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Validation Report

Carbon Asset Management Sweden AB

VALIDATION OF THE CDM-PROJECT: CHINA GUANMENYAN HYDROPOWER PROJECT

REPORT NO. 953319

2008, January 11

TÜV SÜD Industrie Service GmbH

Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

Industrie Service

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Subject: Validation of a CDM Project

Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany	**TÜV SÜD Contract Partner:** Jiangsu TÜV Product Service Shenzen Branch Room A01, B01 & B02, 28th Floor Anlian Building No. 4018 Jintian Road, Futian District 518026 Shenzhen P.R. China
Client: Carbon Asset Management Sweden AB Drottninggatan 92-94, 111 36 Stockholm, Sweden	**Project Site(s):** The middle stream of Lishui River, Cili County, Zhangjiajie municipality, Northwest of Hunan Province, P.R.China.

Project Title:	China Guanmenyan Hydropower Project		
Applied Methodology / Version:	ACM0002 / version 6	**Scope(s):**	1

First PDD Version:		**Final PDD version:**	
Date of issuance:	2007-01-10	Date of issuance:	2007-08-20
Version No.:	8	Version No.:	10
Starting Date of GSP	2007-01-23		

Estimated Annual Emission Reduction:	90 844 tons CO_{2e}

Assessment Team Leader:	**Further Assessment Team Members:**
Dr. Sven Kolmetz	Carl Zhou Tom Xiong

Summary of the Validation Opinion:

☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.

☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM-EB. The ultimate decision on the registration of a proposed project activity rests at the CDM Executive Board and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:

China Guanmenyan Hydropower Project

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- The Kyoto Protocol, in particular § 12
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions by the EB published under http://cdm.unfccc.int
- Specific guidance by the EB published under http://cdm.unfccc.int
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodlogy (CDM-NM)
- The applied approved methodology
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

The validation is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Once TÜV SÜD receives a first PDD version, it is made publicly available on the internet at TÜV SÜD's webpage as well as on the UNFCCC CDM-webpages for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP will be repeated) and the final PDD will form the basis for the final evaluation as presented by this report. Information on the first and on the final PDD version is presented at page 1.

The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project. TÜV SÜD developed a "cook-book" for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. 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.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

The completed validation protocol is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	***Reference***	***Comments***	***PDD in GSP***	***Final PDD***
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / criterion.	*Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any **Request** has to be substantiated within this column*	*Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **Clarification Request (CR)** is used when the validation team has identified a need for further clarification.*	*Conclusions are presented in the same manner based on the assessment of the final PDD version.*

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Clarifications and corrective action requests	***Ref. to table 1***	***Summary of project owner response***	***Validation team conclusion***
If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".*

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	***Id. of CAR/CR 1***	***Explanation of the Conclusion for Denial***
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.*

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Auditor (GHG-A)
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

The validation team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Dr. Sven Kolmetz	**ATL**	☑	☑	☑
Dr. Thyge Weller	**GHG-A**	☑	☑	
Carl Zhou	**GHG-A**	☑	☑	☑
Tom Xiong	**T**			☑

Dr. Sven Kolmetz is physicist and auditor at the department "TÜV Carbon Management Service" located in the head office of TÜV SÜD Industrie Service GmbH in Munich. Furthermore he is officially authorized expert in the verification of GHG emissions in the framework of the European Emission Trading Scheme. Before entering TÜV SÜD he worked as energy consultant for industrial companies and as consultant for the German Federal Government on instruments for the reduction of GHG emissions.

Dr. Thyge Weller is lead auditor of the division energy certification at TÜV SÜD Industrie Service GmbH. In his position he implements verification and certifications processes for electricity production based on renewable sources. His technical specialization is in wind energy, solar energy and hydropower. He has received extensive training in the CDM and JI validation processes and participated in several CDM and JI project assessments.

Carl Zhou is an auditor for environmental management systems (according to ISO 14001) at Jiangsu TUV Product Service Ltd. He is based in Shenzen. In his position he is responsible for the implementation of validation, verification and certifications audits for management systems. He has received training in the CDM validation process and participated already in several CDM project assessments.

Tom Xiong is an auditor for environmental management systems (according to ISO 14001) at Jiangsu TUV Product Service Ltd. He is based in Shenzen as well.

2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

In the period of February 14-15, 2007 TÜV SÜD performed interviews on-site with project stakeholders to confirm selected information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in the context of this on-site visit.

Name	Organisation
Shen Kunming	Hunan Caishi hydro power development CO. Ltd, vice manager
Cao Jianping	Hunan Caishi hydro power development CO. Ltd, leader of construction management dept.
Long Shengwen	Hunan Caishi hydro power development CO. Ltd, leader of financial dept

Hu Yaozu	Hunan Caishi hydro power development CO. Ltd, leader of resettlement dept.
Peng Zuoen	Hunan Caishi hydro power development CO. Ltd, leader of operation dept.
Lin Yubiao	Hunan Caishi hydro power development CO. Ltd, Engineer
Liu Ling	Hunan Caishi hydro power development CO. Ltd, Engineer
Tan Shiyu	Hunan Caishi hydro power development CO. Ltd, vice leader of operation dept.
Zhen Yaguo	Huan province CDM projects service Centre, general manager of projects
Xu Hengzhi	Huan province CDM projects service Centre, leader of projects

2.4 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD`s positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

2.5 Internal Quality Control

As final step of a validation the validation report and the protocol have to undergo an internal quality control procedure by the Certification Body “climate and energy”, i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD’s Certification Body whether a project will be submitted for requesting registration by the EB or not.

