validation report or PDD.

The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards P.R. China.

3.3. Project Design

Conformance of the PDD with EB guidelines

The PDD submitted for validation [Doc 17] has been checked against the latest 'Guidelines for developing the project Design Document' (version 7) and the latest template for the project Design Document (version 3) available on the CDM website. It is confirmed that the final PDD is in compliance with the template and guidelines.

Conformance of the project design in the PDD with source documents such as the FSR

The project design and technical description in the PDD has been validated against the detailed FSR of the project activity [Doc 01] and concluded to be consistent. The FSR was developed by an independent third party, Shandong Shengdong Gas Power Generation Engineering Design Consulting Co., Ltd., dated April 2008 [Doc 01]. Shandong Shengdong Gas Power Generation Engineering Design Consulting Co., Ltd. is qualified by the NDRC to perform FSRs. The FSR was approved by Baiyin Municipal Development and Reform Commission on 26 May 2008 [Doc 2]. The project description was also cross checked against the physical layout of the project activity during the site visit, which included a tour of the project activity areas including the location of the coalmine methane extraction house and power plant. The project description was further cross checked against the Environmental Impact Assessment Form (EIA) prepared by Lanzhou Coal Mine Design Institute [Doc 03], the corresponding EIA approval issued by Baiyin Municipal Environmental Protection Bureau (EPB) [Doc 04], and the key contracts for construction of the project activity [Doc 73]. The description was found to be consistent.

The project has a total installed capacity of 5.5 MW, consisting of 11 sets of gas engines with a unit capacity of 500 kW each, verified against the FSR [Doc 01] and the equipment purchase contracts [Doc 20]. CMM extracted from the two coal mines is utilised by the project activity for power generation, and 10,008,999 m³ of methane is expected to be consumed by the project annually [Doc 01]. The project is expected to generate 27,805 MWh of electricity (net) annually, and all the generated electricity will be supplied to the internal power grid of the Weijiadi and Dashuitou coal mines, which will replace the power that would have been supplied by Northwest China Power Grid (NWCPG), which is dominated by fossil fuel fired power plants. ERM CVS confirmed with the FSR [Doc 01] and site visit that each coal mine has one internal power grid, which is also connecting to NWCPG directly. ERM CVS validated the historical power demand at the mines: According to a formal letter issued by the local NWCPG supplier (Baiyin Power Supply Company Pingchuan Branch) [Doc 122], it was confirmed that Jingyuan Coal Group consumed 204,711 MWh, 209,780.6 MWh and 215,604.8 MWh electricity, respectively, from 2006 – 2008; therefore power generated by the project activity can be fully utilized by Jingyuan Coal Group internally and there will not be surplus for other applications.

As stated in the FSR, Jingyuan Coal Group operated two sets of 2,000kW gas engine generators using high concentration CMM (above 30%) for power generation at Dashuitou and Weijiadi coal mines, since 2004 [Doc 133, 134, 135, 136, 137 and 138]. However, as a consequence of general retrofitting of the CMM extraction system at the mines between 2006 and early 2008 in order to improve the safety conditions in the working areas of the mines, the concentration of CMM could no longer reach the minimum requirement (>30% CH₄) and the operation of the high concentration CMM gas engine generators ceased in February 2008, as stated in the official operative note [Doc 138]. The retrofit included the installation of moveable pumps underground and fixed pumps above ground to increase the drainage capacity and extract additional coal mine methane at the upper corners of the mining panels and goafs. This has been confirmed with 3rd party evidence of technical details of the drainage system [Doc 139]. The following new pumps were installed [Doc 139]:

- model number of 2BEA-353-0, which is operated under 90 kw with flow capacity of 26.5-58.4 m³/minute
- model number of BMW-85, which is operated under 110 kw with flow capacity of 75-85 m³/minute.
- 2 pumps with model number 2BE1405 (fixed pumps above ground) with flow capacity of 93-160.8 m³/minute

The old high concentration CMM utilisation system (mainly included two sets of 2,000kW gas engine generators and gas storage tanks) had been abandoned and sold in 2011 [Doc 01, 135, 136, 137, 138 and 139].

The project activity does not include CBM or VAM destruction/utilisation. This has been verified against the FSR [Doc 01] and the Power Purchase Agreement signed by Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. [Doc 70].

The extracted CMM is sent from the pump house of the coal mine to the gas engines of the project. Based on the extracted CMM concentration test report prepared by the Geochemistry Department, Lanzhou Institute of Geology, Chinese Academy of Sciences dated 24 June 2010 [Doc 08], the CMM concentrations of the two coal mines were in the range of 8% - 30%. This has been further verified by ERM CVS during the site visit by checking the pump house extraction records [Doc 71]. Safety measures installed at the project mainly include auto control of fuel gas mixing, water pulverization protecting gas transmission and dry fire extinguishing. This has been checked against the approval of the gas generator model and low-concentration CMM transportation system (including safety measures) issued by State Safe Production Supervision and Management Bureau [Doc 102], the technical agreement of the power generators used in the project [Doc 98] and the project completion acceptance inspection report [Doc 101].

ERM CVS confirms that the description of the proposed CDM project activity as contained in the PDD [Doc 17] sufficiently covers all relevant elements. Furthermore, it is confirmed that the description is accurate, complete and provides the reader with a clear understanding of the nature of the proposed CDM project activity.

Timeline and operational status of the project

The first equipment purchase contract was signed on 02 June 2008, which is the starting date of the project activity. The starting date of the project activity is validated in detail in Section 3.6 below. The 11 power generators of the project were installed and commenced operation in January 2009, and operational records [Doc 85] were available to review during the site visit and ERM CVS confirmed the operational status of the power generators during the site visit.

The project lifetime of the project activity is expected to be 10 years as stated in section A.4.3 of the PDD. The project lifetime is defined as per the technical lifetime of the *Tool to Determine the Remaining Lifetime of Equipment, version 1* (EB50 Annex 15) [Doc 105]. This is consistent with the approved FSR and with the financial analysis of the project activity. Based on a clarification letter issued by the power generator manufacturer dated 08 April 2011, the life time of the equipment can reach 10 years [Doc 64]. According to the FSR [Doc 01], the remaining service life of Dashuitou Coal Mine and Weijiadi Coal Mine is 43 and 105 years, respectively. Thus, the remaining service life of the two coal mines is longer than lifetime of the project. Based on ERM CVS's local and sectoral knowledge and the reviewed documents, the 10 years lifetime of the project activity is considered to be reasonable for a CMM power generation project in P.R. China.

Permits and approvals:

ERM CVS has ensured that the project activity has sought all the relevant permits and approvals needed for implementing a CMM power generation project in the host country. The following permits and approvals were reviewed:

- FSR approval issued by Baiyin Municipal Development and Reform Commission to approve the project set up [Doc 02]
- Environmental Impact Assessment Form (EIA) approval issued by Baiyin Municipal Environmental Protection Bureau [Doc 04]
- Business License of Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. [Doc 06]
- Letter of Approval issued by the NDRC of P.R. China (the host country DNA) [Doc 05]
- Letter of Approval issued by the Department of Energy and Climate Change of United Kingdom (the Annex I Party DNA) [Doc 48]
- Project completion acceptance inspection report prepared by the expert panel consisting experts from the generator supplier, construction company, construction supervision company and the Project Developer [Doc 101]

Based on ERM CVS's local and sectoral knowledge and according to national procedures and regulations all necessary permits and approvals are in place for the implementation of the project activity.

Project location

As described in Section A.4.1 of the PDD, the project activity is located at Weijiadi and Dashuitou coal mines of Jingyuan Coal Group, Pingchuan District, Baiyin City, Gansu Province, P.R. China. The location described in the final PDD [Doc 17] accurately reflects the location of the project activity, and the information has been confirmed by the site visit.

3.4. Baseline

Applicability of selected methodology

The project activity applies approved baseline and monitoring methodology ACM0008 Version 07 '*Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through flaring or flameless oxidation*' [Doc 28]. This was the most recent version of the methodology valid at the time of validation. The methodology refers to the *Tool to calculate the emission factor for an electricity system* (Version 02.2.1) [Doc 30] and the *Tool for the demonstration and assessment of additionality* (Version 6.0) [Doc 29]. Valid versions of the tools are applied.

ERM CVS has ensured the methodology is correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology available on the UNFCCC CDM website and has ensured that the project activity meets each of the applicability conditions of the selected methodology to the proposed CDM project activity based on the following:

Applicability conditions	Reference	Means of validation
<p>This methodology applies to project activities that involve the use of any of the following extraction activities:</p> <ul style="list-style-type: none"> • Surface drainage boreholes to capture CBM associated with mining activities; • Underground boreholes in the mine to capture pre mining CMM; • Surface goaf wells, underground boreholes, gas drainage galleries or other goaf gas capture techniques, including gas from sealed 	<p>Doc 01 Doc 13 SV</p>	<p>The project captures the pre mining and post mining CMM via underground boreholes, drainage galleries and gas drainage pipeline. Ventilation air methane is normally vented, and is not utilised as part of the project activity. This has been validated against the FSR and during the on-site inspections, interviews and review of the design/completion drawings.</p>

Applicability conditions	Reference	Means of validation
<p>areas, to capture post mining CMM;</p> <ul style="list-style-type: none"> • Ventilation air methane that would normally be vented. 		
<p>This methodology applies to CMM and VAM capture, utilisation and destruction project activities at a working coal mine, where the baseline is the partial or total atmospheric release of the methane and the project activities include the following method to treat the gas captured:</p> <ul style="list-style-type: none"> • The methane is captured and destroyed through flaring; and/or • The methane is captured and destroyed through flameless oxidation and/or • The methane is captured and destroyed through utilisation to produce electricity, motive power and/or thermal energy; emission reductions may or may not be claimed for displacing or avoiding energy from other sources; • The remaining share of the methane, to be diluted for safety reason, may still be vented; • All the CBM or CMM captured by the project should either be used or destroyed, and cannot be vented. 	<p>Doc 01 Doc 13 SV</p>	<p>The project is located in Dashuitou and Weijiadi coal mines, which are working coal mines. The baseline is the total atmospheric release of the methane. All the methane captured by the project is destroyed through utilization to produce electricity via the generators. The remaining share of the methane is vented. This has been validated against the FSR and during the on-site inspections, interviews and review of the design/completion drawings.</p>
<p>In the case of opencast mines, the methodology also limits the following:</p> <ul style="list-style-type: none"> • The mines should have had a working mining concession for at least three years prior to the start of project; • Only pre-mine drainage from wells placed within the area to be mined are considered as eligible for crediting; • Such pre-mine drainage well life may be credited up to but no more than ten years prior to actual mining or the date of issuance of mining concession, whichever is later; • For open cast mines, avoided emissions from methane extracted should only be credited in the year in which the seam is mined through the well zone of influence or the de-stressing zone. 	<p>Doc 01 Doc 13 SV</p>	<p>The project is operated based on the underground operating coal mines, not opencast mines. This has been validated against the FSR and during the on-site inspections and interviews.</p>
<p>Project participants must be able to supply the necessary data for <i>ex ante</i> projections of methane demand as described in sections Baseline Emissions and Leakage to use this methodology.</p>	<p>Doc 01 Doc 13 SV</p>	<p>No methane demand exists before the project activity; it is confirmed against the FSR, site interview and the site visit that all methane is vented prior to the project activity, which is also confirmed by ERM CVS's sectoral experience.</p>
<p>The methodology applies to both new and existing mining activities.</p>	<p>Doc 01 Doc 13 SV</p>	<p>The project is based on the existing mining activities of Dashuitou and Weijiadi coal mines. This has been validated against the FSR, mining licenses and output data, and during the site inspections.</p>
<p>The methodology does not apply to project activities with any of the following features:</p> <ul style="list-style-type: none"> • Capture methane from abandoned/decommissioned coalmines; • Capture/use of virgin coal bed methane, e.g. methane of high quality extracted from coal seams independently of any mining activities; • Use CO₂ or any other fluid/gas to enhance CBM drainage before mining takes place. 	<p>Doc 01 Doc 13 SV</p>	<p>The project is operated based on the underground operating coalmines. No virgin coal bed methane is captured /used via the project. No CBM drainage activities are involved in the project. This has been validated against the FSR and during the on-site interviews and inspections, which is also confirmed by ERM CVS's sectoral experience.</p>

Project boundary

According to the applied methodology [Doc 28], the spatial extent of the project boundary includes all equipment installed and used as part of the project activity for the extraction, compression, and storage of CMM at the project site, and transport to an off-site user; flaring, flameless oxidation, captive power and heat generation facilities installed and used as part of the project activity; and power plants connected to the electricity grid, where the project activity exports power to the grid, as per the definition of project electricity system and connected electricity system given in 'Tool to calculate the emission factor for an electricity system'. The PDD correctly describes the project boundary in accordance with the applied methodology, i.e. the spatial extent of the project boundary includes the power plant, the extraction system, the internal grid at the two mines, the waste heat recovery system, the NWCPG (the project is connected to NWCPG through an internal grid and displaces the electricity that would have been provided by NWCPG), and the baseline venting of CMM gas. The extent of the electricity grid has been verified using the definition of the grid boundary provided by the China DNA. The project boundary has been verified by checking the FSR, the ERM CVS's site inspection, the site interviews and ERM CVS's sectoral experience. The spatial extent of the project boundary include comprises all equipments installed and used as part of the project activity for the extraction, compression, transportation, and utilization of CMM at the project site, as well as the waste heat recovery system, which is in accordance with the methodology requirement.

The validation of the project boundary has been performed by ERM CVS through assessing the documentation such as the FSR and the FSR approval [Doc 01 and 02] and physical inspections during the site visit. The power plant of the project, the extraction system, the internal grid at the two mines, the public grid and the baseline venting of CMM gas are included in the project boundary. The delineation details of the main electricity systems in China including the project electricity system of NWCPG [Doc 27] has been published by the DNA of the host country, the NDRC of P. R. China and the proposed project is found to be consistent with this information.

Based on the project details and its associated documentation it is also confirmed that no emissions other than those allowed by the methodology are expected to result from the project. And no greenhouse gas emissions occur within the proposed CDM project activity boundary, as a result of the implementation of the proposed CDM project activity, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

Details of emission sources and gases included in the project boundary are illustrated below in the table:

	Source	Gas	Included?	Justification / Explanation
Baseline emissions	Emissions of methane as a result of venting	CH ₄	Included	The Main emission source/ CMM is vented to the atmosphere in the baseline scenario.
	Grid electricity generation (electricity delivered to the grid)	CO ₂	Included	Electricity generated by the project activity will substitute the same quantity of electricity in Northwest China Power Grid.
Project emissions	On-site fuel consumption due to the project activity, including transport of the gas	CO ₂	Included	The extraction system is operated under prior scenario to capture methane for the safe operation of the coal mine, so the electricity consumption is not included as the additional electricity consumption by the project. The CMM transportation from the outlet of the extraction system to the CMM power plant is realized by the pressure produced by the extraction system without additional electricity usage. The captured CMM will be cleaned inside the CMM power plant and the electricity consumed will be provided by the proposed project as part of auxiliary consumption. Therefore, there is no additional electricity consumed by the project on gas transportation and cleaning. However, during emergency situation, the public grid power may be used by the project but will be deducted as only net supply to the public power grid will be accounted.
	Emissions from methane destruction	CO ₂	Included	Emissions from methane combustion in the gas engines.
	Emissions from NMHC destruction	CO ₂	Included	If the NMHC accounts for more than 1% by volume of extracted CMM, the emissions from NMHC will be included.
	Fugitive emissions of unburned methane	CH ₄	Included	Small amount of methane will remain unburned in power generation

Baseline Emissions from the destruction of methane in the baseline are excluded as there is no destruction or use of methane in the baseline, which was validated during the site visit. Baseline emissions from captive power and/or heat, and vehicle fuel use are excluded as these sources are not relevant for the project activity.

Baseline

All the baseline scenario alternatives stipulated in the applied methodology have been analyzed in the PDD Version 4.0 dated 17 October 2012. ERM CVS considers, based on its local and sectoral knowledge, that all reasonable and credible baseline alternative has been included from consideration. The inclusion or elimination of the alternatives or combination of the alternatives has been justified reasonable and confirmed by the validation team as following steps:

Step 1: Identify technically feasible options for capturing and/or using CBM or CMM or VAM

Step 1a- Options for CBM and CMM or VAM extraction

The PDD includes all baseline alternative scenarios options that are technically feasible to handle CBM and CMM or VAM to comply with safety regulations. The proposed project does not involve the utilization of CBM, thus, the PDD considered four options:

- A. Ventilation air methane (VAM);
- B. Pre mining CMM extraction;
- C. Post mining CMM extraction;
- D. Combinations of options A, B and C with the relative shares of gas specified, i.e. continuation of the current practice in Weijiadi and Dashuitou Coal Mines.

Step 1b-Options for extracted CBM and CMM or VAM treatment

Eight options for extracting CBM and CMM or VAM treatment are included in the analysis of potential baseline scenarios as stated in the PDD:

- (i) Venting. This is the continuation of existing CMM treatment practice;
- (ii) Using/destroying ventilation air methane rather than venting it;
- (iii) Flaring of CMM;
- (iv) Use for additional grid power generation;
- (v) Use for additional captive power generation, this is the proposed project activity not implemented as a CDM project;
- (vi) Use for additional heat generation;
- (vii) Feed into gas pipeline (to be used as fuel for vehicles or heat/power generation);
- (viii) Possible combination of options i to vii with the relative shares of gas treated under each option specified.

Step 1c-Options for energy production

Five scenarios are listed in the PDD as alternatives for energy production, which include:

- 1. The proposed project activity not undertaken as a CDM project activity (electricity generated by CMM gas generators and heating generated by waste heat);
- 2. Continuation of the current practice (import of electricity from NWCPG and heating supplied by existing coal-fired boilers);
- 3. Additional fossil fuel-fired power generation;
- 4. Additional other renewable power generation and heating supplied by existing coal-fired boilers;
- 5. Using CMM as vehicle fuel.

Step 2: Eliminate baseline options that do not comply with legal or regulatory requirements

The PDD follows ACM0008 version 7 to identify all of the applicable baseline alternatives and eliminate the baseline options that do not comply with legal or regulatory requirements. The follows are the scenarios that do not compliance with Chinese regulation:

Options for CMM extraction: The option A (VAM), B (pre-mining) and C (post-mining) cannot be carried out alone. As stipulated by the *National Coalmine Safety Regulation (2010)* [Doc 32], the methane concentration in the air underground should be lower than 1% for safety reasons, to avoid explosions. It was confirmed with the sector expert that in order to meet this requirement, both CMM extraction (pre mining and post mining) and ventilation (VAM) must be adopted. Therefore, Options A, B and C cannot be carried out alone. The two coal mines only have one CMM extraction system combining pre mining and post mining activities. As a result, pre mining CMM and post mining CMM cannot be separated. Hence, ERM CVS confirms that the exclusion of Options A, B and C are justified. The technically feasible remaining alternative for methane extraction is option D: Combinations of VAM, pre mining and post mining CMM extraction. This has been validated against the FSR [Doc 01]. In addition, this can be confirmed by the CMM extraction system design [Doc 13] and confirmed by the sectoral expert.

Options for extracted CMM treatment: CMM Flaring alternative (iii) does not have compliance with the technical requirements. According to the *National Coalmine Safety Regulation (2010)* [Doc 32], CMM with methane concentration lower than 30%

cannot be combusted directly (i.e. it cannot be flared). According to the extracted CMM concentration records and test analysis reports [Doc 08, 71], the general methane concentration is lower than 30%.

Similar as previous, the alternative of direct using of CMM for additional heat (alternative vi) is eliminated because direct combustion of CMM lower than 30% through open flame in gas-fired boilers is prohibited by host country regulations [Doc 32]. In addition, a methane concentration above 30% is generally required for gas-fired boilers to operate due to safety reasons [Doc 57]. Thus, this alternative is eliminated.

Options for energy production: The alternative of construction of a fossil fuelled power plant with equivalent amount of installed capacity (i.e. 5.5 MW) (alternative 3 for Options for energy production) is eliminated due to non-compliance with the Chinese regulatory requirements. This exclusion is validated to be consistent with the Chinese regulation, *Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135 MW or Below* issued by the State Council, decree no. 2002-6 [Doc 33], prohibiting the construction of fuel-fired power plants with an installed capacity equal to or lower than 135 MW in areas covered by large grids such as provincial grids.

The alternative of using CMM as vehicle fuel (alternative5 for Options for energy production) is eliminated due to non-compliance with the Chinese regulatory requirements. According to the Chinese standard *Compressed Natural Gas for Vehicle (GB18047-2000)* [Doc 111], the gross calorific value of the gas must be higher than 31.4MJ/m³ to be used as fuel for vehicles. However, the CMM calorific value from the project mines is lower than the minimal value specified by the standard [Doc 01, 08, 71 and 112]. Thus, the coal mine methane extracted in this project cannot be used as the vehicle fuel.

The other selected baseline scenarios are in compliance with the host country regulation and no national and/or sectoral policies and circumstances contradict the selected baseline scenario.

Step 3: Formulate baseline scenario alternatives

Based on the above analysis, the PDD follows the methodology to formulate the remaining alternative scenarios, which are listed in the table below. The alternative scenarios are coherent and comprehensive and one of the alternative scenarios is the continuation of existing status, which is the alternative of combination of VAM, pre mining and post mining CMM extraction, the continuation of venting without any treatment and import of the electricity from the public grid, and heating supply for households by coal-fired boilers (Alternative 1 in the PDD). The identified alternative scenario which represents the project activity undertaken without being registered as a CDM project is Alternative 5. All of the identified alternative scenarios above are in compliance with the applicable laws and regulations in China. This has also been confirmed with the sector expert.

Step 4: Eliminate baseline scenario alternatives that face prohibitive barriers

The PDD is prepared in line with the methodology to eliminate baseline scenario alternatives that face prohibitive barriers. The baseline alternative scenario combinations that were formulated are stated in the table below. The table also presents the reasons for the elimination of the alternative scenarios, which have been validated against supporting references and host country sectoral experiences. Details are listed in the table below.

Alternative Scenarios and Validation of their Elimination

ID	CMM extraction	CMM treatment	Energy generation	Elimination of Alternatives
Alternative 1	Combination of VAM, pre mining and post mining CMM extraction.	Venting	NWCPG offers the same amount of electricity and heating supply by existing coal-fired boilers	This alternative is the business as usual scenario and current situation. Hence, no barrier exists. Investment analysis was adopted to evaluate the economic attractiveness of developing the proposed project versus the continuation of the current practice, i.e. to make no investment.
Alternative 2	Combination of VAM, pre mining and post mining CMM extraction.	Venting	Construction of other renewable energy plants & heating supplied by existing coal-fired boilers	ERM CVS confirmed with public documents, maps and site visit [Doc 115, 116, and 117] that the project area is recognized as short in renewable resources such as wind, solar, geothermal or biomass and the location of the proposed project does not have available hydrological resources suitable for hydroelectric power. In addition, the coal mine owner cannot obtain the same safe quantity and quality of electricity from renewable sources, which are intermittent, and it is clear that the project developer has no interest to develop other energy sources outside of coal or conventional sources. Thus, the exclusion of Baseline Alternative 2 is therefore considered as valid.
Alternative 3	Combination of VAM, pre mining and post mining CMM extraction.	Using/destroying VAM rather venting it	NWCPG offers the same amount of electricity and heating supply by existing coal-fired boilers, or construction of other renewable energy plants and heating supplied by existing coal-fired boilers	Using/destroy VAM is eliminated as the adoption of such technology is considered immature in China, which encounters physical impracticality, safety and technical uncertainty in Chinese companies [Doc 104]. The validation team verified against the papers published by technology experts in 2005, 2007 and 2008, respectively [Doc 77], that confirm that there is no commercially viable technology to destroy/use VAM with methane concentration lower than 1% in China (in the absence of CDM revenues). Hence, it is considered that the utilization of VAM is currently not realistic and credible in commercial applications in China in the absence of CDM

ID	CMM extraction	CMM treatment	Energy generation	Elimination of Alternatives
				revenues, and the elimination of this option is considered reasonable.
Alternative 4	Combination of VAM, pre mining and post mining CMM extraction.	Use for additional grid power generation	NWCPG offers the same amount of electricity and heating supplied by coal-fired boilers, or construction of other renewable energy plants and heating supplied by existing coal-fired boilers	<p>At policy level, according to the <i>Notice on Implementing the Opinions of Power Generation by Coalmine Methane</i> issued by the National Development and Reform Commission on 2 April 2007 [Doc 123], it states that "electricity generated by coalmine methane (CMM) shall be used for captive purpose firstly, and then the grid company shall permit the surplus electricity to supply to the grid, if any". Based on this Notice, additional grid power supply is not possible because there is no surplus of electricity, since all the electricity generated will be consumed internally by the Jingyuan Coal Group. This has been confirmed with the balance between the estimated power generation by the project activity (27,805 MWh annually) and the historical power consumption for Jingyuan Coal Group in the three years prior to project activity implementation (204,711MWh, 209,780.6MWh and 215,604.8MWh from 2006 to 2008, respectively)/Doc 122/, which shows clearly that all electricity generated can be consumed internally.</p> <p>Despite this, the PP conducted an investment comparison analysis in order to prove whether this option can be considered a realistic and credible baseline alternative. This is validated in detail below.</p> <p>In terms of preferential tariff, the Validation Team found that the same Notice [Doc 123] stipulated that the feed-in tariff of CMM grid power generation is defined as: "the feed-in tariff of electricity generated by CMM shall follow the feed-in tariff of electricity generated by biomass as described in the Trial Measures for Pricing and Cost Sharing Management for Renewable Energy Electricity Generation (FaGaiJiaGe No. 7 [2006])". According to this document the feed-in tariff for biomass generated electricity is the local desulphurized coal fired electricity feed-in tariff in 2005 plus compensatory tariff (which is 0.25RMB/kWh [Doc 124]). Therefore and taking into account that the feed-in tariff of desulphurized coal fired electricity in Gansu Province in 2005 was 0.242RMB/kWh (including VAT)[Doc 125], the feed-in tariff of CMM generated electricity in Gansu Province is 0.492RMB/kWh (calculated by 0.25RMB/kWh + 0.242RMB/kWh) (including VAT)</p> <p>It is validated that the feed-in tariff of desulphurized coal fired electricity in Gansu Province in 2005 is applicable at the time of investment decision of the proposed project activity, due to the following reasons:</p> <ul style="list-style-type: none"> a. The Notice on Implementing the Opinions of Power Generation by Coalmine Methane (FaGaiNengYuan No.[2007]721) has been issued by the National Development and Reform Commission on 2 April 2007, which is valid for date of investment decision. b. The tariff is fixed and cannot change over time. The tariff has been defined by the Notice, which is still valid. This has been confirmed with the CMM tariff dated 16 February 2011 by the local Finance Bureau [Doc140], which revalidated the assumption for CMM feed-in tariff. <p>According to this preferential tariff it is demonstrated that this alternative is less economically attractive, consistent with Step 5 of the methodology. The PDD developed an investment comparison analysis to compare the attractiveness of this alternative, with the other possible baseline scenarios such as Alternative 1 and 5 (Table B.5 of the PDD). Based on this comparative analysis, a negative Net Present Value would be achieved for Alternative 4, which is less attractive compared with Alternative 1: the business as usual scenario and current situation. Please see the detailed investment comparison analysis validation below.</p>
Alternative 5	Combination of VAM, pre mining and post mining	Use for additional captive power	Electricity generation and heating generated	This scenario is the project activity implemented not under CDM. Investment analysis was adopted and negative Net Present Value would be achieved at the end of the project cycle for

ID	CMM extraction	CMM treatment	Energy generation	Elimination of Alternatives
	CMM extraction.	generation	by waste heat by CMM but not implemented as CDM	Alternative 5, which is less attractive compared with Alternative 1: the business as usual scenario and current situation. This is validated in detail below.
Alternative 6	Combination of VAM, pre mining and post mining CMM extraction.	Feed into gas pipeline	NWCPG offers the same amount of electricity and heating supply by existing coal-fired boilers, or construction of other renewable energy plants and heating supplied by existing coal-fired boilers	According to <i>Natural Gas Standard (GB17820-1999)</i> [Doc 126], the gas pipeline requires that the calorific value of the gas fed into the pipeline must be higher than 31.4MJ/m ³ . The validation team confirmed that the CMM from the project activity does not comply with the minimum requirements to feed it into the domestic or industrial gas pipeline because the methane concentration of the CMM from the project activity coal mines is lower than 30% and its calorific value is considerably lower than 31.4 MJ/m ³ [Doc 08]. Therefore this alternative does not comply with mandatory regulations, and is eliminated. Thus, this alternative is excluded.
Alternative 7	Combination of VAM, pre mining and post mining CMM extraction.	Possible combination of options (i) to (vii) with the relative shares of gas treated under each option specified	Electricity generation by CMM but not implemented as CDM, or. NWCPG offers the same amount of electricity and heating supply by existing coal-fired boilers, or. construction of other renewable energy plants and heating supplied by existing coal-fired boilers	Since no other options except for continuation of venting is feasible, it is impossible to define combinations of different uses for consideration.

Step 5: Identify the most economically attractive baseline scenario alternative

An investment analysis was carried out in order to assess the remaining alternatives: alternative 1 (continuation of the current situation), alternative 5 (the project not implemented under CDM) and alternative 4 (use of CMM for additional grid power generation). The investment analysis is validated in more detail below:

Determine appropriate analysis method

In order to identify the most economically attractive baseline scenario alternative, the PDD adopts the investment comparison analysis (option II), which is appropriate, since three alternatives need to be assessed, and there are other economic benefits associated with alternatives 4 and 5 (i.e. from selling electricity), hence option I is not applicable. NPV is used as the financial indicator, and this is considered appropriate as a means to compare different alternative scenarios, based on ERM CVS's local and sectoral knowledge.

The NPV of alternative 1 (continuation of the current situation) is assumed to be zero, since no additional investment and no additional revenues exist.

Apply Investment Comparison Analysis

- An equity NPV is calculated. The use of an equity NPV is considered appropriate for determining the decision of a private sector investor, based on ERM CVS's local and financial expertise. IRR could not be used for the investment comparison analysis because one of the alternatives does not involve any investment or revenues, and therefore an IRR could not be calculated.

Determination of the discount rate

The discount rate is equal to the benchmark for the industrial sector. This is correct, as otherwise the analysis would not be consistent with the additionality assessment by means of investment analysis presented in section B.5 of the PDD, and validated below in section 3.6 of this validation report. Please refer to section 3.6 below for details of how the benchmark was validated.

Assessment of input values to the analysis

All input parameters are the same as for the additionality analysis, with the exception of the electricity tariff. This was validated to be correct since the physical investment in facilities and equipment would be the same. The only difference would be that electricity would be supplied to the grid instead of to the mines, which changes the tariff but the other parameters remain the same. Please see section 3.6 below for details of how the input values were validated.

The electricity tariff for supplying electricity to the grid was validated as follows:

ERM CVS reviewed the official 'Notice on Implementing the Opinions of Power Generation by Coalmine Methane' issued by the National Development and Reform Commission [Doc 123] which stipulated that: "the feed-in tariff of electricity generated by CMM shall follow the feed-in tariff of electricity generated by biomass as described in the 'Trial Measures for Pricing and Cost Sharing Management for Renewable Energy Electricity Generation' (FaGaiJiaGe No. 7 [2006])", According to this document the feed-in tariff for biomass generated electricity is the local desulphurized coal fired electricity feed-in tariff in 2005, plus a compensatory tariff (which is 0.25RMB/kWh [Doc 124]). Taking into account the fact that the feed-in tariff of desulphurized coal fired electricity in Gansu Province in 2005 was 0.242RMB/kWh (including VAT) [Doc 125], the feed-in tariff of CMM generated electricity in Gansu Province is validated as 0.492RMB/kWh (calculated by 0.25RMB/kWh + 0.242RMB/kWh) (including VAT).

It is validated that the feed-in tariff of desulphurized coal fired electricity in Gansu Province in 2005 is applicable at the time of investment decision of the proposed project activity, due to the following reasons:

The Notice on Implementing the Opinions of Power Generation by Coalmine Methane (FaGaiNengYuan No.[2007]721) has been issued by the National Development and Reform Commission on 2 April 2007, which is valid for date of investment decision. The tariff is fixed and does not change over time. The tariff has been defined by the Notice, which is still valid [Doc 123].

The electricity tariff for supplying electricity to the grid was further cross checked as follows:

ERM CVS reviewed the CMM tariff dated 16 February 2011 by the local Finance Bureau [Doc140], which revalidated the assumptions for the CMM feed-in tariff, enabling ERM CVS to cross check and confirm that the tariff for supplying electricity to the grid used in the investment comparison analysis is correct.

Spreadsheet calculations:

ERM CVS reviewed the NPV spreadsheet [Doc 142], and found that the computations are correctly presented, traceable, and consistent with the information presented in the PDD.

