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Validation Report

RWE Power AG

VALIDATION OF THE CDM-PROJECT:

Xiaoxi Hydropower Project

REPORT NO. 1051206

2008, December 08

TÜV SÜD Industrie Service GmbH

Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

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Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1051206	2007-04-18	4	2008-12-08	-

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:** TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich FEDERAL REPUBLIC OF GERMANY
Client: RWE Power AG Rellinghauser Straβe 37 45128 Essen Germany	**Project Site(s):** Zishui River within Xiaoxi Village, Pingshang Town, Xinshao County, Shaoyang City, Hunan Province, P.R.China. The dam of the Project has geographical coordinates with east longitude of 111°26′50″ and north latitude of 27°34′30″. And the power house site of the Project has geographical coordinates with east longitude of 111°26′59″ and north latitude of 27°34′32″.
Project Title: Xiaoxi Hydropower Project	
Applied Methodology / Version: ACM0002 / Version 06	**Scope(s):** 1
First PDD Version: Date of issuance: 2007-02-15 Version No.: 3 Starting Date of GSP 2007-03-08	**Final PDD version:** Date of issuance: 2008-12-02 Version No.: 6
Estimated Annual Emission Reduction:	437 113 tons CO_{2e}
Assessment Team Leader: Dr. Sven Kolmetz	**Further Assessment Team Members:** Carl Zhou

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.

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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:

Xiaoxi 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	☑	☑	☑
Carl Zhou	GHG-A	☑	☑	☑

Dr. Sven Kolmetz is physicist and deputy head 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.

Carl Zhou is an auditor for environmental management systems (according to ISO 14001) at Jiangsu TUV Product Service Ltd. He is based in Shanghai. 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.

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

On March 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
Mr. Liu Jiang	Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd.
Mr. Tao Ran	Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd.
Mr. Wang Yi	Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd.
Mr. Li Jianwei	AGET Co. Ltd...
Mr. Cao Xin	AGET Co. Ltd...

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 and 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.

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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 PDD in February 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 September 2007 serves as the basis for the assessment presented herewith. The validation report and this PDD have been used to get the Letter of Approval of Germany. 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 Project is a hydropower plant. The Project is constructed with 47 m of maximum dam height and 19 m of rated head. The total installed capacity of the Project is 135 MW. With 10.1 km^2 of reservoir area[*], the power density of the Project is 13.37 W/m^2. It is estimated that the feed-in electricity to the Central China Grid is approximately 468.76 GWh per year. The electricity generated by the Project will be delivered to the Central China Grid via two 110 kV outlet circuit through Lengjiang transformer substation.

Three sets of 40 MW Kaplan turbines and one set of 15 MW Kaplan turbine and associated generators which are made in China will be installed in the Project. Hydro turbines and generators used in the Project are produced by the TOSHIBA Hydro Power (Hangzhou) Co., Ltd.

Findings

In total the assessment team expressed 23 Corrective Action Requests.

Most of the requests addressed formal aspects and inconsistencies between the documents delivered during the audit and the PDD (CAR1 – 9, 13-16). Besides this the project owner had to deliver additional documents regarding the additionality (CAR10, 11, 12) and the monitoring has to be described more detailed (CAR 18 – 23). All the inconsistencies have been revised and the missing documents have been delivered.

Regarding the baseline (CAR17) the grid factors have been discussed intensively (see baseline discussion).

Baseline calculation

For the BM calculation the PDD adopts modified methods agreed by the EB for the approved methodologies AM0005 (the predecessor of ACM0002) and AMS I.D (with reference to ACM0002) 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.

For the calculation of the grid factor the calculation of the NDRC has been adapted (as described above for the BM factor). This calculation is based on the latest available data (IPCC2006 and sta-

[*] P18 of EIA.

tistical yearbooks 2006 (delivering the energy data of 2005)). There are some obvious mistakes in the calculation of the NDRC that have been revised in the PDD (e.g. other values than IPCC2006 have been used).