3 SUMMARY OF FINDINGS

As informed above all findings are summarized in table 2 of the attached validation protocol.

History of the validation process

The audit team has been provided with a draft PDD in January 2007. Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. Afterwards the client decided to revise the PDD according to the CARs and CRs indicated in the audit process. The final PDD version submitted in August 2007 serves as the basis for the assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development.

Project description

The following description of the project as per the PDD could be verified during the on-site audit.

The China Guanmenyan Hydropower Project is located on the mid-down stream of Loushui Branch of Lishui River in Xiangshi Town, Cili County, Hunan Province. The project is a new hydropower plant; the total installed capacity is 33 MW with 3,033 utilization hours for electricity generation annually. The surface area at the full reservoir level is 2.5 km^2 , thus the power density of the project is 13.2 W/m2. The electricity is delivered to the Central China Power Grid (CCPG). When the project is completed, it can produce electricity of 100,080 MWh with net electricity of 93,170 MWh supplied to the grid annually.

Findings

In total the assessment team expressed 12 Corrective Action Requests and 1 Clarification Request.

The required documents (English version of the IRR calculation excel sheet, benchmark) have been submitted to the DOE and the more formal and detail aspects of the proposed project (transformation devices, training and implementation schedule, operation date, crediting period etc.) (CAR1, 2,

3, 9, 10, 11) have been added to the PDD finally. Hence, all of the CAR and CR were resolved.

The required formal changes have been made:

- Descriptions for the hydropower plant in common practice has been added in the PDD with other evidence and justified description in section B.5 and B.6 (CAR 4, 5, 7, 8)
- The operational life time and utilization hours have been revised (CAR 6, 11).
- The latest information for EIA requirements has been delivered [CAR 12].

Above all, the CAR has been resolved accordingly.

Baseline Calculation

For the BM calculation the PDD adopts modified methods agreed by the EB for the approved methodologies AM0005 and AMS I.D. because plant specific data are not available in China. The emission factor of the thermal power plants is calculated by the proportion of the emissions of coal, gas and oil times the emission factor of the best available coal, gas and oil power plant as defined and published by the Chinese DNA. The new thermal capacity installation that exceeds 20% in the last years, for which data are available, is finally assessed with this factor. This is common practise in China.

Additionality

The additionality has been evidenced by investment analysis. All the calculations have been checked and found appropriate; furthermore the assumptions used for the IRR calculation have been checked as well.

The IRR calculation will be uploaded together with the PDD. The consideration of CDM has been evidenced by the summary of the board meeting of Hunan Caishi hydro power development CO. Ltd, dated on Feb. 27 2005.

After closing all the open questions the project now complies with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

webpage: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=2506&Ebene1_ID=26&Ebene2_ID=744&mode=1	
Starting date of the global stakeholder consultation process: 2007-01-23	
Comment submitted by: none	**Issues raised:** -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

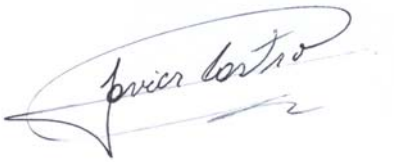
China Guanmenyan Hydropower Project.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2008 – 01 - 11