The calculations were carried out over an assessment period of 10 years, with 1 year of construction time, which is consistent with the lifetime of the project in the FSR [Doc 01]. Based on ERM CVS's local and sectoral knowledge, this is reasonable for a CMM captive power generation project in PR China. The calculations and analysis include all relevant costs and revenues, and by making use of ERM CVS's local, sectoral and financial knowledge, this has been cross checked against the approved third party FSR [Doc 01], and the equipment purchase/installation and construction contracts [Doc 20, 49, 73, 74]. Further details of the cross checks of financial input parameters can be found in section 3.6 below.

The NPV of alternative 4 (supply of electricity to the grid) is -2,189,145.53RMB, and the NPV of alternative 5 (the project without CDM income) is -4,644,423.55RMB. The NPV of alternative 1 (continuation of the current situation) is zero, since no investment or revenues are involved. Therefore it can be concluded that alternative 1 is more economically attractive, and is therefore selected as the baseline. Alternative 4 is not the baseline. Alternative 5 is further assessed by means of an investment analysis using IRR, as validated in section 3.6 below.

Conclusion

In conclusion, ERM CVS has determined that the baseline scenario identified in the PDD (alternative 1 i.e. continuation of the current situation) is reasonable by validating the assumptions, calculations and rationales, as described above. The selected baseline is also in compliance with the host country regulations and no national and/or sectoral policies and circumstances contradict the selected baseline scenario.

ERM CVS can confirm that:

- All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5. Monitoring Plan

The project activity applies the approved monitoring methodology ACM0008 Version 07. The methodology is applied correctly and transparently, and provides for accurate measurement of the emission reductions ex-post. The monitoring plan is in accordance with the methodology. The following parameters are monitored:

Parameter	Description	Measurement methods	Validation of the value of data applied for the purpose of calculating expected emission reductions
MM _{ELEC}	Methane measured delivered to the power plant	Continuously monitored by gas flow meter, temperature meter, pressure meter and methane	The expected value has been confirmed against the FSR [Doc

Parameter	Description	Measurement methods	Validation of the value of data applied for the purpose of calculating expected emission reductions
		concentration meter. The gas consumption is measured continuously by the meter, and data is recorded monthly and aggregated annually. The volume of pure CH ₄ is directly obtained from the monitoring system. MM _{ELEC} is calculated based on the volume of pure CH ₄ times the density of methane (0.67kg/m ³).	01]
CEF _{NMHC}	Carbon emission factor for combusted non methane hydrocarbons (NMHC).	This parameter is only applicable when PC _{NMHC} is higher than 1%. If this is the case, the parameter will be monitored and samples will be analysed annually.	The expected NMHC concentration is less than 1%, which has been validated against the gas analysis report [Doc 08]
PC _{CH4}	Concentration (in mass and wet basis) of methane in extracted gas (%)	This parameter is directly monitored by the methane concentration meter. The parameter will be continuously measured, recorded monthly and aggregated annually	In the PDD calculations, the value of PC _{CH4} is not adopted since the mass of methane consumed (MM _{ELEC}) is directly presented in the FSR. However the expected value of methane concentration has been confirmed against the FSR [Doc 01] and the extracted CMM concentration records and test reports [Doc 08, 71]
PC _{NMHC}	NMHC Concentration (in mass) in extracted gas (%)	This parameter is monitored and tested by qualified third party annually.	The expected value is less than 1%, and this has been confirmed against the FSR [Doc 01]
GEN _y	Net electricity supplied to the internal grid by the project	The parameter is calculated as the difference between the electricity supply to the internal grid and electricity imported from the NWCPG grid if this would be necessary. The electricity will be measured by the bidirectional electricity meter continuously.	The expected value has been confirmed against the FSR [Doc 01]

The other monitoring parameters (including CONS_{ELEC, PJ}, CONS_{HEAT, PJ}, MM_i, PMM_{PJ,i,y}, ED_{CPMM,i}, PBE_{Use,y}) in the methodology are not relevant for this project and are therefore not included in the monitoring plan. For further information on how the monitoring parameters were validated please see section 9 of the validation protocol (Appendix B).

Equipment:

The main monitoring equipments are the bidirectional electricity meters (to measure GEN_y, including both electricity supplied to the internal power grid and project electricity consumption supplied by the NWCPG, if any) methane monitoring system (including flow, pressure, temperature and concentration) to measure the volume of pure CH₄ and PC_{CH4}), and qualified third party (to test PC_{NMHC}). One set of electricity meters and a methane monitoring system will be installed at each of the two mines (i.e. one set of the Weijiadi Coal Mine and one set for the Dashuitou Coal Mine).

The methane monitoring system, including the CH₄ concentration meter and gas flow meter (adjusted by pressure and temperature), is installed between the CMM pump station and the CMM power plant. Four parameters, concentration, flow, pressure and temperature, are measured on-time by the system. The accuracy for the CH₄ concentration meter is at least 1%, and the accuracy for the gas flow meter is at least 2%. The meters will be calibrated according to appropriate standard annually.

The bidirectional electricity meters are installed at internal power transformation side of Jingyuan Coal Group, measuring electricity supplied to the internal grid of two mines and the project electricity consumption supplied by the NWCPG, if any. And the net electricity supply to the internal grid which is connected to the NWCPG is the difference between the two measurements. The accuracy of the meters is at least 0.5, and the meters will be maintained and calibrated according to the national standard Technical Administrative Code of Electric Energy Metering (DL/T448-2000) [Doc 18]. This has been cross checked against the 'Technical Administrative Code of Electric Energy Metering' (DL/T448—2000). The meters will be calibrated by a licensed third party on an annual basis, which is in line with the code (DL/T448—2000) [Doc 18].

A qualified third party will be engaged to test PC_{NMHC} annually. The sampling point is located at the CMM extraction outlet of the two coal mines.

Data:

Gas flow meters and electricity meters are operated/measured continuously, and concentration, temperature and pressure meters will be measured on daily basis. All data will be reported on a monthly basis, and all the data required for the emission reduction calculations will be retained in the onsite monitoring database.

The PC_{NMHC} test is carried out annually according to requirement of methodology, the qualified third party issues test report every year.

Organisation:

The PDD contains a diagram illustrating the organisational structure to be implemented by the project owner in order to implement the monitoring plan. A project manager appointed by the project owner will be in charge of the overall implementation of the monitoring plan. A monitoring team will also be established to carry out the monitoring plan. The implementation of the monitoring plan will be supervised by the project owner. The organisational structure is considered appropriate to fulfil the monitoring requirements of the methodology and to ensure that emission reductions can be verified.

Quality Assurance and Quality Control:

The PDD contains information on how quality will be controlled and assured in the monitoring of emission reductions. In order to ensure exact and conservative emission reductions, the project owner adopts the following QA/QC procedures:

- Training the monitoring team on data reading, strengthening the norms of manual data reading process, guaranteeing that two personnel complete the monitoring operations at the same time.
- Ensuring trained personnel perform data monitoring and recording, submitting signed data records to the QA/QC custodian periodically.
- Filing the original reports and retaining them for 2 years after the end of the crediting period.
- In case of CMM meters failure, gas consumed by power engines will not be claimed for ERs. The time of failure will be recorded by the operator. The monitoring staff will ensure the installed meters are within the valid calibration period.
- Power meter failure: it is noted that no power will be imported when the power generators are in operation. When the power generators shut down or not functioning properly, the imported power from the Grid will be measured by the power meter, which is a bi-directional meter. In case of power meter failure, electricity supplied to the grid will not be claimed for ERs.

The PDD also contains information on how to calibrate the monitoring equipment, which will be performed as per the Chinese technical specifications.

Feasibility of the monitoring plan:

The monitoring plan within the PDD is considered to be feasible. The project owner is also the owner of the coal mine. All of the hired employees for the project are qualified by the coal mine owner. The project manager has participated in the training provided by the manufacturer. Relevant training records dated 2009 were provided for review [Doc 11]. Hence, the project participants have the ability to implement the monitoring plan.

Therefore the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

3.6. Additionality

Start date

The starting date of the project activity is on 02 June 2008, which is the date on which the purchase contract for power generators was signed [Doc 20]. This can be considered a reliable third party source (since it is signed with a third party, and the document has been verified by checking the original contract during the site visit, including the correctness of the signatures and stamps. This contract is therefore considered reliable and reasonable, and is the earliest contract signed for the project associated with any real action or implementation of the proposed project. The start date has been verified to be the earliest start of real action on the project (in accordance with the "Glossary of CDM terms"), by cross-checking the following documents:

Document	Date	Parties involved PP/Other Party	Activity	Document number (on document request list)
Purchase contract for power generators between Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. and Shandong Shengdong Power Machinery Sales Co Ltd	02 June 2008	Project owner/ Shandong Shengdong Power Machinery Sales Co Ltd	Equipment purchasing contract signed	[Doc 20]
Installation contract for the project (including all major equipments, such as power generators, cooling system, gas intake, cables, firefighting, control system)	20 June 2008	Project owner/ Shandong Shengdong Gas Power Generation Engineering Design Consulting Co Ltd	Equipment installation contract signed	[Doc 74]
Construction contract for the project	27 June 2008	Project owner/ Baiyin Pingchuan No.2 Construction Engineering Co Ltd	Construction contract signed	[Doc 73]

Prior consideration of the CDM and timeline of real and continuing actions to secure CDM status

The project activity is an existing project with a starting date before 02 August 2008. Therefore in accordance with the 'Guidelines on the demonstration and assessment of prior consideration of the CDM' version 04, the project proponent should provide evidence of awareness of the CDM prior to the project activity start date and reliable evidence that demonstrates real actions were taken to secure CDM status in parallel with the project's implementation. Prior to the starting date, the project owner has been seriously considered the CDM and its assistance rendered to the project. In an email from Shandong Shengdong Gas Power Generation Engineering Design Consulting Co Ltd (the FSR design institute) to the project owner dated 03 April 2008, the design institute suggested the project owner to consider for CDM development for this project activity given its low profitability [Doc 75]. On 08 April 2008, the Board of Directors decided to develop CDM for this project activity [Doc 22] and 15 May 2008, a CDM development contract between Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. and Gansu Tonghe Investment Project Consulting Co Ltd was also signed. Therefore it has been demonstrated that the CDM benefits were a decisive factor in the decision to proceed with the project.

Furthermore, the project developer has undertaken continuing and real actions to secure CDM status, as outlined in the table in section B.5 of the PDD. The following documents have been checked by ERM CVS to substantiate the timeline, and ERM CVS has confirmed the authenticity of the evidence by checking the correctness of signatures and stamps, and by cross checking the documents against one another to ensure that the timeline is reliable:

Document	Date	Document Number (on document request list)
Preliminary financial analysis submitted to the FSR design institute and email from the design institute for suggestion of CDM consideration.	03 April 2008	[Doc 75]
Board Meeting Minutes on decision of investment and CDM development.	08 April 2008	[Doc 22]
The Feasibility Study Report (FSR) was completed (with CDM considered).	April 2008	[Doc 01]
The CDM development contract was signed	15 May 2008	[Doc 21]
The FSR was approved.	26 May 2008	[Doc 02]
The Environmental Impact Assessment (EIA) was completed.	June 2008	[Doc 03]
The major equipment purchase contract was signed..	02 June 2008	[Doc 20]
The installation contract was signed	20 June 2008	[Doc 74]
The EIA was approved.	23 June 2008	[Doc 04]
The construction contract was signed	27 June 2008	[Doc 73]
Commencement of construction activity	01 July 2008	[Doc 26]
Test operation of power units at the first coal mine	26 November 2008	[Doc 99]
A CDM buyer showed intention to purchase CER	17 December 2008	[Doc 80]
New ERPA required by the CDM consultant for the PP	06 January 2009	[Doc 55]
Project commissioning	25 January 2009	[Doc 49]
Project questionnaire for local residents' comments	03 March 2009	[Doc 40]
Development schedule agreement to the CDM consulting company	23 March 2009	[Doc 72]
The Emission Reduction Purchase Agreement (ERPA) was signed.	29 March 2010	[Doc 58]
GSP of the project	03 September 2010	[Doc 76]
The LoA of P. R. China DNA was issued.	30 September 2010	[Doc 05]
The LoA of Annex I country DNA was issued	07 December 2010	[Doc 48]

It has therefore been validated that the project proponents undertook continuing and real actions to secure CDM status for the project activity in parallel with its implementation. The PP has indicated 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 included minutes related to the consideration of the decision by the Board of Directors of the project participant, to undertake the project as a CDM project activity. Furthermore, the project participant has indicated, 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 included contracts with consultants for CDM/PDD services, emission reduction purchase agreement (ERPA), and correspondence on the project with the DNA, amongst other items. ERM CVS has confirmed the authenticity of the evidence through interviews with the PP, and by cross checking different sources of evidence to substantiate the timeline of events, as described in the table above. Given that there is less than 2 years gap between the documented evidence, ERM CVS concludes that continuing and real actions were taken to secure CDM status for the project activity, in line with the 'Guidelines on the demonstration and assessment of prior consideration of the CDM'.

Identification of alternatives:

The identification of alternatives, also the Step 1 of the "*Tool for the demonstration and assessment of additionality*" is ignored in the section B.5 of the PDD as this content has been fully conducted in the B.4. Please see section 3.4 above for details. The

realistic and credible alternatives identified are Alternative I (continuation of the current situation) and Alternative II (the project not implemented with CDM)

Additionality determination:

Investment analysis is used to demonstrate additionality of the proposed CDM project activity. The project activity correctly adopts the latest 'Tool for the demonstration and assessment of additionality' as required by the methodology. The PDD demonstrates that the project activity is not economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs) and thus the financial returns of the proposed CDM project activity would be insufficient to justify the required investment. The financial analysis was assessed by the validation team, including assessment of the spreadsheet and evidences relating to the input values to the financial analysis. The analysis was also assessed in detail against the 'Guidelines on the Assessment of Investment Analysis' (version 05) by a financial expert who has specific expertise in the assessment of financial analysis for CDM projects.

Investment analysis:

Determine appropriate analysis method

The PDD adopts the benchmark analysis (option III), which is appropriate, since there are other economic benefits associated with the project activity in addition to CER revenues (i.e. from selling electricity), hence option I is not applicable. Option II is also not applicable as the alternative to the project activity, continuation of electricity supply by the existing generation mix operating in the grid, does not represent a comparable investment opportunity to the proposed project. The alternative to the project is to 'do nothing' i.e. the project developer would make no investment. Therefore investment comparison analysis cannot be carried out.

Apply Benchmark Analysis

- The financial indicator most suitable for the project type and decision context is the Internal Rate of Return (IRR). This is correctly identified in the PDD. The IRR is the financial indicator commonly used in the host country to assess the economic or financial feasibility of investment projects, and is also the financial indicator used by the government to determine investment thresholds or benchmarks for construction projects;
- An equity IRR is calculated. The use of an equity IRR is considered appropriate for determining the decision of a private sector investor, based on ERM CVS's local and financial expertise. This is also in line with the benchmark selected.

Determination of the benchmark

As per the VVM paragraph 112 [Doc 84], ERM CVS has:

- (a) Determined that the type of benchmark applied (post-tax equity IRR) is suitable for the type of financial indicator presented in the PDD: A post-tax equity IRR is calculated which is consistent with the benchmark;
- (b) Ensured that any risk premiums applied in determining the benchmark reflect the risks associated with the project type: considering the benchmark is regulated for the coal industry by the government and no additional risk premiums have been added to the benchmark, this is considered appropriate;
- (c) Determined that it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark: given the benchmark is determined by the government taking into consideration circumstances in the country and sector, it is reasonable to conclude that the investment would not be made at a rate of return lower than the benchmark. This benchmark is widely applied in China according to the local and sectoral knowledge of the validation team.

As per the VVM paragraph 114 (b) [Doc 84], ERM CVS has:

(b) Describe how the suitability of any benchmark applied has been assessed.

The 15% post-tax equity benchmark has been selected. The benchmark has been determined based on:

- The *Economic Evaluation Method and Parameters for Project Construction (Version 3)* [Doc 83], issued by the National Development and Reform Commission and the Ministry of Construction stipulates that the equity benchmark after tax for the coal sector is 15%.
- The benchmark for the coal sector is applicable because the project activity is a captive power generation project and Baiyin Jieneng Thermoelectricity Co Ltd, is wholly equity owned by Jingyuan Coal Group and hence belongs to Jingyuan Coal Group, [Doc 131] which is in line with the information note EB51 Annex 59 "For projects in which the electricity was being produced for captive consumption the benchmark of the core business was considered to be appropriate, as the project was considered to be an investment in the operation of the core business".
- The investment of the proposed project is totally funded by Jingyuan Coal Group without any loan, therefore the equity IRR is appropriate, which was confirmed with relevant 3rd party evidence [Doc 131].
- The project does not have any loans, and it is 100% equity funded, invested by and owned by Jingyuan Coal Group. Interest payments were not included in the analysis because the project does not have any loans. It is entirely appropriate for the project developer to apply an equity IRR benchmark in its decision making process, which represents the desired

return on equity of the project developer as officially mandated by the Government of China. ERM CVS notes that the project IRR benchmark (before tax) would be 13% according to the same source, and that the IRR would remain well below either benchmark anyway.

Furthermore, taking into account that the benchmark is determined by the government where no additional risk premiums have been added to the benchmark, it is reasonable to conclude that the investment would not be made at a rate of return lower than the benchmark. This benchmark is widely applied in China according to the local and sectoral knowledge of the validation team.

Based on ERM CVS's local, sectoral and financial expertise, ERM CVS confirms the suitability of the benchmark applied in the investment analysis, which is in line with the VVM paragraph 112 and 114.

Calculation and comparison of financial indicators

The PDD presents the key input parameters and results of the assessment of the IRR of the project. ERM CVS also reviewed the IRR spreadsheet [Doc 14], and found that the computations are correctly presented, traceable, and consistent with the information presented in the PDD.

The calculations were carried out over an assessment period of 10 years, with 1 year of construction time, which is consistent with the lifetime of the project in the FSR [Doc 01]. Based on ERM CVS local and sectoral knowledge, this is reasonable for a CMM captive power generation project in PR China. The calculations and analysis include all relevant costs and revenues, and by making use of ERM CVS's local, sectoral and financial knowledge, this has been cross checked against the approved third party FSR [Doc 01], and the equipment purchase/installation and construction contracts [Doc 20, 49, 73, 74]. The IRR of the project without CDM income is 10.74%, which is below the benchmark of 15%, and hence it can be concluded that the project is additional. It should be noted that given equity is used in IRR calculation (cash flow), so the outcome is equity IRR and can be compared with the equity benchmark.

Assessment of parameters and assumptions

All input parameters to the analysis are referenced to, and have been confirmed against, the approved third party FSR for the project [Doc 01]. The values are found to be consistent. To confirm that the values taken from the FSR were still applicable ERM CVS reviewed the major contracts related to the project, including the equipment purchase/instruction contracts, construction contracts [Doc 20, 49, 73, 74]. Please refer to the section below entitled 'Investment Cost' for the validation of the evidences related to the key contracts in demonstrating the values in the FSR are conservative. The key input values used in the analysis were also cross checked against other references and sources in order to further validate their reliability (please refer to table 6, and section 7.30 of the validation protocol, below, which give a detailed assessment of the key input parameters).

Financial analysis checklist: the financial analysis has been assessed by the validation team, including a financial expert subcontracted by ERM CVS to assess the accuracy and conservativeness of the analysis. The following checklist highlights the key points that were checked:

Table: Validation of financial analysis

Issue	Notes	Check	Cross check
Financial analysis method	Additionality tool is followed. Benchmark analysis is used.	Consistent with the additionality tool.	Consistent with Guidelines on the assessment of investment analysis[Doc 97]
Benchmark type	Benchmark is appropriate for Equity IRR	The investment of the proposed project is totally funded by Jingyuan Coal Group without any loan, therefore the equity IRR is appropriate, which was confirm with relevant 3 rd party [Doc 131]	Consistent with <i>Economic Evaluation Method and Parameters for Project Construction (Version 3)</i> [Doc 83]
Benchmark source & value	Third party government benchmark taken from the <i>Economic Evaluation Method and Parameters for Project Construction (version 3)</i> [Doc 83]. 15% is used for coal industry as per the document [Doc 83].	The <i>Economic Evaluation Method and Parameters for Project Construction (version 3)</i> [Doc 83] document is a valid Third party government source because it is issued by National Development and Reform Commission and the Ministry of Construction. The coal sector benchmarking is applicable to project activity as it is a captive power plant and Baiyin Jieneng	The benchmark is an official government benchmark and is determined specifically for the coal sector. The coal production is the core business for Baiyin Jieneng Thermoelectricity Co Ltd, because Jingyuan Coal Group is wholly owned of the power generation company. This was confirmed with relevant 3 rd party evidence [Doc 131] and consistent with the guidance of selection of Benchmarking for waste gas

Issue	Notes	Check	Cross check
		Thermoelectricity Co Ltd, is wholly owned by Jingyuan Coal Group.	<p>project EB 51 Annex 59 [Doc 132]</p> <p>Furthermore, the project activity is for captive use only and total funded by coal group with any loan.</p> <p>Therefore, the benchmark source selection is consistent with coal sector, consistent with host country best practice and appropriate based on ERM CVS's local and sectoral knowledge, including the inputs of a sector expert.</p>
Is the benchmark also applied in the FSR?		The benchmark 15% is clearly referred by the approved FSR [Doc 01].	Consistent with the host country accounting practices [Doc 83]. This is also in line with EB 51 Annex 59 [Doc 132].
Are the assumptions in the financial analysis consistent with the assumptions implicit in the chosen benchmark		Yes, Assumptions in the financial analysis are consistent with the assumptions in the chosen benchmark stipulated by the . <i>Economic Evaluation Method and Parameters for Project Construction (version 3)</i> [Doc 83], which is an equity IRR benchmark. Please refer to above 'Benchmark source & value' for further explanation	The key input parameters have been cross checked as described below.
If the benchmark is after tax, is actual interest payable taken into account in the calculation of income tax? Is this properly referenced and justified?	The benchmark is after tax. However, the project does not include any loans, i.e. the project is entirely equity financed.	The FSR indicates no loans for the project [Doc 01].	The fact that the project has no loan was confirmed during the onsite interviews and confirmed by a letter issued by third party licensed accounting company [Doc 131].
Assessment period	10 years + 1 year construction	Consistent with third party FSR [Doc 01].	This is realistic based on sectoral and local knowledge. Based on a clarification letter issued by the power genset manufacturer dated 8 April 2011, the life of the equipment can reach 10 years [Doc 64]. As per Guidelines on the Assessment of Investment Analysis, it is recommended to use 10 to 20 years to do investment analysis. It is appropriate to adopt 10 years to do the investment analysis. No further costs or revenues are included after 10 years of operation.
Inclusion of all costs and revenues	-	Yes, all relevant costs and revenues were included in the analysis, including total investment, O&M cost, power price, VAT, Urban Construction and Maintenance Fee, Education Surtax and Income Tax . No other potential cost and	<p>This is realistic based on sectoral and local knowledge. Local accounting practices were followed [Doc 83].</p> <p>According to this document if revenues and expenditures are calculated based on prices including VAT, VAT amount shall be included in the cash flow; on</p>

Issue	Notes	Check	Cross check
		revenue streams were identified for this type of project.	the contrary, if both revenues and expenditures are calculated based on prices excluding VAT, VAT amount shall not be considered in the cash flow. Given the project activity's revenues are calculated based on avoided power and coal costs with prices including VAT, so it is reasonable that VAT into all cost and savings be accounted in the cash flow.
Annual electricity generation		Consistent with the third party FSR [Doc 01]	<p>According to the FSR [Doc 01], the continuous operational capacity of the power generators can reach 420kW, so the generation efficiency coefficient of 0.84 (420kW/500kW) is used to estimate the electricity generation in the FSR. This is reasonable based on ERM CVS's local and sectoral knowledge.</p> <p>Furthermore, the 2010 power generation records [Doc 85] have been checked by ERM CVS for cross check purposes. According to records, the annual net electricity generation for the 11 power generators was 25,170 MWh in 2010. The annual production estimated by the FSR is 27,805 MWh. The actual recorded electricity generation for 2010 is less than that estimated in the FSR, and this supports the conclusion that the FSR estimate is reasonable and conservative.</p> <p>Further details of the validation of power generation are provided below this table.</p>
Annual heat generation	-	Consistent with the third party FSR [Doc 01]	<p>The total heating generation was based on the technical specification issued by the boiler manufacturer [Doc 118]. -The capacity of the waste heat boiler is 0.28 MW (each), which is equivalent of 85.78GJ in a year at 100% of load factor of the power generators. The PDD assumed that this total energy would be equivalent of 5,800 tonnes of coal, that at market price would be worth 1.6 million RMB. All calculation and assumption parameters are also referred from creditable sources: the net calorific value of coal is from the China Energy Statistical Year Book 2008[Doc 94] and the efficiency of coal fired boilers is taken from the General Specification for Industrial Boilers (JB/T 10094-2002) [Doc130]. Thus, the calculation was found to be credible and conservative, and therefore supports the estimation of annual heat generation (by</p>

Issue	Notes	Check	Cross check												
			replacing coal consumption in the baseline).												
Static total investment	The static total investment estimate is given in the FSR (RMB 32,609,900).	Consistent with the third party FSR [Doc 01] and as detailed in the IRR calculation spread sheet [Doc14]	<p>In order to cross check the total investment costs included into the investment analysis, ERM CVS validated the real contractual values for the large cost items in the contracts that were signed before ERM CVS's site visit (3 November 2010). The validation team found that relevant contracts such as equipment supply [Doc 20], construction services [Doc 73] and installation [Doc 74], totalized 31 RMB million, which already corresponds to 98% of the static total investment value in the FSR. Furthermore, if the costs of individual components of the investment costs are compared between the contracts and the value of the same item in the breakdown in the FSR, the actual contracted values are predominantly higher than the estimated values for the same items in the FSR (see table below). Therefore ERM CVS concluded that the static total investment cost in the FSR is likely to be conservative (given that other small cost items are not covered by these contracts, yet the contracts already represent 98% of the static total investment estimated in the FSR). ERM CVS confirmed that all 11 power generators had been purchased and installed.</p> <table><tr><th>Example components of investment costs</th><th>Contracts (RMB)</th><th>FSR data (RMB)</th></tr><tr><td>Civil construction</td><td>1,630,000</td><td>1,067,000</td></tr><tr><td>Equipment and auxiliaries purchase</td><td>20,051,000</td><td>20,445,000</td></tr><tr><td>Installation</td><td>10,239,616</td><td>7,840,000</td></tr></table> <p>Therefore, the assumption in the investment analysis based on the FSR is consistent and conservative with the actual situation as detailed above.</p> <p>Furthermore, the static total investment is determined by the third party in the FSR in a manner consistent with host country accounting practices [Doc 83].</p>	Example components of investment costs	Contracts (RMB)	FSR data (RMB)	Civil construction	1,630,000	1,067,000	Equipment and auxiliaries purchase	20,051,000	20,445,000	Installation	10,239,616	7,840,000
Example components of investment costs	Contracts (RMB)	FSR data (RMB)													
Civil construction	1,630,000	1,067,000													
Equipment and auxiliaries purchase	20,051,000	20,445,000													
Installation	10,239,616	7,840,000													
Overhaul	The overhaul schedule is in line with the approved third party FSR, and was	This is confirmed against the approved third party FSR [Doc 01]	This is reasonable based on ERM CVS's local and sectoral knowledge. In addition, the												

Issue	Notes	Check	Cross check
	determined by the independent third party design institute experts after study of this kind of equipment in China. Without overhaul at the 9th year, the equipment may not function properly for the last two years.		overhaul only accounts for a small amount of the operational cost, and will not impact the additionality.
Floating (Working) Capital	In line with Chinese accounting regulations [Doc 83]. This item is treated as a cash outflow in the first year of the analysis and a cash inflow in the final year of the analysis. This is standard practice in investment analyses and the figure is considered reasonable based on ERM CVS' experience.	Consistent with the third party FSR [Doc 01]	The amount of the floating capital (working capital) is confirmed in the FSR approval document [Doc 02]. The IRR will not change significantly nor will it reach the benchmark even if floating capital is excluded. Therefore, the floating capital has no significant impact on the IRR.
Depreciation		Consistent with the third party FSR [Doc 01]	The depreciation rate of 5% is calculated based on the residual value (5%) and the period of depreciation (10 years). It is in line with the <i>Enterprise Income Tax Law of the People's Republic of China</i> which is effective since 01 January 2008 [Doc 67].
Load factor/ Operation hours		Consistent with the third party FSR [Doc 01]	Consistent with Host country sectoral experience. Checked against the 2010 power generation records provided by the PP [Doc 85]. The project generated 25,170 MWh of net electricity in 2010, and the estimated generation in the FSR for the same period is 27,805 MWh [Doc 01 and 85], suggesting that the FSR estimate is reasonable and conservative. Furthermore, the average operation hours of the project in 2010 were 6,307 hours, which is generally in accordance with the operation hours estimated by the FSR (6,500 hours) [Doc 01 and 85]. Further details of the cross check of load factor are provided below this table.
O&M Cost		Consistent with the third party FSR [Doc 01]	Consistent with host country accounting practices [Doc 83]. O&M costs have been cross checked against the cost break down inventory list for 2009 provided by the PP [Doc 86]. O&M costs are validated in further detail below.
VAT rate	17%	Consistent with the third party FSR [Doc 01]	The approved project FSR follows the approach given in the <i>Economic Evaluation Method and</i>

Issue	Notes	Check	Cross check
			<i>Parameters for Project Construction (Version 3)</i> [Doc 83]. In addition, this VAT rate is consistent with the national policy <i>Interim Regulation of the People's Republic of China on Value Added Tax</i> [Doc 87], and the VAT rate is standard in China.
Income tax	25%	Consistent with the third party FSR [Doc 01]	The tax rate is in line with the <i>Enterprise Income Tax Law of the People's Republic of China</i> [Doc 67].
City maintenance construction tax	5%	Consistent with the third party FSR [Doc 01]	The value is derived from the <i>Interim Regulations on City Maintenance and Construction Tax of the People's Republic of China</i> [Doc 88]. The tax rate is mandatory in China and applicable since 1985.
Additional tax rate of education	3%	Consistent with the third party FSR [Doc 01]	The value is derived from the <i>Decision of the State Council on Amending the Interim Provisions on the Collection of Education Surcharges</i> [Doc 89]. The value is applicable for this project.
Electricity tariff	0.46 RMB/kWh (including VAT)	Consistent with the third party FSR [Doc 01]	<p>The electricity generated by the project is supplied to Jingyuan Coal Group to displace the electricity that would have been purchased from the NWCPG in the baseline scenario. Thus, the actual returns on the investment should be based on the avoided power price of the displaced electricity, i.e. the power price at which Jingyuan Coal Group would purchase electricity from the NWCPG. At the time when the project investment was decided, the grid power purchase power price in Gansu Province was 0.4064 RMB/kWh (VAT included) [Doc 90], therefore the tariff applied in the FSR is conservative in comparison with the actual tariff at the time of decision making. The NWCPG grid power purchase power price in Gansu province was revised to 0.4706 RMB/kWh (VAT included) from December 2011 onwards [Doc 107], but this was after the project had started operating. Even if this revised tariff were to be applied to the project, the equity IRR would still be lower than the benchmark (15%).</p> <p>Since the grid power prices used in the PDD are in line with the official power price published by the National Development and Reform Commission, they are considered credible.</p>
Raw coal price	275.72 RMB/tonne	Consistent with the third	Cost savings from the thermal energy component were included

Issue	Notes	Check	Cross check
	excluding VAT (322.59 including VAT), which is the actual price of raw coal (used to determine the revenue from heat generation)	party evaluation report and coal market prices at the time of investment decision [Doc 119 and 120]	<p>in the analysis in order to be conservative. In reality, based on ERM CVS's validation of the proposed project and informed by its sectoral and local knowledge and expertise, including the expertise of the CMM expert included in the validation, these savings are likely to be very small or even zero because the mine uses excess low quality coal that has no marketable value and is not sold on the market. Therefore overall, the financial analysis is very conservative</p> <p>The market price for raw coal has been used, whereas in reality the excess low quality coal at the site would probably not be sold because it has no marketable value, therefore the price is very conservative. The assumption that the coal would not be marketable is credible because most coal mines have a portion of non-commercial value low quality coal produced which has a high content of sulphur, low heating value, excessive volatile matter, lack of standardization of quality, and other characteristics which make it unviable to sell commercially. Therefore, it is credible that few people may want to buy and few industrial process can use this low quality coal due to the technical limitations or potential operative problems associated with its use. This was validated based on ERM CVS's local and sectoral knowledge, including the CMM expert included on the validation team, and based on the site visit, interviews with mine staff, and experience on other projects in the coal sector in China. Since this coal was not sold in the baseline, and hence has no determined market price, the price of raw coal in China was applied as a highly conservative assumption. As a result, using the raw coal price in the calculation is considered as conservative.</p>
NCV of raw coal	5,000kcal/kg or 20.90MJ/kg	Consistent with the official China Energy Statistical Yearbook [Doc 94] for the NCV value of raw coal.	The NCV value is selected to be consistent with the assumed price above, i.e. the NCV of raw coal in China is used. Whilst the NCV of the low quality coal used in the baseline is likely to be lower than this, the NCV of this low quality coal is not known (and anyway would vary) so in order to be consistent with the price assumption, the NCV of raw coal

Issue	Notes	Check	Cross check
			is applied. Considering that the coal used in the baseline would likely have zero marketable value, the calculation is still considered highly conservative.
Baseline boiler efficiency	77%	According to General Specification for Industrial Boilers (JB/T 10094-2002) [Doc130]	<p>This is consistent with ERM CVS's sectoral and local knowledge, and is in accordance with the published guideline by the Chinese authority, General Specification for Industrial Boilers (JB/T 10094-2002) [Doc130].</p> <p>The exact efficiency of the boiler used in the baseline was not measured, however, according to the General Specification for Industrial Boilers' (JB/T10094-2002) [Doc130], the minimum efficiency for chain gate coal-fired boilers, (the type of the boilers used in the baseline, as evidenced by the model of boilers, i.e. "L" in the Model No. represents chain gate boilers based on the document 'Modelling for industrial boilers' (JB/T 1626-2002)) [Doc130] is 77%. Given that this is the minimum efficiency specified by the relevant host country regulations, 77% is considered conservative,</p>
Residual value		Consistent with the third party FSR [Doc 01]	<p>It is in line with the <i>Enterprise Income Tax Law of the People's Republic of China</i>, which is effective since Jan. 1, 2008 [Doc 67].</p> <p>The residual value of the project activity assets has been included as a cash inflow in the final year at the end of the assessment period.</p>
Sensitivity analysis		PDD shows variation needed to reach benchmark	Justification is provided for why such variation is unlikely, and is considered sufficient. The sensitivity analysis is validated in more detail below.
Spreadsheet		Traceable spreadsheet provided [Doc 14]	Spreadsheet is consistent with PDD and FSR

Further details of the cross checks carried out can be found as follows, and in Appendix B (CDM Validation Protocol Checklist) below.