Additionality

The additionality has been evidenced by investment analysis. The IRR calculation will be uploaded together with the PDD. The basic figures of the calculation have been evidenced by the approved Preliminary Design Report. The calculation is correct and the figures are consistent with the Preliminary Design Report (PDR). The assumptions of the PDR have been cross-checked by an independent assessment of the hydro power plants currently registered or under validation. The investment is slightly higher than the average of about 120 hydro power projects applying for CDM in China but still less than the standard deviation. The O&M costs are less than the average. The grid tariff is slightly higher but still less than the standard deviation. The operational hours (generation per capacity) is almost exactly the average. We assume the comparison of CDM projects to be the correct approach as the CDM projects should be that kind of projects that are similar to the existing project.

The sensitivity analysis has been checked as well. The calculation is correct and the assumptions can be considered to be reasonable. The investment cost and O&M costs are more probable to increase instead of decrease.

The common practise analysis has been validated by officially available statistical sources such as the Chinese Water Resource Yearbook and the evidences provided in the PDD.

The consideration of CDM before construction has been confirmed by the meeting summary of planning to implement a CDM project from Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd. dated on 26/2/2004,

Since all the open questions have been closed the project is in compliance with the CDM requirements.

The assessment above is supplemented by further evaluation and cross-checks based on the description in the revised PDD. This is done in order to substantiate the information on validation of the input values to the investment analysis, including the conservative tariff,.

The financial reports of the project of the years 2004-2008 were cross-checked by TÜV SÜD to compare the investment cost with the actual costs as a cross check measure as the construction started four years ago. Even if the last report has not yet been approved by a Certified Public Accountant (CPA), the data provided show the same tendency as the reports from 2004 to 2007. The investment per year rose from 22% of the total investment in 2004 to 27% in 2007. The percentage of 2008 projected contributes to 29%. Therefore the higher costs on 30/09/2008 were plausible. Taking into account the remaining construction work, the total project investment cost estimated in the PDR is conservative. The audit reports and the certificates of the CPA were provided to TÜV SÜD (IRL 25-31).

The O&M costs were cross checked by percentage of total investment resulting in 1,53%. This value is below the generally accepted value of 2% of total investment for O&M costs. Additionally, out of the TÜV SÜD statistics of about 200 hydropower projects applying for CDM in China, it was calculated that the average O&M costs as percentage of the total investment is appr. 3.2%. Actually, the O&M costs increased by 3.15% only based on salary of 2008 as evidenced by the payroll of September 2008 (IRL 32) without considering the increase of other costs. It is not probable that the other O&M costs will decrease taking in account the inflation rate in China.

Thus, the input values from the PDR for total investment and O&M are valid and applicable at the time of investment decision.

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Additionally two critical input values from the PDR were cross-checked by TÜV SÜD:
1. According to *Circular on Relevant Issues of Adjustment of the Electricity Tariff in Hunan Power Grid* (Document No.XJZ[2006]97) issued by the Bureau of Pricing of Hunan Province, "the benchmark tariff (including VAT) of hydropower projects in Hunan Province is 0.301 RMB/kWh…, and for all the newly commercially commissioned units the bus-bar tariff is determined in line with the above mentioned benchmark tariff". Therefore the provincial bus-bar tariff is lower than the expected value of 0.315 RMB/kWh (including VAT) in the PDR.
2.The estimated electricity generation is based on 3472 operational hours per year calculated from hydrographical data from 1959-2004. The average operational hours of 19 hydro power projects in Hunan province are appr. 3700 hours per year. Hence, the scale of the operational hours of hydro power plants in Hunan province is met. The area of Hunan province was chosen because the rainfall is the same in this province.

The input values of operational hours and tariff used for this investment analysis were valid and applicable at the time of the investment decision, i.e. in September 2004. Thus TÜV SÜD can confirm that these input values to the IRR meet the requirements of EB 38 paragraph 54(c) guidance.