Certification Body “climate and energy”
TÜV SÜD Industrie Service GmbH

Munich, 2008 - 01 - 11

Assessment Team Leader

ANNEX 1: VALIDATION PROTOCOL

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Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	1, 2	Yes. The project is titled with the name of the project location and the energy source of the project. Hence, it can be clearly identified.	☑	☑
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	1, 2	Yes. The document version is 8, and the date of completion is on Jan. 10, 2007. On June 25 2007 the project owner provided the final revised PDD to the DOE. The final version is version 10.	☑	☑
A.1.3.	Is this consistent with the time line of the project's history?	1, 2	Yes.	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	1, 2	Yes. The project is described transparently and the project activities described have been proven during on-site audit.	☑	☑
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	1, 2 7, 8 9, 10	The planning is described in the feasibility study. The project activity is the displacement of electricity generated by coal fired power plants with electricity generated by hydro power. The following data deliver evidences for the project activity: - Feasibility study - EIA and the approval of EIA from Hunan province Environmental Protection Bureau - Project approval from Hunan province Development Reformation Committee - Approval of connection to Hunan Grid	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			This data have been evidenced during the audit.		
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	1, 2	Yes, it is.	☑	☑
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	1, 2	Yes, there are no contradictions in the PDD.	☑	☑
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	1, 2	The form is correctly applied. Hunan Caishi Hydroelectric Co., Ltd and Carbon Asset Management AB are considered as project participants	☑	☑
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	1, 2	~~**Open Issue**~~ The MoC has been provided on July 23 2007 by the project participants.	~~Open issue~~	☑
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1, 2	Yes, it is.	☑	☑
A.4. Technical description of the project activity					
A.4.1.	*Location of the project activity*				
A.4.1.1.	Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1, 2	The project location could be clearly identified according to the PDD. The project activity is located at Xiangshi Town in Cili County in Zhangjiajie City in Hunan Province. The GSP coordinates are given.	☑	☑
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement	1, 2 7, 9	The EIA of the proposed project was approved by Hunan province Environmental Protection Bureau on May 11, 2004 and the project	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	the project at this site (ownership, licenses, contracts etc.)?		got the approval by Hunan province Development Reformation Committee on Feb. 18, 2004		
A.4.2.	*Category(ies) of project activity*				
A.4.2.1.	To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	1, 2	Yes, the project falls into Type 1-Renewable .Energy Project, Category I.D.-Grid Connected Renewable Electricity Generation	☑	☑
A.4.3.	*Technology to be employed by the project activity*				
A.4.3.1.	Does the technical design of the project activity reflect current good practices?	1, 2	Yes, the project design reflects the current good practices to use renewable resources to generate electricity. **Corrective Action Request No.1.** Please describe the type of the main transformer.	CAR 1	☑
A.4.3.2.	Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1, 2 11	Yes, the project activity comprises the use of water power for the substitution of grid supplied electricity mainly from coal fired plants. There is no doubt that this technology will reduce the GHG emissions significantly.	☑	☑
A.4.3.3.	Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	1, 2	No, it doesn't. There is no technology transfer from annex-I countries to China by the proposed project.	☑	☑
A.4.3.4.	Is the technology implemented by the project activity environmentally safe?	1, 2	Yes, the technology implemented by the project activity is environmentally safe	☑	☑
A.4.3.5.	Is the information provided in compliance with actual situation or planning?	1, 2	Yes. The information provided has been proven during the audit onsite and it is in compliance with actual situation.	☑	☑
A.4.3.6.	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 the host country?	1, 2	The common practice for electricity generation is still coal-fired power plant. Hence, the project definitely would result in a better performance than the common practice.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2	No. The life time of the project is under normal circumstances longer than the crediting period.	☑	☑
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1, 2	**Corrective Action Request No.2.** Please specify whether the project needs extensive initial training and maintenance efforts in the PDD	CAR2	☑
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	1, 2	Yes, the relevant trainings dealing with the control system and safety operations have been provided.	☑	☑
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1, 2	The planning schedule in the past and for the future was clearly described by the project owner during the audit. The main contracts for the construction of the hydro power have already been signed and equipments have been purchased. The first generation unit has been installed. The risk for delays is the lack of the financing. **Corrective Action Request No.3.** The time schedule of the implementation of the project should be included into the PDD.	CAR3	☑
A.4.4. Estimated amount of emission reductions over the chosen crediting period				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	1, 2	Yes. The form is correctly applied according to the version 03.1 of CDM PDD template.	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	1, 2	Yes	☑	☑
A.4.5. Public funding of the project activity				
A.4.5.1. Is the information provided on public funding provided in compliance with the actual	1, 2	Yes. There is no public funding necessary; all costs are covered by bank loans and private equity.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	situation or planning as available by the project participants?				
A.4.5.2.	Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1, 2	The statements are consistent within the PDD.	☑	☑
B. Application of a baseline and monitoring methodology					
B.1. Title and reference of the approved baseline and monitoring methodology					