Investment Cost: the static total investment estimate is given in the FSR (RMB 32,609,900). In order to cross check the investment costs, the total contractual value of the key contracts signed before ERM CVS's site visit (3 November 2010) was reviewed, which is RMB 31,920,616 in total [Doc 20, 73, 74], which is 98% of the static total investment estimate. Based on these contracts and ERM CVS's site inspection, all 11 power generators had been purchased and installed. Therefore, the actual investment cost almost exactly matches with the estimated cost from the FSR [Doc 01].

Power Generation/load factor: The net power generation from the project was 25,170 MWh for 2010 [Doc 85], which is slightly below the FSR estimation (27,805 MWh annually), indicating that the FSR estimate is reasonable and conservative. According to the PP, the reason for slightly less generation was due to the insufficient CMM supply and the fact that some power generators were not operated in full capacity. The estimated operation hours (load factor) in the FSR (6,500 hours annually) was determined by an independent third party in the FSR, which was also provided to the government for approval, therefore it

is in line with the Guidelines for the reporting and validation of plant load factors (EB 48, Annex 11). According to the operational record for 2010 [Doc 85], the average operation hours of the power generators were 6,307 hours, which were generally in accordance with the estimated 6,500 hours. Since the actual operation hours are lower than the estimated operating hours in the FSR, this indicates that the FSR estimate is conservative. Hence, the actual income for power generation is expected to be less than the value calculated in the financial analysis.

Electricity Tariff: The project owner, Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd., is a wholly-owned company of Jingyuan Coal Group. The estimated power price 0.46RMB/kWh in the FSR is applied in the equity IRR calculation of the PDD, and this is prepared by an approved third party and approved by appropriate governmental agency. All electricity generated by the proposed project is supplied to Jingyuan Coal Group to displace the electricity that would have been purchased from the NWCPG in the baseline scenario. Thus, the actual returns on the investment should be based on the avoided power price of the displaced electricity, i.e. the power price at which Jingyuan Coal Group would purchase electricity from the NWCPG. When the project investment was decided, the grid power purchase power price in Gansu Province was 0.4064 RMB/kWh (VAT included) [Doc 90]. The grid power prices used in the PDD are official power price published by National Development and Reform Commission, thus, they are considered creditable and conservative.

Operation & Maintenance Costs: The operation & maintenance (O&M) costs had been reviewed by ERM CVS, including the breakdown of these costs in the FSR. The breakdown of costs in the IRR spreadsheet [Doc 14] was found to be reasonable and in line with the third party FSR. There is no CMM cost included.

A letter issued by an external third party accounting company, Gansu Tianxingjian Accounting Firm Co Ltd, on 11 April 2011 [Doc 65] was provided. According to the letter, the O&M break downs for 2009's operating cost include:

- Material purchasing: RMB 1,007,500
- Labour: RMB 450,000
- Salary and welfare: RMB 3,238,900
- Maintenance cost: RMB 1,524,600
- Total: RMB 6,221,000

Hence, the actual annual O&M cost in 2009 is higher than the O&M cost stated in the FSR (i.e. RMB 5,503,500). Considering the project has been commenced on January 25th 2009, the data from 2009 is considered as valid.

Although there are no comparable projects in the province, ERM CVS compared the O&M cost with the level of O&M cost on CMM projects in nearby provinces. Since these projects are located in other provinces, they are not directly comparable, but this measure was used simply as another source of cross checking, in addition to the validation of the O&M costs against the FSR and the actual O&M costs as recorded by the external accounting company for 2009 [Doc 65]. The results of this cross checking are included in the report for the sake of transparency. Compared with two low concentration CMM projects in Shaanxi Province (near Gansu Province; Dafosi Coal Mine Low Concentration Coal Mine Methane Power Generation Project has been registered and Shaanxi Tongchuan Huachen 7MW CMM Power Generation Project has also been registered), two registered low concentration CMM projects in Ningxia Province (near Gansu Province; Ningxia Rujigou Coal Mine Methane Power Generation Project and Ningxia Shizuishan 4.0 MW Coal Mine Methane Power Generation Project), the O&M cost per MW of this project (1 million RMB/MW) is within the range (0.31 – 1.83 million RMB/MW) and slightly over the average (0.88 million RMB/MW) of all compared projects in this Validation. Note that there are no other low concentration CMM projects registered with CDM (or under validation process) in Gansu Province itself and Project 2428 has small portion combined cycle power generators (thus are not strictly considered as similar projects and has not been included in the O&M comparison).

The information provided by this comparison is not used as the main means of validation of the O&M costs (this is based on the FSR and cross checked with the O&M cost breakdown provided by an independent third party accounting firm) but nevertheless the results, included here for the sake of transparency, support the conclusion that the O&M costs are reasonable. Therefore the validation team assessed that the O&M cost estimated in the FSR is reasonable and valid at the time of investment decision. The following table describes the projects that were included in the comparison.

Ref. No	Project Title	O&M cost (million RMB)	Installation (MW)	O&M/MW (1 million RMB)
3661	Shaanxi Tongchuan Huachen 7MW CMM Power Generation Project	12.8	7	1.83
3130	Ningxia Rujigou Coal Mine Methane Power Generation Project	8.1	16	0.51
3787	Ningxia Shizuishan 4.0 MW Coal Mine Methane Power Generation Project	1.2	4	0.31

	The proposed project	5.5	5.5	1
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Use of values from Feasibility Study Reports

In accordance with paragraph 54 of the report of the thirty-eighth meeting of the CDM Executive Board, in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities, DOEs are required to ensure the following:

- (a) *The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed;*

The FSR was finalised on in April 2008 [Doc 01], approved on 26 May 2008 [Doc 02], and the start date of the project was 02 June 2008 [Doc 20]. The period between the FSR was approved and the start date of the project is considered short enough that it is unlikely in the context of the underlying project activity that the input values would have materially changed.

- (b) *The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values;*

ERM CVS has confirmed that the input values used in both the PDD and the spreadsheet and supporting documentation are fully consistent with the FSR.

- (c) *On the basis of its specific local and sectoral expertise, confirmation is provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision.*

ERM CVS has confirmed on the basis of its local and sectoral expertise that the values are valid and applicable at the time of the investment decision. In addition, the values have been verified to be in consistent with local accounting practices and in accordance with the available project operation records [Doc 85 and 86]. Further details of the cross checks are provided above, and in Appendix B (CDM Validation Protocol Checklist) below.

Sensitivity Analysis

A sensitivity analysis has been carried out to demonstrate the impact on the IRR of variations on the key input values to the financial analysis. All costs and revenues greater than or equal to 20% of total costs / revenues have been included in the analysis. Annual heating supply and Raw coal price were also included in the sensitivity analysis, but given that these parameters represent less than 20% of costs or revenues, they are therefore not discussed below. The results are presented in the PDD. ERM CVS has reviewed the calculations for the sensitivity analysis which are presented in the IRR Spreadsheet [Doc 14(a) and 14(b)], and the computations are found to be correct and in accordance with the information presented in the PDD.

The variation in each parameter needed in order for the IRR to reach the benchmark is stated, and explanations given as to the likelihood of each variation taking place. The analysis is considered reasonable. The spreadsheet calculations have been reviewed by ERM CVS. The references cited in the PDD have been reviewed and deemed valid.

Total Investment: ERM CVS has validated the sensitivity analysis calculations and concluded that it is unlikely for the Investment costs to decrease to extent where the IRR could reach the benchmark. The project started construction in 2008. According to the *2008 National Economy and Society Development Statistical Communique* [Doc 92], the price of industrial products in China increased by 7.7% during 2008. Furthermore, the total contractual value of the key contracts signed before ERM CVS's site visit (3 November 2010) was reviewed, which is RMB 31,920,616 in total [Doc 20, 73, 74], which is 98% of the static total investment estimate. Based on these contracts and ERM CVS's site inspection, all 11 power generators had been purchased and installed. Therefore, the actual investment cost almost exactly matches with the estimated cost from the FSR. Hence, it is not likely for the static total investment to decrease to the extent needed for the IRR to reach the benchmark.

Annual O&M Cost: ERM CVS has validated the sensitivity analysis calculations and concluded that it is unlikely for the O&M costs to decrease to extent where the IRR could reach the benchmark. According to the *2008 National Economy and Society Development Statistical Communique* [Doc 92], the price of industrial products in China increased by 7.7% during 2008. Hence, it is not likely for the O&M costs to decrease by the extent needed for the IRR to reach the benchmark. This has been verified by the price index statics in China published by China National Statistics Bureau [Doc 109] and considered as reasonable. In addition, the O&M cost for the project in 2009, approved by a third party accounting firm [Doc 65], was reviewed, which indicates that the O&M cost in 2009 was 6.221 million RMB, which is higher than the estimated annual O&M cost in the FSR (5.5035 million RMB) [Doc 01]. Hence, it is concluded that it is not possible for the O&M cost to decrease significantly enough for the IRR to reach the benchmark.

Electricity Tariff (including VAT): ERM CVS has validated the sensitivity analysis calculations and concluded that it is unlikely for the electricity tariff to increase to extent where the IRR could reach the benchmark. The estimated power price of 0.46RMB/kWh in the approved FSR is applied in the equity IRR calculation. However, as all electricity generated by the proposed project is supplied to Jingyuan Coal Group internally to displace the electricity that would have been purchased from the NWCPG in the baseline scenario, the actual returns on the investment should be based on the avoided power purchasing cost (being displaced

by the Project), i.e. the power price at which Jingyuan Coal Group would purchase electricity from the public power grid. When the project investment was decided, the grid power purchase price in Gansu Province was 0.4064 RMB/kWh (VAT incl.) [Doc 90]. Since the actual tariff at the time of decision making was lower than the tariff applied in the FSR, this indicates that the value in the FSR is conservative and that it is unlikely for the tariff to increase to the extent by which the IRR reaches the benchmark. The grid power purchase price in Gansu province was changed from 0.4064 RMB/kWh (VAT incl.) in June 2008 to 0.4706 RMB/kWh (VAT incl.) from December 2011 onwards [Doc 107], i.e. the annual rate of increase of the grid power purchase price over the 3.5 year period was 4.28% per annum. If the 2008 grid power purchase price of 0.4064 is taken as the basis for the analysis, and a 4.28% per annum increase is applied in the cash flow calculations, the resulting IRR is 13.18%, which remains lower than the benchmark. ERM CVS has reviewed a version of the investment analysis spreadsheet showing this calculation [Doc 14 (b)] and confirmed that the calculations are correct and traceable. Further increases in the tariff to the extent to which the IRR would reach the benchmark are considered unlikely, since in China the power price is relatively stable and regulated strictly by the government, so such larger year-by-year price increases are not considered likely to happen, based on ERM CVS's local and sectoral knowledge.

Power delivered to the grid (electricity generation): ERM CVS has validated the sensitivity analysis calculations and concluded that it is unlikely for the electricity generation to increase to extent where the IRR could reach the benchmark. ERM CVS confirmed with the power generation records of 2010 [Doc 85], that the total net electricity generation for the project was 25,170 MWh with all 11 power generators installed and operative. The corresponding operation hours of the project were 6,307 hours for 2010 [Doc 85], which are less than the expected values in the FSR. Considering that observed power delivered to the grid is less than the estimates in the FSR, and considering that the electricity generation load factor was determined by an independent third party and submitted to the government for approval, it is considered unlikely for the power delivered to the grid to increase to extent by which the IRR reaches the benchmark.

Common Practice Analysis

The proposed project activity is a large-scale project and therefore common practice analysis has been carried out as a credibility check of the other available evidence used by the PPs to demonstrate additionality. This is a test to complement the investment analysis (Step 2 of the additionality tool) to confirm that the project activity is not widely observed and commonly carried out in the region. The project applies the additionality tool [Doc120]. For measures covered in paragraph 6 of the Tool, common practice analysis should be carried out in accordance with the requirements of paragraph 47 of the Tool. The project falls under the measures listed in paragraph 6 since it involves (b) Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies). ERM CVS used its local and sectoral expertise to assess compliance with the common practice requirements of the tool for the demonstration and assessment of additionality, paragraph 47. The Tool requires the following:

- Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

According to the CLA_TOOL_0015-Clarification request on application of common practice analysis with Tool for the demonstration and assessment of additionality (version 6.0.0) [Doc141], the Meth Panel clarified that it is possible to use the proposed approach by using the same energy sources as the proposed CDM project activity to demonstrate common practice when demonstrating the additionality. Meth panel accept this clarification [Doc141], therefore ERM CVS considers that it is acceptable that the same energy source projects were selected for the common practice analysis in the proposed project.

Accordingly, the range is determined as 2.75MW to 8.25MW design capacity, low concentration CMM power generation projects.

- Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step;

The geographical scope of the analysis is limited to Gansu Province. This is considered justified based on the following considerations:

- According to the Constitution of the People's Republic of China, each provincial government develops its own local regulations according to local situations, regulatory framework, and investment climate (such as plans for economic and social development), and therefore power tariffs are different from province to province.
- Gansu Province has its own regulatory framework and economic and social development plan which result in a different investment climate to other provinces.
- Projects located outside of Gansu Province are not under same regulatory framework and economic and social development plan.

Projects are considered similar if they involve CMM utilisation. CBM and VAM utilisation projects are excluded for the following reasons:

- Compared to the Project, CBM utilization is essentially different due to its high methane concentration, and using CBM is enforced by the *Emission Standard of Coalbed Methane / Coal Mine Gas (on trail)*, GB21522-2008 [Doc-90], therefore CBM utilization is regulated under a different framework than the Project. Regarding the use of VAM, due to its low methane concentration (less than 1%), it can only be destroyed by oxidation, which is a totally different technology compared to the Project.

Projects are considered similar if they involve low concentration CMM utilisation (less than 30% CH₄). CBM and VAM utilisation projects are excluded.

ERM CVS has validated the extent to which similar operational projects exist in the geographical region, i.e. CMM recovery and utilization projects located in Gansu Province. No similar projects were identified in this region, based on information provided by the Gansu Development and Reform Commission [Doc 93], which is considered to be a reliable and authoritative 3rd party source. In addition, no similar projects were identified in the region, according to the Global Methane International Coal Mine Methane Database by USEPA [Doc 09] and a news article published by Xinhuanet (a Chinese official online news media) [Doc 51]. Thus, it is therefore confirmed that the project is the first CMM power generation project in Gansu Province. ERM CVS can therefore conclude that the project activity is not common practice.

ERM CVS has therefore used official sources [Doc93, 09, 51] and local and industry expertise to determine to what extent similar and operational projects (i.e. CMM power generation), other than CDM project activities, have been undertaken in Gansu. Based on publicly available information, and with reference to other CDM project documentation available on the UNFCCC website, it is confirmed that no CMM power generation projects have been developed in the region without CDM. Consequently, the number of similar activities within the output range in step 1 in Gansu Province is zero. And so $N_{all}=0$.

- Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} .

As shown in Step 2, because the $N_{all}=0$, and so $N_{diff}=0$.

- Step 4: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

$F=1-0/0=N/A$, and $N_{all}-N_{diff}=0-0=0$.

According to the tool [Doc29], the proposed project activity is a “common practice” within a sector in the applicable geographical area if both the following conditions are fulfilled:

- the factor F is greater than 0.2, and
- $N_{all}-N_{diff}$ is greater than 3.

The proposed project is not claimed to be the first-of-its kind, therefore common practice analysis has been carried out as a credibility check to compliment the demonstration of additionality to confirm that the project activity is not widely observed and commonly carried out in the region. ERM CVS has validated that:

- The geographical scope of the common practice analysis is justified;
- An assessment of the existence of similar projects has been undertaken by the PPs and validated by ERM CVS;
- The project is not common practice according to paragraph 47 of the additionality tool.

3.7. Calculation of GHG Emissions

Describe whether the appropriate steps in the methodology and tools have been followed to calculate emission reductions.

The GHG emission reductions (ER_y) achieved by the project activity are calculated in accordance with the methodology. ER_y is equal to baseline emissions (BE_y), minus project emissions (PE_y) minus leakage emissions (LE_y).

Baseline emissions: baseline emissions (BE_y in tCO₂) are calculated as the sum of baseline emissions from destruction of methane in the baseline scenario in year y plus baseline emissions from the release of methane into the atmosphere in year y that is avoided by the project activity plus baseline emissions from the production of power, heat or supply to gas grid replaced by the project activity in year y, which is represented by the following equation, in line with the methodology:

$$BE_y = BE_{MD,y} + BE_{MR,y} + BE_{Use,y}$$

Methane destruction in the baseline: Given that the baseline is the release of all CMM into the atmosphere (this is validated in further detail in the baseline section above), no methane is destroyed in the baseline scenario, so $BE_{MD,y} = 0$ tCO₂e.

Methane released into the atmosphere: The methane destroyed by the project activity would have been released into the atmosphere in the baseline, given that no capture and utilisation or flaring activities take place in the baseline scenario. Baseline emissions from the release of methane into the atmosphere in year y that is avoided by the project activity are calculated by the following formula in line with the methodology:

$$BE_{MR,y} = GWP_{CH_4} * (CMM_{PJ, ELEC,y} + PMM_{PJ,ELEC,y}) = GWP_{CH_4} * MM_{ELEC}$$

Note that given the project does not utilize CBM and VAM, thus related parameters in the original methodology can be eliminated. The definitions of the terms used in the equations are provided in and consistent with the methodology.

The calculation of $BE_{MR,y}$ has been verified with the Emission Reduction Spreadsheet [Doc 15] and the methodology and is found to be consistent.

The CMM extraction diagram for the mine was reviewed by ERM CVS [Doc 13]. According to the extraction diagram, the underground extraction systems are not separated into pre-mining CMM and post-mining CMM. Hence, it is considered as valid to combine pre-mining CMM and post-mining CMM as PMM in the project.

Baseline emissions from the production of power, heat or supply to gas grid replaced by the project activity in year y:

These are estimated, in accordance with the methodology, by the following equation:

$$BE_{Use,y} = GEN_y * EF_{ELEC}$$

Since the Project does not involve CBM (this is validated further in the project description section above), so $BE_{Use,y} = ED_{CPMM,y}$.

The total methane captured during year y can be described as follows:

$$CBMM_{tot,y} = CBM_{w,y} + CBM_{z,y} + CBM_{x,y} + CMM_{PJ,y} + PMM_{PJ,y} + VAM_{PJ,y}$$

Since the project does not involve CBM and VAM, pre-mining CMM is considered together with post-mining CMM, so $CBMM_{tot,y} = CMM_{PJ,y} + PMM_{PJ,y}$.

The total potential emissions reductions from displacement of power/heat generation and vehicle fuels are given by the following equation:

$$PBE_{Use,y} = GEN_y * EF_{ELEC} + HEAT_y * EF_{HEAT} + VFUEL_y * EF_v$$

Since the project only supplies waste heat to the households in the mining area (only residual from the power generation) and emission reductions from heat are not claimed, so $PBE_{Use,y} = GEN_y * EF_{ELEC}$.

To identify the CMM that should receive credits in the year during which the gas is captured and used, the following formulae are used:

$$ED_{CPMM,y} = [(CMM_{PJ,y} + PMM_{PJ,y} + VAM_{PJ,y}) / CBMM_{tot,y}] * PBE_{Use,y}$$

Since the Project does not involve VAM, and pre-mining CMM is considered together with post-mining CMM, furthermore, $CBMM_{tot,y}$ has been justified to be equal to $CMM_{PJ,y} + PMM_{PJ,y}$, above, the equation can be simplified to:

$$ED_{CPMM,y} = PBE_{Use,y} = GEN_y * EF_{ELEC}$$

The expected electricity supplied is presented in the FSR, and the EF_{ELEC} is adopted from published authorized data and validated in further detail below. The calculation of $ED_{CPMM,y}$ has been cross checked with the Emission Reduction Spreadsheet [Doc 15] and the methodology and is found to be consistent.

Hence, the baseline emissions are confirmed by ERM CVS to be calculated correctly in the PDD.

Grid emissions factor:

The grid emission factor of the NWCPG is determined *ex-ante* for the 10 years crediting period following *the tool to calculate the emission factor for an electricity system, version 02.2.1*. In accordance with the tool the weights of the operating margin and the build margin are 0.5:0.5.

The PDD was published for GSP on 3 September 2010, and the calculation of the grid emission factor is calculated based on the latest data available at the time of validation start. The most recent years of data at the time of PDD submission (2003 - 2007) is used based on the China Electric Power Yearbook [Doc 31] and the China Energy Statistical Yearbook [Doc 94] and applied in the NDRC guidelines.

Operating Margin (OM): Method (a) (Simple OM) is used. This is appropriate since low-cost/must run resources constitute less than 50% of total grid generation in the average of the five most recent years (2003-2007). The Simple OM emission factor is calculated as the generation-weighted average emissions per electricity unit (tCO_2/MWh) of all generating sources serving the system, excluding low operating cost and must-run power plants. The data on fuel consumption and net electricity generation of each power plant/unit in the NWCPG is not publicly available; therefore the simple OM is calculated based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (Option B). Aggregated generation and fuel consumption data are used as more disaggregated data are not available. Low-cost/must run power resources in NWCPG include only renewable power generation, and the quantity of electricity supplied to the grid by these sources is known. Therefore, Option B is appropriate for calculating the Simple OM emission factor. Net calorific values of each fuel type were obtained from the China Energy Statistical Yearbook (2006-2008) [Doc 94], and IPCC 2006 default values were used for the oxidation factor and emission factor of each type of fossil fuel. The values used and the calculation of the simple OM is considered to be reasonable, and is in line with official data published by the Government of China [Doc 27]. The OM is calculated to be $1.0246 tCO_2/MWh$.

Build Margin (BM): Because plant specific fuel consumption and electricity generation data are not publicly available in China, the guidance given by the CDM Executive Board for a deviation from methodology AM0005 has been applied for calculation of the build margin (BM) emission factor for this project. In accordance with this guidance, the build margin consists of the set of power capacity additions in the electricity system that comprises 20% of the generation capacity (in MW) of the system, that have been built most recently, based on the aggregate incrementally installed capacity of all generation sources in year y, and the aggregate incrementally installed capacity of all generation sources in year y-n, where n represents the number of years of historical data that need to be considered in order for the sample group to comprise 20% of the total system generation capacity (in MW). The emissions factor of fossil fuel fired power generation in NWCPG is calculated using the proportions of GHG emissions from solid, liquid and gaseous fuels in the total GHG emissions related to power generation as the weights, and the emission factors of the most advanced commercial generation technologies available in the host country (as published by the NDRC). Finally, the BM emission factor is calculated as the product of this emission factor of fossil fuel fired power generation and the proportion of fossil fuel fired power plants in the newly installed 20% capacity, based on data for years 2003-2007, contained in the China Electricity Power Yearbook 2006-2008 [Doc 94]. The sample group of capacity additions reached 25.54% of the total system generation capacity in the period between 2005 and 2007. The BM is calculated as 0.6433 tCO₂/MWh.

Combined Margin (CM): The combined margin emissions factor is calculated as $0.5 * EF_{grid,OM,y} + 0.5 * EF_{grid,BM,y} = 0.83395$ tCO₂/MWh.

Project emissions:

According to the methodology, project emissions are:

$$PE_y = PE_{ME} + PE_{MD} + PE_{UM}$$

Combustion emissions from additional energy required for CMM capture and use

According to the FSR [Doc 01], all of the gas pre-treatment facilities use electricity as part of the internal consumption of the project activity, and this is deducted from the power supplied to the internal power grid of Jingyuan Coal Group (the bidirectional power meters are installed to measure net electricity supply). ERM CVS has validated that the project does not consume additional heat and fossil fuel during operation, but additional electricity is needed during emergencies. Note that the electric power consumption of the proposed project will be supplied through the same power lines that supply power from the project to the transformation as well as a backup power line in case of emergency. The electric meters are bidirectional. Therefore, the electricity imported from the grid will be deducted from the electricity supplied by the project to the internal grid and the net power supply will be accounted and cross-checked against the Electricity Transaction Notes. This has been verified by ERM CVS during the site visit. Since the additional electricity is supplied from the grid during emergencies, so the CEF_{ELEC} of the Northwest China Power Grid emission factor is adopted. ERM CVS has validated the grid emissions factor as discussed above, by referring to the authorized official data published by the DNA of China, and the CEF_{ELEC} = 0.83395 tCO₂e/MWh. This electricity consumption is for emergency purposes only and will be deducted from the bidirectional electricity meters, hence it is reasonable to assume that the emissions from additional energy required for CMM capture and use (PE_{ME}) are zero.:

Combustion emissions from use of captured methane

Based on the gas analysis report conducted by a third party licensed institute [Doc 08], the content of NMHC is lower than 1%. In addition, the only utilization of CMM is for power generation. Hence,

$$\begin{aligned} PE_{MD} &= MD_{ELEC} * (CEF_{CH_4} + r * CEF_{NMHC}) \\ &= MD_{ELEC} * CEF_{CH_4} = MM_{ELEC} * Eff_{ELEC} * CEF_{CH_4} \end{aligned}$$

In this case, the annual MM_{ELEC} is 10,008,999 m³ as per the FSR [Doc 01], and the density of methane at normal temperature and pressure is 0.00067 t/m³ from the IPCC default value according to ACM0008 version 7. The Eff_{ELEC} is 99.5% based on ACM0008, CEF_{CH₄} is 2.75 tCO₂/tCH₄.

The calculation of PE_{MD} has been cross checked with the Emission Reduction Spreadsheet [Doc 15] and the methodology and is found to be consistent.

Un-combusted methane from project activity

Since there is no flaring and oxidization and only power generation is involved in the project, and the methane that is not combusted for power generation is escape to the atmosphere, so:

$$PE_{UM} = GWP_{CH_4} * MM_{ELEC} * (1 - Eff_{ELEC})$$

GWP_{CH₄} and Eff_{ELEC} are specified in the methodology and the PDD adopts the correct values. The calculation of PE_{UM} has been cross checked with the Emission Reduction Spreadsheet [Doc 15] and the methodology and is found to be consistent.

Leakage:

According to the methodology ACM0008 version 7, leakage may consist of emissions due to displacement of other baseline thermal energy uses of methane, or emissions due to other uncertainties. Since there are no baseline uses of methane (and this has been validated based on the approved third party FSR [Doc 01] and the site visit), leakage due to displacement of other baseline thermal energy uses of methane is not applicable. According to the methodology, leakage due to the impact of the project activity on coal production will only be the case when no CBM/CMM extraction is present in the baseline scenario (i.e. the baseline scenario is ventilation of mine gas only). In the case of the proposed project activity, the baseline scenario contains pre-mining CMM and post-mining CMM extraction, therefore this source of leakage is not applicable. Furthermore, according to the methodology possible leakage emissions due to the impact of the CDM project activity on coal prices and market dynamics

are not considered since “while this impact is theoretically possible, reliable scientific information is not currently available to assess this risk and check if the phenomenon would be negligible or not. Moreover, it is difficult to assess ex ante the contribution of any particular project given the dynamic nature of local and global coal markets”.

Therefore in accordance with the methodology, no leakage has to be considered for the proposed project activity.

Conclusion:

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed by ERM CVS, and the calculations can be replicated using the data and parameter values provided in the PDD. Based on the information reviewed it can be confirmed that the sources used are correctly quoted and interpreted in the PDD, the calculations are complete, and that the numbers are reasonable and accurate, and that the methodology ACM0008 v07 has been correctly applied.

Parameters determined ex-ante

The emissions factor of the electricity grid is determined ex-ante, and is described in detail above. The correct parameters are specified as per the methodology and the “Tool to calculate the emission factor for an electricity system”(Version 02.2.1)[Doc 30]. Data units and descriptions for the parameters are appropriate, and the correct sources are referenced. The parameters for determining the grid emissions factor have been checked against the data provided by the NDRC [Doc 27]. The parameters that are set ex ante in the PDD are validated as follows:

<i>CMM_{BL,i}</i>	<i>CMM that would have been captured, used and destroyed by use i in the baseline scenario in year y</i>
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is provided by the project entity. Given the captured CMM is totally released into the atmosphere unused under the baseline scenario. Hence, CMM _{BL,y} is 0.
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified as no CMM utilization was performed as the project baseline.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

<i>PMM_{BL,i}</i>	<i>PMM that would have been captured, used and destroyed by use i in the baseline scenario in year y</i>
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is provided by the project entity. Given the captured PMM is totally released into the atmosphere unused under the baseline scenario. Hence, PMM _{BL,y} is 0.
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified as no PMM utilization was performed as the project baseline.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

<i>CMM_{BL,i,y}</i>	<i>Pre-mining CMM that would have been captured, sent to and destroyed by use i in the baseline scenario in year y</i>
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is provided by the project entity. Given the captured CMM is totally released into the atmosphere unused under the baseline scenario. Hence, CMM _{BL,y} is 0.
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified as no CMM utilization was performed as the project baseline.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly</i>	Not applicable

<i>described?</i>	
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$PMM_{BL,i,y}$	Post-mining CMM that would have been captured , sent to and destroyed by use i in the baseline scenario in year y
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is provided by the project entity. Given the captured PMM is totally released into the atmosphere unused under the baseline scenario. Hence, $PMM_{BL,y}$ is 0.
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified as no PMM utilization was performed as the project baseline.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

$EG_{m,y}$, EG_y , $EG_{j,y}$, $EG_{k,y}$ and $EG_{n,h}$	Net electricity generated by power plant/unit m, k or n (or in the project electricity system in case of EG_y) in year y or hour h
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is obtained from official China Electric Power Yearbook (Editions 2006, 2007 and 2008) .
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified in accordance with official data published by Chinese authorities.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

$\eta_{m,y}$ and $\eta_{k,y}$	Average net energy conversion efficiency of power unit m or k in year y
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is official data published by Chinese authorities.
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified in accordance with official data published by Chinese authorities.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

$FC_{i,m,y}$, $FC_{i,y}$, $FC_{i,k,y}$, $FC_{i,n,y}$ and $FC_{i,n,h}$	Amount of fossil fuel type i consumed by power plant/unit m, k or n (or in the project electricity system in case of $FC_{i,y}$) in year y or hour h
<i>Title in line with Methodology?</i>	Yes
<i>Data unit correctly expressed?</i>	Yes
<i>Appropriate description?</i>	Yes
<i>Source clearly referenced? (appropriate?)</i>	Yes. The data is official data from China Energy Statistical Yearbook (Editions 2006, 2007 and 2008).
<i>Correct value provided?</i>	Yes
<i>Has this value been verified?</i>	Yes. The value has been verified in accordance with official data published by Chinese authorities.
<i>Choice of data correctly justified?</i>	Yes
<i>Measurement method correctly described?</i>	Not applicable

$NCV_{i,y}$	Net calorific value (energy content) of fossil fuel type i in year y
Title in line with Methodology?	Yes
Data unit correctly expressed?	Yes
Appropriate description?	Yes
Source clearly referenced? (appropriate?)	Yes. The data is official data from China Energy Statistical Yearbook (Editions 2006, 2007 and 2008).
Correct value provided?	Yes
Has this value been verified?	Yes. The value has been verified in accordance with official data published by Chinese authorities.
Choice of data correctly justified?	Yes
Measurement method correctly described?	Not applicable

$EF_{CO2,i,y}$ and $EF_{CO2,m,i,y}$	CO ₂ emission factor of fossil fuel type i used in power unit m in year y
Title in line with Methodology?	Yes
Data unit correctly expressed?	Yes
Appropriate description?	Yes
Source clearly referenced? (appropriate?)	Yes. The data is official data from IPCC default value at the lower limit of the uncertainty at a 95% confidence interval.
Correct value provided?	Yes
Has this value been verified?	Yes. The value has been verified in accordance with official data.
Choice of data correctly justified?	Yes
Measurement method correctly described?	Not applicable

3.8. Environmental and Sustainable Development Impacts

An Environmental Impact Assessment Form (EIA) [Doc 03] has been performed according to Chinese regulations. The EIA was conducted by Lanzhou Coal Mine Design Institute in June 2008, and the document has been reviewed by ERM CVS. The EIA was approved, as per Chinese regulations, by Baiyin Municipal Environmental Protection Bureau [Doc 04]. The EIA concludes that no significant environmental impacts are expected from the project. Impacts that are identified are subject to mitigation measures, and these are accurately described in the final PDD.