Further TÜV SÜD has validated the suitability of the fixed input values, in particular, tariffs and O&M costs, used in the investment analysis considering the potential variation of the input values throughout the assessment period and its impact on the investment analysis.

The document *Financial Assessment Methods and Parameters for Construction (IRL 37)* clearly indicates that a constant value should be applied for the financial evaluation of a project. This demonstrates that the application of fluctuating input values for the IRR calculation would not be in line with the applied guidelines and national standards. Based on local and sectoral expertise, TÜV SÜD can confirm that this document is widely applied in China, and that all feasibility studies in this sector are based on fixed input values.

In summary, TÜV SÜD considers the assumption of fixed input values throughout the 30-year period as plausible and also appropriate, given the information available at the time of the investment decision and considering the applied standards and guidelines. However, TÜV SÜD has evaluated the potential variation of the input values throughout the assessment period of 30 years, in particular, tariffs and O&M costs.

In order to assess realistic and reasonable increments of these values, TÜV SÜD evaluated the changes observed in the past. First, the actual grid price paid for the power delivered from January until September 2008 amounted to the average of 0.295 RMB/kWh. The evidence was provided to TÜV SÜD (IRL 38). This is far less than 0.315 RMB/kWh as used in the PDR. Second, the grid price decreased from 2000 to 2004 by 9.5% as indicated by the documents from Hunan Pricing Bureau. Therefore, the grid price of 2004 of 0.315 RMB/kWh deemed to be conservative at the time of the investment decision**.** Thus, the conditions of available documents clearly indicate that the tariff was not expected to increase in 2004.

A sensitivity analysis assuming the historical highest tariff of the last ten years (0.348 RMB/kWh) resulted in an IRR of 6.36% instead of 5.56% with 0.315 RMB/kWh (IRL 39). Another scenario is based on the price structure of the not dispatched hydropower plants (IRL 41) where the grid tariff increased from 2004 to 2006 by 0.32%. Although this increase of tariffs after several years of decrease could not be foreseen at the time of investment decision, a sensitivity analysis reveals that an annually increase by 0.32% over 30 years will result in an IRR of 5.85% (IRL 40). The sensitivity analysis demonstrates that the financial benchmark (8%) is higher in both of the selected scenarios. Referring to the following assessment of the variation of the O&M costs, the total IRR will be even lower.

The application of fixed O&M costs can be considered as a conservative approach, since overall statistics and trends observed in the past in the whole world indicate that any change in these costs would be associated with an increase rather than a decrease.The overall increase in O&M costs can be demonstrated by the increase of staff costs. The number of employees is higher than estimated in the PDR and the salary as well. The payroll of September 2008 was provided to TÜV SÜD (IRL 32). The salary of this month projected to the year 2008 resulted in average of 21,600 RMB per employee, 44% higher than estimated in the PDR. In total, the O&M costs increase by 3.15% from 2004 to 2008. Therefore, based on available information, the application of a zero increment for the O&M costs can be considered as conservative in the CDM/additionality context.

The application of fixed values follows several Chinese guidelines as explicitly explained by the PP. The respective documents were provided to TÜV SÜD (IRL 33-36).

In summary, TÜV SÜD confirms that based on the available information and trends observed in the past, the application of a fixed tariff and O&M costs can be considered as realistic and credible, or if anything at all, it can be considered as conservative.