B.1.1.	Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1, 2	The approved methodology grid-connected electricity generation from renewable sources, ACM0002 Version 06 is used.	☑	☑
B.1.2.	Is the applied version the most recent one and / or is this version still applicable?	1, 2	Yes, it is version 06	☑	☑
B.2. Justification of the choice of the methodology and why it is applicable to the project activity					
B.2.1.	Is the applied methodology considered the most appropriate one?	1, 2	Yes. The approved methodology grid-connected electricity generation from renewable sources, ACM0002 Version 06 is exactly applicable to the hydro power projects, the capacity is more than 15 MW.	☑	☑
B.2.2.	Criterion 1: Type of capacity addition by renewable energy	1, 2	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes	☑	☑
B.2.3.	Criterion 2:	1, 2	Applicability checklist / Yes / No	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Exclusion of fuel switching activities		Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes		
B.2.4. Criterion 3: Defined electricity grid boundaries	1, 2	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes	☑	☑
B.2.5. Criterion 4: Approved inclusion in other methodologies (if applied only)	1, 2	Not applicable	☑	☑
B.3. Description of the sources and gases included in the project boundary				
B.3.1. Source: Fugitive Emissions from non-condensable gases (geothermal activities only) Gas(es): CO_2, CH_4 Type: Project Emissions		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A	☑	☑
B.3.2. Source: Emissions from combustion of fossil fuels (geothermal activities only) Gas(es): CO_2		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Type: Project Emissions		Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A		
B.3.3. Source: Emissions from the reservoir (new hydroelectric activities only) Gas(es): CO_2, CH_4 Type: Project Emissions		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A This is not applicable because the power density is more than 10 W/m².	☑	☑
B.3.4. Source: Emissions from electricity generation in fossil fuel fired power plants of the project electricity system Gas(es): CO_2 Type: Baseline Emissions		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A	☑	☑
B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): CO_2 Type: Baseline Emissions		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes	☑	☑
B.3.6. Source:	1, 2		CR 1	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	Emissions from electricity generation in fossil fuel fired power plants of imported electricity Gas(es): CO_2 Type: Baseline Emissions		Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? / No Inclusion / exclusion justified? / No Explanation / Justification sufficient? / No Consistency with monitoring plan? / No <u>Clarification Request 1:</u> Please clarify if there is the emission from power plants of imported electricity. If yes, it has to be included in the project boundary		
B.3.7.	Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	1, 2	Yes. The project boundary for the proposed project is represented by the Centre China Power Grid.	☑	☑
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario					
B.4.1.	Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to?	1, 2	Yes. The project boundary for the proposed project is represented by the Centre China Power Grid.	☑	☑
B.4.2.	In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?	1, 2	Not applicable.	☑	☑
B.4.3.	In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be replaced?	1, 2	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):					
B.5.1.	In case of applying step 0 of the additionality tool: Is evidence provided, that the project's starting date is after Jan 01, 2000 and before Nov 18, 2004?	1, 2 3	The project participants will not claim emission reductions resulting from power generation dating from before the date of registration of the CDM activity, so this question is not applicable. According to the Tool for demonstration and assessment additionality (version 3) the step 0 is not applicable any more.	☑	☑
B.5.2.	In case of applying step 0 of the additionality tool: Is evidence provided, that CDM has been considered seriously in the decision to proceed with the project activity?	1, 2 3	See B.5.1.	☑	☑
B.5.3.	Have realistic and credible alternatives been identified providing comparable outputs or services? (step 1a)	1, 2 3	The following baseline scenarios are discussed: • Construction of a fossil fuel-fired power plant with equivalent amount of installed capacity or annual electricity output; • The proposed project activity not undertaken as a CDM project activity; • Construction of a power plant using other sources of renewable energy with equivalent amount of installed capacity; • Provision of equivalent amount of annual power output by the grid where the proposed project is connected with. Among these scenarios, only the proposed project not as a CDM project and Grid Provision might be realistic and credible alternatives.	☑	☑
B.5.4.	Is the project activity without CDM included in these alternatives? (step 1a)	1, 2 3	Yes.	☑	☑
B.5.5.	Is a discussion provided for all identified alternatives concerning the compliance	1, 2 3	Yes	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	with applicable laws and regulations? (step 1b)				
B.5.6.	In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that statement? (step 1b)	1, 2 3	Not applicable.	☑	☑
B.5.7.	In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	1, 2 3	Yes, the benchmark analysis is applied	☑	☑
B.5.8.	In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	1, 2 3	Not applicable.	☑	☑
B.5.9.	In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1, 2 3	Not applicable.	☑	☑
B.5.10.	In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1, 2 3	Yes, the IRR and NPV indicators are selected.	☑	☑
B.5.11.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	1, 2 3	The calculation of financial figures for IRR is done for the project activity without the revenues from the sale of CERs and with the revenues from the sale of CERs.	☑	☑
B.5.12.	In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	1, 2 3	**Corrective Action Request No.4.** • The evidence of feed-in tariff in English has to be delivered to the DOE.	CAR4	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			• Please check the tariff of the project, and make them to be consistent within all chapters of the PDD. • Evidence (documents) for the claimed barriers have to be delivered that can be published finally together with the PDD!!!		
B.5.13.	In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	1, 2 3	Investment barriers are identified that prevent the proposed project without CDM to occur.	☑	☑