The letter of approval by the DNA of China [Doc 05] confirms the contribution of the proposed CDM project activity to the sustainable development of the host Party.


3.9. Comments by Local Stakeholders

Local stakeholders were invited to comment on the proposed project activity before the submission of the project for validation. Although the project is located in a remote area far away from any residential settlements, appropriate stakeholders were identified that might be impacted by the development of the CMM power generation project. A stakeholder consultation survey was carried out by the project developer in 2009, by means of stakeholders meeting and questionnaires. 60 questionnaires [Doc 19] were distributed and collected for the survey, which have been reviewed by ERM CVS. The representatives include people living and working close to the project. The PDD includes a summary of the public consultation. The information has been checked against the 60 copies of survey questionnaire provided for review [Doc 19]. The stakeholders did not identify any serious concerns or significant negative impacts from the construction of the project. The local stakeholder consultation was in line with standard practice in the host country.

3.10. Additional Findings

None.

4. Conclusion and Validation Opinion

Project Title	Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project
Basis of validation	<p>ERM CVS based its validation work on:</p> <ul style="list-style-type: none"> • CDM approved monitoring methodology ACM0008 version 07 • Project Design Document version 1.0 dated 22 July 2010, the revised PDD version 2.0 dated 21 January 2011, and the revised PDD Version 4.0 dated 17 October 2012 • CDM Validation and Verification Manual version 1.2 published at EB 55 • ERM CVS's internal CDM validation methodologies and protocols • CDM decisions and guidance issued by the CDM Executive Board • UNFCCC criteria for the Clean Development Mechanism • Host Country criteria for the Clean Development Mechanism
Responsibilities of ERM CVS	ERM CVS is responsible to provide a thorough independent third party assessment of the proposed CDM project activity to ensure that the proposed CDM project activity meets all the identified and applicable criteria for registration of projects under the CDM.
Responsibilities of Project Participants	Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. and Gazprom Marketing & Trading Singapore Pte. Ltd. are responsible for preparing the PDD, supporting documentation and providing all necessary evidences to support the information included in the PDD.
Activities performed	ERM CVS conducted its activities in accordance with the CDM Validation and Verification Manual version 1.2 approved at EB 55. The validation consisted of a review of project documentation, a site visit, interviews with relevant personnel, cross checking and ascertaining information through other reliable sources and on its sectoral, regional and local expertise and resolution of CLs and CARs pertaining to the project activity.
ERM CVS Conclusion	<p>ERM Certification and Verification Services has performed the validation of the Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project against the criteria for the Clean Development Mechanism as set out by the Conference of the Parties and the UNFCCC CDM Executive Board, and host country criteria. The validation employed standard auditing techniques, and a validation protocol checklist was used to carry out the validation.</p> <p>The project is a large scale CMM power generation project using CMM extracted from Dashuitou and Weijiadi coal mines to generate electricity, and supplying power to the internal power grid of Jingyuan Coal Group and replace the power that would have been supplied by Northwest China Power Grid (NWCPG). The host Party is China and the Annex 1 Party for the project activity is the United Kingdom of Great Britain and Northern Ireland. The Parties fulfil the criteria for participation in the CDM, and have issued a letter of approval for the project and authorised the project participants. The LoA of the host Party, National Development and Reform Commission of P.R. China, confirms the contribution of the project towards sustainable development.</p> <p>The validation has provided sufficient evidence to demonstrate that the project activity is not the baseline scenario, and that emission reductions would be additional to what would have taken place in the absence of the CDM project activity. The project meets the applicability criteria and correctly applies the approved methodology ACM0008 version 07, and is therefore expected to result in real, measurable and long term reductions in greenhouse gas emissions. The monitoring plan provides for the collection and archiving of data sufficient to ensure that emission reductions can be verified. Nothing came to our attention to suggest that the project, if implemented as described, would not result in emission reductions of 101,472 tCO₂e per year on average over the 10 years crediting period.</p> <p>It is the opinion of ERM CVS that the Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project as described in the PDD Version 4.0 of 17 October 2012, meets all stated criteria of the CDM, correctly applies the methodology ACM0008 version 07, and is expected to result in real, measurable and long term emission reductions, and the DNA of the host Party has confirmed that the project assists in meeting sustainable development criteria.</p> <p>ERM CVS therefore requests registration of the project activity.</p>
Signed on behalf of ERM CVS	
Name:	Melanie Eddis
Date:	06 November 2012

Appendix A: DOCUMENTS & INTERVIEWEES

Ref	Date	Title
Doc 01	April 2008	Feasibility Study Report (FSR) of Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project prepared by Shandong Shengdong Gas Power Generation Engineering Design Consulting Co Ltd
Doc 02	26 May 2008	FSR / Project Establishment Approval issued by Baiyin Municipal Development and Reform Commission (Shifagainengyuan (bei) [2008] No. 13)
Doc 03	June 2008	Environmental Impact Assessment Form for Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project prepared by Lanzhou Coal Mine Design Institute
Doc 04	23 June 2008	EIA Approval for Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company. CMM Power Generation Project issued by Baiyin Municipal Environmental Protection Bureau
Doc 05	30 September 2010	LoA for Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project issued by National Development and Reform Commission (NDRC) of PR China (Fagaqihou [2010] No. 2373)
Doc 06	08 December 2009	Business License of Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. (620403000000333(1-))
Doc 07	01 August 2008	Power Purchase Agreement between Jingyuan Coal Group and Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd.
Doc 08	24 June 2010	Gas Analytical Report issued by the Geochemistry Department, Lanzhou Institute of Geology, Chinese Academy of Sciences
Doc 09	2012	The Global Methane International Coal Mine Methane Database by USEPA (http://www2.ergweb.com/cmm/projects/ProjectFind.aspx)
Doc 10	May 2009	Training Plan prepared by Shengdong Huanhai Stock Co Ltd
Doc 11	May 2009	Training records for project employees
Doc 12	December 2001	Coal Mining License for Dashuitou Coal Mine and Weijiadi Coal Mine
Doc 13	April 2008	CMM Extraction System Drawing prepared by Shandong Shengdong Gas Power Generation Design Consulting Co Ltd
Doc 14	-	14(a): IRR Calculation Spreadsheet 14(b): IRR Calculation Spreadsheet version showing impact of power tariff increase
Doc 15	-	Emission Reduction Calculation Spreadsheet
Doc 16	16 April 2012	Modalities of Communication Form for Jingyuan Coal Group Jieneng Thermoelectricity Company CMM Power Generation Project
Doc 17	22 July 2010 (v.1.0) 17 October 2012 (v.4.0)	Project Design Document for Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project
Doc 18	2000	Technical Administrative Code of Electric Energy Metering (DL/T448 – 2000)
Doc 19	March and April 2009	60 filled questionnaires for stakeholder participation
Doc 20	2008	11 generator sets purchase contract signed by the Project Owner with Shandong Shengdong Machinery Sales Co Ltd for 11 generator sets in 2008
Doc 21	15 May 2008	CDM Development Contract between Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. and Gansu Tonghe Investment Project Consulting Co Ltd
Doc 22	08 April 2008	Board Meeting Minutes of Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd.
Doc 23	2008 - 2009	Email Communications between Baiyin Jieneng Thermoelectricity Co Ltd and the design institute
Doc 24	2007, 2008, 2009, 2010	Annual Coal Output for 2008, 2009, 2010 and Forecast for 2010-2013 for Daishuitou Coal Mine
Doc 25	2008	14 project related invoices
Doc 26	01 July 2008	Project Start Order issued by Baiyin Pingchuan No.2 Construction Engineering Co Ltd
Doc 27	02 July 2009	2009 Baseline Emission Factors for Regional Power Grids in China, issued by the NDRC http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2333.pdf
Doc 28	11 Jun 09	Approved consolidated baseline and monitoring methodology ACM0008 version 07: Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through

Ref	Date	Title
		flaring or flameless oxidation
Doc 29	13 Sep 2012	"Tool for the demonstration and assessment of additionality" (Version 6.1.0)
Doc 30	15 April 2011	"Tool to calculate the emission factor for an electricity system" (Version 02.2.1)
Doc 31	2004-2008	China Electric Power Yearbook 2004, 2006, 2006, 2007, 2008 China Electric Press
Doc 32	01 Mar 2010	Coalmine Safety Regulation (2010), National Safety Production Supervision Bureau
Doc 33	Feb 2006	<i>Notice of the General Office of the State Council Concerning the Strict Prohibition of the Construction of Thermal Power Units with a Capacity of 135 MW or Below (2002)</i>
Doc 34	Dec 2008	Coal future price trend, http://www.shcce.com/UploadFiles/20081230115922590.jpg
Doc 35	Jun 2008	Coal future price trend, http://www.shcce.com/UploadFiles/20087793018673.gif
Doc 36	-	MSDS of methane, http://knology.chinaccm.com/phrase-2006040716463800447.html
Doc 37	21 Sept 2007	CMM Utilization Safety, http://fm.tfcoal.com/Article/ShowArticle.asp?ArticleID=1709
Doc 38	26 Feb 2009	Year 2008 Statistic Report, National Statistic Bureau, http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20090226_402540710.htm
Doc 39	12 Dec 2007	Status of China Coal Mines, http://guba.money.163.com/bbs/sz000933/41039856.html
Doc 40	03 March 2009	Email to request the project questionnaire for local communities
Doc 41	28 July 2006	UNFCCC CDM PDD Form, Version 03
Doc 42	-	Project 1801 : Shanxi Datuhe Coal Mine Methane Utilization Project http://cdm.unfccc.int/Projects/DB/TUEV-SUED1207732414.72/view
Doc 43	-	Project 1900 : Duerping Coal Mine Methane Utilization Project http://cdm.unfccc.int/Projects/DB/TUEV-SUED1214838535.8/view
Doc 44	-	Project 0892 : Yangquan Coal Mine Methane (CMM) Utilization for Power Generation Project, Shanxi Province, China http://cdm.unfccc.int/Projects/DB/TUEV-SUED1169658303.93/view
Doc 45	-	Project 1230 : Shanxi Liulin Coal Mine Methane Utilization Project http://cdm.unfccc.int/Projects/DB/TUEV-SUED1183560834.33/view
Doc 46	-	Project 1250 : Shanxi Yangcheng Coal Mine Methane Utilization Project http://cdm.unfccc.int/Projects/DB/TUEV-SUED1185280806.49/view
Doc 47	Sep 2007	Coal mine CMM Extraction Report, Coal Science Research Institute Chongqing Branch
Doc 48	07 Dec 2010	Letter of Approval issued by the Department of Energy and Climate Change of UK for Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project
Doc 49	25 January 2009	Operation record for the proposed project
Doc 50	25 Dec 2005	Certificate for Science and Technology Advancements for Coal Mine Methane Transportation
Doc 51	09 October 2006	http://www.xinhuanet.com/chinanews/2006-11/04/content_8430608.htm
Doc 52	02 Apr 2008	Emission Standard of Coalbed Methane/ Coal Mine Gas (on trial) published by the Ministry of Environmental Protection & General Administration of Quality Supervision, Inspection and Quarantine
Doc 53	2009-2011	Gas analysis reports for Weijiadi and Dashuitou Coal Mines
Doc 54	15 June 2006	Guidance on Acceleration of CBM/CMM Development and Utilization issued by the State Council (http://www.gov.cn/zwgk/2006-06/19/content_314623.htm)
Doc 55	06 January 2009	Email from the CDM consultant (Caspervandertak Consulting China) regarding ERPA for the project
Doc 56	20 Jan 2011	An official letter issued by Jingyuan Coal Group regarding current heat supply and demand conditions
Doc 57	Apr 2007	Comparison and Selection of CMM Power Generation Equipments, Professor Bai Hongbin and Yang Junhui, China Coalbed Methane, Apr 2007, Vol.4 No.2 (http://wenku.baidu.com/view/6c72d27da26925c52cc5bfc8.html)
Doc 58	29 March 2010	ERPA between the PP and Gazprom Marketing & Trading Singapore Pte. Ltd.
Doc 59	27 July 2010	China DNA CDM Approval Meeting Agenda
Doc 60	13 Jan 2011	An official letter issued by Jingyuan Coal Group regarding annual electricity consumption
Doc 61	22 Feb 2011	A letter issued by Baiyin City Power Supply Co Ltd regarding the annual power consumption from 2006 to 2010 for Jingyuan Coal Group
Doc 62	20 Dec 2002	Fixed Asset Investment Decision Criteria issued by Jingyuan Coal Group

Ref	Date	Title
Doc 63	18 June 2003	State Tax Bureau inform on preceding administrating the tax approval of cancelling entrepreneur income tax
Doc 64	08 Apr 2011	A letter issued by the engine supplier regarding equipment lifetime
Doc 65	11 April 2011	A letter issued by the Gansu Tianxingjian Accounting Firm Co Ltd on the 2009 O&M Cost for the project
Doc 66	2011	Comparison of the O&M cost for two similar projects in Shaanxi Province
Doc 67	2008	Enterprise Income Tax Law issued of PRC
Doc 68	2011	China DNA (NDRC) website regarding CMM CDM projects in Gansu Province (http://cdm.ccchina.gov.cn/web/index.asp)
Doc 69	-	News published by Pingchuan District regarding the project
Doc 70	01 August 2008	Power Purchase Agreement signed by Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd.
Doc 71	01 November 2011	CMM extraction records at the pump house of the project
Doc 72	23 March 2009	Email to send the development schedule requirements to the CDM consultant (Caspervandertak Consulting China)
Doc 73	27 June 2008	Construction Contract signed between the project owner and Baiyin Pingchuan No.2 Construction Engineering Co Ltd
Doc 74	20 June 2008	Installation Contract signed between the project owner and Shandong Shengdong Gas Power Generation Engineering Design Consulting Co Ltd
Doc 75	03 April 2008	An email sent from the FSR design institute to the PP for suggestion of CDM consideration (prior to the board meeting)
Doc 76	03 September 2010	GSP of the project on UNFCCC website http://cdm.unfccc.int/Projects/Validation/DB/HW9ZSCSQLGFROE19F7T4UCAQEH27IS/view.html
Doc 77	November 2005	BCS Incorporated, Prefeasibility Analysis of a Ventilation Air methane Project Opportunity in Huainan, page 336, Proceedings of the 5th International Symposium on CBM/CMM in China
Doc 78	29 June 2008	http://finance.qq.com/a/20080702/001710.htm
Doc 79	2008	http://www.ndrc.gov.cn/zcfb/zcfbtz/2008tongzhi/W020080703412729440923.PDF
Doc 80	17 December 2008	Email from a potential CER buyer (Natsource Europe Limited) regarding the project
Doc 81	-	http://en.wikipedia.org/wiki/Methane
Doc 82	25 April 2012	An official letter issued by Jingyuan Coal Group regarding the total heating area and supplies from the proposed project
Doc 83	2006	Economic evaluation method and parameters for project construction (version 3) issued by National Development and Reform Commission and the Ministry of Construction in 2006
Doc 84	30 July 2010	CDM Validation and Verification Manual (Version 1.2, EB 55)
Doc 85	2010	Electricity generation records for 2010 of the project (from 11 power generator sets) prepared by the Project Owner
Doc 86	2010	The O&M cost summary for 2009 provided by the PP
Doc 87	10 November 2008	Interim Regulation of the People's Republic of China on Value Added Tax amended on 10 November 2008
Doc 88	08 February 1985	Interim Regulations on City Maintenance and Construction Tax of the People's Republic of China
Doc 89	20 August 2005	Decision of the State Council on Amending the Interim Provisions on the Collection of Education Surcharges
Doc 90	28 June 2006	Notification on Adjustment of Power Tariff of Northwest China Power Grid (NWCPG), issued by NDRC
Doc 91	-	Comparison of the project financial parameters with those of two low concentration CMM projects in Shaanxi Province
Doc 92	2008	2008 National Economy and Society Development Statistical Communique
Doc 93		The website of Gansu Development and Reform Commission (http://www.gspc.gov.cn/)
Doc 94	2007-2009	China Energy Statistical Yearbook 2006, 2007 and 2008
Doc 95	2009	http://qhs.ndrc.gov.cn/qjzjz/W020090703644238739485.xls
Doc 96	2009	http://qhs.ndrc.gov.cn/qjzjz/W020090703644239079814.doc
Doc 97		Guidance on the Assessment of Investment Analysis (version 05).
Doc 98	June 2008	Technical Specifications for the Power Generators
Doc 99	26 November 2008	Equipment installation guarantee signed between the PP and Shandong Shengdong Gas

Ref	Date	Title
		Power Generation Engineering Design Consulting Co Ltd
Doc 100	November 2010	The coal production outputs for the Dashuitou and Weijiadi Coal Mines in the past five years and forecast for the next three years
Doc 101	26 December 2008	Completion Acceptance Inspection Form for the Project
Doc 102	2005	Approval for the gas generator model and low-concentration CMM transportation system
Doc 103	2009	Ranking of the Coal Industry in China: http://wenku.baidu.com/view/a99553d9ad51f01dc281f1f1.html
Doc 104	2009	Cleaner Coal in China (by International Energy Agency), http://iea.org/textbase/nppdf/free/2009/coal_china_book_chinese.pdf
Doc 105	2009	<i>Tool to Determine the Remaining Lifetime of Equipment, version 1</i> (EB50 Annex 15)
Doc 106	30 November 2011	<i>Circular on the Adjustment of Power Price in Gansu Province, Gansu Development and Reform Commission</i>
Doc 107	9 June 2011	<i>Adjustment on Power Tariff, Gansu News Web:</i> http://www.gscn.com.cn/pub/cei/jjld/2011/06/09/1307577081356.html
Doc 108	20 November 2009	<i>Publication of New Power Tariff, Gansu News Web:</i> http://www.lxzc.gov.cn/news/Print.asp?ArticleID=7113
Doc 109	2011	Price index statics in China, issued by China National Statistics Bureau annually
Doc 110	2008, 2009, 2011	Public power grid tariff adjustment notices in Gansu Province
Doc 111	2000	http://www.xt12365.cn/E_ReadNews.asp?NewsID=1169
Doc 112	2008	http://www.jconline.cn/Contents/Channel_362/2008/0606/103101/files_founder_20185634/2178429277.doc
Doc 113	10 November 2006	Circular on Employee Water, Electricity and Heat Price Adjustment issued by Jingyuan Coal Group
Doc 114	24 October 2008	Circular on Adjustment of Central Heat Price in Pingchuan District issued by Pingchuan Price Bureau
Doc 115		China Wind Resource Distribution Map: http://cwera.cma.gov.cn/upload/b_2_left_02.jpg
Doc 116	2012	Google Earth Map: the Project Area
Doc 117	2008	Thoughts on Solar Energy Development in China: http://www.newenergy.org.cn/Html/0087/790818772_2.html
Doc 118		Technical specification for the waste heat boiler issued by Qingdao Kaineng Boiler Co Ltd
Doc 119	2012	Coal Mine Exploration Evaluation Report for Weijiadi Coal Mine issued by Beijing Zhongfeng Asset Evaluation Co Ltd
Doc 120	2012	Coal Mine Exploration Evaluation Report for Dashuitou Coal Mine issued by Beijing Zhongfeng Asset Evaluation Co Ltd
Doc 121	October 2008	Lanzhou Daily: http://info.energy.hc360.com/2008/10/15151242049.shtml
Doc 122	22 February 2011	A letter to certify the power consumption by Jingyuan Coal Group issued by Baiyin Power Supply Company Pingchuan Branch
Doc 123	2 April 2007	Notice on Implementing the Opinions of Power Generation by Coalmine Methane issued by National Development and Reform Commission
Doc 124	17 April 2007	Incentive tariff for CMM power generation, http://info.electric.hc360.com/2007/04/17091357121.shtml
Doc 125	22 August 2005	Gansu Power Tariff for Desulphurized Coal-fired Electricity in 2005: http://www.gswj.gov.cn/detail.asp?LMID=2&ID=5788&Class=2261&FN=Jgzc
Doc 126	1999	Natural Gas Standard (GB17820-1999), http://www.docin.com/p-35497812.html
Doc 127	2008	Progress of Low Concentration Coal Mine Methane Purification, http://wenku.baidu.com/view/da33c365f5335a8102d2201a.html
Doc 128		Baidu Knowledge, http://baike.baidu.com/view/683337.htm

Ref	Date	Title
Doc 129	17 July 2009	Tool to determine the baseline efficiency of thermal or electric energy generation systems (Version 1), EB 48 Annex 12
Doc 130	2002	General Specification for Industrial Boilers (JB/T 10094-2002)
Doc 131	21 January 2011	A letter issued by Gansu Tianxingjian Accounting Firm Co Ltd stating the 100% investment of Jingyuan Coal Group in Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company
Doc 132	4 December 2009	Information Note: Previous Rulings Related to the Appropriateness of Benchmarks for Project Activities Utilizing Waste Heat/Waste Gas for Power Generation, EB 51 Annex 59
Doc 133	21 August 2003	Project Establishment Approval for 2 x 2000 kw CMM generator sets for Jingyuan Coal Group
Doc 134	24 November 2006	A news article on Gansu Daily about the completion of high concentration CMM power stations for Jingyuan Coal Group
Doc 135	18 August 2011	Approval for Treatment of the Idle Assets issued by Jingyuan Coal Group
Doc 136	September 2011	Asset Transfer Agreement for the high concentration CMM generator sets
Doc 137	30 June 2011	Application for treatment of idle assets published by Jingyuan Coal Group
Doc 138	21 January 2008	Project Operation Stop Notice for the high concentration CMM generator sets (2,000 kW)
Doc 139	December 2006-February 2008	Six pumps construction start orders for the extraction system retrofit and related technical/safety details
Doc 140	2007	a document issued about CMM tariff by the National Finance Bureau, http://baike.baidu.com.cn/view/3374159.htm?fromTaglist
Doc 141	24 Jul 2012	Clarification request on application of common practice analysis with Tool for the demonstration and assessment of additionality (version 6.0.0) http://cdm.unfccc.int/methodologies/PAMethodologies/tools-clarifications/30494
Doc 142	October 2012	NPV calculation spreadsheet

List of Interviewees

Date	Name	Position	Subject Discussed
04 November 2010	WU Xiaogang	General Manager of Baiyin Jieneng Thermoelectricity Co Ltd	Overall status of the project Various aspects of the project related to CDM Technical and safety aspects of the project
04 November 2010	MA Peiyao	Party Secretary of Baiyin Jieneng Thermoelectricity Co Ltd	Various aspects of the project related to CDM
04 November 2010	GAO Kuanggong	Officer of Baiyin Municipal DRC	Overall opinion of the project
04 November 2010	Jessie TANG	Project Manager of CVDT	PDD of the project, applicability of the methodology, emission reduction calculations, monitoring plan
04 November 2010	YU Rong	Project Manger of Gansu Tonghe Investment Project Consulting Co Ltd	PDD of the project, applicability of the methodology, emission reduction calculations, monitoring plan
04 November 2010	LI Yufang	Local residents	Overall opinion of the project
04 November 2010	FANG Zhengbo	Employee of Jingyuan Coal Group	Overall opinion of the project

04 November 2010	Liu Yifei	Employee of Jingyuan Coal Group	Overall opinion of the project
04 November 2010	HE Tianhua	Employee of Jingyuan Coal Group	Overall opinion of the project

Appendix B: CDM Validation Protocol Checklist

DR = Document Review (refers to number on Document Review List)

SV = Site Visit

IV = Interview (refers to number on List of Interviews)

Doc Req = Refers to number of document requested

NA = Not Applicable

OK = acceptable

CAR = Corrective Action Request

CL = Request for Clarification

FAR = Forward Action Request

CDM Validation Protocol Checklist

	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
1.	PDD Format			OK/CAR/CL	OK/ NOT OK
1.1	Is the PDD prepared in accordance with the latest template and guidance by the CDM EB? http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html	PDD Guideline	Yes, PDD follows the latest large scale template from the CDM website.	OK	OK
1.2	Does the language make sense and is it clear?		Yes.	OK	OK
2.	Project Title	PDD A.1			
2.1	Does the project title clearly enable identification of the unique CDM activity?	Doc17 Doc05	Yes. The title of the project activity is "Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company CMM Power Generation Project". This is consistent with the PDD and other documentation such as the Host Country LoA. The Project is titled with the associated coal mine and energy source of the Project. Hence it can be clearly identified.	OK	OK
2.2	Is the version number and the date given? Is this consistent with the project's timeline?	Doc17	Yes. PDD version 1.0 dated 22 July 2010 submitted for initial validation Global Stakeholder Process (GSP) on 3 September 2010. PDD version number should be updated if the PDD is amended based on draft validation findings.	OK	OK
3.	Project Description	PDD A.2			
3.1	Does the PDD contain a clear description of the project activity, with regard to its nature and technical implementation? Does Section A2 include:	Doc17 Doc01 Doc02 Doc03	A clear description of the project is given. The description has been cross checked against the site visit observations, and also against the Feasibility Study Report (FSR). a. A brief summary of the technology to be employed is stated. However, the relationship among the Jingyuan Coal Group and	CL 1	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	<p>a. A brief summary of the technology employed,</p> <p>b. A brief summary of the sources and gases included in the project boundary</p> <p>c. The PP's opinion regarding the contribution of the project to sustainable development</p>	<p>Doc04</p> <p>Doc05</p>	<p>the PP (Jinyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd) is still not clear. In addition, low concentration of CMM has not been clearly defined in this section of the PDD.</p> <p>b. A brief summary of the sources and gases is given – Greenhouse Gas (GHG) emissions reductions will be achieved given direct CMM release into the atmosphere will be avoided and fossil fuel-dominated power generation attached to NWCPG will be displaced. In the PDD, it states that 6,328 tonnes pure methane will be utilized annually, however, this 6,328 tonnes cannot be confirmed in the FSR and the calculation parameters in the ER calculation spreadsheet is not clear. In addition, in the PDD, it is mentioned that the high concentration (above 30%) CMM utilization project has been abandoned. It is also mentioned that the coal mine methane under 30% in these two mines is vented into the atmosphere unused. However, it is unclear about the current treatment approach for high concentration CMM (above 30%) at these two mines. In addition, the ages, lifetime and current operating status of Dashuitou and Weijiadi Coal Mines are not included in this section of the PDD. This section also does not mention whether pre-mining and/or post-mining CMM are applicable to this project.</p> <p>c. The sustainable development benefits of the Project are listed, such as (1) help to improve coal mine safety through CMM drainage techniques, (2) reducing local air pollution and adverse impact to health by displacing coal-fired power plants with cleaner CMM-fired power generation equipment, (3) reducing the amount of CMM released to the atmosphere directly and saving energy, (4) contributing to local economic development through employment generation.</p> <p>CL 1: Please further clarify the following information in section A.2. in the PDD:</p> <p>(1) Please clarify the relationship among the Jing Coal Group, the Jinyuan Coal Group and the PP (Jinyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd)?</p> <p>(2) Please clearly define what low concentration CMM is referred to in this project and whether pre-mining and/or post-mining CMM are utilized in this project.</p> <p>(3) In the PDD, it is not clearly mentioned that the methane utilization of 6,328 tonnes is the annual quantity or not. Please clarify. In addition, the calculation for this 6,328 tonnes is not clear in the PDD or calculation spreadsheet, please clarify. Particularly, it is unclear about the number '0.3145' used in the calculation for total methane used.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>(4) In the PDD, it is mentioned that the high concentration (above 30%) CMM utilization project has been abandoned. In addition, it is mentioned that the coal mine methane under 30% in these two mines is vented into the atmosphere unused. Please clarify what is the treatment approach for high concentration CMM (above 30%) at these two mines currently.</p> <p>(5) Please clarify the ages, lifetime and current operating status (such as current annual output and annual output in the past three years) of the two coal mines.</p> <p>(6) Please clarify the “ton” used in the PDD is “metric ton” or “short ton”.</p> <p>(7) Clarify power generated by the project activity can be fully utilized by the Jingyuan Coal Group.</p> <p>(8) Provide details about the retrofit that the extraction system underwent between 2006 and early 2008, with details about the related technical details, the CMM utilization activity prior to the retrofit, the equipment and the facilities installed during the retrofit, and the equipment and the facilities that were abandoned after the retrofit.</p>		
3.2	Does the description deliver a transparent overview of the project activity and does it cover all relevant elements?	Doc17	Yes, except for clarification requested above.	CL 1	OK
3.3	Has a physical site inspection been undertaken to confirm that the description in the PDD reflects the proposed CDM project activity?	Doc17 Doc01 Doc02 Doc03 Doc04 Doc05 SV	Yes, a site inspection was undertaken from 3 to 5 November 2010. The description of the project is in line with site observations. In addition, the FSR, FSR approval, EIA, EIA approval, construction and equipment purchasing contracts were reviewed, which are consistent with the project description contained in the PDD, except what have been outlined in CL 1 .	CL 1	OK
3.4	Does section A.2 also indicate the baseline situation, and the historical situation at the facility, if this is different to the baseline? If the proposed CDM activity involves the alteration of an existing installation or process, does the description clearly state the differences to the pre-project situation?	Doc17	Yes. The baseline situation is clearly described as (1) the continuation of extracting CMM and releasing into the atmosphere, and (2) electricity generated by the NWCPG, which is dominated by fossil-fuel power units. Details of the grid, the purpose of the project and its contribution of GHG emissions reduction and sustainable development are included in the PDD. The proposed CDM Project Activity does not involve the alteration of an existing installation or process.	OK	OK
3.5	Is all information provided in the project description consistent with information provided in later sections of the PDD?	Doc17 SV	The information provided in the project description is consistent with information provided in later sections of the PDD.	OK	OK
4.	Technical Description	PDD A.4			

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	Location of Project	PDD A.4.1			
4.1	Does the information provided on the location of the project activity allow for a clear identification of the site(s)? How was the site location confirmed? (e.g. site visit, planning documents)	Doc17	Yes, except the coordinate information provided in the PDD. According to onsite measurements, the coordinate for the Dashuitou mine is N 36°43'35" and E 104°51'38", and the coordinate for the Weijiadi mine is N 36°45'42" and E 104°54'58", which are not consistent with the information provided in the PDD. Note that the onsite measurements were taken at the two pump stations of the project. CL 2: Please clarify the coordinates of the project.	CL 2	OK
	Category/ Sectoral Scope	PDD A.4.3			
4.2	Is the category (sectoral scope) of the project activity indicated and correct?	Doc17 Doc28	The Project Activity belongs to Sectoral scope 8: Mining/ mineral production and Sectoral Scope 10: Fugitive emissions from fuels (solid, oil and gas). This is correct based on the application of methodology ACM0008, version 7.	OK	OK
	Technology to be Employed by the Project Activity	PDD A.4.3			
4.3	Is there a clear description of the baseline scenario, as identified in section B.4? This should include: <ul style="list-style-type: none"> a. An indicative list of the equipment(s) and systems that would have been in place in the absence of the project activity (if any) b. Information about the age and average of the baseline facility based on manufacturer's specifications and industry standards (if applicable) c. Installed capacities, load factors and efficiencies of the baseline facility (if applicable) d. An explanation of how the same types and levels of services provided by the project activity would have been provided in the baseline scenario. 	Doc17 SV	The PDD includes a description of the baseline scenario, but it does not clearly describe the baseline per the CDM-PDD guidance's requirements. <ul style="list-style-type: none"> a. In the absence of the Project Activity, the CMM would have been released into the atmosphere directly and electricity would have been generated by the NWCPG dominated by fossil fuel power units. b. There is not any specification about baseline equipment and system. The Project will build a new power plant to utilize low concentration CMM for electricity generation. The baseline facility is Dashuitou and Weijiadi Coal Mines. c. Basic details of the mine is not included in the PDD as per the Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM) (EB41 Annex 12). d. Yes, electricity would have been provided by the existing generation mix operating in the grid, as defined by the combined margin calculations detailed in the PDD and CMM would have been extracted as current practice, i.e. releasing into the atmosphere. <p>Please refer to CL 1</p> <p>CL 3: Please provide basic details of the mine in the PDD as per the Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM)..</p>	CL 3	OK
4.4	If the scenario existing prior to the start of the	n/a	Not applicable.	OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	implementation of the project activity is different from the selected baseline scenario, is there a clear description of the pre-existing scenario, with a list of the equipment(s) and systems in operation at that time?				
4.5	<p>Is the technology to be employed by the project activity clearly described and is it consistent with information provided elsewhere in the PDD?</p> <ol style="list-style-type: none"> List of main technologies involved List of main equipment and installations The lifetime of the project equipment Monitoring equipment and its location Capacities, load factors and efficiencies The emissions sources and the greenhouse gases involved in the project activity Existing and forecast energy and mass flows and balances Interaction with processes/equipment outside the project boundary, if any, is stated. 	<p>Doc17 Doc01 Doc03 Doc20 Doc28 SV</p>	<p>The PDD includes a description of the technology to be employed by the project, however the PDD does not include all information required according the guidelines. (EB41repan12) The technical description provided has been cross checked against the detailed design of the project in the FSR, construction contracts, and equipment purchase agreements during the site visit.</p> <ol style="list-style-type: none"> The main technologies involved are listed and the information has been verified against the site visit and document review. However, no information regarding the safety measure implemented to the Project for transferring low concentration CMM is stated in the PDD. Also, there is no clarification if there would be pre-mining CMM and/or post-mining CMM stated in this section. . Information of gas engines/generators is described in the PDD. The type of the 0.5 MW generators is consistent with the information stated in the FSR. No information regarding the suppliers for the gas engine and generating sets is included in the PDD. Information regarding the concentration of CMM of the Project is not included in the PDD. In addition, Figure A.2 is not clear. The PDD does not state the lifetime of the Project activity and the lifetime of the gas engines/generators. The monitoring equipment is not described in this section of the PDD. The PDD states that power supply of 27,805 MWh will be generated from the project. However, the PDD does not clearly state how much electricity will be generated in total, and what is the project consumption itself. Besides, there is no mention of load factor of power generators that it should be according to guideline EB48 Annex 11. In Table A.2, the technical specifications for gas engines and power generators are not clearly separated and described. Emission sources and greenhouse gases involved in the Project Activity are CO2 emissions from CMM combustion and CH4 from un-combusted methane, which is in accordance to ACM0008 version 07. But these gases were not mentioned in the section A.4.3. There are no mention about the gases and emissions. PP should include them according engineering design and utilization of waste heat. Not applicable. 	<p>CL 1 CL 4</p>	<p>OK</p>