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=2687&Ebene1_ID=26&Ebene2_ID=804&mode=1	
Starting date of the global stakeholder consultation process: 2007-03-08	
Comment submitted by: none	**Issues raised:** -
Response by TÜV SÜD: -	

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5 VALIDATION OPINION

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

Xiaoxi 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, 2008-12-08

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

Munich, 2008-12-08

Assessment Team Leader

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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	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 version number of the PDD is 03, and the completing date is 15/02/2007. **Corrective Action Request No.1.** Please include a revision history and indicate the differences of the different versions because the GSP does not start with version 1 but with version 3.	CAR1	☑
A.1.3.	Is this consistent with the time line of the project's history?	1, 2	See A.1.2	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	1, 2	The project is described transparently and the project activities described have been proven during on-site audit. **Corrective Action Request No.2.** Please provide the construction information of the project. E.g. the development party, construction party, the starting date, the planning finished date, and the current status of the project. The surface area of the reservoir and the expected annual net grid-connected electricity generation should be provided according to the preliminary design report.	CAR2	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		The data of the quantity of the people which are affected by the project should be revised according to the resettled documents.		
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 - Project approval - Approval of connection to the grid 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. During on site, the audit team reviewed these proofs provided by the project owner. They are consistent with the information provided by the PDD.	☑	☑
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 Xinshao Xiaoxi Hydropower Development Co., Ltd. (project owner) and RWE Power Aktiengesellschaft are considered as project participants	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	1, 2	**Open Issue**	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 Xiaoxi Village, Pingshang Town, Xinshao County, Shaoyang City, Hunan province.	☑	☑
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	1, 2 7, 9	The approval of EIA. The preliminary design report and its approval. The approval of Xiaoxi hydro power station. The business license of Hunan Xinshao Xiaoxi Hydropower Development Co., Ltd. (project owner). All the above mentioned documents have been provided to the DOE. And they can demonstrate that the project proponents can implement the project at this site.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
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 Sectoral Scope 1- Energy industries (renewable/non-renewable sources)	☑	☑
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, many technological innovations have been realized in the dam base of the project. E.g. anchor pile technology introduced from Italy. So the project design reflects the current good practices to use renewable resources to generate electricity. **Corrective Action Request No.3.** Please give more detailed technical information of the proposed project in this chapter. E.g. including the capacity of the turbine and the main transformation. Please describe the information of the manufactures and the developer. E.g. is it a well-known manufacturer? Is the developer experienced and well-known? Does he install a lot of other projects already?	CAR3	☑
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.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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	Yes. The anchor pile technology is introduced from Italy.	☑	☑
A.4.3.4. Is the technology implemented by the project activity environmentally safe?	1, 2	As the project is a hydro power project. It's clear that 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	See A.4.3.1.	See A.4.3.1.	☑
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	**Corrective Action Request No.4.** Please describe if the technology applied by the project activity results in a significantly better performance than any commonly used technologies in the host country in this section.	CAR4	☑
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 estimated operation period is 30 years. As the equipments will be newly installed and will be state of art. It can be expected that it will not be substituted.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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.5.** Please specify whether the project needs extensive initial training and maintenance efforts in the PDD.	CAR5	☑
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	1, 2	**Corrective Action Request No.6.** The information on the demand and requirements for training and maintenance should be described in the section or be delivered to the DOE.	CAR6	☑
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. **Corrective Action Request No.7.** The time schedule of the implementation of the project should be included into the PDD.	CAR7	☑
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 06.1 of the CDM-PDD template.	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	1, 2	**Corrective Action Request No.8.** Yes. The estimated date of the first crediting period is from Oct. to Dec. in 2007. It's consistent with other data presented in the PDD.. The calculation table of the estimated emission reduction in English should be delivered to the DOE.	CAR8	☑
A.4.5. Public funding of the project activity				
A.4.5.1. Is the information pro-	1, 2	Yes. There is no public funding necessary; all costs are covered by bank	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	vided on public funding provided in compliance with the actual situation or planning as available by the project participants?		loans and private equity.		
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 consolidated baseline and monitoring methodology for 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, version 06, dated on 19 May 2006 is the recent and still applicable one.	☑	☑
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	1, 2	Yes. The approved methodology for grid-connected electricity generation from renewable sources, ACM0002/Version 06 is exactly applicable to the	☑	☑