B.5.14.	In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	1, 2 3	Yes, it is.	☑	☑
B.5.15.	In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1, 2 3	Barriers analyzed above don't prevent the baseline alternative (Provision of equivalent amount of annual power output by the grid where the proposed project is connected with) from implementation.	☑	☑
B.5.16.	Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	1, 2 3	The common practice analysis is not sufficient (at least 5 projects). Please describe in detail how many hydro power plants are installed and why these plants are economically feasible without CDM revenue. What is the difference between the project activity and the existing projects? **Corrective Action Request No.5.** The same has to be specified.	CAR5	☑
B.5.17.	If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	1, 2 3	Yes. The relevant demonstration is described in the section. In spite of these similarities the project activity would not be implemented without the CDM component. **Corrective Action Request No.6.** The annual utilization hours of the proposed project should be	CAR 6	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			3,033 hours/year according to the feasibility study report. Please revise the related data in the common practice analysis		
B.5.18.	Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?	1, 2 3	The CDM registration will make the project more financial attractive.	☑	☑
B.6. Emissions reductions					
B.6.1.	*Explanation of methodological choices*				
B.6.1.1.	Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1, 2	The calculation of the emission reduction is applied according to the steps described in ACM0002: - Calculation of the Operating Margin Emission Factor - Calculation of the Build Margin Emission Factor - Calculation of the Combined Margin Emission Factor These steps are described in a transparent manner.	☑	☑
B.6.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1, 2	**Corrective Action Request No.7.** Please justify every selection of options offered by the methodology.	CAR 7	☑
B.6.1.3.	Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2	Not applicable	☑	☑
B.6.1.4.	Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or	1, 2	Yes, formulae to calculate the baseline emissions are correctly presented. .	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	monitored?				
B.6.1.5.	Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?	1, 2	Yes. it is.	☑	☑
B.6.1.6.	In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	1, 2	Not applicable. The default weights for hydro power projects in the 6th version of ACM0002 (OM 0.5 and BM 0.5 respectively) are used.	☑	☑
B.6.1.7.	In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	1, 2	See B.6.1.6.	☑	☑
B.6.1.8.	Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2	No leakage is considered according to the methodology.	☑	☑
B.6.1.9.	Are formulae required for the determination of emission reductions correctly presented?	1, 2	Yes.	☑	☑
B.6.2.	*Data and parameters that are available at validation*				
B.6.2.1.	Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1, 2	Yes. A list of parameters is clearly presented according to ACM 0002	☑	☑
B.6.2.2.	Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	1, 2	Yes, the ex-ante calculation of emission factors is chosen.	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.6.2.3. Parameter Title:
Annual electricity supplied to the grid prior to retrofit
(applicable only for retrofit and modification activities)</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Choice of data correctly justified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.4. Parameter Title:
Emission factor of the grid (CM)</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.5. Parameter Title:
Operating margin (OM) emission factor of the grid</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? Yes		
B.6.2.6. Parameter Title: Build margin (BM) emission factor of the grid		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? No Correct value provided? No Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes **Corrective Action Request No.8.** The latest three years data for thermal power supply shall be adopted.	CAR8	☑
B.6.2.7. Parameter Title: fuel consumption of each power source		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? No Correct value provided? No Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes See CAR 8	See CAR8	☑
B.6.2.8. Parameter Title: emission coefficient of each fuel		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes		
B.6.2.9. Parameter Title: electricity generation of each power source		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? No Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? N/A See CAR 8	See CAR 8	☑
B.6.2.10. Parameter Title: surface area of full reservoir level (for new hydroelectric activities only)		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes	☑	☑
B.6.2.11. Parameter Title:			☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)		Data Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A		
B.6.2.12. Parameter Title: electricity imports		Data Checklist / Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No See B.3.6	See B.3.6	☑
B.6.2.13. Parameter Title: CO_2 emission coefficient of fuels used in connected grids	1, 2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			Measurement method correctly described? Yes		
B.6.3.	*Ex-ante calculation of emission reductions*				
B.6.3.1.	Is the projection based on the same procedures as used for future monitoring?	1, 2	Yes, the emission reduction is calculated by the estimated net power generation times the grid factor. The power generation will be measured in the future.	☑	☑
B.6.3.2.	Are the GHG calculations documented in a complete and transparent manner?	1, 2	Yes, the latest available data such as the yearbook 2006 and IPCC2006 has been used.	☑	☑
B.6.3.3.	Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1, 2	Yes.	☑	☑
B.6.4.	*Summary of the ex-ante estimation of emission reductions*				
B.6.4.1.	Will the project result in fewer GHG emissions than the baseline scenario?	1, 2	Yes, there are no project emissions.	☑	☑
B.6.4.2.	Is the form/table required for the indication of projected emission reductions correctly applied?	1, 2	Yes, the form is correctly applied according to the PDD template.	☑	☑
B.6.4.3.	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	1, 2	Yes, the progress of construction has been verified during the on-site audit.	☑	☑
B.6.4.4.	Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1, 2	Yes.	☑	☑
B.7.	**Application of the monitoring methodology and description of the monitoring plan**				
B.7.1.	*Data and parameters monitored*				