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>Please refer to CL 1 about the clarification requested about pre-mining CMM and post-mining CMM.</p> <p>CL 4:</p> <p>(1) Please state the safety measure implemented to the Project in the PDD for transferring low concentration CMM.</p> <p>(2) Please state the supplier for the gas engine and generators in the PDD.</p> <p>(3) Please include the concentration of CMM during project activity and detail description of the utilization or not of pre-mining and post-mining CMM.</p> <p>(4) Please clarify Figure A.2, especially about the CMM gas income, output to NWCPG, destination of waste heat (from the waste heat boiler) and storage tank.</p> <p>(5) Please include lifetime of the Project and lifetime of the gas engine.</p> <p>(6) Please clarify the monitoring system (including equipment and location) in section A.4.3 of the PDD. (and include in the figure)</p> <p>(7) Clarify how the net electricity delivered to the NWCPG is calculated based on the total electricity generated and the net delivery to the NWCPG and indicate the load factor for power generation units.</p> <p>(8) Please separate and clearly describe the main technical specifications for gas engines and power generators in Table A.2 and clarify the supplier of the gas engines/ generators.</p>		
4.6	Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	Doc17 Doc01 Doc03 SV	The PDD does not contain sufficient information in this section regarding the lifetime of the Project, lifetime of the gas engine, suppliers of the gas engine and generating units, monitoring system (including equipment and location of the monitoring equipment) and concentration of CMM. In the CL 4 above, it has been requested all requirements that it is necessary to complete in the PDD. See item 4.5 above.	CL 4	OK
4.7	Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	Doc01 Doc03 SV	No, all equipments will be domestically produced. This has been verified against the FSR, equipment purchase contract and site visit. However, information about the supplier of the gas engine and generators need to be included in the PDD. See CL 4 above at section 4.5	CL 4	OK
4.8	Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in	Doc17 Doc01	Detailed gas engine and generator suppliers are not mentioned in the PDD. In addition, the PDD does not prove that the employed technology is using state of the art technology or presents significantly better performance	CL 4 CL 5	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	the host country? Is the technology implemented by the project activity environmentally safe?	Doc05 Doc03 Doc04	<p>compared with commonly used technologies. According to the site visit and interview with the site management, the gas engine and generators are supplied by Shandong Shengdong Power Machinery Sales Co Ltd, who is experienced in producing low concentration CMM power generation technology in China.</p> <p>The Project has conducted an EIA by a licensed institute and obtained the approval issued by the Baiyin Municipal Environmental Protection Bureau (EPB). In addition, the Letter of Approval (LoA) issued by the China DNA confirms the project meets the sustainable development criteria of the host country.</p> <p>Hence, it is considered that the technology is environmental friendly.</p> <p>See CL 4 above at Section 4.5.</p> <p>CL 5: Please clarify the employed technology is using state of the art technology or presents significantly better performance compared with commonly used technologies.</p>		
4.9	Is the project technology likely to be substituted by other or more efficient technologies within the project period?	Doc17 Doc05 Doc02	The Project adopts advanced domestically produced low concentration CMM power generation technology, of a commonly adopted in the host country for similar projects. There is no indication that the project technology is likely to be substituted by other or more efficient technologies within the project period.	OK	OK
4.10	Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period? Is information available on the demand and requirements for training and maintenance?	Doc17 Doc10 Doc11	<p>The PDD states that all the hired operators for the Project will be trained by the manufacturer in China before Project operation. A training agenda and a copy of the training record are available. According to this training information, a five-day training was performed by the supplier of gas engines/generators in May 2009. However, training arrangements and details are not discussed in section A.4.3 of the PDD.</p> <p>CL 6: Please provide details of planned training in the PDD and include relevant information in Section A.4.3 of the PDD.</p>	CL 6	OK
4.11	Is a schedule available for the implementation of the project and are there any risks for delays?	SV	At the time of the site visit, a total of 5.5MW capacity has been installed at the Project including 11 500KW generators.	OK	OK
	Public Funding from Annex I country	PDD A.4.5			
4.12	Is the information provided regarding public funding for		No public funding will be used for the Project Activity. However, no	CL 7	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	the project in accordance with the actual situation or planning as available by the project participants?		evidence is provided in the PDD. CL 7: Please provide evidence that no public funding is used in the Project.		
4.13	If the project involves public funding from an Annex 1 country, have the annex 1 parties involved provided an affirmation that such funding does not result in a diversion of official development assistance?	n/a	Not applicable.	OK	OK
5.	Approval and Participation	PDD A.3			
5.1	Are project participants listed in tabular form in section A.3 of the PDD? Is this information consistent with the contact details provided in Annex 1 of the PDD and other project documentation (Letters of Approval and Modalities of Communication)?	Doc17	Yes. The Project Participants are Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd authorized by PR China, and Gazprom Marketing & Trading Singapore Pte Ltd authorized by the United Kingdom. This information is consistent with the details stated in Annex 1 of the PDD.	OK	OK
5.2	Has the Host Party provided a Letter of Approval (LoA) with clear referencing and supporting documentation? Does the LoA confirm: <ul style="list-style-type: none"> o Ratification of the Kyoto Protocol o Voluntary Participation o Contribution to Sustainable Development o Reference to the precise project title in the PDD 	Doc05	Yes. A Letter of Approval has been provided by the China National Development Reform Commission (NDRC), which is the DNA of China, on 30 September 2010. The letter confirms that: <ul style="list-style-type: none"> a. China ratified the Kyoto Protocol on 30 Aug 2002; b. Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co., Ltd. is authorized as a project participant by the PR China to voluntarily participate in the Project Activity. However, the relationship between Jin Coal Group and Jingyuan Coal Group is not clear described in the PDD. c. The Project complies with the permission requirements provided for in the Measures for Operation and Management of CDM projects in China, and assists China in achieving sustainable development; d. The LoA references the precise project title 'Gansu Jingyuan Coal Mine Group Jieneng Thermoelectricity Company. CMM Power Generation Project'. This is consistent with the project title in the PDD. Please refer to CL 1 .	CL 1	OK
5.3	Was the LoA received directly from the DNA or from the project participants? Has the Host Party LoA been issued by the respective DNA? How has this been confirmed?	Doc05	The LoA was received from the Project Participant. The DOE has confirmed the LoA is genuine by cross-checking against the list of approved projects on the website of the China DNA.	OK	OK
5.4	Has the Annex I Party provided a Letter of Approval (LoA) with clear referencing and supporting documentation? Does the LoA confirm: <ul style="list-style-type: none"> a. Ratification of the Kyoto Protocol b. Voluntary Participation c. Contribution to Sustainable Development 		The Project has not obtained the LoA from Annex I Party as of the site visiting dates of the DOE. CAR 1 Please provide the LoA from Annex I Party.	CAR 1	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	6. Reference to the precise project title in the PDD				
5.5	Was the LoA received directly from the DNA or from the project participants? Has the Annex I Party LoA been issued by the respective DNA? How has this been confirmed?		No applicable. The Project has not obtained the LoA from Annex I Party.	CAR 1	OK
5.6	If either LoA contains additional specification or conditions of the project activity, then has the request for registration been based on the documents specified in the LoA?		No additional specification or condition specify in host country LoA. The Project has not obtained the LoA from Annex I Party.	CAR 1	OK
5.7	If the LoA references a specific version of the Validation Report or PDD and this version cannot be submitted, then has either of the following been submitted? a) a statement indicating final LoA has not been received or b) an updated Validation Report/ PDD	Doc05	Not applicable for host country LoA. The Project has not obtained the LoA from Annex I Party.	CAR 1	OK
6.	Baseline and Monitoring Methodology	PDD B			
	<i>Title and reference of the approved baseline and monitoring methodology?</i>	PDD B.1			
6.1	Are the number, version and title of the methodology clearly and correctly stated? Is the version of the methodology valid at the time of validation submission?	Doc17 Doc28	Yes. The Project uses ACM0008 version 07 as the methodology, which is approved by the CDM Executive Board at EB 55. The methodology was valid from 13 August 2010 onwards, which is valid at the time of validation submission.	OK	OK
6.2	Are the Tools applicable to the methodology correctly referenced, including the correct version number(s) valid at the time of registration submission?	Doc28	<p>Yes. The PDD references:</p> <ul style="list-style-type: none"> • “Tool to calculate the emission factor for an electricity system” (Version 02.2.1), approved at EB 50. • “Tool for the demonstration and assessment of additionality” (Version 6.1.0). • Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Version 2). • Tool to determine project emissions from flaring gases containing methane. <p>These are the most recent versions of the tools at the time of the validation submission.</p> <p>The “Tool to determine project emissions from flaring gases containing methane” is not applicable for this Project, as there is no flaring of gas involved in the project. In addition, “Tool to calculate project or leakage</p>	OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			CO2 emissions from fossil fuel combustion" is excluded as the project supplies net electricity to the grid and the project consumed electricity is deducted.		
	Justification for the choice of methodology and why it is applicable	PDD B.2			
6.3	Have any sources of greenhouse gas emissions been identified by the DOE, within the project boundary following project implementation, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and which are not addressed by the applied methodology?	Doc17 Doc28	<p>No. The Project involves CO2 emissions from CMM combustion and CH4 emissions from un-combusted methane due to the fact that combustion efficiency of the gas engine is not 100%, both of which are within the project boundary. According to the gas analytical report prepared by the Geochemistry Department, Lanzhou Institute of Geology, Chinese Academy of Sciences on 24 June 2010, the NMHC concentrations at both mines were below 1%. Thus, the PDD considers that NMHC emissions are not included in the Project boundary. The Project does not include a backup power generator, which is confirmed by checking the FSR and through the site visit. Thus, it is confirmed that no other sources of GHG emissions have been identified during the site visit within the project boundary that are expected to contribute more than 1% of the overall expected annual emission reduction. The electricity consumption for pre-treatment process and cooling systems are considered in (excluded from) the Project's electricity generation.</p> <p>CAR 2: Please include NMHC in the Project boundary as it is a potential source of emission.</p>	CAR 2	OK
6.4	Is the methodology fully applicable to the proposed project? For each of the applicability criteria: a. Is the criterion discussed in the PDD? b. Is compliance provable? c. Is evidence provided in the PDD to prove applicability? d. Has compliance with the criterion been verified (by checking evidence provided, sector/ local knowledge etc)?	Doc28 Doc29 Doc30 SV	<p>Yes.</p> <p>a. The methodology has been cross-checked with ACM0008 version 07 available on the UNFCCC website (http://cdm.unfccc.int/filestorage/FRLOKZ8HJ1PD62VAY3UW75BG49CQXE/EB55_repan12_ACM0008_ver07.pdf?t=ckJ8MTI5MTI5Nzk4Ni44OA== AnMf8SxobeLSvFY69YiNdDjmdQA=).</p> <p>The applicable criterion is stated in the PDD.</p> <p>b. Yes.</p> <p>(1) "This methodology applies to project activities that involve the use of any of the following extraction activities:</p> <ul style="list-style-type: none"> • Surface drainage wells to capture CBM associated with mining activities; • Underground boreholes in the mine to capture pre mining CMM; • Surface goaf wells, underground boreholes, gas drainage galleries or other goaf gas capture techniques, including gas from sealed areas, to capture post mining CMM; • Ventilation air methane that would normally be vented" <p>No CBM/VAM is utilized in the Project. This is confirmed by checking the</p>	CL 1 CL 4 CL 8	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>FSR and site visit. The PDD states that pre-mining and post-mining CMM will be utilized.</p> <p>Pending to close CL 4 and CL 1</p> <p>(2) <i>"This methodology applies to CMM and VAM capture, utilisation and destruction project activities at a working coal mine, where the baseline is the partial or total atmospheric release of the methane and the project activities include the following method to treat the gas captured:</i></p> <ul style="list-style-type: none"> <i>• The methane is captured and destroyed through flaring; and/or</i> <i>• The methane is captured and destroyed through flameless oxidation and/or</i> <i>• The methane is captured and destroyed through utilisation to produce electricity, motive power and/or thermal energy; emission reductions may or may not be claimed for displacing or avoiding energy from other sources;</i> <i>• The remaining share of the methane, to be diluted for safety reason, may still be vented;</i> <i>• All the CBM or CMM captured by the project should either be used or destroyed, and cannot be Vented"</i> <p>The Project captures CMM from Dashuitou and Weijiadi Coal Mines and supplies it to power generators for electricity generation. The CMM captured from the mines would be supplied to generators in providing electricity for displacing power purchase from the grid and no remaining share of the methane captured will be vented. However, the PDD does not mention that CMM does not meet the technical requirements of the implemented technology (i.e. supplied CMM at concentrations lower than 5%) will be utilized or ventilated to the atmosphere without utilization.</p> <p>No CBM/VAM will be utilized. This is in compliance with ACM0008 version 07.</p> <p>(3) <i>"Project participants must be able to supply the necessary data for ex ante projections of methane demand as described in sections Baseline Emissions and Leakage to use this methodology"</i></p> <p>Not applicable, since there is no methane demand in the baseline. This has been validated on site and against the approved third party FSR.</p> <p>According to the PDD, high concentration CMM (above 30%) power generation project had been utilized at Dashuitou and Weijiadi Coal Mines but have been abandoned in 2008 due to unstable gas flow. Thus, no demand of CMM had been existed at the mines prior to the development of this project.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>(4) "The methodology applies to both new and existing mining activities".</p> <p>The Project activity is developed in existing facility as it had already been in operation at the time of the project design and implementation. It is designed to consume 9.444 million m³ CMM per year from the two coal mines, which has been in operation. Hence, the Project is in compliance with ACM0008 version 07.</p> <p>(5) "The methodology does not apply to project activities with any of the following features:</p> <ul style="list-style-type: none"> • Operate in open cast mines; • Capture methane from abandoned/decommissioned coalmines; • Capture/use of virgin coal bed methane, e.g. methane of high quality extracted from coal seams independently of any mining activities; • Use CO₂ or any other fluid/gas to enhance CBM drainage before mining takes place" <p>The Project does not include open mine, abandoned/ decommissioned coalmines, virgin coal bed methane capture and CBM drainage. This is confirmed by reviewing the FSR and the site visit.</p> <p>(c) Yes. The evidences provided in the PDD are considered to be applicable except the points raised above. This has been checked against the approved third party FSR and verified during the site visit.</p> <p>(d) Yes, except the points raised above. The criteria has been checked against the FSR and verified during the site visit which was accompanied by a CMM sector expert.</p> <p>CL 8: Please clarify in the PDD that if CMM does not meet the technical requirements of the implemented technology (i.e. supplied CMM at concentrations lower than 5%), whether it will be utilized or ventilated to the atmosphere without utilization.</p>		
6.5	<p>Was there a request for clarification, revision or deviation made for the adopted methodology in relation to the proposed project activity?</p> <p>If so, were the correct procedures provided by the CDM EB followed?</p>		<p>There is not necessary due to ACM0008 methodology is applicable and valid for project activity conditions.</p>	n/a	n/a

	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	Description of sources and gases included in the project boundary	PDD B.3			
6.6	Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity, in compliance with the requirements of the selected baseline methodology, and is this consistent with site observations and other documentation provided?	Doc17 Doc01 Doc03 Doc28	<p>The PDD describes the project boundary. The spatial extent of the project boundary includes:</p> <p>(1) All equipment installed and used as part of the project activity for the extraction, compression, transportation and storage of CMM at the project site; (2) the internal grid at the two mines; (3) the NWCPG to which the internal grid connects, including the grid-connected power generation facilities providing power to NWCPG.</p> <p>Note that equipment for utilization of CMM is not included in the spatial extent of the project activity in the PDD. Other sections of the PDD do not mention about CMM compression and storage on-site, which is included in the project boundary described in Section B.3 of the PDD.</p> <p>The project boundary has been cross checked against the detailed design of the Project in the approved third party FSR and PDR. The areas covered by the NWCPG include Xinjiang, Gansu, Qinghai, Ningxia and Shaanxi. This has been verified using the definition of the grid boundary provided by the China NDRC, which is the China DNA.</p> <p>CL 9:</p> <p>(1) Please clarify that whether equipment for utilization of CMM is in the spatial extent of the Project. (2) Please clarify whether compression and storage of CMM are performed on-site.</p> <p>Please refer to CL 1 to clarify the relationship between Jingyuan Coal Group and Jing Coal Group.</p>	CL 1 CL 9	OK
6.7	Baseline emissions: Have all sources and GHGs required by the methodology been included within the project boundary? For each potential source: <ul style="list-style-type: none"> a. Are source(s) and gases discussed by the PDD? b. Is inclusion / exclusion justified? c. Is explanation/ justification sufficient? d. Is the inclusion/ exclusion consistent with the monitoring plan? 	Doc17	<p>Yes. The description of sources and GHGs is in accordance with ACM0008 version 07. For each potential source the following is confirmed:</p> <ul style="list-style-type: none"> a. All sources and gases indentified in the methodology are discussed in the PDD. b. Yes. The inclusions and exclusions are considered justified. Emissions of methane as a result of venting is included as main emission source. CO2 emissions from the NWCPG electricity generation is included in accordance with ACM0008 version 07. Emissions from destruction of methane in the baseline is excluded as there was no such destruction. This is verified by ERM CVS during 	OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>the site visit. CH₄ and N₂O emissions from the NWCPG electricity generation is excluded for simplification. Emissions from captive power and/or heat and vehicle fuel use is excluded as there was no such usage or for simplification.</p> <p>c. The inclusions and exclusions as discussed in the above paragraph are in accordance with ACM0008 version 07, thus, they are considered as justified and sufficient.</p> <p>d. Yes, it is consistent with the provisions of the monitoring plan.</p>		
6.8	<p>Project emissions: Have all sources and GHGs required by the methodology been included within the project boundary? For each potential source:</p> <p>a. Are source(s) and gases discussed by the PDD?</p> <p>b. Is inclusion / exclusion justified?</p> <p>c. Is explanation/ justification sufficient?</p> <p>d. Is the inclusion/ exclusion consistent with the monitoring plan?</p>	Doc28 SV	<p>a. All sources and gases identified in the methodology are discussed in the PDD.</p> <p>b. CO₂ emissions are included as (1) if the Project will use additional equipment such as compressors which will consume additional electricity, (2) CO₂ would be generated from methane combustion in the gas engine; (3) CO₂ emissions from NMHC destruction (if greater than 1%); and (4) CH₄ emissions from fugitive emissions of unburned methane. The inclusions are considered justified. The PDD mentions that NMHC accounts for less than 1% by volume of extracted CMM in this Project. However, it is not possible to exclude NMHC as a potential emission sources from the Project boundary. CH₄ and N₂O emissions from on-site fuel consumption is excluded for simplification. This is consistent with ACM0008 version 07. CH₄ emission as a result of continued venting is excluded as volume of CH₄ in gas extracted from coal mines in project activity equalling that of baseline. This is consistent with ACM0008 version 07. CH₄ emissions from fugitive emissions from on-site equipment, gas supply pipeline and accidental methane release is excluded in accordance with ACM0008 version 07. Thus, the exclusions are considered justified.</p> <p>c. Yes, the explanation and justification is sufficient.</p> <p>d. Yes, this is consistent with the provisions of the monitoring plan.</p> <p>Please refer to CAR 2.</p>	CAR 2	OK
6.9	For large scale projects, is a diagram given to illustrate the project boundary, including all the key equipment, systems and flows of mass and energy, as well as the emissions sources and gases included in the project boundary?	Doc17 SV	<p>Yes, a basic flow diagram which reflects the sources and gases include in the project boundary is given. However, the reference of data in Figure B.1 is not provided, and no legends/explanations have been provided for the coloured lines. The two coal mines are combined together in Figure B.1. In addition, NWCPG is not included in the Figure.</p> <p>CL 10:</p>	CL 10	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			(1) Please clarify the reference of data in Figure B.1. (2) Please clarify the coloured lines in Figure B.1. (3) Please separate the two coal mines in Figure B.1 and provide a clear schematic of the project arrangements. (4) Please clarify NWCPG in Figure B.1.		
	Description of how the baseline scenario is identified and description of the identified baseline scenario	PDD B.4			
6.10	Does the PDD clearly identify the baseline, a scenario that represents the anthropogenic emissions by sources of GHG that would occur in the absence of the proposed CDM project activity?	Doc28 SV	<p>In accordance with ACM0008 version 07, the baseline scenario should include all possible options that are technically feasible to handle CBM and CMM or VAM to comply with safety regulations, and possible options that are technically feasible to handle CBM and CMM or VAM to comply with safety regulations.</p> <p>The Project does not involve the utilization of CBM/VAM, which has been verified by the documentary review and site visit. Thus, only CMM has been discussed in the PDD.</p> <p>In the PDD, continuation of the current practice on CMM extraction (i.e. a combination of pre-mining and post-mining CMM drainage) is considered as the baseline scenario. Continuation of the current practice on extracted CMM treatment (i.e. venting of CMM) is considered as the baseline scenario. Continuation of the current practice on energy production (i.e. import of electricity from NWCPG) is considered as the baseline scenario. The current situation has been validated during the site visit and through documentary review.</p> <p>Please refer to CL 1 clarify the combination of pre-mining and post-mining CMM drainage is applicable to the project.</p>	CL 1	OK
6.11	a. Have the procedures/ steps to identify the most reasonable baseline scenario, as required by the methodology and applicable tools, been documented clearly in the PDD? Are all feasible and credible alternatives identified including but not limited to all the potential scenarios listed in the methodology? b. Are all considered alternatives assessed for consistency with (enforced) mandatory laws and regulations?	Doc28 Doc17 Doc01 Doc03	a. Yes. Necessary steps are taken to identify the most reasonable baseline scenarios in accordance with ACM0008 version 07. However, further justification should be included in the PDD including all feasible and creditable alternatives. According to the PDD information obtained from the site visit and documents review, the Project Activity just uses CMM for power generation, therefore, only CMM is analyzed in baseline scenario identification. 1. <u>Options for CMM extraction</u> . The technically feasible alternatives for this option include (a) ventilation air methane (VAM), (b) pre-mining	CL 11 CL 12 CL 13 CL 14 CL 15 CL 16 CL 17 CL 18 CL 19 CL 20 CL 21	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	<p>c. Does the list of alternatives include the project activity undertaken without being registered as a CDM project?</p> <p>d. If alternatives are excluded:</p> <ul style="list-style-type: none"> Is sufficient evidence/ justification provided to support every exclusion of alternatives? Is it reasonable? Is it shown that at least one credible and feasible alternative does not face a barrier? Is this reasonable? If the remaining alternatives include the project undertaken without CDM, is sufficient justification provided to demonstrate the validity of the barrier? Is sufficient justification provided to demonstrate that the CDM alleviates the identified barriers that prevent the project? How has this been verified? <p>e. If Investment Analysis is used to exclude baseline alternatives, has it been correctly applied? Are assumptions and input values reasonable and sufficiently justified?</p>		<p>CMM extraction, (c) post-mining CMM extraction and (d) combinations of the above two, according to the PDD. However, no evidence to support that all these options are technically feasible.</p> <p>CL 11: Please clarify in the PDD that all these options are technically feasible.</p> <p>2. <u>Options for extracted CMM treatment.</u> Eight options for extracting CMM treatment are listed in the PDD, which is consistent with ACM0008 version 07. However, the PDD mentions that the combination of option i (venting) and option iv (use for additional grid power generation) is the proposed project activity not implemented as a CDM project. According to other sections of the PDD, electricity generated from the project is utilized as captive power.</p> <p>CL 12: Please clarify the combination of option i and option iv is the proposed project activity not implemented as a CDM project.</p> <p>3. <u>Options for energy production.</u> Four scenarios are discussed in the PDD as alternatives for energy production, which include: (1) the proposed project activity not undertaken as a CDM project activity, (2) import of electricity from NWCPG, (3) additional fossil fuel-fired power generation, and (4) additional other renewable power generation.</p> <p>According to the PDD, the project only uses CMM for electricity generation (and waste heat produced in electricity generation will be utilized for staff household heating purpose), thus, scenarios for heat and vehicle fuels are not discussed. However, using CMM as vehicle fuel and heating purposes are not discussed in this section of the PDD as per ACM0008 version 07.</p> <p>CL 13: Please clarify using CMM as vehicle fuel and heating as options for energy production in the PDD. Also please update the point (4) for Options for energy production according to the ACM0008 V 7 guidelines.</p> <p>b. All considered alternatives assessed for consistency with (enforced) mandatory laws and regulations. This procedure will be checked again according to responses and additional evidence of baseline scenario analysis</p>	CAR 3 Minor Issue 1	

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>1. <u>Options for CMM extraction</u>: According to the newly updated Coalmine Safety Regulation, effective from 01/03/2010, 1% of methane in a mine's air is required. Thus, drainage of pre-mining and post-mining CMM individuals cannot meet the Regulation. Hence, option C (combination of pre-mining and post-mining CMM drainage) is the only gas extraction option complying with regulatory requirements. However, the National Coalmine Safety Regulation 2005 version is referenced in the PDD, which has been updated to the 2010 version. In addition, the reasons about why combination of pre-mining and post-mining CMM drainage can result concentration of methane reaching below 1% in the mine's air are not provided in the PDD.</p> <p>CAR 3: Please update the correct version of the National Coalmine Safety Regulation in the PDD.</p> <p>CL 14: Please provide evidence and clarify the reasons only combination of pre-mining and post-mining CMM drainage can result concentration of methane reaching below 1% in the mine's air.</p> <p>2. <u>Extracted CMM treatment</u>: According to the <i>Emission Standard of Coalbed Methane/Coal Mine Gas (on trial)</i> issued by Ministry of Environmental Protection and took into effective on July 1, 2008. It stipulates that after January 1, 2010, the high concentration CMM (over 30%) extracted out of all existing mines shall be prohibited from emission. Also, according to the National Coalmine Safety Regulation (2010), only utilization of CMM above 30% is required. The CMM concentrations at the two mines in this Project are below 30% as per the PDD. This is verified in accordance with the gas analytical report and FSR. However, as mentioned by the PDD, no legal or regulatory requirements are in China to prohibit utilization of CMM below 30%. This is verified via documentary review and other registered CMM CDM projects.</p> <p>However, no clear explanation on whether the eight options are compliance/non-compliance with legal or regulatory requirements is provided in this section of the PDD.</p> <p>CL 15: Please clarify whether the eight options are compliance/non-compliance with legal or regulatory requirements is provided in this section of the PDD.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>3. <u>Energy production</u>: Option 1(c) Additional fossil fuel-fired power generation is not in compliance with the regulatory requirements in China, which can be verified via documentary/regulatory review. The PDD states other options are all in compliance with the legal and regulatory requirements in China.</p> <p>c. Yes. The PDD lists the project activity being implemented without being registered as a CDM project, for both extracted CMM treatment and energy production. The CMM drainage system has been previously installed at the project coal mines.</p> <p>d. Exclusion of alternatives:</p> <p>CL 16: Please establish a complete list of barriers and develop their analysis according to the rules and guidelines of ACM0008 v7 and EB50 repa13.</p> <p>1. For CMM extraction: In the PDD, pre-mining CMM extraction, post-mining CMM extraction and combination of the above two are all technically feasible. Please refer to CL 11.</p> <p>2. For CMM treatment: Regarding baseline scenario alternatives for CMM treatment, the below options are discussed:</p> <p><u>Option ii Destroying ventilation air methane rather than venting it</u>: The technological barrier in the PDD was not developed appropriately. The PDD mentions that the VAM in the two coal mines are below 0.5%, however, no evidence is provided. Also, the evidence from USEPA regarding technical barrier for VAM below 0.5% cannot be opened/confirmed. In addition, there is public information that the VAM technology is feasible in the market conditions.</p> <p>CL 17: Please provide further evidence for the exclusion of Option II, Destroying ventilation air methane rather than venting it.</p> <p>Minor Issue 1: Please update the link to USEPA document to support that VAM below 0.5% has technical barriers.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p><u>Option iii flaring of CMM:</u> According to the PDD, flaring of CMM is generally possible only when CMM concentration is above 25%, and the CMM concentrations of the two mines are under 25%. However, no reference is provided regarding the technical barrier for CMM flaring under 25%. The PDD states that no legal/regulatory requirements for flaring of CMM is required in China, however, no reference has been provided for this statement.</p> <p>CL 18:</p> <p>(1) Please provide documented evidence supporting the technical barrier for CMM flaring requiring CMM concentration above 25%.</p> <p>(2) Please provide documented evidence supporting the statement that no legal/regulatory requirements in China for CMM flaring with reference.</p> <p><u>Option iv Use for additional grid power generation:</u> According to the PDD, the proposed project activity cannot meet the electric demand of Jingyuan Coal Group. However, the annual electricity consumption of the Jingyuan Coal Group has not been provided. In addition, the PDD states that the potential supply of the power to the grid and purchasing the power from the grid is not economically and financially attractive. However, no evidences have been provided.</p> <p>Please refer to CL 1 for the relationship between Jing Coal Group and Jingyuan Coal Group.</p> <p>CL 19:</p> <p>(1) Please provide evidence demonstrating the annual electricity consumption of Jingyuan Coal Group</p> <p>(2) Please clarify the evidence that it is not economically and financially attractive for the potential supply of the power to the grid and then purchasing the power from the grid and why this is a prohibitive barrier.</p> <p><u>Option v Use for additional captive power generation:</u> This is the project being implemented without registered as a CDM project, according to other section of the PDD. The PDD states that this option faces prohibitive barriers due to low return on investment as further discussed in Section B.5 of the PDD.</p> <p>CL 20: <u>Option v Use for additional captive power generation:</u> Please provide descriptions about how to rule out this option based on investment analysis.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p><u>Option vi Use for additional heat generation</u>: The PDD states that the basic heat demand of surrounding residential is already met, and the proposed project will also supply some waste heat to the current system. However, no evidence is provided regarding the basic heat demand of the surrounding residential is already met. In addition, the PDD states that CMM concentration above 30% is normally required for gas-fired boilers. However, no evidence is provided for this statement.</p> <p>CL 21:</p> <p>(1) Please provide evidence that the basic heat demand of surrounding residential is already met.</p> <p>(2) Please clarify the evidence on CMM concentration above 30% is normally required for gas-fired boilers.</p> <p><u>Option vii Feed into gas pipeline (to be used as vehicles or heat/power generation)</u>: According to Natural Gas Standard (GB17820-1999), the gas pipeline requires that the calorific value of the gas fed into the pipeline must be higher than 31.4MJ/m³. According to the public information of CMM calorific values [Doc 127] the higher expected calorific value with a concentration of 40% of CH₄ is around to 17 MJ/m³, which is lower for pipeline requirements. Validation team could confirmed that the CH₄ concentration into the coal project activity mines is lower than 30% [Doc 08], therefore the CMM from the project activity cannot be fed it into the domestic or industrial gas pipeline. In addition, according to the Progress of Low Concentration Coal Mine Methane Purification [Doc 127], low concentration CMM purification still has many limitations and technical difficulties.</p> <p>In addition, during the ERM CVS site visit, no municipal gas pipeline has been readily installed in the project nearby area, and Baiyin City and the project area is not considered populated and centralized. Hence, it is considered valid for the excluding of Option vii, feeding into gas pipeline.</p> <p><u>Option viii Possible combination of above options</u>: According to the PDD, only option i is possible. However, insufficient justification is provided regarding the exclusion of the previous options. Please refer to CL 17, CL 18, CL 19, CL 20 and CL 21.</p> <p>3. For Energy production:</p> <p>Option 1(a): the project activity not undertaken as a CDM project</p> <p>The PDD states that this option is eliminated based on the previously mentioned barriers and discussions in Section B.5 of the PDD. However,</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>please clarify CL 17, CL 18, CL 19 and CL 20 first.</p> <p>Option 1(d): additional other renewable power generation</p> <p>The renewable power generation option should be congruent with ACM0008 v7. Please refer to CL 13</p> <p>e. Investment analysis is used to exclude option iv use for additional captive power generation and option v use for additional captive power generation. The investment analysis is validated in section 7, below.</p> <p>The CLs and CARs raised above need to be closed before able to assess the baseline scenario definition.</p>		
6.12	Have all relevant national and/or sectoral policies and circumstances been taken into account? Are they listed in the PDD?	Doc17 Doc32 Doc33	<p>Yes, all relevant national and/or sectoral policies and circumstances have been taken into account and listed in the PDD, primarily include:</p> <ul style="list-style-type: none"> - <i>National Coalmine Safety Regulation (2010)</i> - <i>Notice of the General Office of the State Council Concerning the Strict Prohibition of the Construction of Thermal Power Units with a Capacity of 135 MW or Below (2002)</i> <p>This has been confirmed by the DOE based on sectoral and local knowledge. Note that the National Coalmine Safety Regulation has been updated in 2010, however, the old 2005 version was referred in the PDD.</p> <p>Please refer to CAR 3 to correctly refer to the latest version of the National Coalmine Safety Regulation in the PDD.</p>	CAR 3	OK
6.13	Does the PDD provide a verifiable description of the baseline scenario, including a description of the technology/ activities that would have been employed in the absence of the CDM project?	Doc17 Doc28	The baseline scenario is defined as the continuation of the current situation whereby CMM is vented to the atmosphere and electricity is supplied by the NWCPG. The description is in accordance with the methodology ACM0008 version 07. However, the previous CL 17 , CL 18 , CL 19 and CL 20 need to be closed first.	Not yet OK	OK
6.14	Does the identified baseline scenario reasonably represent what would occur in the absence of the proposed project activity?	Doc17 Doc28	The assessment of the baseline analysis will be concluded once the issues raised above are closed out.	Not yet OK	OK
7.	Additionality	PDD B.5			
	a) Prior consideration of the CDM	PDD C.1.1			
7.1	Is the start date defined in accordance with the "Glossary of CDM terms"? What evidence is provided to verify that	Doc20	The start date of the project activity is on 2 June 2008, according to the PDD. It can be verified that the equipment purchase contract was signed	CL 22	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	this was the official start date? Is this considered reliable and reasonable?		<p>on 2 June 2008, including the low concentration gas engines/generators.</p> <p>Based on the authentic contract provided for review, the definition of the start date of this project is considered verifiable.</p> <p>The timeline for Phase I project (the high concentration CMM power generation project which has been abandoned) is also included in Table B.6. According to the PDD, this is not within the project boundary.</p> <p>CL 22: Please clarify why the Phase I high concentration CMM project is included in Table B.6.</p>		
7.2	Is it a new project activity (start date on or after August 2008) or an existing project?	Doc20	This is an existing project, given the start date of the project is on 2 June 2008, which is before August 2008.	OK	OK
7.3	<p>For a new project which does not require a new methodology and has not published its PDD for stakeholder comments prior to the start date, then:</p> <ul style="list-style-type: none"> a. Have the project proponents informed the DNA and/or UNFCCC secretariat in writing? How has this notification been verified? (i.e. confirmation from the DNA or UNFCCC) b. Was the notification made within 6 months of the project activity start date? c. Does the letter/ notification indicate the precise geographic location and provide a brief description of the proposed project? d. Have the project proponents informed the DNA and/ or UNFCCC secretariat of the progress of the project activity every subsequent two years after the initial notification? 		No applicable	n/a	N/A
7.4	<p>For an existing project which has a start date prior to the publication of the PDD for global stakeholder comments, has the project proponent provided the following:</p> <ul style="list-style-type: none"> a. Evidence of 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? (e.g. Board minutes, notes etc) Is this sufficient? 	Doc21 Doc22 Doc23	<p>a. Evidence for prior consideration of CDM has been provided, including:</p> <p>(1) The CDM development contract signed by the PP and Gansu Tonghe Investment Project Consulting Co Ltd on 15 May 2008.</p> <p>(2) The board meeting minutes of the PP signed on 8 April 2008.</p> <p>(3) The email sent from the FSR design institute to the PP for suggestion of CDM consideration (prior to the board meeting), dated 3 April 2008.</p>	CL 23 CL 24	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	b. Reliable evidence that demonstrates real actions were taken to secure CDM status in parallel with the project's implementation? (e.g. contracts with consultants for CDM/PDD/methodology services, ERPAs, correspondence with CER buyers, DOEs, DNAs or the UNFCCC). Is this sufficient?		<p>The provided evidences are considered sufficient to prove the awareness of CDM prior to the project activity start date, which is 2 June 2008.</p> <p>CL 23: Please clarify the date to obtain China LoA in Table B.6 of the PDD.</p> <p>b. Evidences provided at the time of the validation to indicate that real actions have been implemented to secure CDM status include:</p> <ul style="list-style-type: none"> The CDM development contract signed by the PP and Gansu Tonghe Investment Project Consulting Co Ltd on 15 May 2008. <p>However, no other evidences have been provided to demonstrate that real actions have been taken to secure CDM status.</p> <p>CL 24: Please provide additional evidences to demonstrate real actions taken place to secure CDM status.</p>		
	b) Identification of alternatives (Additionality Tool)	<i>PDD B.5</i>			
7.5	Is the assessment of alternatives in compliance with the requirements of the methodology and the relevant tool(s) (e.g. the Tool for the demonstration and assessment of additionality)? Is the assessment consistent with section B.4?	Doc28 Doc29	In accordance with the "Tool for the demonstration and assessment of additionality", the project activity applies to this tool in the context of approved consolidated methodology ACM0008 version 07.	OK	OK
	c) Investment Analysis				
7.6	Has an investment analysis been used to demonstrate additionality?	Doc17	Yes. Investment analysis has been used to demonstrate additionality, which is considered to be appropriate.	OK	
7.7	Has the appropriate analysis Option been chosen?	Doc17	Yes, Option III of the 'Tool for the demonstration and assessment of additionality' (benchmark analysis) is chosen and is considered reasonable, given that the project activity will produce CDM revenues and achieve savings from displacing electricity purchased from NWCPG, therefore simple cost analysis (Option I) is not applicable, and given that the alternative baseline scenario does not represent a comparable investment project, thus investment comparison analysis (Option II) is excluded. However, this question will be reviewed upon closure of all CAR/CL.	Not yet OK	OK
7.8	If Option I is chosen (simple cost analysis), is it demonstrated that the activity produces no economic benefits other than CDM income?	n/a	Not applicable	n/a	N/A
7.9	If Option II is chosen:	n/a	Not applicable	n/a	N/A