<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></td><td>most appropriate one?</td><td></td><td>hydropower project, because the project involves the electricity capacity additions from a run-of-river hydropower plant. The project does not involve switching from fossil fuels to renewable energy at the site of the project activity. Also the geographic and system boundaries for the grid can be clearly identified and information about characteristics of the grid are available by formal documents</td><td></td><td></td></tr>
<tr><td>B.2.2.</td><td>Criterion 1:
Type of capacity addition by renewable energy</td><td>1, 2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>
See B.2.1.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.3.</td><td>Criterion 2:
Exclusion of fuel switching activities</td><td>1, 2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>
See B.2.1.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.4.</td><td>Criterion 3:
Defined electricity grid boundaries</td><td>1, 2</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>
See B.2.1.</td><td>☑</td><td>☑</td></tr>
</table>

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.2.5. Criterion 4: Approved inclusion in other methodologies (if applied only)	1, 2	Not applicable, because no other methodologies have to be considered.	☑	☑
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 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.3.3. 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	☑	☑
B.3.4. Source:			☑	☑

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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: Emissions from electricity generation in fossil fuel fired power plants of imported electricity Gas(es): CO_2 Type: Baseline Emissions	1, 2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? NA Inclusion / exclusion justified? NA Explanation / Justification sufficient? NA Consistency with monitoring plan? NA According to the formal information provided by NDRC, there is no imported electricity which is generated by the fossil fuel fired power plants in the latest 3 years. So no emission from electricity generation in fossil fuel fired power plants of imported electricity have to be considered. The question is not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
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 Central 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	**Corrective Action Request No.9.** Please identify the baseline scenario and describe the identified baseline scenario according to the methodology (grid electricity). The alternative scenarios have not to be described in this section. It is required only in B.5.of the PDD.	CAR9	☑
B.4.2.	In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?	1, 2	The proposed project is a new construction project. No any modification or retrofit of existing facilities is involved. So the question is not applicable. See B.4.1.	☑	☑
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	It's not applicable. See B.4.1. and B.4.2.	☑	☑

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.	☑	☑
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	Yes, the following realistic and credible alternatives have been identified: (I) Construction of a fossil fuel-fired power plant with equivalent amount of installed capacity or annual electricity output; (II) The proposed project activity not undertaken as a CDM project activity; (III) Construction of a power plant using other sources of renewable energy with equivalent amount of installed capacity; (IV) Provision of equivalent amount of annual power output by the grid where the proposed project is connected with. **Corrective Action Request No.10.** Please explain why the proposed projects might not be realistic and credible alternatives to a CDM project activity and grid provision in this section.	CAR 10	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.4.	Is the project activity without CDM included in these alternatives? (step 1a)	1, 2 3	Yes, see B.5.3.	☑	☑
B.5.5.	Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations? (step 1b)	1, 2 3	**Corrective Action Request No.11.** A discussion about the alternative (II)-(IV) concerning the compliance with applicable laws and regulations is missing. Please provide the relevant evidence to support the description below. The discussion about alternative (I) identified conflicts with the China's current regulations, e. g. : - considering the same annual electricity generation, - the alternative baseline scenario for the project should be a coal-fired power plant with installed capacity lower than 85 MW or an oil-fired/gas-fired power plant with installed capacity of 100 MW level	CAR 11	☑
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	1, 2 3	Yes. The sub-steps including Option III (Benchmark Analysis) is identified appropriately.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	2a)?				
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	NA	☑	☑
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	NA	☑	☑
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 indicator IRR is selected and identified.	☑	☑
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 CERs sales revenues.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
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.12.** • The evidence of feed-in tariff has to be delivered to the DOE. • Evidence (documents) for the claimed barriers have to be delivered that can be published finally together with the PDD!!! • The data of the loan in the PDD should be revised according to the preliminary design report.	CAR12	☑
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	Yes, the technological barrier has been identified.	☑	☑
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	**Corrective Action Request No.13.** Please provide transparent and documented evidence on the technological barrier.	CAR13	☑
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	1, 2	Yes. 3 similar activities have been identified. And they are appropriately	CAR14	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	3	analyzed by the PDD. **Corrective Action Request No.14.** The capacity of the Fengtan hydropower should be revised according to the relevant evidence.		
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	See CAR 14	See CAR 14	☑
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	Yes. With the CERs sales revenues, the IRR can be improved from 5.41% to 8.02%.	☑	☑
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 pro-	1, 2	The calculation of the emission reduction is applied according to the steps described in ACM0002/Vers. 06: - Calculation of the Operating Margin Emission Factor	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	posed project activity?		- 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	Yes, it is. In the PDD every selection of options offered by the methodology correctly justified. During on-site the justification is checked and it is in line with the actual situation.	☑	☑
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 monitored?	1, 2	Yes, formulae to calculate the baseline emissions are correctly presented. .	☑	☑
B.6.1.5.	Is the choice of options	1, 2	Yes, the options are described and the chosen method is caused.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?				
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 hydropower 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.	☑	☑