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.1.</td><td>Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?</td><td>1, 2</td><td>Yes. The EGy is the parameter that shall be monitored and re-corded. The electricity connected to the grid is automatically measured and recorded by the computers. The measurement data for the electricity will be recorded electronically. To ensure the accuracy of data, electricity sales invoices by local grid will also be obtained as an additional check.
<u>Corrective Action Request No.9.</u>
• Measurement equipments have to be installed to ensure the availability of back-up data.
• The parameters that are not monitored do not have to be presented in the chapter of B.7.1.</td><td>CAR9</td><td>☑</td></tr>
<tr><td>B.7.1.2.</td><td>Parameter Title:
Electricity supplied to the grid</td><td>1, 2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.3.</td><td>Parameter Title:
Quantity of steam produced
(for geothermal projects only)</td><td>1, 2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.4. Parameter Title: Fraction of CO_2 in steam produced (for geothermal projects only)	1, 2	Monitoring Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.5. Parameter Title: Fraction of CH_4 in steam produced (for geothermal projects only)	1, 2	Monitoring Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.6. Parameter Title: Quantity of steam generated during well testing (for geothermal projects only)	1, 2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.7. Parameter Title: Fraction of CO_2 in steam during well testing (for geothermal projects only)	1, 2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.8. Parameter Title: Fraction of CH_4 in steam during well testing (for geothermal projects only)	1, 2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.9. Parameter Title: CO_2 emission coefficient of fuel used by the geothermal plant (for geothermal projects only)	1, 2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.2. Description of the monitoring plan				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisoned situation?	1, 2	**Corrective Action Request No.10.** The following procedures have to be described in the PDD or delivered to the DOE. - Operational and management structure, including the authority and responsibility for project management, registration, monitoring and reporting - Training of monitoring personnel - The installment, calibration and maintenance of the monitoring equipment, including equipment detailed information, e.g. general location, type and accuracy classes etc. - Dealing with possible monitoring data adjustments & uncertainties - Troubleshooting allowing redundant reconstruction of data in case of monitoring problems? - Review of reported results/data? - Internal audits of GHG project compliance with operational requirements where applicable - Project performance review before submission for verification, internally or externally - Corrective actions in order to provide for more accurate future	CAR10	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		monitoring and reporting		
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1, 2	Yes. According to the PDD, the annual output from the power plant will be monitored and recorded at the substation. The project operator is responsible for recording this set of data. Electricity sales invoices will also be obtained as an additional check.	☑	☑
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	1, 2	Yes.	☑	☑
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1, 2	Yes	☑	☑
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
B.8.1. Is there any indication of a date when the baseline was determined?	1, 2	Yes, on 10/01/2007	☑	☑
B.8.2. Is this consistent with the time line of the PDD history?	1, 2	Yes	☑	☑
B.8.3. Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1, 2	Mr. Li Xiushan of College of Energy Science and Technology, Central South University and Mr. Zhang Hanwen of Hunan CDM Project Service Centre determined the monitoring methodology.	☑	☑
B.8.4. Is information provided whether this person / entity is also considered a project participant?	1, 2	The above mentioned persons are not considered a project participant.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
C. Duration of the project activity / crediting period					
C.1. Duration of the project activity					
C.1.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?	1, 2	Yes. The operational lifetime is expected to be 30 years. **Corrective Action Request No.11.** The starting date of operation of the project and the starting date of the first crediting period should be revised.	CAR11	☑
C.2. Choice of the crediting period and related information					
C.2.1.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1, 2	7 years with potential for 2 renewals is chosen as the crediting period. The starting date has to be revised. See CAR11	See CAR11	☑
D. Environmental impacts					
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts					
D.1.1.	Has the analysis of the environmental impacts of the project activity been sufficiently described?	1, 2	Yes, the environmental impacts of the project activity during construction and operation period have been clearly described.	☑	☑
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	1, 2 9	Yes, EIA is a must in P. R. China for new hydro power projects. The EIA of the proposed project was approved by Hunan Province Environmental Protection Bureau. The documents have been reviewed by the DOE.	☑	☑
D.1.3.	Will the project create any adverse environmental effects?	1, 2 9	Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts. **Corrective Action Request No.12.**	CAR12	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Please describe the required standards and other requirements by the host country according to the EIA or the approval of the EIA. Please provide the detailed information of inundation and resettlement in the PDD according to the feasibility study report and EIA		
D.1.4. Were transboundary environmental impacts identified in the analysis?	1, 2 9	There is no trans-boundary impact described in EIA report or approval of EIA.	☑	☑
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party				
D.2.1. Have the identified environmental impacts been addressed in the project design sufficiently?	1, 2 9	Refer to the EIA and the approval of EIA, there is no adverse environmental impact from the project activity.	☑	☑
D.2.2. Does the project comply with environmental legislation in the host country?	1, 2 9	Yes, the project is in conformity with the environmental legislation of P. R. China and the EIA has been approved by authorized organization.	☑	☑
E. Stakeholders' comments				
E.1. Brief description how comments by local stakeholders have been invited and compiled				
E.1.1. Have relevant stakeholders been consulted?	1, 2	Questionnaires and a symposium were used to invite comments by local stakeholders in April 2006.	☑	☑
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	1, 2	Yes. questionnaires and symposium have been adopted.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
E.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1, 2	The stakeholder consultation has been carried out according to the EIA regulation.	☑	☑
E.1.4.	Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1, 2	Yes. The process is described in a complete and transparent manner.	☑	☑
E.2. Summary of the comments received					
E.2.1.	Is a summary of the stakeholder comments received provided?	1, 2	Yes, the PDD gives a summary of stakeholder comments,	☑	☑
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	1, 2	Yes. the relevant actions will be taken have been described in the section.	☑	☑
F. Annexes 1 – 4					
Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	1, 2	Yes.	☑	☑
F.1.2.	Is the information on all private participants and directly involved Parties presented?	1, 2	The information about Hunan Caishi hydroelectric Co., Ltd and Carbon Asset Management AB.are presented.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Annex 2: Information regarding public funding					
F.1.3.	Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1, 2	Yes. There is no public funding necessary; all costs are covered by bank loans and private equity.	☑	☑
F.1.4.	If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	1, 2	See F.1.3	☑	☑
Annex 3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1, 2	Yes. The emission factors calculated are used for the determination of the emission reduction.	☑	☑
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1, 2	Yes, the relevant yearbooks have been checked and the result is more conservative than data from the Chinese DNA recently published.	☑	☑
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	1, 2	Yes, definitely.	☑	☑
Annex 4: Monitoring information					
F.1.8.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1, 2	Yes.	☑	☑
F.1.9.	Is the information provided verifiable? Has	1, 2	There is reference to the manual of the monitoring management	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	sufficient evidence been provided to the validation team?				
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1, 2	It is only a reference.	☑	☑