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	Is the most suitable financial indicator clearly identified (Project IRR, Equity IRR, NPV, cost benefit ratio, or (levelized) unit cost)?				
7.10	Benchmarks - If Option III is chosen: <ul style="list-style-type: none"> a. Does the proposed baseline scenario leave the project participant no other choice than to make an investment to supply the same (or substitute) products or services? b. Is the most suitable financial indicator clearly identified (Project IRR, Equity IRR, NPV, cost benefit ratio, or (levelized) unit cost)? Is the suitability of the selection reasonable and adequately justified? c. Is an appropriate benchmark chosen that is relevant for the project activity (sector, investment, investor, country, risk of project, time of investment decision)? d. Is the choice of benchmark appropriate to the type of IRR calculated? (e.g. a Project IRR benchmark is appropriated for a WACC or Project IRR analysis; an Equity IRR benchmark is appropriate for an Equity IRR analysis) e. Is the chosen benchmark appropriate in comparison with other publicly available comparable benchmarks? f. Is the chosen benchmark appropriate and in line with other benchmarks used in current or previous projects by the same investor? g. Is the choice of benchmark justified with supporting evidence for its appropriateness? 	Doc17 Doc30 Doc40	<ul style="list-style-type: none"> a. No, the proposed baseline scenario does not leave the Project Participant no other choice than to make an investment to supply the same products or services. The Project Participant has the option of making no investment. Also the CL raised about baseline scenario need to be closed first. b. Yes. Equity IRR is chosen as the financial indicator, which in accordance with the financial indicator used in the FSR following the <i>Methodology and Parameters for Financial Evaluation of Construction Projects (3rd Edition)</i> issued by National development and Reform Commission and Ministry of Construction of PR China. Hence, the selection of the financial indicator is considered as reasonable. c. As mentioned above, according to the PDD the PP adopted a 15% equity IRR benchmark (post-tax) in accordance with the <i>Methodology and Parameters for Financial Evaluation of Construction Projects</i>, which is justified. However, further clarification regarding the relationship between Jing Coal Group and Jingyuan Coal Group is required - as stated in CL1. In addition, no reference is provided in the PDD for the average power consumption of Jingyuan Coal Group during the recent 3 years. d. This benchmark rate is consistent with the financial indicator (equity IRR) selected. This was confirmed against the IRR spreadsheet and the <i>Methodology and Parameters for Financial Evaluation of Construction Projects (3rd Edition)</i>. e. Yes. The chosen benchmark is justified in comparison with other publicly available comparable benchmarks. The benchmark is under the <i>Methodology and Parameters for Financial Evaluation of Construction Projects (3rd Edition)</i>. f. Yes. The benchmark is appropriate to the PP since the PP is in the coal industry, using CMM electricity as captive power source. Thus, the chosen benchmark is justified and conservative in comparison with other publicly available comparable benchmarks. g. According to the <i>Methodology and Parameters for Financial Evaluation of Construction Projects (3rd Edition)</i>, the benchmark for the coal industry (15% after tax) is chosen. However, further clarification is needed to confirm that Jingyuan Coal Group is in the coal industry. <p>CL 25: (1) Please clarify the evidence to support that Jingyuan Coal Group is in the</p>	CL1 CL 25	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			coal industry. (2) Please clarify the reference that the average power consumption during the recent 3 years of Jingyuan Coal Group. (3) please further clarify why other benchmarks are not applicable to the project.		
7.11	If the project can be developed by an entity other than the project participant, is the benchmark based on publicly available data sources? Have these data sources been validated?	Doc40	According to the <i>Methodology and Parameters for Financial Evaluation of Construction Projects (3rd Edition)</i> , entities whose main business is coal production would apply this benchmark. This is considered as public available data source/information.	OK	OK
7.12	If an internal company benchmark has been used: a. Is the project participant the only possible investor in the project? b. Is it sufficiently demonstrated that the internal benchmark has been used for similar projects with similar risk or would have been used for similar projects in the same sector and country/region? c. How has this been validated?	n/a	Not applicable	n/a	N/A
7.13	If risk premiums are applied in the development of the benchmark, are they reasonable and justified?	n/a	Not applicable. A government benchmark is adopted and no additional risk premiums are applied.	n/a	N/A
7.14	Has a lower benchmark been used in previous investment decisions by the project participant? If so, are there verifiable circumstances that have led to a change in the benchmark?	Doc40	No. The applied benchmark has been widely used for coal industry projects in the host country. However, no evidence to confirm whether a lower benchmark has been used in previous investment decisions by the PP. CL 26: Please clarify whether a lower benchmark has been used in previous investment decisions by the PP.	CL 26	OK
7.15	Overall, is the choice of benchmark reasonable? Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark?	Doc40	Yes. The selection of the benchmark is appropriate for projects in the coal industry and in accordance with the regulations in China. The benchmark is also the same one that was applied in the financial analysis in the FSR of the proposed project.	OK	OK
	Calculations				
7.16	Is the period of assessment appropriate?	Doc17	Yes. The operation period adapted for the IRR calculation is 11 years (including one year of construction period). This has been verified against the lifetime of the Project stated in the FSR, and is considered reasonable for CMM technology in China based on ERM CVS's local and sectoral knowledge.	OK	OK
7.17	Is any residual value of the project activity assets	Doc17	A residual value of 5% is assumed and correctly accounted for. Further	CL 27	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	included in the analysis? Are residual value calculations reasonable and justified and consistent with local accounting rules or international best practice?	Doc01 Doc14	evidence is required to justify the assumed value of 5% for equipment and machinery (after only 10 years of operation). CL 27: Please clarify the residual value of the Project in the PDD and Equity IRR calculation.		
7.18	Are the depreciation and major maintenance costs consistent with the assessment period and the residual values?	Doc17 Doc14 Doc01	Operation and maintenance costs and the depreciation are consistent with the assessment period. There is a major overhaul of machinery scheduled for Year 6 and Year 10. It is uncertain whether this will increase the lifetime of the machinery. CL 28: Please clarify whether the overhaul will increase the lifetime of the machinery.	CL 28	OK
7.19	Are depreciation and other non-cash items related to the project activity deducted from net profits used for calculating the financial indicator (e.g. IRR, NPV)?	Doc17 Doc14	Yes, depreciation and other non-cash items related to the project activity are deducted from net profits used for calculating the IRR.	OK	OK
7.20	Is the treatment of taxation consistent with the chosen benchmark? (i.e. taxation should only be treated as an expense in the IRR/NPV calculation if the chosen benchmark is intended for post-tax calculations?)	Doc17 Doc14	Yes. The taxation adapted for the project activity is consistent with the local Chinese regulation, which is consistent with the chosen equity benchmark.	OK	OK
7.21	Recommended project: If the implementation of the project ceased and then recommenced due to consideration of the CDM, then: a. Are input values valid and applicable at the time of making the decision to recommence the project? b. Are capital costs incurred prior to the revised project activity start date input as the recoverable value of the assets (limited to the potential reuse/ resale of tangible assets)? c. How has the fair market value of the capital expenditures been calculated and validated? (e.g. by chartered specialists). Is this fair market value reasonable and justified?	n/a	Not applicable	n/a	OK
7.22	Has the project participant supplied unprotected and traceable spreadsheet versions of all investment analysis?	Doc17 Doc14	Yes. An unprotected copy of the IRR spreadsheet was provided for review. However, the sensitivity analysis in the spreadsheet is not traceable. CL 29: Please clarify the calculation for sensitivity analysis in the spreadsheet traceably.	CL 29	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
7.23	From the investment analysis provided, is it possible to reproduce the results?	Doc17 Doc14	Yes.	OK	OK
7.24	If a Project IRR has been used, are the costs of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?		The Project does not have any loan. Hence, no interest is included in the calculation of the equity IRR. However, further evidence should be provided to justify that there is no other loan for the Project. CL 30: Further evidences should be provided to state that there is no loan for the Project.	CL 30	OK
7.25	If an Equity IRR has been used, is the debt portion of the investment cost included as a cash outflow? (i.e. as well as interest costs and principle repayments – double counting)	n/a	No loans or debts are used by the proposed project, as according to a letter issued by a licensed third party accounting firm [Doc 131].	N/A	N/A
7.26	Sensitivity analysis: a. Are all variable and critical costs and revenues in the analysis included in the sensitivity analysis? b. Is the assessed range of variations reasonable in light of the reliability of the estimated input values and the likely range? c. If some variations create scenarios that change the conclusion/ result of the analysis, how likely/ probable is such a scenario (in the opinion of the DOE)? d. Is the sensitivity analysis possible to reproduce?	Doc17 Doc14 Doc01	a. Sensitivity analysis included variables of Static Total Investment, Annual O&M Costs, Power Generation Amount and CER Price. However, electricity tariff is not included in sensitivity analysis. Electricity tariff is stated in the list above Table B.10, however, it is not included in the sensitivity analysis. Power Generation Amount is included in the sensitivity analysis, however, it is not included in the list above Table B.10 in the PDD. CL 31: (1) Please include electricity tariff in the sensitivity analysis. (2) Please include Power Generation Amount in the list above Table B.10. b. A 10% variation of the parameters is analysed. However, the analysis does not include how much variation of the parameters will reach the benchmark CL 32: Please clarify in the PDD and IRR spreadsheet that how much variation of the parameters will reach the benchmark. c. The IRR is sensitive to the amount of power generated and the electricity tariff. While the benchmark of 15% is not approached by a 10% increase in either, further evidence is required to justify why larger increases in these parameters will not see the IRR greater than the benchmark. Please refer to CL 32 .	CL 29 CL 31 CL 32	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>1. Static Total investment According to the GSP PDD, the equity IRR will be between 4.32% to 7.72% under the condition that Static Total Investment will vary within $\pm 10\%$. CL 29 and CL 32 need to be closed first. In addition, no evidence that the Static Total Investment cannot vary exceeding 10%.</p> <p>2. Annual O&M Cost According to the GSP PDD, the equity IRR will be between 3.85% to 7.81% under the condition that Annual O&M Cost will vary within $\pm 10\%$. CL 29 and CL 32 need to be closed first. In addition, no evidence that the Operation Cost cannot vary exceeding 10%.</p> <p>3. Power Generation Amount According to the GSP PDD, the equity IRR will be between 1.82% to 9.58% under the condition that Power Generation Amount will vary within $\pm 10\%$. CL 29 and CL 32 need to be closed first. In addition, no evidence that the Power Generation Amount cannot vary exceeding 10%.</p> <p>4. CER Price According to the GSP PDD, the equity IRR will be between 40.08% to 46.79% under the condition that CER Price will vary within $\pm 10\%$. CL 29 and CL 32 need to be closed first. In addition, no evidence that CER Price cannot vary exceeding 10%.</p> <p>5. Annual Heating Supply Only when annual heating supply increases +98%, the equity IRR can reach benchmark. However, this is not possible, given the current annual CMM generation amount [Doc 01] and current boiler efficiency.</p> <p>6. Raw Coal Price The equity IRR will reach the benchmark if the raw coal price increases by +98%. According to Doc 119 and 120, the raw coal price only increased 56.32% in 4 years (2008-2011). Even with such a year on year rate of increase, the equity IRR would be 13.93%, which is below the benchmark.</p> <p>d. The provided IRR calculation spreadsheet is not traceable. Please refer to CL 29.</p>		
7.27	Are input values used in all the investment analysis valid and applicable at the time of the investment decision taken by the project participant?	Doc01 Doc17 Doc14	The PDD calculation spreadsheet states that all input values used in the investment analysis are based on the independent third party FSR, which was approved on 26 May 2008. However, no units have been provided in the calculation spreadsheet (the "Data sources of IRR calculation"). In addition, the Annual O&M Cost and Working Capital for this project cannot	CL 33	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>be confirmed in the FSR. Note that in the FSR, CMM project generation project for three coal mines is included, thus, some information is not separated into individual CMM generation system. It is unclear that "grid tariff (net)" referred in the IRR spreadsheet is 0.3932 RMB. Annual Power Supply referred in the IRR spreadsheet is 27,802 MWh and the Annual Power Supply referred in the PDD and FSR is 27,805 MWh. No reference is provided for depreciation rate/value stated in the PDD and the IRR calculation spreadsheet.</p> <p>CL 33:</p> <p>(1) Please clarify the units for data referred in the "Data sources of IRR calculation" sheet in the IRR calculation spreadsheet and Table B.7 of the PDD.</p> <p>(2) Please clarify reference for Annual O&M Cost and Working Capital in the FSR.</p> <p>(3) Please clarify 0.3932 RMB of "grid tariff (net)" referred in the IRR spreadsheet.</p> <p>(4) Please clarify the Annual Power Supply, and update the IRR calculation as needed.</p> <p>(5) Please clarify the depreciate rate of 9.5% stated in Table B.7 in the PDD and the annual depreciation value in the IRR calculation spreadsheet.</p> <p>(6) Please provide all parameters used in IRR calculation in Table B.7 of the PDD.</p> <p>(7) Please clarify the cost for CMM in the PDD.</p>		
7.28	Have the listed input values been consistently applied in all calculations?	Doc17 Doc14	Yes. All input values used in the investment analysis are consistent throughout the documentation, except the Annual Power Supply mentioned in CL 33 .	OK	OK
7.29	Are all references made in the investment analysis correctly referenced/ sourced? Have these sources been verified?	Doc17 Doc14	<p>Not all the parameters used for the IRR calculation are stated in Table B.7 of the PDD.</p> <p>CL 34: All the parameters used in the IRR calculation need to be stated in Table B.7 of the PDD.</p> <p>Other than the issues mentioned above, the parameters used in the IRR calculation are considered as reasonable and able to be justified. The investment analysis is validated in more detail in section 7 below.</p>	CL 34	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
7.30	Have financial calculations been verified by: assessing all parameters and assumptions against the available evidence and expertise; cross-checking the parameters against 3 rd party or publicly available sources; reviewing feasibility reports, public announcements and annual financial reports; assessing the correctness of computations and the sensitivity analysis?	Doc01 Doc17 Doc14 Doc42 Doc43 Doc44 Doc45 Doc46	<p>The validity of the key input values to the sensitivity analysis has been verified by the following cross-checks:</p> <p>1. Total investment: In order to cross check the investment costs, ERM CVS has reviewed the equipment purchasing contract for gas engines/generators with contract values of RMB 20,051,000. This contract is signed with Shandong Shengdong Power Machinery Sales Co Ltd on 2 June 2008. In addition, building construction contract with Baiyin Pingchuan No.2 Construction Engineering Co Ltd signed on 27 June 2008 is available. The contract value is RMB 1,630,000. An installation contract (for gas engines/generators, cooling systems, electricity system,, fire fighting systems, etc) with Shandong Shengdong Gas Power Generation Design Consulting Co Ltd signed on 20 June 2008 is available. The contract value is RMB 10,239,616.</p> <p>No other major purchase contracts have been provided for review yet. These three contracts have a total contract value of RMB 31,920,616, which accounts approximately 97.9% of the planned total investment. Thus, the static total investment estimated by the FSR is considered justifiable.</p> <p>The static total investment estimation is given in the FSR (RMB 32,609,900), which is approximately 5,929,000 RMB/MW. No registered CMM utilization project in Gansu Province was found in the UNFCCC website.</p> <p>2 Annual O&M Cost: The Annual O&M Cost stated in the PDD is RMB 5,503,500 per year, which is approximately RMB 1,000,000/MW. The Project has been in operation since 25 January 2009. However, no actual Annual O&M Cost statistics are available to review.</p> <p>No registered CMM utilization project is currently available in Gansu Province. Please refer to CL 33.</p> <p>CL 35: Please clarify the actual Annual O&M Cost since the Project commenced operation.</p> <p>3. Power Generation Amount: The Power Generation Amount estimated by the PDD and FSR is 27,805 MWh. Please refer to CL 33. In addition, the FSR estimates annual operation hours of 6,500 hours. No operating statistics for the past two years (since the Project commissioned operation</p>	CL 33 CL 35	OK

Validation Report

	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>in January 2009) has been provided for review.</p> <p>CL 36: Please provide evidences to further support the power generation issue.</p> <p>4. CER Price: According to the PDD, the expected CER Price is Euro 9 per ton of CO2e reduction, which is in accordance with the current market price. Hence, it is not considered that the CER price can be change.</p> <p>5. Annual Heating Supply: According to the IRR spreadsheet/PDD, the expected annual waste heat supply is 85.78TJ, which is in accordance with the approved FSR. In addition, the calculation parameters are referred from creditable sources [Doc 94] and EB 48 Annex 12, and transparent calculation steps have been provided to ERM CVS for validation. Thus, the estimate for annual heating supply is considered creditable.</p> <p>6. Raw Coal Price: Given the proposed project as a single project, project actual revenues are calculated based on avoided power and coal costs. Jingyuan Coal Group is a coal production group, thus, coal produced by its own coal mines (those not easily sold in the market) was used in the coal fired boilers. For the purposes of conservativeness, market raw coal price is used in the calculation, which is considered reasonable and conservative [Doc 119 and 120]. The raw coal price used in the calculation is also consistent with the article published by Lanzhou Daily in 2008 [Doc 121]. In addition, this is consistent with ERM CVS's sectoral and local knowledge. Thus, the raw coal price is considered creditable.</p>		
7.31	<p>Have values from a feasibility study report (FSR) approved by national authorities been used? If so:</p> <ul style="list-style-type: none"> a. Has the FSR been the basis of the decision to proceed with the investment in the project? How has this been verified? b. Are the values used in the PDD and associated annexes valid and consistent with the FSR? c. At the time of the investment decision, are the input values from the FSR valid and applicable (based on specific local and sectoral expertise and knowledge)? 	Doc01 Doc02	<p>Yes. The FSR approval was issued by Baiyin Municipal Development Reform Commission on 26 May 2008.</p> <ul style="list-style-type: none"> a. The FSR is adopted as the original basis of the decision to proceed with the investment in the Project by the Project Developer, which is in accordance with Chinese regulations, the FSR must be completed and approved/registered before the project is permitted to be built. b. All values used in the PDD are consistent with the FSR. c. The values from the FSR are considered reasonable, based on local and sectoral expertise, and the values have been further cross checked as described above. 	OK	OK
	d) Barrier Analysis	<i>PDD Step 3</i>			
7.32	Has a barrier analysis been used?	n/a	Not applicable	N/A	N/A
7.33	Is a complete list of credible, feasible and legally	n/a	Not applicable	N/A	N/A