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.1.9. Are formulae required for the determination of emission reductions correctly presented?	1, 2	Yes, the formulae required for calculating the emission reductions is correctly presented in the PDD.	☑	☑
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/Vers. 06 But it is not complete. Please see CAR 16, 17, 18.	☑	☑
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.	☑	☑
B.6.2.3. Parameter Title: Annual electricity supplied to the grid prior to retrofit (applicable only for retrofit and modification activities)		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.6.2.4. Parameter Title: Emission factor of the grid (CM)		Data Checklist / Yes / No Title in line with methodology? No	CAR15	☑

<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></td><td></td><td>
<table>
<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
<tr><td>Appropriate description of parameter?</td><td>No</td></tr>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided?</td><td>No</td></tr>
<tr><td>Has this value been verified?</td><td>No</td></tr>
<tr><td>Choice of data correctly justified?</td><td>No</td></tr>
<tr><td>Measurement method correctly described?</td><td>No</td></tr>
</table>
<u>Corrective Action Request No.15.</u>
The presentation of the emission factor of the grid is missing.</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>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.6. Parameter Title: Build margin (BM) 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 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.6.2.7. Parameter Title:</td><td></td><td></td><td>CAR</td><td>☑</td></tr>
</table>

<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>fuel consumption of each power source</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>No</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><u>Corrective Action Request No.16.</u>
The latest three years data for thermal power supply shall be adopted.</td><td>16</td><td></td></tr>
<tr><td>B.6.2.8. Parameter Title: emission coefficient of each fuel</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.6.2.9. Parameter Title: electricity generation of each power source</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>No</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr></table></td><td>See CAR 16</td><td>☑</td></tr>
</table>

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Has this value been verified? — Yes Choice of data correctly justified? — Yes Measurement method correctly described? — N/A See CAR 16		
B.6.2.10. Parameter Title: surface area of full re-servoir level (for new hydroelectric activities only)		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 **Corrective Action Request No.17.** Surface area of full reservoir level is missing.	CAR17	☑
B.6.2.11. Parameter Title: 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? — NA	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Data unit correctly expressed? NA Appropriate description of parameter? NA Source clearly referenced? NA Correct value provided? NA Has this value been verified? NA Choice of data correctly justified? NA Measurement method correctly described? NA		
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 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 projection will be based on the same procedures as used for future monitoring.	☑	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	1, 2	Yes. The GHG calculations are documented in a complete and transparent manner.	☑	☑
B.6.3.3. Is the data provided in this section consistent	1, 2	Yes, they are consistent.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
with data as presented in other chapters of the PDD?				
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 starting date of the first crediting period is estimated in Oct. 2007. According to the constructing status of the project, it seems reasonable.	☑	☑ revised after finishing the validation
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. They are consistent.	☑	☑
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 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 in voices by local grid will also be obtained as an additional check.
<u>Corrective Action Request No.18.</u>
• The measurement equipments have to be installed to ensure the availability of back-up data. It has to be clarified that only the net electricity will be monitored finally.</td><td>CAR18</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>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>During on-site audit, QA/QC procedures are unavailable.
<u>Corrective Action Request No.19.</u>
The above mentioned documents should be supplied to DOE.</td><td>CAR19</td><td>☑</td></tr>
<tr><td>B.7.1.3.</td><td>Parameter Title: Quantity of steam</td><td>1, 2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