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Yes, the project design reflects the current good practices to use renewable resources to generate electricity. **Corrective Action Request No.1.** Please describe the type of the main transformation devices.	A.4.3.1.	The main transformation devices are described in the revised PDD (see "Table 1 Technical parameters of main buildings and equipments"). **DOE´S First Response:** The answer has been accepted. During the second revision it has been detected that there may be a contradiction regarding the applicability criteria. Per definition a run-of-river hydropower plant cannot have a reservoir. Please clarify, if the second applicability criteria may be more appropriate.	☑ The applicability criteria are now valid without any doubt.
Corrective Action Request No.2. Please specify whether the project needs extensive initial training and maintenance efforts in the PDD.	A.4.3.8.	Prior to the project being put into operation, all of staffs of the project will be trained in monitoring, operation, maintenance and emergency treatment, etc. It's specified in the revised PDD (see section A.4.3 and section B.7.2).	☑
The planning schedule in the past and for the future was clearly described by the project owner during the audit. The main contracts for the construction of the project have already been signed and equipments have been purchased. The first generation unit has been installed. The risk for delays is the lack of the financing. **Corrective Action Request No.3.**	A.4.3.10.	The implementation schedule of the project includes three stages that are described in the revised PDD (see section A.4.3).	☑

The time schedule of the implementation of the project should be included into the PDD.			
Corrective Action Request No.4. • The evidence of feed-in tariff in English has to be delivered to the DOE. • Please check the tariff of the project, and make them to be consistent within all chapters of the PDD. • Evidence (documents) for the claimed barriers have to be delivered that can be published finally together with the PDD!!!	B.5.12.	The feed-in tariff is stipulated by Hunan Province Price Bureau in the document "Notice on Related Issues of Relieving the Contradiction of Hunan Provincial Power Grid (No. 90 Xiangjiazhong[2004])", the document has been delivered to the DOE. Evidence for the claimed barriers has also been delivered to DOE.	☑ Has been verified by the local auditor.
The common practice analysis is not sufficient (at least 5 projects). Please describe in detail how many hydro power plants are installed and why these plants are economically feasible without CDM revenue. What is the difference of the project activity and the existing projects? **Corrective Action Request No.5.** The same has to be specified.	B.5.16.	There are 6 other projects similar to the project analyzed in the revised PDD, and the reason why these plants are economically feasible without CDM revenue and the difference between the proposed project and 6 other projects is described in the revised PDD (see section B.5.). **DOE´S First Response:** Regarding the Common Practise Analysis it is questioned why the listed hydro power plants (table 7) got the subsidised tariffs despite there planning should have started after the stop of the favourable policies in 2001. The difference between these projects and Guanmenyan is not really clear, especially the difference to the two pro-	☑ It has been explained and evidenced that the operational hours of the similar projects are much higher than of the project activity.

		jects starting operation in 2006.	
Corrective Action Request No.6. The annual utilization hours of the proposed project should be 3033hours/year according to the Preliminary Design Report. Please revise the related data in the PDD.	B.5.17.	The annual utilization hours of the proposed project have been corrected in the revised PDD (see section A.2.) according to the Preliminary Design Report.	☑
Corrective Action Request No.7. Please justify the every selection of options offered by the methodology.	B.6.1.2.	Every selection of options offered by the methodology is justified in the revised PDD (see section B.6.1).	☑
Corrective Action Request No.8. The latest three years data for thermal power supply shall be adopted.	B.6.2.6.	The latest three years data available for the thermal power supply have been adopted for the calculation of the emission factors in the revised PDD (see Annex 3).	☑
Yes. The EGy is the parameter that shall be monitored and recorded. The electricity connected to the grid is automatically measured and recorded by the computers. The measurement data for the electricity will be recorded electronically. To ensure the accuracy of data, electricity sales invoices by local grid will also be obtained as an additional check. **Corrective Action Request No.9.** • Measurement equipments have to be installed to ensure the availability of back-up data. • The parameters that are not monitored do not have to be pre-	B.7.1.1.	A back-up meter will be installed with the main meter at the connection point to the grid (see section B.7.1. and B.7.2.).	☑

sented in the chapter of B.7.1.			
Corrective Action Request No.10. The following procedures have to be described in the PDD or delivered to the DOE. - Operational and management structure, including the authority and responsibility for project management, registration, monitoring and reporting - Training of monitoring personnel - The installment, calibration and maintenance of the monitoring equipment, including equipment detailed information, e.g. general location, type and accuracy classes etc. - Dealing with possible monitoring data adjustments & uncertainties - Troubleshooting allowing redundant reconstruction of data in case of monitoring problems? - Review of reported results/data? - Internal audits of GHG project compliance with operational requirements where applicable - Project performance review before submission for verification, internally or externally - Corrective actions in order to provide for more accurate future monitoring and reporting	B.7.2.1.	The procedures have been described in the revised PDD (see section B.7.2.) and in "The Monitoring and Management Manual of China Guanmenyan Hydropower Project" delivered to DOE. **DOE´S First response:** The revisions have been made but during the second review it was detected that the surface area (page 24) is wrong. It should be km² instead of m².	☑

Yes. The operational lifetime is expected to be 30 years. **Corrective Action Request No.11.** The starting date of operation of the project and the starting date of the first crediting period should be revised.	C.1.1.	The starting date of the project activity (the starting date of the construction of the project) and the starting date of the first crediting period have been modified in the revised PDD (see section C.1. and C.2.) **DOE´S First response:** The starting date of the crediting period has to be changed to at least 8 weeks after the expected submission for registration.	☑
Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts. **Corrective Action Request No.12.** Please describe the required standards and other requirements by the host country according to the EIA or the approval of the EIA. Please provide the detailed information of inundation and resettlement in the PDD according to the Preliminary Design Report and EIA.	D.1.3	The standards and requirements by the host country according to the EIA are listed in the revised PDD (see section D.1.). The detailed information of inundation and resettlement has been described in the revised PDD (see section D.1.).	☑
Clarification Request 1: Please clarify if there is the emission from power plants of imported electricity. If yes, it has to be included in the project boundary.	B.3.6.	There is no emission from power plants of imported electricity.	☑