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	compliant alternatives identified?				
7.34	Is a complete list of barriers that prevent the alternatives and the proposed CDM project activity from occurring identified?	n/a	Not applicable	N/A	N/A
7.35	Do any such identified barriers have a clear and direct impact on the financial returns of the project activity? (these are not barriers and should be assessed in the investment analysis)	n/a	Not applicable	N/A	N/A
7.36	Are the identified barriers real and substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	n/a	Not applicable	N/A	N/A
7.37	Does an identified barrier or set of barriers prevent the implementation of the proposed CDM project activity? How has this been validated?	n/a	Not applicable	N/A	N/A
7.38	Do the identified barriers not equally prevent at least one of the possible alternatives (particularly the baseline scenario)? i.e. is at least one of the alternatives relatively free of the barrier? How has this been validated?	n/a	Not applicable	N/A	N/A
7.39	Is it clearly explained how approval of the project in the CDM would enable the proposed project activity to surmount the barrier? Is the rationale reasonable and justified with evidence?	n/a	Not applicable	N/A	N/A
7.40	Overall, is the Barrier Analysis presented credible and compliant with the applicable Tools?	n/a	Not applicable	N/A	N/A
	e) Common Practice Analysis	<i>PDD Step 4</i>			
7.41	Is the proposed project activity a 'first of its kind'? If so, does the project comply with the 'Guidelines on additionality of first-of-its-kind project activities'?	Doc17	No, the PDD does not claim that the Project is the first of its kind.	OK	OK
7.42	Has common practice analysis been undertaken?	Doc17	Yes	OK	OK
7.43	Is the applicable geographical area of the common practice analysis appropriate for the assessment related to the project activity's technology or industry type?	Doc17	Gansu province is selected as the applicable geographical area. This is considered reasonable given that policies, regulations and investment climate differ between provinces in China, and provinces are large in terms of both geographical size and population size. The PDD states that the Project is the first low concentration CMM project in Gansu Province. According to the UNFCCC website, no registered low concentration CMM project is identified in Gansu Province. However, it is not confirmed whether there are CMM (above 30%) power generation	CL 37	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>projects in Gansu Province.</p> <p>CL 37: Please clarify whether there are other CMM power generation projects in Gansu Province and whether these projects are under the process of applying as CDM projects?</p>		
7.44	<p>In the applicable geographical area, has the PP identified all plants that deliver the same output or capacity, within the applicable output range, that started commercial operation before the starting date of the project?</p> <p>How have we validated the data sources, including that the list includes all relevant plants?</p>	Doc17	<p>The common practice analysis in the GSP was carried out in line with an earlier version of the tool, and the common practice analysis was sufficiently substantiated. The PDD was subsequently updated to the latest version of the additionality tool. The common practice analysis is validated in detail in section 3.6 of the validation report.</p> <p>According to the PDD, this Project is the first low concentration CMM utilization project in Gansu Province. However, it is unclear whether there are other CMM power generation projects in Gansu Province and no reference is provided for the above statement. In addition, if these projects are present, are these projects registered CDM projects or not?</p> <p>Shengli Oil Field is referred as the gas engines/generators supplier in this section of the PDD, which is not consistent with the name of the supplier in other sections of the PDD.</p> <p>Please refer to CL 37. and CL 4</p> <p>CL 38: Please clarify the reference for the Project being the first low concentration CMM power generation project in Gansu Province.</p>	CL 37 CL 38	OK
7.45	Have similar and operational projects other than CDM project activities been undertaken in the region?	Doc17	<p>Pending to close CL 37.</p> <p>The common practice analysis in the GSP was carried out in line with an earlier version of the tool, and the common practice analysis was sufficiently substantiated. The PDD was subsequently updated to the latest version of the additionality tool. The common practice analysis is validated in detail in section 3.6 of the validation report.</p>	Not yet OK	OK
7.46	<p>Are these widely observed and commonly carried out?</p> <p>If so:</p> <p>a. How have the essential distinctions with the proposed CDM project activity been assessed?</p>		<p>Pending to close CL 37.</p> <p>The common practice analysis in the GSP was carried out in line with an earlier version of the tool, and the common practice analysis was sufficiently substantiated. The PDD was subsequently updated to the latest</p>	Not yet OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	b. Are such distinctions justified with sufficient evidence? c. If inaccessibility of data is the reason why some projects have not been included in the analysis, is justification of this claim provided?		version of the additionality tool. The common practice analysis is validated in detail in section 3.6 of the validation report.		
7.47	Overall, is the proposed CDM project activity considered common practice?		Pending to close CL 37 . The common practice analysis in the GSP was carried out in line with an earlier version of the tool, and the common practice analysis was sufficiently substantiated. The PDD was subsequently updated to the latest version of the additionality tool. The common practice analysis is validated in detail in section 3.6 of the validation report.	Not yet OK	OK
8.	Emissions Reductions	PDD B.6			
	Explanation of methodological choices				
8.1	Is it explained how the procedures provided in the Methodology and applicable Tools are applied by the proposed project activity? (<i>i.e. Are the required steps clearly followed?</i>)	Doc28 Doc30	Yes. This has been verified by cross-checking the PDD against the methodology and the <i>Tool to Calculate Emission Factor for an Electricity System</i> version 2.2.1, in accordance with ACM0008 version 07.	OK	OK
	<i>Project emissions:</i>				
8.2	Is every choice of options for calculating project emissions offered by the methodology correctly justified? Is this justification in line with the situation as evidenced by site visits, local knowledge and supporting documentation?	Doc28 Doc30	There is not a clear description of the choices for calculating project emissions. PDD only included the applicable parameters and the equations did not correspond to the guidance of ACM008 methodology. The section of the PDD states that NMHC concentration for the Project is below 1% according to the gas testing report issued by the Geochemistry Department, Lanzhou Institute of Geology, Chinese Academy of Sciences on 24 June 2010. However, their exclusion as potential project emission is not reasonable. Please see CAR 2. CAR 4: Please provide a clear description for every choice for calculation project emissions following the guidelines of Methodology ACM0008 version 07. Each omission or exclusion should be clearly stated why the choice is not applicable for project activity conditions.	CAR 4	OK
8.3	Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	Doc28 Doc30	Yes, the formulae required for determination of project emissions are correctly presented, enabling a complete identification of parameters to be used/monitored – pending closure of CAR 3 and CL 40	Not yet OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			Please refer to CAR 4		
	<i>Baseline emissions:</i>				
8.4	Is every choice of options for calculating baseline emissions offered by the methodology correctly justified? Is this justification in line with the baseline scenario?	Doc28	There is not a clear description of the choices for calculating baseline emissions. PDD only included the applicable parameters and the equations did not correspond to the guidance of ACM008 methodology. CAR 5: Please provide a clear description for every choice for calculation baseline emissions following the guidelines of Methodology ACM0008 version 07. Each omission or exclusion should be clearly stated why the choice is not applicable for project activity conditions.	CAR 5	OK
8.5	Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	Doc17 Doc28 Doc30	Yes, the formulae required for the determination of baseline emissions is correctly presented in the PDD, enabling a complete identification of parameters to be used/monitored = pending closure of CAR 4 Please refer to CAR 5 .	Not yet OK	OK
8.6	Are the applicable Tools and methods to calculate parameters correctly applied?	Doc17 Doc28	According to the PDD, low cost/must run resources in NWCPG constitute less than 50% of total grid generation and the proportion of low cost/must run in electricity generation in 2003, 2004, 2005, 2006, and 2007 is 18.77%, 21.21%, 25.36%, 24.71%, and 21.95%, respectively. Thus, simple OM calculation method is selected. However, no reference is provided for the above statement. CL 39: Please clarify the reference for determination of simple OM calculation selection. The grid power emissions factor is correctly calculated in line with the validated grid calculations published by the DNA of China. Since detailed data on electricity generation of each power plant / unit in the grid is currently not available in P. R. China, EB guidance on the estimation of the build margin in P.R. China can be applied for the purpose of defining the sample group to be included in the BM. In accordance with the guidance, the build margin consists of the set of power capacity additions in the electricity system that comprises 20% of the system generation capacity (in MW) and that have been built most recently. The BM emission factor is calculated based on the incrementally installed power capacity of thermal power generation sources (MW) in the grid in year y compared to that of year y-n, the aggregate incrementally installed power capacity of all kinds	CL 39	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			of power generation sources j (MW) in the grid in year y-n compared to that of year 2005-2007, and the emission factor of thermal power generation sources of the grid, assuming the efficiency level of the best commercially available technology in P. R. China, for the most recent historical year (y) for which power generation data is available. Data based of years 2005-2007 are the most recent three years of data available at the time of the validation. This is consistent to the Tool to calculate emission factor for an electricity system Version 2.2.1.		
8.7	Are the applicable parameters and equations correctly applied?	Doc17	Pending to CAR 5 .	Not yet OK	OK
	<i>Leakage:</i>				
8.8	Are all potential sources of leakage correctly identified for the applied Methodology?	Doc28	Per the ACM008 Version 07, leakage is identified based on the displacement of other baseline thermal energy uses of methane and other uncertainties (such as CBM drainage from outside the de-stressed zone, Impact of CDM project activity on coal production, and Impact of CDM project activity on coal prices and market dynamics). All potential sources are identified in the PDD. At the baseline scenario, all extracted CMM is ventilated. Hence, there is no prevention of CMM/CBM from being used to meet baseline thermal energy demand. Sufficient explanation is given to support that the leakage emission is 0.	OK	OK
8.9	Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	n/a	Not applicable	n/a	N/A
8.10	Are the applicable Tools and methods for calculating leakage correctly applied?	n/a	Not applicable	n/a	N/A
8.11	Are the applicable parameters and equations correctly applied?	n/a	Not applicable	n/a	N/A
	<i>Emissions Reductions:</i>				
8.12	Are the parameters and equations used to calculate emission reductions applicable? Are the applicable parameters and equations correctly applied?	Doc28 Doc30 Doc28	Pending to CAR 4, CAR 5 and CL 39 .	Not yet OK	OK
	Data and Parameters	PDD B.6.2			
8.13	Is the list of parameters presented in chapter B.6.2 of the PDD considered to be complete with regard to the requirements of the applied methodology?	Doc28 Doc30	All parameters have been verified against ACM008 version 07 and the Tool to Calculate Emission Factor for an Electricity System version 2.2.1. As indicated in CL 1 , whether the Project includes pre-mining CMM and post-mining CMM needs to be clarified.	CL 40 CL 41 Minor Issue 2	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>EF_{grid,CM,y} stated in Section B.6.2 of the PDD cannot be verified at the reference provided by the PDD.</p> <p>CL 40: Please clarify the reference for EF_{grid,CM,y}.</p> <p>Parameter Internal Power Consumption cannot be identified from ACM0008 version 07 or applicable tools. Parameter Efficiency of Advanced Thermal Power Plant Additions cannot be identified from ACM0008 version 07 or applicable tools.</p> <p>CL 41: Please clarify the Internal Power Consumption and Efficiency of Advanced Thermal Power Plant Additions.</p> <p>A Chinese character is found in Section B.6.2 of the PDD.</p> <p>Minor Issue 2: Please correct the Chinese character used in Section B.6.2 of the PDD.</p>		
8.14	<p>What evidence is available to validate the accuracy and appropriateness of assumptions, data and parameters used in the calculation of project emissions?</p> <p>Are the values used considered reasonable in the context of the proposed CDM project activity?</p>	<p>Doc01</p> <p>Doc28</p> <p>Doc29</p> <p>Doc30</p>	<p>The data used in the baseline emission calculation is based on the data presented in the FSR. All parameters and equations stated in the PDD have been verified by cross-checking data and equations published by the China NDRC stated in the <i>2009 Baseline Emission Factors for Regional Power Grid in China</i> and <i>Appendix 3: Baseline Information</i>.</p>	OK	OK
8.15	<p>For each parameter:</p> <ol style="list-style-type: none"> Title in line with Methodology? Data unit correctly expressed? Appropriate description? Source clearly referenced? (appropriate?) Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? 	<p>Doc17</p> <p>Doc27</p> <p>Doc28</p> <p>Doc29</p> <p>Doc30</p>	<p>Parameter 1: CEF_{NMHC}</p> <ol style="list-style-type: none"> Yes, the title is in line with ACM0008 version 07. Yes. The data unit is tCO₂/tNMHC, which is different from the methodology. Yes. Appropriate description is stated, which is the carbon emission factor for combusted non methane hydrocarbon. Yes. All sources are clearly referenced. Yes. Yes. All values have been verified against the applicable standard. Yes. Not applicable. <p>CAR 6: Please correct the data unit for CEF_{NMHC} in the PDD.</p>	<p>CAR 6</p> <p>CL 40</p> <p>CL 41</p> <p>CL 42</p> <p>CL 43</p>	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>Parameter 2: $EF_{grid, CM, y}$</p> <p>a. Yes, the title is inline with ACM0008 version 07.</p> <p>b. Yes. The data unit is correctly expressed.</p> <p>c. Yes. Appropriate description is stated, which is the combine margin emission factor of the grid.</p> <p>d. Please refer to CL 40.</p> <p>e. Please refer to CL 40.</p> <p>f. Please refer to CL 40.</p> <p>g. Please refer to CL 40.</p> <p>h. Not applicable.</p> <p>Parameter 3: $EF_{grid, OM, y}$</p> <p>a. Yes, the title is in line with ACM0008 version 07.</p> <p>b. Yes. The data unit is correctly expressed.</p> <p>c. Yes. Appropriate description is stated, which is the operating margin CO2 emission factor of the grid.</p> <p>d. Yes. All sources are clearly referenced.</p> <p>e. Yes. Correct values are provided, which is 1,0246 tCO2e/MWh according to the data published by Chinese DNA.</p> <p>f. Yes, this is published by Chinese DNA.</p> <p>g. Yes.</p> <p>h. Not applicable.</p> <p>Parameter 4: $EF_{grid, BM, y}$</p> <p>a. Yes, the title is in line with ACM0008 version 07.</p> <p>b. Yes. The data unit is correctly expressed.</p> <p>c. Yes. Appropriate description is stated, which is the build margin CO2 emission factor of the grid.</p> <p>d. Yes. All sources are clearly referenced.</p> <p>e. Yes. Correct values are provided in Annex 3 of the PDD.</p> <p>f. Yes, this is published by Chinese DNA.</p> <p>g. Yes.</p> <p>h. Not applicable.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>Parameter 5: $EG_{m,y}$, EG_y, $EG_{i,y}$, $EG_{k,y}$ and $EG_{n,h}$</p> <p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. Yes. Appropriate description is stated, which is the net power supplied to the grid by power plants of NWCPG in year y or hour h. d. Yes. All sources are clearly referenced. e. Yes, correct value is provided from China Electric Power Yearbook. f. Yes, as per China Electric Power Yearbook. g. Yes. h. Not applicable.</p> <p>Parameter 6: $GEN_{i,y}$</p> <p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. Yes. Appropriate description is stated, which is the provincial level power generation data by NWCPG. d. Yes. All sources are clearly referenced. e. Yes, correct values are provide, which are 125,496,682 MWh for 2005, 156,142,241 MWh for 2006 and 178,920,940 MWh for 2007. f. Yes, as per China Electric Power Yearbook. g. Yes. h. Not applicable.</p> <p>Parameter 7: Internal Power Consumption</p> <p>Pending to CL 41.</p> <p>Parameter 8: $FC_{i,m,y}$, $FC_{i,y}$, $FC_{i,j,y}$, $FC_{i,k,y}$, $FC_{i,n,y}$ and $FC_{i,n,h}$</p> <p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. Yes. Appropriate description is stated, which is the amount of fossil fuel</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>type I consumed by power plants in NWCPG in year y or hour h.</p> <p>d. Yes. All sources are clearly referenced, which is the China Electric Power Yearbook.</p> <p>e. Yes. Correct values are provided in the Annex 3 of the PDD.</p> <p>f. the PDD does not indicate which years' data the parameter is referenced to.</p> <p>g. Yes. The data is based on the China Electric Power Yearbook.</p> <p>h. Not applicable.</p> <p>Parameter 9: Total Installed Capacity of Power Plants</p> <p>a. Yes, the title is in line with ACM0008 version 07.</p> <p>b. Yes. The data unit is correctly expressed.</p> <p>c. Yes. Appropriate description is stated, which is the total installed capacity of power plants in NWCPG in year 2005, 2006, and 2007.</p> <p>d. Yes. All sources are clearly referenced, which is China Electric Power Yearbook.</p> <p>e. Yes. Correct values are provided in the Annex 3 of the PDD.</p> <p>f. Yes, as per China Electric Power Yearbook.</p> <p>g. Yes. The data is based on the China Electric Power Yearbook.</p> <p>h. Not applicable.</p> <p>Parameter 10: Primary Fuel Input for Thermal Power Supply</p> <p>a. Yes, the title is in line with ACM0008 version 07.</p> <p>b. Yes. The data unit is correctly expressed.</p> <p>c. Yes. Appropriate description is stated, which is the physical amount of fuel input for 17 different fuels.</p> <p>d. Yes. All sources are clearly referenced.</p> <p>e. Yes. Correct values are provided in the Annex 3 of the PDD.</p> <p>f. Yes, as per China Electric Power Yearbook.</p> <p>g. Yes. The data is based on the China Electric Power Yearbook.</p> <p>h. Not applicable.</p> <p>Parameter 11: NCV_{i,y}</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. Yes. Appropriate description is stated, which is the net calorific value (by fuel). d. Yes. All sources are clearly referenced. e. Yes. Correct values are provided in the Annex 3 of the PDD. f. Yes, as per China Electric Power Yearbook. g. Yes. The data is based on the China Electric Power Yearbook. h. Not applicable</p> <p>Parameter 12: OXIDi</p> <p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. The description is not clear in the PDD. d. Yes. All sources are clearly referenced. e. Yes. Correct values are provided in the Annex 3 of the PDD. f. Yes, as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories. g. Yes. The data is based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories. h. Not applicable</p> <p>CL 42: Please clarify the description for OXIDi in Section B.6.2 of the PDD.</p> <p>Parameter 13: $EF_{CO_2,i,y}$ and $EF_{CO_2,m,i,y}$</p> <p>a. Yes, the title is in line with ACM0008 version 07. b. Yes. The data unit is correctly expressed. c. Yes. Appropriate description is stated for $EF_{CO_2,i,y}$, which is the CO₂ emission factor of fossil fuel type I used in power unit year y. However, no clear description is provided for $EF_{CO_2,m,i,y}$. d. Yes. All sources are clearly referenced. e. Yes. Correct values are provided in the Annex 3 of the PDD.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>f. Yes, as per IPCC default value.</p> <p>g. Yes. The data is based on IPCC default value.</p> <p>h. Not applicable</p> <p>CL 43: Please clarify the description for $EF_{CO_2,m,i,y}$ in Section B.6.2 of the PDD.</p> <p>Parameter 14: Efficiency of Advanced Thermal Power Plant Additions</p> <p>Please refer to CL 41.</p>		
8.16	Will the data and parameters result in a conservative estimate of emissions reductions?		Pending to close CL 41	Not yet OK	OK
	Ex-ante calculation of emission reductions	PDD B.6.3			
8.17	Is the projection based on the same procedures as used for future monitoring?	Doc17	Pending to close CL 41	Not yet OK	OK
8.18	Are the GHG calculations documented in a complete and transparent manner?	Doc15	<p>Majority of the calculations are documented except the CL listed above. This has been verified against the data used for the calculation.</p> <p>In Section B.6.3, it is mentioned that 32,651 MWh net power will be supplied to the grid, and 8,471 tonnes of CH₄ will be consumed yearly. This is not consistent with other sections of the PDD.</p> <p>CL 44: Please clarify the net power supply and annual CH₄ consumption in Section B.6.3 of the PDD.</p>	CL 44	OK
8.19	Are detailed calculations provided in a traceable spreadsheet showing relevant information?	Doc15	<p>Yes, a traceable spreadsheet is provided for DOE's review, and has been verified.</p> <p>However, no BM and OM calculation for electricity displaced from the grid supply is included in the emission reduction calculation spreadsheet.</p> <p>CAR 7: Please include BM and OM calculation in the emission reduction calculation spreadsheet</p>	CAR 7	OK
8.20	Can the calculation of baseline emissions be replicated using the data and parameters supplied in the PDD?	Doc15	Yes. This has been verified using the data provided.	OK	OK
8.21	Is the data provided in this section consistent with data	Doc15	Yes. The data presented in this section consistent with data are presented	Not yet OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	as presented in other chapters of the PDD?		in other chapters of the PDD, except for the Annual Power Supply to be further clarified as per CL 33 .		
	Summary of ex-ante estimation of emission reductions	PDD B.6.4			
8.22	Is the form/ table required for the indication of projected emission reductions correctly applied? And is the data provided in this section consistent with data as presented in other chapters of the PDD?	Doc17	Yes. This has been verified by checking the other chapters of the PDD.	OK	OK
8.23	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	Doc17	Yes. This has been cross-checked. At the time of the site visit, majorities of the equipment for the project, i.e. generators and engines, had been installed and in operation. Hence, there would not be foreseeable delay.	OK	OK
9.	Monitoring Plan	PDD B.7			
	<i>(a) Compliance of the MP with the methodology</i>				
9.1	Are all necessary parameters required for the type of project by the methodology and applicable tools contained in the monitoring plan?	Doc17 Doc28 Doc30	Yes, this has been verified by cross-checking the PDD against the methodology and the <i>Tool to Calculate Emission Factor for an Electricity System</i> version 2.2.1, in accordance with ACM0008 version 07.	OK	OK
9.2	For each parameter, is the: <ul style="list-style-type: none"> a. Title in line with methodology? b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for estimation? f. Has this value been verified? g. Measurement method correctly described? h. Correct reference to standards? i. Indication of accuracy provided? j. QA/QC procedures described? k. QA/QC procedures appropriate? 	Doc17 Doc28 Doc30	Parameter (1): MM_{ELEC} a. Yes. The title is in line with the methodology. This has been cross-checked against the methodology, ACM0008 version 07 b. Yes. The data unit is tCH ₄ , which is correct. c. Yes. The parameter was appropriately described, which is the methane measured delivered to the power plant. d. Yes. The source was clearly referenced. However, the calculation equation/reference is not provided in the PDD. e. Yes. The value is 6,706 tonnes/year, which is correct according to the ER calculation spreadsheet. f. Yes. The value is consistent with the data presented in other chapters of the PDD, except for CL 44 to be clarified. g. Yes. the measurement methods is correctly described. This has been verified against the monitoring manual. h. The standards are not specified. Refer to CL 46 below. i. No indication of accuracy is provided. Refer to CL 46 below. j. Yes. QA/QC procedure is consistent with the Chinese relevant industry standards. k. Yes. QA/QC procedure is appropriate.	CL 45 CL 46 Minor Issue 3	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>CL 45: Please clarify the calculation equation/reference of estimated MM_{ELEC} in B.6.3 of the PDD.</p> <p>Parameter (2): PC_{CH4}</p> <p>a. Yes. The title is in line with the methodology. This has been cross-checked against the methodology, ACM0008 version 07.</p> <p>b. Yes. The data unit is %, which is correct.</p> <p>c. Yes. The parameter was appropriately described, which is the concentration (in mass) in extracted gas (%), measured on wet basis</p> <p>d. No data source is provided in this section of the PDD. .</p> <p>e. Yes. The FSR indicates a pure methane quantity, which won't be used in expected emission reductions calculation.</p> <p>f. Yes. The value is consistent with the data presented in other chapters of the PDD.</p> <p>g. Yes. The measurement method is correctly described. This has been verified against the monitoring manual.</p> <p>h. The standards are not specified.</p> <p>i. Yes. The uncertainty level of the data is considered to be low.</p> <p>j. Yes. QA/QC procedure is consistent with relevant industry standards</p> <p>k. Yes. The QA/QC procedure is considered as appropriate.</p> <p>Parameter (3): PC_{NMHC}</p> <p>a. Yes. The title is in line with the methodology. This has been cross-checked against the methodology, ACM0008 version 07.</p> <p>b. Yes. The data unit is %, which is correct.</p> <p>c. Yes. The parameter was appropriately described, which is NMHC concentration (in mass) in extracted gas.</p> <p>d. Yes, correct data source is referred.</p> <p>e. Yes. The value is <1%. However, no reference is provided in this section of the PDD.</p> <p>f. Yes. The value is consistent with the data presented in other chapters of the PDD.</p> <p>g. Yes. The measurement method is correctly described. This has been verified against the monitoring manual.</p> <p>h. The standards are not specified.</p> <p>i. Yes. The uncertainty level of the data is considered to be low.</p> <p>j. Yes. QA/QC procedure is not applicable.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>k. Yes. The QA/QC procedure is not applicable.</p> <p>Parameter (4): CON_{ELEC,PJ}</p> <p>a. Yes. The title is in line with the methodology. This has been cross-checked against the methodology, ACM0008 version 07.</p> <p>b. Yes. The data unit is MWh, which is correct.</p> <p>c. Yes. The parameter was appropriately described, which is additional electricity consumption for capture or destruction of methane, if any.</p> <p>d. Yes, correct data source is referred.</p> <p>e. Yes, the value is 0.</p> <p>f. No. This value cannot be verified.</p> <p>g. Yes. The measurement method is correctly described. This has been verified against the monitoring manual.</p> <p>h. The standards are not specified.</p> <p>i. Yes. The uncertainty level of the data is considered to be low.</p> <p>j. Yes. QA/QC procedure is not applicable.</p> <p>k. Yes. The QA/QC procedure is not applicable.</p> <p>Parameter (5): GEN_y</p> <p>a. Yes. The title is inline with the methodology. This has been cross-checked against the methodology, ACM0008 version 07.</p> <p>b. Yes. The data unit is MWh, which is correct.</p> <p>c. Yes. The parameter was appropriately described, which is electricity supplied to the grid by the Project.</p> <p>d. Yes, correct data source is referred.</p> <p>e. The calculated value is 27,805 MWh as stated in the PDD and the emission reduction spreadsheet.</p> <p>f. The same value is presented in other chapters of the PDD, except CL 33 to be closed.</p> <p>g. The PDD states that the parameter will be monitored through electrically logged or manually logged continuously.</p> <p>h. Yes. The industrial standard is correctly referenced.</p> <p>i. Yes. The uncertainty level of the data is considered to be low.</p> <p>j. Yes. QA/QC procedure is consistent with relevant industry standards and practices.</p> <p>k. Yes. The QA/QC procedure is considered as appropriate.</p>		

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			<p>Parameter (6): $MM_{ELEC,k}$</p> <p>a. Yes. The title is inline with the methodology. This has been cross-checked against the methodology, ACM0008 version 07.</p> <p>b. Yes. The data unit is tCH₄, which is correct.</p> <p>c. Yes. The parameter was appropriately described, which is methane measured delivered to power plant for day k in year y.</p> <p>d. Yes, correct data source is referred.</p> <p>e. No value is estimated in the PDD.</p> <p>f. Not applicable.</p> <p>g. Yes. The measurement method is correctly described. This has been verified against the monitoring manual.</p> <p>h. The standards are not specified. Refer to CL 46 below.</p> <p>i. No indication of accuracy is provided. Refer to CL 46 below.</p> <p>j. Yes. QA/QC procedure is consistent with the Chinese relevant industry standards.</p> <p>k. Yes. QA/QC procedure is appropriate.</p> <p>CL 46: Accuracy, monitoring, maintenance and calibration frequency needs to be specified for each parameter. Relevant national/industry standards also need to be specified for applicable parameters. In addition, The PDD should please specify what type(s) of meter(s) comprise the measuring system.</p> <p>Minor Issue 3: Please correct the spacing problem for page numbers since Page 39 in the PDD.</p>		
9.3	Do all means/ methods of monitoring described in the plan comply with the requirements of the methodology?	Doc28	The means/methods of monitoring have been verified against the methodology, ACM0008 version 07, are pending to CL 46 .	Not yet OK	OK
	<i>(b) Implementation of the MP</i>				
9.4	Are the arrangements described in the plan feasible and practical within the project design? How has this been verified (review procedures, interviews, project plans, and physical inspection)?	Doc17	<p>Monitoring plan for the project was identified at Section B.7.2 of the PDD.</p> <p>The training plan and training records for the Project [Doc 10] have been provided for review to verify the training conducted. However, details about the data collection, storage and QA/QC procedures are not provided in the PDD.</p>	CL 47	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			CL 47: (1) Please clarify the monitoring plan stated in Section B.7.2 of the PDD, which is currently described as a hydropower project. (2) Please provide details about data collection, storage, QA/QC and archiving procedures in the PDD.		
9.5	Is the operational and management structure clearly described and in compliance with the envisioned situation? Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	Doc17	Yes. An organizational chart is clearly presented in the PDD, which individual's roles/ responsibilities clearly identified.	OK	OK
9.6	Is necessary equipment in place or readily available? Are calibration requirements feasible?	Doc17	Yes. Power meters and methane monitoring system (concentration, flow, pressure and temperature) would be installed for the project activity, which are type of readily available equipment in China. Meter maintenance and calibration are not clearly described in the PDD. See CL 46 above in Section 9.2.	CL 46	OK
9.7	Does the monitoring plan provide current good monitoring practice?	SV	Yes. The PP will involve the suppliers and governmental agencies to train/certify its staff, technicians and operators. Please refer to CL 47 .	CL 47	OK
9.8	If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	n/a	Not applicable	n/a	N/A
9.9	Are the means of implementation of the monitoring plan, including data management and QA/ QC procedures, sufficient to ensure that the emission reductions achieved can be reported ex-post and verified?	Doc17	Yes. Detailed monitoring and QA/QC procedures stated in the monitoring plan are sufficient to ensure that the emission reductions achieved can be reported ex-post and verified, except CL 46 and CL 47 to be closed.	OK	OK
9.10	In the DOE's opinion, is the project participant able to implement the monitoring plan?	SV	Yes. The PP is able to implement the monitoring plan, which can be justified by the on site interviews.	OK	OK
10.	Sustainable Development				
10.1	Does the Letter of Approval from the Host Party confirm that the project activity contributes to the sustainable development of that country?	Doc05	Yes. A Letter of Approval has been provided by the China National Development Reform Commission (NDRC) on 30 September 2010. The letter confirms that the Project complies with the permission requirements provided for in the Measures for Operation and Management of CDM	OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
			projects in China, and assists China in achieving sustainable development.		
11.	Environmental Impacts	PDD D.			
11.1	Has an analysis of the environmental impacts of the project activity been undertaken? How is this evidenced?	Doc04 Doc03	Yes. An EIA Form for the Project was prepared by Lanzhou Coal Mine Design Institute and a subsequent approval was issued by Baiyin Municipal Environmental Protection Bureau (EPB) on 23 June 2008. The copies of the EIA Form and the approval were available for review and have been verified.	OK	OK
11.2	In accordance with the laws and regulations in the Host Country, does this project require an EIA? Has an EIA been conducted for this project? Is this EIA valid for the current project? Has this EIA been approved? How has this been verified?	Doc03 Doc04	Yes. As stated above in 11.1, an EIA Form for the project was prepared, and a subsequent approval was issued by Baiyin Municipal EPB.	OK	OK
11.3	Does the environmental analysis undertaken and presented for the project activity include an analysis of transboundary impacts? Are any transboundary impacts likely?	SV Doc01 Doc03	There are no international transboundary impacts associated with the Project.	OK	OK
11.4	Did the audit team observe any additional significant negative impacts on site not covered in the EIA?	SV	No. No other significant negative impacts were observed during the site visit in comparison with the environmental impacts stated in the EIA Form. This has been verified during the site visit. Minor Issue 4: Please correct "excavation" stated in the EIA summary section D.1 of the PDD.	Minor Issue 4	OK
11.5	Is the analysis in the PDD fully consistent with the findings of the EIA? Are all significant impacts and mitigation measures identified in the EIA mentioned in the PDD?	Doc03 Doc04	Yes. The environmental impact analysis section in the PDD was generally in consistent with the EIA Form.	OK	OK
11.6	Does the analysis conclude that the project will create any unacceptable adverse environmental impacts?	Doc03 Doc04 SV	No, the Project will not create unacceptable adverse environmental impacts. This has been verified by reviewing the EIA Form and its approval, which conclude the environmental impacts resulted by the Project are considered as relatively insignificant. In addition, no significant environmental impacts were identified during the site visit.	OK	OK
12.	Local Stakeholder Consultation	PDD E.			
12.1	Have comments from relevant stakeholders been invited prior to the publication of the PDD on the UNFCCC website?	Doc17 Doc19	Yes. A stakeholder consultation survey was carried out by the PP in March and April 2009. 60 questionnaires were distributed, and 60 copies were collected for the survey. The representatives include the local residents and employees at the coal mines.	OK	OK

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	Checklist Question	Reference	Comment	Draft Conclusion	Final Conclusion
	How has this been verified?		All the 60 filled questionnaires were available for the DOE's review.		
12.2	Have all relevant local stakeholders been invited? How has this been assessed?: a. Have appropriate media been used to invite comments by local stakeholders? b. Have all stakeholder groups has access to information? c. Have all stakeholder groups had a reasonable chance to comment?	Doc17 Doc19	Yes. a. Yes. One round of stakeholder consultations were conducted for the project, 60 copies of questionnaires were sent to local stakeholders in March and April 2009 for public consultation (60 copies were collected). b. Yes. The stakeholder consultations included affected local residents and workers at the associated coal mines. c. Yes. All stakeholder groups had a reasonable chance to comment on the Project and their opinions were included in the questionnaires.	OK	OK
12.3	Is the summary of comments received as provided in the PDD complete? (what has been done to check this i.e. Document review etc)	Doc17 Doc19	Yes. The PDD includes a summary of the public consultation. However, only 59 responses are stated in the summary for economic development area, which is different from the total 60 returned questionnaires. CL 48: Please clarify the 59 responses to economic development area in Section E.2 of the PDD.	CL 48	OK
12.4	Has due account been taken of any stakeholder comments received and is this adequately and clearly described in the PDD?	Doc17 Doc19	Responses by the PP in reaction to the stakeholder comments in the PDD are not consistent with the comments in the summary of received comments. CL 49: Please clarify the responses by the PP in reaction to the stakeholder comments in Section E.3 of the PDD.	CL 49	OK
12.5	In the DOE's opinion, is the local stakeholder consultation process that has been conducted adequate?	Doc19	Yes. The public consultation process, which included social assessment, for the Project is in consistent with the common practice for public consultation in China.	OK	OK

Appendix C: REMEDIATION FORM

Corrective Action Requests (CARs), Clarification Requests (CLs), Forward Action Requests (FARs) and Minor Issues

Corrective action requests	Reference to checklist question	Summary of project participants' response	Final conclusion
CAR 1: Please provide the LoA from Annex I Party.	5.4	Please refer to "Evi_CAR_1"	<p>A Letter of Approval issued by the China National Development Reform Commission (NDRC) [Doc 05], which is the DNA of China, on 30 September 2010 was provided.</p> <p>A Letter of Approval issued by the Department of Energy and Climate Change [Doc 48], which is the UK DNA on 7 Dec 2010 was provided.</p> <p>ERM CVS validated the authenticity of the both LoAs by checking the DNA's websites.</p> <p>CAR 1 is closed.</p>
CAR 2: NMHC is not included in the Project boundary, however it is a potential source of emission. Please correct the PDD.	6.3	Revised accordingly in the PDD.	<p>The PDD has been revised and now NMHC (if more than 1%) has been included in the Project boundary as potential source of emission, which is consistent with the methodology.</p> <p>CAR 2 is closed.</p>
CAR 3: Please update the correct version of the National Coalmine Safety Regulation in the PDD.	6.11	The version info has been revised in the PDD.	<p>The National Coalmine Safety Regulation referred in the PDD has been updated to the 2010 version [Doc 32].</p> <p>CAR 3 is closed.</p>
CAR 4: Please provide a clear description for every choice for calculation project emissions following the guidelines of Methodology ACM0008 version 07. Each omission or exclusion should be clearly stated why the choice is not applicable for project activity conditions.	8.2	Revised accordingly in the PDD.	<p>OK. The PDD has been revised, and all the project emission calculations referred by the methodology ACM0008 version 07 has currently been considered. According to the FSR [Doc 01], the Project Owner and ERM CVS's site visit, the CMM transportation system will not consume electricity given the system pressure is produced by the extraction system, which is established in the Project baseline. The cleaning system is part of the gas generator sets, and there are no compression system installed for this Project. Thus, no additional electricity will be consumed by the Project for transportation, cleaning and compression. Please see section 3.7 of the validation report for details of how the emission reduction calculations were validated.</p>

			CAR4 is closed.
CAR 5: Please provide a clear description for every choice for calculation baseline emissions following the guidelines of Methodology ACM0008 version 07. Each omission or exclusion should be clearly stated why the choice is not applicable for project activity conditions.	8.4	Revised accordingly in the PDD.	<p>Every choice for calculating baseline emission have been revised in the PDD and confirmed to be consistent with the methodology. In addition, the data used for calculation of emission factors (operating margin, build margin and combined margin) are in accordance with the official data published by the China DNA. The calculation of operating margin, build margin and combined margin is congruent with the methodology and the <i>tool to calculate the emission factor for an electricity system</i>. Please see section 3.7 of the validation report for details of how the emission reduction calculations were validated.</p> <p>CAR 5 is closed.</p>
CAR 6: Please correct the data unit for CEF _{NMHC} in the PDD.	8.15	Revised accordingly in the PDD.	<p>The data unit of CEF_{NMHC} has been updated to tCO₂/tNMHC as per ACM0008 version 07.</p> <p>CAR 6 is closed.</p>
CAR 7: Please include BM and OM calculation in the emission reduction calculation spreadsheet	8.19	The BM and OM calculation has been added to the ER calculation spreadsheet and provided to ERM. Please refer to "ER_Jieneng_with EF.xls".	<p>OK. A traceable calculation sheet for BM and OM has been provided for review. Please see section 3.7 of the validation report for details of how the emission reduction calculations were validated.</p> <p>CAR 7 is closed.</p>

Clarification requests	Reference to checklist question	Summary of project participants' response	Final conclusion
<p>CL 1: Please further clarify the following information in section A.2. in the PDD:</p> <p>(1) Please clarify the relationship among the Jing Coal Group, the Jingyuan Coal Group and the PP (Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd)?</p> <p>(2) Please clearly define what low concentration CMM is referred to in this project and whether pre-mining and/or post-mining CMM are utilized in this project.</p> <p>(3) In the PDD, it is not clearly mentioned whether the methane utilization of 6,328 tonnes is the annual quantity or not. Please clarify. In addition, the calculation for this 6,328 tonnes is not clear in the PDD or calculation spreadsheet, please clarify. Particularly, it is unclear about the number '0.3145' used in the calculation for total methane used.</p> <p>(4) In the PDD, it is mentioned that the high concentration (above 30%) CMM utilization project has been abandoned. In addition, it is mentioned that the coal mine methane under 30% in these two mines is vented into the atmosphere unused. Please clarify what is the treatment approach for high concentration CMM (above 30%) at these two mines currently.</p> <p>(5) Please clarify the ages, lifetime and current operating status (such as current annual output and annual output in the past three years) of the two coal mines.</p> <p>(6) Please clarify the "ton" used in the PDD is "metric ton" or "short ton".</p> <p>(7) Clarify power generated by the project activity can be fully utilized by the Jingyuan Coal Group.</p> <p>(8) Provide details about the retrofit that the extraction system underwent between 2006 and early 2008, with details about the related technical details, the CMM utilization activity prior to the retrofit, the equipment and the facilities installed during the retrofit, and the equipment and the facilities that were abandoned after the retrofit</p>	3.1	<p>(1) Jing Coal Group is the shortened name of Jingyuan Coal Group. The PDD has been revised that "Jingyuan Coal Group" is used in the whole text. The "Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd" is a wholly-owned subsidiary of Jingyuan Coal Group.</p> <p>(2) The definition and statement have been added to the PDD.</p> <p>(3) The PDD and calculation sheet have been revised with the value of $0.3333 \text{ m}^3/\text{KWh}$ in the FSR. Please refer to page 22 to 23 of the FSR. From the FSR, the annual CMM consumption of Dashuitou is 4,550,000 $\text{m}^3/13,650,000 \text{ KWh}$ (annual power generation) = $0.3333 \text{ m}^3/\text{KWh}$. For Weijiadi, $5,460,000 \text{ m}^3/16,380,000 \text{ KWh} = 0.3333 \text{ m}^3/\text{KWh}$.</p> <p>Please refer to "ER_Jieneng_110301.xls".</p> <p>(4) The coal mine once had high concentration CMM. However, the underground CMM extraction system of the coal mine has been retrofitted that one inlet was opened at the upper corner to enhance the mining safety. This largely impacts the concentration of the CMM that no high concentration CMM is available after the retrofit.</p> <p>(5) The info has been added to the PDD. The lifetime of the coal mines is added to section A.4.3. The remaining lifetime of the coal mines is indicated on page 2 in the FSR. The remaining service year of Weijiadi Mine is 105 years; and that of Dashuitou Mine is 43 years (96.18 million tonnes of coal reservation/ 2.2 million t/y capacity). Therefore, the remaining service years of both coal mines are much longer than 11 years of project lifetime. The annual output of coal is provided as "Evi_CL_1.5".</p> <p>(6) Metric ton. The PDD has been checked and revised.</p> <p>(7) Historical power consumption at Jingyuan Coal Group is provided as evidence.</p> <p>(8) Related evidence is provided, including technical details about the retrofit, prior CMM utilization, abandonment of the prior system, equipment installed during the retrofit.</p>	<p>(1) OK. The PDD has been revised, and Jingyuan Coal Group is used consistently in the PDD. The relationship between Jingyuan Coal Group and Jingyuan Coal Group Baiyin Jieneng Thermoelectricity Co Ltd is clear now.</p> <p>(2) OK. Definition for low concentration CMM has been provided in the PDD now. The definition has been crossed check with the reference provided, Emission Standard of Coalbed Methane/ Coal Mine Gas (on trial)" [Doc 52], which has been published by the Ministry of Environmental Protection & General Administration of Quality Supervision, Inspection and Quarantine on 2 April 2008. Both pre and post mining CMM are utilized in the project. The two coal mines only have one CMM extraction system combining pre mining and post mining activities. As a result, pre mining CMM and post mining CMM cannot be separated.</p> <p>(3) The PDD has been revised, and it is clear now 6,706 tonnes/year of methane is used. The annual CMM consumption per annual power generation is $0.333 \text{ m}^3/\text{KWh}$ for both mines. This has been validated against the FSR.</p> <p>(4) OK. The PDD has been revised and it is clear that high concentration CMM project was abandoned in 2008 because the underground system was retrofitted and the concentration of methane in the CMM become lower than 30%. This could be validated with the FSR [Doc 01], with ERM's sectoral experience, as well as selected gas analysis reports provided by the PP (from 2009-2011) [Doc 53]</p> <p>(5) The remaining lifetime for the coal mines are updated into the PDD and can be verified by the FSR [Doc 01], the mining license [Doc 12] and the current production outputs</p> <p>(6) OK. The PDD has been updated.</p> <p>(7) OK. A letter [Doc61] issued by</p>