<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>produced
(for geothermal projects only)</td><td></td><td><table><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 for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td></td><td></td></tr>
<tr><td>B.7.1.4. Parameter Title: Fraction of CO_2 in 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><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.5. Parameter Title: Fraction of CH_4 in 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><tr><td>Source clearly referenced?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
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Industrie Service

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 Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A	☑	☑

<table>
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<tr><td></td><td></td><td><table><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td></td><td></td></tr>
<tr><td>B.7.1.8. Parameter Title: Fraction of CH_4 in steam during well testing (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><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.9. Parameter Title: CO_2 emission coefficient of fuel used by the geothermal plant (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><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">B.7.2. Description of the monitoring plan</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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.20.** The following procedures have to be described (more detailed) 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	CAR20	☑
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	1, 2	Yes. The monitoring plan is consistent with the current state regulation. And	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	plan provide current good monitoring practice?		it is defined according to the experience of others operating hydro power station. So it provides current good monitoring practice.		
B.7.2.4.	If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1, 2	**Corrective Action Request No.21.** No, section B.7.2 mentioned in Annex 4 is not sufficient. Please include a principal diagram of the meter positions.	CAR21	☑
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 15/02/2007.	☑	☑
B.8.2.	Is this consistent with the time line of the PDD history?	1, 2	Yes It is consistent.	☑	☑
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	Yes, Mr. Zheng Zhaoning of Tuttle International Co., Ltd. determined the monitoring methodology.	☑	☑
B.8.4.	Is information provided whether this person /	1, 2	Yes. The person/entity is not project participant listed in Annex 1.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	entity is also considered a project participant?				
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. The starting date of the project activity is 20/10/2004. .	☑	☑
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	Yes, 7 years with potential for 2 renewals is chosen as the crediting period.	☑	☑
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	1, 2	Yes, the environmental impacts of the project activity during construction and operation period have been clearly described.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	of the project activity been sufficiently 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, 29	Yes, EIA is a must in P. R. China for new hydropower projects. The EIA of the proposed project was approved by the Hunan Environmental Protection Agency in April 2005 (Document No. Xiang Huan Ping [2005]37). The documents have been reviewed by the DOE.	☑	☑
D.1.3.	Will the project create any adverse environmental effects?	1, 29	Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts. **Corrective Action Request No.22.** The resettlement and compensation should be described in the PDD.	CAR22	☑
D.1.4.	Were trans-boundary environmental impacts identified in the analysis?	1, 29	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, 29	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	1, 29	Yes, the project is in conformity with the environmental legislation of P. R. China and the EIA has been approved by authorized organization.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	country?				
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	From Aug. to Oct., 2006, the project owner carried out a survey focus on the migrants of the project. Totally 250 questionnaires were distributed in a random manner to the migrants of the project and copies of the questionnaires were allowed to be submitted. As of October 20th, 2006, totally 316 questionnaires collected	☑	☑
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1, 2	Yes. Questionnaires have been used.	☑	☑
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	According to EIA regulation the stakeholder consultation should be carried out during EIA. And the stakeholder consultation has been carried out.	☑	☑
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.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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 stake-holder comments re-ceived?	1, 2	**Corrective Action Request No.23.** Please describe how due account was taken of any comments received in this section.	CAR23	☑
F. Annexes 1 – 4				
Annex 1: Contact Information				
F.1.1. Is the information pro-vided consistent with the one given under section A.3?	1, 2	Yes the given information is consistent.	☑	☑
F.1.2. Is the information on all private participants and directly involved Parties presented?	1, 2	The information about Hunan Xinshao Xiaoxi Hydropower Development Co., Ltd. and RWE Power Aktiengesellschaft are presented.	☑	☑
Annex 2: Information regarding public funding				
F.1.3. Is the information pro-vided on the inclusion of public funding (if any) in consistency	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
	with the actual situation presented by the project participants?				
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 Data recommended in the *Notification on Determining Baseline Emission Factor of China's Grid* for the Central China Grid are adopted for the Project. And they are provided in annex 3. They are consistent with data presented by other sections of the PDD.	☑	☑
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1, 2	Yes The data has been verified during on-site. The relevant evidence has been provided to the validation team.	☑	☑
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	1, 2	Yes They substantiate and support statements given in other sections of the PDD.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
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	No other additional information is provided.	☑	☑
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1, 2	See CAR 21	See CAR 21	☑
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1, 2	See F.1.8.	☑	☑