ANNEX 2: INFORMATION REFERENCE LIST

Reference No.	Document or Type of Information
1	Final Project Design Document for CDM project "Guanmenyan 33MW Hydro Power CDM Project", finalized on Jan 10 , 2007, submitted in Jan. 11, 2006
2	Consolidated baseline methodology for ACM0002. "Grid-connected renewable electricity generation from renewable sources", version 06
3	Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources, version 06
4	Participant list of on-site interview, signed on Feb. 14, 2007
5	On-site interviews and inspection at the office conducted on Feb..14-15, 2007 by audiotrs of TÜV SÜD. Validation team: Carl Zhou Jiangsu TUV Product Service Ltd. Interviewed persons: Shen Kunming Hunan Caishi hydro power development CO. Ltd vice manager Cao Jianping Hunan Caishi hydro power development CO. Ltd leader of construction management dept. Long Shengwen Hunan Caishi hydro power development CO. Ltd leader of financial dept. Hu Yaozu Hunan Caishi hydro power development CO. Ltd leader of resettlement dept. Peng Zuoen Hunan Caishi hydro power development CO. Ltd leader of operation dept. Lin Yubiao Hunan Lishui hydro power development CO. Ltd Engineer Liu Ling Hunan Caishi hydro power development CO. Ltd Engineer Tan Shiyu Hunan Caishi hydro power development CO. Ltd vice leader of operation dept. Zhen Yaguo Huan province CDM projects service Centre general manager of projects Xu Hengzhi Huan province CDM projects service Centre leader of projects
6	Feasibility report of Guanmenyan 33MW hydro power project, dated in Jan 2004, Hunan province changsha City survey design and

Reference No.	Document or Type of Information
	research institute for water source and hydro power, submitted on Feb. 15, 2007
7	The approval of EIA for the Guanmenyan hydro power station, dated in May, 11,2004 Hunan province the environment protection bureau , Xianghuangping(2004)31, submitted on Feb. 15, 2007
8	The notice of the ground compensation program fro the Guangmenyan hydro power, dated on Feb. 1, 2005, the government in Cili city, submitted on Feb. 15, 2007
9	The purchasing contract for the devices of transformer, dated in March. 2005, submitted on Feb. 15, 2007
10	The purchasing contract for the devices of generator unit and side chapel devices, dated in March, 2005, submitted on Feb. 15, 2007
11	The approval of the application report of the Guanmenyan hydro power station, dated on Feb. 18, 2004, the committee of development and reformation in Hunan, Xiangfagainong(2004)92, submitted on Feb. 15, 2007
12	The report of preliminary design for the Guanmenyan hydro power station, dated in July. 2004, Hunan province survey design and research institute for water source and hydro power, submitted on Feb. 15, 2007
13	EIA for the Guanmenyan hydro power station, dated in Jan. 2004, Changjiang design and research institute for water source and hydro power, submitted on Feb. 15, 2007
14	Hunan Province Price Bureau, Notice on Related Issues of Relieving the Contradiction of Hunan Provincial Power Grid (No. 90 Xiangjiazhong [2004]).
15	Notice on Starting Construction of Guanmenyan Hydropower Project Issued by the Supervision Department of Guanmenyan Hydropower Project, 30 March 2005.
16	Contract of Power Transmission Project Construction
17	Contract of Bank Support Project Construction (including the evidence of consideration CDM)
18	The summary of the board meeting of Hunan Caishi hydro power development CO. Ltd, dated on Feb. 27 2005.
19	Reply to the Application for Loan by Hunan Caishi Hydroelectric Co., Ltd
20	The translation of benchmark evidence and investment and operation costs, submitted on July 20 2007
21	The IRR calculation table in the form of excel and pdf, submitted on July 27 2007.

Reference No.	Document or Type of Information
22	MoC and LoA from DNA in Swedish, submitted on July 23 2007
23	The final revised PDD in the form of word, submitted on August 16 2007.
24	The Contract of Bank Support Project Construction and Contract of Power Transmission Project Construction, submitted on August 16 2007.
25	Hunan Hydro & Power Design Institute, Investigation Report on Hydropower Plants with Installed Capacity of over 15MW Constructed since 2002 in Hunan Province and Ministry of Water Resources and Electric Power, State Economic Committee and State Price Bureau, Notice on Implementation Method of Various Electricity Tariff (No. 101 Shuidiancaizi[1987]), submitted on August 16 2007.
26	State Planning Committee, Notice on Standardizing Electricity Tariff Management (No. 701 Jijiage[2001]), submitted on August 16 2007.
27	Final Project Design Document for CDM project "Guanmenya Hydro Power CDM Project", finalized on Aug. 20, 2007
28	The State Electrical Power Corp., Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project (China Electrical Power Press, 2003)
29	The approval of FSR of the proposed project, dated on Feb. 18 2004. Hunan province DRC [2004]92
30	The approval of PDR of the proposed project, dated on July 26 2004. Hunan province water power department, [2004]23