			<p>Baiyin City Power Supply Co Ltd regarding the annual power consumption from 2006 to 2010 for Jingyuan Coal Group. Information has been added in the revised PDD.</p> <p>(8) OK. Information [Doc 138, 139] about technical specification for the retrofit was provided and verified.</p> <p>CL1 is closed.</p>
CL 2: Please clarify the coordinates of the project.	4.1	Revised accordingly in the PDD.	<p>OK. The PDD has been revised and correct coordinates have been provided. The location was validated during the site visit.</p> <p>CL 2 is closed.</p>
CL 3: Please provide basic details of the mines in the PDD as per the Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodologies (CDM-NM).	4.3	The info has been added to the PDD.	<p>Basic details of the mines have been provided in the PDD now, and have been validated against the FSR and by means of the site visit. For further details of how this was validated, please refer to section 3.3 of the validation report.</p> <p>CL 3 is closed.</p>
<p>CL 4 : (1) In the PDD, please state the safety measures implemented for transferring low concentration CMM.</p> <p>(2) Please state the supplier for the gas engine and generators in the PDD.</p> <p>(3) Please include the concentration of CMM during project activity and provide a detailed description of the utilization or not of pre-mining and post-mining CMM.</p> <p>(4) Please clarify Figure A.2, especially about the CMM gas income, output to NWCPG, destination of waste heat (from the waste heat boiler) and storage tank.</p> <p>(5) Please include lifetime of the Project and lifetime of the gas engine.</p> <p>(6) Please clarify the monitoring system (including equipment and location) in section A.4.3 of the PDD. (and include in the figure)</p> <p>(7) Clarify how the net electricity delivered to the NWCPG is calculated based on the total electricity generated and the net delivery to the NWCPG and indicate the load factor for power generation units.</p> <p>(8) Please separate and clearly describe the main technical specifications for gas engines and power generators in Table A.2.</p>	4.5	<p>(1) The low-concentration methane transport system has been approved by the State Administration of Work Safety in Dec 2005. Please refer to "Evi_CL_4.1".</p> <p>(2) The info has been added to the PDD.</p> <p>(3) The info has been added to the PDD. The gas analysis report is provided as "Evi_CL_4.3".</p> <p>(4) Fig A.2 has been revised according to the requirements.</p> <p>(5) The info has been added to the PDD. The lifetime of the engine is mentioned in the PDD, and the evidence is provided to DOE as "Evi_CL_4.5".</p> <p>(6) The info has been added to the PDD.</p> <p>(7) The generated electricity is delivered to the internal grid of the two mines. The annual electricity consumption of the coal mines is at least 5 times the annual power generation ability of the proposed project. Therefore, all the generated power can be consumed by the coal mines internally. Once the power generating plant stops, the coal mines can get electricity from NWCPG via the internal power grid.</p> <p>(8) The technical specifications for gas engines and power generators cannot be separated</p>	<p>(1) The safety measures implemented for transferring low concentration CMM have been described in the PDD. The Project passed the Completion Acceptance Inspection by the inspection panels on 26 December 2008, which included personnel from the construction company, the gas generator supplier, the construction supervision company and the Project Owner. The gas generator model and the low-concentration CMM transportation system design were approved by the State Administration of Work Safety in 2005 [Doc 101 and 102].</p> <p>(2) OK. The supplier of the gas engine and generators has been added into the PDD, the information of which is consistent with the equipment purchase contract dated 2 Jun 2008 [Doc 20].</p> <p>(3) The concentration of CMM to be utilized in the Project has been provided in the PDD. A gas analytical report dated 24 June 2010, issued by Geochemistry Department, Lanzhou Institute of Geology, Chinese Academy of Sciences was provided. According to the report, the CMM concentrations for Dashuitou and Weijiadi coal mines are 10.85% and 7.54%, respectively [Doc 08].</p>

		<p>because it is the same as it indicated in the user's manual. User's manual is provided to DOE as "Evi_CL_4.8". The technical specification is removed from the PDD because it is not related to emission reduction counting.</p>	<p>A description of the utilization of pre-and post mining CMM was added to the PDD. For details of how the project description was validated, please refer to section 3.3 of the validation report.</p> <p>(4) Figure A.2 has been revised correctly. The diagram was validated to be in line with the project description as per the FSR and site visit observations.</p> <p>(5) Lifetime of the Project and gas engine is included in the PDD, which is supported by a certification letter issued by the gas engine supplier and approved FSR [Doc 01 and 64].</p> <p>(6) OK. Monitoring equipment and location have been provided in Figure A.2 of the PDD. The information was validated by means of the site visit.</p> <p>(7) All electricity is delivered to the mines themselves. The annual electricity consumption of Jingyuan Coal Group's coal mines is greater than the annual power generation ability of the proposed project. The generated electricity is delivered to internal grid and will be consumed by the Jingyuan Coal Group at the two mines (to replace the electricity to be imported from the NWCPG). No electricity supply to the NWCPG will be performed by the project.</p> <p>The project annual operating hours are 6,500 hrs, thus, the load factor is $6,500/8,760 = 74.2\%$. This information was validated against the approved third party FSR.</p> <p>(8) Ok. The descriptions for gas engines and generators have been provided in the PDD, which has been validated against the gas engine technical specification imbedded in the gas engine purchasing contract [Doc 20] dated 2 June 2008.</p> <p>CL4 is closed.</p>
<p>CL 5: Please clarify whether the employed technology is using state of the art technology or presents significantly better performance compared with commonly used technologies.</p>	4.8	<p>The info has been added to the PDD. The low-concentration methane transport system was approved by the State Administration of Work Safety in December 2005.</p>	<p>OK. Descriptions about the gas engine/generator supplied and the generators have been provided in the PDD. The approval for the low-concentration methane transportation system's approval [Doc 50] was reviewed and it is considered to be state of art</p>

			technology based on ERM CVS's local and sectoral knowledge. CL5 is closed.
CL 6: Please provide details of planned training in the PDD and include relevant information in Section A.4.3 of the PDD.	4.10	The info has been added to the PDD.	OK. Training plans have been included in the PDD. The provisions for training are considered to be sufficient to ensure that emission reductions can be monitored ex-post. CL6 is closed.
CL 7: Please provide evidence that no public funding is used in the Project	4.12	Please refer to the "Evi_CL_7", which is provided to ERM.	OK. A letter issued by the Gansu Tianxingjian Accounting Firm Co Ltd on 21 January 2011 [Doc 131] confirmed that the Project has not used public funding. CL 7 is closed.
CL 8: Please clarify in the PDD that if CMM does not meet the technical requirements of the implemented technology (i.e. supplied CMM at concentrations lower than 5%), whether it will be utilized or ventilated to the atmosphere without utilization.	6.4	CMM is extracted and detected before it is sent to the proposed project. Any CMM with methane concentration below 8%, the lower limit of methane concentration which can be utilized by the gas engine, will be vented in advance. By doing this, all the CMM captured by the project is used. The CMM concentration analysis report has been mentioned in the PDD.	The PDD has been updated and reflecting that CMM at a methane concentration lower than 8% will still be vented. This information was validated against the FSR. CL8 is closed.
CL 9: (1) Please clarify whether equipment for utilization of CMM is in the spatial extent of the Project boundary. (2) Please clarify whether compression and storage of CMM are performed on-site.	6.6	(1) The clarification has been added to the PDD. (2) The compression equipment at the bump station is included in the project boundary now. For safety reasons, low concentration CMM is used directly without storage in the project.	(1) OK. The PDD has been updated, and equipment for utilization of the CMM is included in the spatial extent of the Project boundary. This is in line with the applied methodology. (2) OK. It is clear now no storage of CMM is included in the Project, and compression at the power plant is in the Project boundary. This has been confirmed against the FSR. CL 9 is closed.
CL 10: (1) Please clarify the reference of data in Figure B.1. (2) Please clarify the coloured lines in Figure B.1. (3) Please separate the two coal mines in Figure B.1 and provide a clear schematic of the project arrangements. (4) Please clarify NWCPG in Figure B.1.	6.9	(1)The data are estimated ones. In order to be more accurate, data would not be indicated in the revised figure B.1. (2,3,4)Figure B.1 is revised according to the requirements.	(1) OK. No data is included in Figure B.1. (2) OK. The coloured lines in Figure B.1 are clear now. (3) OK. The two coal mines are separated, and project arrangements are clear now. (4) OK. NWCPG is Figure B.1 has been updated. CL 10 is closed.
CL 11: Please clarify in the PDD whether all baseline options are technically feasible.	6.11	The PDD states that all options are technically feasible.	OK. All the options are technically feasible, but some alternatives are ruled out on the basis of

			preventative barriers or because they are not realistic and credible. CL 11 is closed.
CL 12: Please clarify the combination of option i and option iv is the proposed project activity not implemented as a CDM project.	6.11	Typing errors. Deleted.	OK. The PDD has been updated. CL 12 is closed.
CL 13: Please clarify using CMM as vehicle fuel and heating purposes in this section of the PDD.	6.11	The discussion of using CMM as vehicle fuel and heating purposes has been added to the PDD. Please refer to "Evi_CL_13".	OK. Discussions on CMM used as vehicle fuel and heating purposes are included in the PDD now. In addition, the usage of CMM as vehicle fuel and common heating purposes have been eliminated because there are not consistent with the Coalmine Safety Regulation (2010) [Doc 32]. Please refer to section 3.4 of the validation report for further details of how the identification of baseline alternatives was validated. CL 13 is closed.
CL 14: Please clarify the reasons why only a combination of pre-mining and post-mining CMM drainage can result concentration of methane reaching below 1% in the mine's air.	6.11	The underground gas extraction diagram is provided to ERM. Please refer to "Evi_CL_14".	The underground gas extraction diagram [Doc 13] was provided and confirmed with the sector expert that a combination of pre-mining and post-mining CMM drainage would be required to reach the methane concentration below 1%. CL14 is closed
CL 15: Please clarify whether the eight options are compliance/non-compliance with legal or regulatory requirements.	6.11	The clarification has been added to the PDD.	OK. The PDD has been revised and the compliance with legal or regulatory requirements for all the options has been discussed. Note that the utilization of captive CMM power is supported by the "Guidance on Acceleration of CBM/CMM Development and Utilization" [Doc54]. Please refer to section 3.4 of the validation report for further details of how the identification of baseline alternatives was validated. CL 15 is closed.
CL 16: PP should establish a complete list of barriers that would prevent identified baseline scenario alternatives to occur in the absence of the CDM according to the guideline of EB50 repa13.	6.11	The list is provided as Table B.5 in PDD.	OK. The PDD has included a list of the barriers. Please refer to section 3.4 of the validation report for further details of how the identification of baseline alternatives was validated. CL 16 is closed.
CL 17: Please provide further evidence for the exclusion of Option II, Destroying ventilation air methane rather than venting it.	6.11	The discussion has been revised.	OK. Step 4 of the PDD has been updated to eliminate Option ii. Please refer to section 3.4 of the validation report for further details of how the exclusion of this baseline alternative was validated.

			CL 17 is closed.
CL 18: (1) Please provide documented evidence supporting the technical barrier for CMM flaring requiring CMM concentration above 25%. (2) Please provided documented evidence supporting the statement that no legal/regulatory requirements in China for CMM flaring with reference.	6.11	(1) The section has been revised that according to the national Coalmine Safety Regulation, the low concentration methane, which is under 30% is not allowed to flare directly. (2)The statement has been removed.	(1) OK. The PDD has been revised and it is clear now the CMM below 30% cannot be flared due to prohibition by the Coalmine Safety Regulation (2010) [Doc 32]. Reference is provided in the PDD now. (2) OK. The PDD has been revised. CL 18 is closed.
CL 19: (1) Please provide evidence demonstrating the annual electricity consumption of Jing Coal Group (or Jingyuan Coal Group) (2) Please clarify the evidence that it is not economically and financially attractive for supplying the power to the grid and then purchasing the power from the grid and why this is a prohibitive barrier.	6.11	(1)The evidence is provided to ERM. Please refer to "Evi_CL_19". (2) The info has been provided accordingly in the PDD.	(1) An official letter issued by Jingyuan Coal Group on 13 January 2011 has been reviewed to confirm the annual electricity consumption. A letter issued by Baiyin City Power Supply Co Ltd dated 22 Feb 2011 was reviewed, stating the annual power consumption from 2006 to 2010. (2) OK. The PDD has been revised, and it is confirmed that the power selling price (from the Project to the public power grid) is lower than the power purchase price (from the public power grid to the Project) [Doc 1, 7 and 55], so this is not economically attractive. Please refer to section 3.4 of the validation report for further details of how the identification of baseline alternatives was validated. CL 19 is closed.
CL 20: <u>Option v Use for additional captive power generation</u> : Please provide descriptions about how to rule out this option based on investment analysis.	6.11	The description has been added to the PDD.	OK. This option is the proposed project activity not implemented as a CDM project, which is assessed by means of an investment analysis in the additionality section of the PDD. The PDD has been revised, and the summary of investment analysis in Section B.5. of the revised PDD has been included. Please refer to section 3.6 of the validation report for details of how the investment analysis was validated. CL 20 is closed.

<p>CL 21:</p> <p>(1) Please provide evidence that the basic heat demand of surrounding residential areas is already met.</p> <p>(2) Please clarify the evidence for the claim that CMM concentration above 30% is normally required for gas-fired boilers.</p>	<p>6.11</p>	<p>(1) The evidence is provided to ERM. Please refer to "Evi_CL_21".</p> <p>(2) The reference is provided in the PDD.</p>	<p>(1) An official letter issued by Jingyuan Coal Group on 20 Jan 2011 [Doc 56] confirmed that the current heat supply and demand conditions in the Project area are fully met. According to the letter, both of the mines are located at remote area where there are limited residents other than the miners' families. This was validated during the site visit. Existing coal-fired boilers at the mines include:</p> <ul style="list-style-type: none"> - Weijiadi Mine has 11 coal-fired boilers (two in 10 tonnes/ hr, three in 4 tonnes/hr and six 0.4 tonnes/hr) - Dashuitou Mine has 9 coal-fired boilers (five 0.4 tonnes/hr, three 6 tonnes/hr and one 6 tonnes/hr). <p>Therefore there is limited need for additional thermal energy supply, and the utilization of the waste heat will be used for the staff households near the mining activities.</p> <p>The total heat generation assumption from the Project has been calculated based on the waste heat capacity from the electricity generation according to the maximum total operating hours possible (8,760); therefore the assumption and value used in the PDD are credible and conservative (the average actual load factor for project activity is 74%).</p> <p>In addition, the annual heating supply has been consistent with the approved third party FSR, and the calculation parameters and steps have been verified as credible and transparent.</p> <p>(2) OK. A reference, Comparison and Selection of CMM Power Generating Equipments [Doc 57] drafted by Professor Bai Hongbin and Yang Junhui was reviewed. According to the reference, only when the methane concentration is higher than 50% and with stable supply can it be used for gas-fired boilers; therefore the alternative can be eliminated.</p> <p>CL 21 is closed.</p>
<p>CL 22: Please clarify why the Phase I high concentration CMM project is included in Table B.6.</p>	<p>7.1</p>	<p>The Phase I CMM project is not directly related with the proposed project. Therefore, it is removed from Table B.6.</p>	<p>OK. The PDD has been revised, and the high concentration CMM project is not included. This is considered reasonable as a high concentration CMM project is not comparable with a low concentration CMM project and should not form part of the prior consideration of CDM for the proposed project.</p>

			CL 22 is closed.
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CL 23: Please clarify the date to obtain China LoA in Table B.6 of the PDD.	7.4	The clarification has been added to Table B.6.	OK. The correct date of China LoA issuance is provided in the PDD. CL 23 is closed.
CL 24: Please provide additional evidences to demonstrate real actions taken place to secure CDM status.	7.4	Evidences to demonstrate CDM actions are provided to ERM. Please refer to "Evi_CL_24".	Evidences have been provided to demonstrate real actions to secure CDM status, including (1) Board Decision Document on CDM consideration on 8 April 2008 [Doc 22], (2) CDM Development Contract between the PP and Guansu Tonghe Investment Project Consulting Co Ltd on 15 May 2008 [Doc 21], (3) five email correspondences in 2008 and 2009 regarding the CDM development and analysis [Doc 23], (4) ERPA between the PP and Gazprom Marketing & Trading Singapore Pte. Ltd. on 29 March 2010 [Doc 58], (5) China DNA CDM Approval Meeting Agenda on 27 July 2010 [Doc 59]. Please refer to section 3.6 of the validation report for further details on how the prior consideration of CDM was validated. CL 24 is closed.
CL 25: (1) Please clarify the evidence to support the fact that Jingyuan Coal Group is in the coal industry. (2) Please clarify the reference for the average power consumption during the recent 3 years of Jingyuan Coal Group. (3) please further clarify why other benchmarks are not applicable to the project.	7.10	(1) Clarification and evidences are provided in the PDD. (2) Please refer to "Evi_CL_19". (3) Clarification is added to the PDD.	(1) It is clear now that Jingyuan Coal Group is in the coal industry based on the history and major business areas of the Jingyuan Coal Group [Doc 06 and 12]. (2) An official letter issued by Jingyuan Coal Group on 13 January 2011 [Doc 60] is provided to confirm the annual electricity consumption. This was cross checked with a letter issued by Baiyin City Power Supply Co Ltd dated 22 Feb 2011 [Doc 61] stating the annual power consumption from 2006 to 2010. (3) OK. The PDD has been revised and it is clear now that Jingyuan Coal Group is in the coal business and therefore the coal industry benchmark should be applied. CL 25 is closed.
CL 26: Please clarify whether a lower benchmark has been used in previous investment decisions by the PP.	7.14	The benchmark of 15% is also used when the investment decision made.	OK. Jingyuan Coal Group is in the coal industry, and the 15% benchmark is set by the government for this industry and is commonly used in China in the industry [Doc 99]. In addition, from an internal policy of the project owner issued in 2002, the 15% benchmark has previously been applied by Jingyuan Coal Group in their business investment decisions [Doc 62].

			CL 26 is closed.
CL 27: Please clarify the residual value of the Project in the PDD and Equity IRR calculation.	7.17	The residual value is the remaining value after depreciation. Please refer to "Evi_CL_27".	The reference, State Tax Bureau inform on preceding administrating the tax approval of cancelling entrepreneur income tax dated 18 Jun 2003 [Doc 63], stated that the residual value should be 5%. This is consistent with the residual value used for the IRR calculation. CL27 is closed.
CL 28: Please clarify whether the overhaul will increase the lifetime of the machinery.	7.18	The overhaul will not increase the lifetime of the machinery but only maintain the operation condition of the machinery. The overhaul frequency can be proved by page 4 of "Evi_CL_4.8".	According to a letter issued by the engine supplier on 8 April 2011 [Doc 64], the life time of the engines is 10 years assuming adequate maintenance (including overhaul) is provided. Thus, the lifetime of the gas engine can be verified. CL28 is closed.
CL 29: Please clarify the calculation for sensitivity analysis in the spreadsheet traceably.	7.22	The sensitivity analysis is now traceable in the updated spreadsheet. Please refer to "IRR Jieneng_110301_traceable.xls".	OK. A traceable IRR calculation [Doc 14] was provided. Please see section 3.6 of the validation for further details of the validation of the sensitivity analysis. CL29 is closed.
CL 30: Further evidences should be provided to substantiate that there is no loan for the Project.	7.24	Please refer to "Evi_CL_7".	OK. A letter issued by the Gansu Tianxingjian Accounting Firm Co Ltd on 21 January 2011 [Doc 131] confirmed that the Project has not used any bank loans. CL 30 is closed.
CL 31: (1) Please include electricity tariff in the sensitivity analysis. (2) Please include Power Generation Amount in the list above Table B.10.	7.26	(1)Electricity tariff has been included in the sensitivity analysis. (2)Revised accordingly in the PDD.	(1) OK. Electricity tariff is included in the sensitivity analysis now. (2) OK. Power Generation Amount is included in Table B.10. Please see section 3.6 of the validation report for further details of the validation of the sensitivity analysis. CL 31 is closed.
CL 32: Please clarify in the PDD and IRR spreadsheet how much variation of the parameters is needed for the IRR to reach the benchmark.	7.26	Revised accordingly in the PDD.	OK. The PDD has been revised and variation of parameters to reach benchmark is now included in the PDD, and the variation of parameters to reach the benchmark (without CDM) is considered unlikely. Please see section 3.6 of the validation report for further details of the validation of the sensitivity analysis. CL 32 is closed.
CL 33: (1) Please clarify the units for data	7.27	(1) Revised accordingly in the PDD.	(1) OK. The units have been corrected.

<p>referred in the "Data sources of IRR calculation" sheet in the IRR calculation spreadsheet and Table B.7 of the PDD.</p> <p>(2) Please clarify reference for Annual O&M Cost and Working Capital in the FSR.</p> <p>(3) Please clarify 0.3932 RMB of "grid tariff (net)" referred in the IRR spreadsheet.</p> <p>(4) Please clarify the Annual Power Supply, and update the IRR calculation as needed.</p> <p>(5) Please clarify the depreciation rate of 9.5% stated in Table B.7 in the PDD and the annual depreciation value in the IRR calculation spreadsheet.</p> <p>(6) Please provide all parameters used in IRR calculation in Table B.7 of the PDD.</p> <p>(7) Please clarify the cost for CMM in the PDD.</p>		<p>(2) The O&M cost and working capital are proportional deducted from original data of FSR. An evidence from the third party, Gansu Tianxingjian Accounting Firm Co, Ltd. Is provided as "Evi_CL_35_2".</p> <p>The clarification is provided in the IRR sheet.</p> <p>(3) It is the power sale price that deducts the VAT. Revised to "electricity tariff".</p> <p>(4) Revised accordingly in the PDD.</p> <p>(5) The clarification is added to the PDD. The explanation of depreciation rate is added to the footnote of the PDD on page 27.</p> <p>(6) Revised accordingly in the PDD.</p> <p>(7) Revised accordingly in the PDD. The CMM is obtained for free; explanation is added as footnote 18 to the PDD.</p>	<p>(2) A letter issued by an external accounting company, Gansu Tianxingjian Accounting Firm Co Ltd on 11 April 2011 [Doc 65] was provided. According to the letter, the O&M break downs for 2009's operating cost includes:</p> <ul style="list-style-type: none"> • Material purchasing: RMB 1,007,500 • Labour: RMB 450,000 • Salary and welfare: RMB 3,238,900 • Maintenance cost: RMB 1,524,600 • Total: RMB 6,221,000 <p>Hence, the actual annual O&M cost in 2009 is higher than the O&M cost stated in the FSR (i.e. RMB 5,503,500). Considering the project has been commenced on Jan 25th 2009, the data from 2009 is considered as valid.</p> <p>In addition, a comparison of the O&M/investment ratios with two similar projects in Shaanxi Province [Doc 66] is performed and confirms the O&M cost estimate for the project is creditable.</p> <p>(3) OK. It is clear now.</p> <p>(4) OK. The correct unit (MWh) has been updated into the PDD.</p> <p>(5) OK. The depreciation rate is calculated per the Income Tax Law in 2008 [Doc 67].</p> <p>(6) The Table B.7 is now consistent with the data sources for IRR calculation in the "Data sources of IRR calculation" sheet.</p> <p>(7) No cost for CMM is included in the calculation spreadsheet or in the PDD. This is in line with the approved third party FSR.</p> <p>CL 33 is closed.</p>
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CL 34: All the parameters used in the IRR calculation need to be stated in Table B.7 of the PDD.	7.29	Revised accordingly in the PDD.	OK. The PDD and IRR calculation spreadsheet are consistent. CL 34 is closed.
CL 35: Please clarify the actual Annual O&M Cost since the Project commenced operation.	7.30	The actual annual O&M cost of the project is indicated higher than the description of the FSR. Therefore, the IRR calculation is conservative. The evidence "Evi_CL_35" is provided to ERM. Please refer to "Evi_CL_35_2".	A letter issued by an external accounting company, Gansu Tianxingjian Accounting Firm Co Ltd on 11 April 2011 [Doc 65] was provided. According to the letter, the O&M break downs for 2009's operating cost include: <ul style="list-style-type: none"> • Material purchasing: RMB 1,007,500 • Labour: RMB 450,000 • Salary and welfare: RMB 3,238,900 • Maintenance cost: RMB 1,524,600 • Total: RMB 6,221,000 Hence, the actual annual O&M cost in 2009 is higher than the O&M cost stated in the FSR (i.e. RMB 5,503,500). Considering the project commenced on Jan 25 th 2009, the data from 2009 is considered as valid. In addition, this O & M cost estimate is also reviewed and considered reasonable by the sectoral expert. CL35 is closed.
CL 36: Please provide evidences to further support the power generation issue.	7.30	The annual operation record of 2010 is provided to ERM. Please refer to "Evi_CL_36".	OK. ERM CVS confirms that The 2010 annual power generation output was 10,541 MWh, which is in accordance with the PDD and FSR. CL 36 is closed.
CL 37: Please clarify whether there are CMM power generation projects in Gansu Province and whether these projects are under the process of applying as CDM projects?	7.43	From the database of EPA's Methane to markets, the proposed project is the only CMM project in Gansu. Please refer to http://www2.ergweb.com/cmm/projects/ProjectFind.aspx	OK. No other active CMM projects from Gansu Province are identified from the US EPA database, the websites of Gansu DRC, NDRC and UNFCCC. In China, the local conditions and power system varies across various provinces. Thus, it is reasonable to consider similar projects within Gansu Province, if available. Based on the information published by the China DNA, there is no other CMM power generation CDM project in Gansu Province [Doc 68]. CL 37 is closed.
CL 38: Please clarify the reference for the Project being the first low concentration CMM power	7.44	From the above CL37, we know that the proposed project is the	OK. A news published by Pingchuan District [Doc 69]

generation project in Gansu Province.		only CMM power generation project in Gansu. Nevertheless, we provide another evidence to prove that the project is the first of this kind in Gansu. Please refer to "Evi_CL_38".	confirmed that the PP is the first developer for CMM power generation in Gansu Province. <i>In addition</i> , information published by the China DNA, there is not other CDM project in Gansu Province [Doc 68]. CL 38 is closed.
CL 39: Please clarify the reference for determination of simple OM calculation selection.	8.6	The clarification is added to the PDD.	OK. The PDD has revised and reference has been provided [Doc 31]. CL 39 is closed.
CL 40: Please clarify the reference for $EF_{grid,CM,y}$.	8.13	The value of $EF_{grid,CM,y}$ is 50% of OM value plus 50% of BM value. The OM and BM values can be verified in the reference address. From the "Tool to calculate the emission factor for an electricity system", CMM projects should use $W_{OM} = 0.5$ and $W_{BM} = 0.5$ for the first crediting period, and $W_{OM} = 0.25$ and $W_{BM} = 0.75$ for the second and third crediting period.	OK. The PDD has been revised and the clear description of the $EF_{grid,CM,y}$ has been included. CL40 is closed.
CL 41: Please clarify the Internal Power Consumption and Efficiency of Advanced Thermal Power Plant Additions.	8.13	These factors are used in the calculation of emission factors. If unnecessary to list, these are removed from the PDD.	OK. The PDD has been revised and is in line with the methodology and tool. CL 41 is closed.
CL 42: Please clarify the description for OXID _i in Section B.6.2 of the PDD.	8.15	Revised accordingly in the PDD.	OK. The PDD has been revised and the description has been updated. This parameter was removed. CL 42 is closed.
CL 43: Please clarify the description for $EF_{CO_2,m,i,y}$ in Section B.6.2 of the PDD.	8.15	It is revised accordingly in the PDD. In the "Tool to calculate the emission factor for an electricity system", option A1 is used to determine " $EF_{EL,m,y}$ ", therefore, average CO ₂ emission factor is not used in the PDD.	OK. $EF_{CO_2,m,i,y}$ is deleted in the PDD, since it is not required by the methodology or tools. CL43 is closed

CL 44: Please clarify the net power supply and annual CH4 consumption in Section B.6.3 of the PDD.	8.18	These values are for original 6.5 MW capacity project. Therefore, the data are revised based on the 5.5 MW capacity now.	OK. The PDD has been updated and consistent power supply and annual CH4 consumption are used in this section now. The values have been validated against the approved third party FSR. CL 44 is closed.
CL 45: Please clarify the calculation equation/reference of estimated MM_{ELEC} in B.6.3 of the PDD.	9.2	The clarification is added to B.6.3 in the PDD.	OK. The PDD has been updated and correct equation is provided, in line with the methodology. CL 45 is closed.
CL 46: Accuracy, monitoring, maintenance and calibration frequency needs to be specified for each parameter. Relevant national/industry standards also need to be specified for applicable parameters. In addition, The PDD should please specify what type(s) of meter(s) comprise the measuring system.	9.2	Revised accordingly in the PDD. Required information is added to the PDD.	OK. The PDD has been revised and accuracy, monitoring, maintenance, calibration frequency and relevant national standard for each parameter are provided in Table B.5 of the PDD. Please see section 3.5 of the validation report for details of the validation of the monitoring plan. CL 46 is closed.
CL 47: (1) Please clarify the monitoring plan stated in Section B.7.2 of the PDD, which is currently described as a hydropower project. (2) Please provide details about data collection, storage, QA/QC and archiving procedures in the PDD.	9.4	(1) It is revised accordingly in the PDD. (2) It is revised accordingly in the PDD.	OK. The monitoring plan in Section B.7.2 of the PDD has been revised, and details about data collection, storage, QA/QC and archiving procedures are included in the PDD. Please see section 3.5 of the validation report for details of the validation of the monitoring plan. CL47 is closed.
CL 48: Please clarify the 59 responses to economic development area in Section E.2 of the PDD.	12.3	Revised accordingly in the PDD.	OK. The PDD has been revised and the responses are consistent with other sections in the PDD. CL 48 is closed.
CL 49: Please clarify the responses by the PP in reaction to the stakeholder comments in Section E.3 of the PDD.	12.4	Revised accordingly in the PDD.	OK. The PDD has been revised and the record of responses from the stakeholders [Doc 19] are provided for verification. CL 49 is closed.

Minor Issue	Reference to checklist question	Summary of project participants' response	Final conclusion
Minor Issue 1: Please update the link to USEPA document to support that VAM below 0.5% has technical barriers.	6.11	Revised accordingly in the PDD.	OK. The PDD has been revised and the reference has been removed. Minor Issue 1 is closed.
Minor Issue 2: Please correct the footnote reference number for the annual wind power density and water availability in Gansu Province.	6.11	Revised accordingly in the PDD.	OK. The footnote number has been updated. Minor Issue 2 is closed.
Minor Issue 3: Please correct the	8.13	Revised accordingly in the PDD.	OK. The PDD has been updated

Chinese character used in Section B.6.2 of the PDD.			and the Chinese character is removed. Minor Issue 3 is closed.
Minor Issue 4 Please correct the spacing problem for page numbers since Page 39 in the PDD.	9.2	Revised accordingly in the PDD.	OK. The spacing problem for page numbers in the PDD has been solved. Minor Issue 4 is closed.
Minor Issue 5: Please correct “excavation” stated in the EIA summary section D.1 of the PDD.	11.4	Revised accordingly in the PDD.	OK. The “excavation” has been revised to “construction”. Minor Issue 5 is closed.