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 version number of the PDD is 03, and the completing date is 15/02/2007. **Corrective Action Request No.1.** Please include a revision history and indicate the differences of the different versions because the GSP does not start with version 1 but with version 3.	A.1.2.	PDD version 01 has been hand out to some experts for consultation. The PDD version 02 revised based on consultants' comments is submitted to the DNA. It has been revised based on DNA's recommendations as version 03 and submitted to DOE for public comments. Based on DOE's CARs, PDD version 04 has been prepared and submitted to the DOE in early June. **The first response from DOE:** The completion date of the version 04 of the PDD is inconsistent with the date in the table of the version history of the PDD. The revision date of version 03 in GSP is inconsistent with the date in the table of the version history of the PDD. **Response from project owner:** The PDD version history sheet has been revised and highlighted in grey, please refer to the A.1 in PDD 05 version.	☑

The project is described transparently and the project activities described have been proven during on-site audit. **Corrective Action Request No.2.** Please provide the construction information of the project. E.g. the development party, construction party, the starting date, the planning finished date, and the current status of the project. The surface area of the reservoir and the expected annual net grid-connected electricity generation should be provided according to the preliminary design report.	A.1.2.	Construction information of the project has been added into Section A.2. The surface area of the reservoir has been added into Section A.2 and A.4.3. The annual net grid-connected electricity generation has been added into Section A.2. **The first response from DOE:** In the section A.2 there is no surface area of the reservoir. **Response from project owner:** Relevant data have been added into Section A.2 and highlighted in grey, please refer to the PDD 05 version	☑

Yes, many technological innovations have been realized in the dam base of the project. E.g. anchor pile technology introduced from Italy. So the project design reflects the current good practices to use renewable resources to generate electricity. **Corrective Action Request No.3.** Please give more detailed technical information of the proposed project in this chapter. E.g. including the capacity of the turbine and the main transformer. Please describe the information of the manufactures and the developer. E.g. is it a well-known manufacturer? Is the developer experienced and well-known? Does he install a lot of other projects already?	A.4.3.1.	Detailed technical information of the Project has been provided in Section A.4.3. **DOE´s First response:** As there is a dam and a power density the project should be a new hydro power project and not a run-of-river hydro power plant. According to the meth run-of-river has no reservoir. Please revise the description. The unit Mu on page 9 and 28 has to be transferred into m² or km² as Mu is no SI unit. **PP´s second response:** "Run-of-river" in the description of the Project has been revised. The unit Mu in the PDD has been transferred into km² using 1 Mu =666.7 m^2.	☑

Corrective Action Request No.4. Please give more detailed technical information of the proposed project in this chapter. E.g. including the capacity of the turbine and the main transformation. Please describe the information of the manufactures and the developer. E.g. is it a well-known manufacturer? Is the developer experienced and well-known? Does he install a lot of other projects already?	A.4.3.5.	Same as above.	☑
Corrective Action Request No.5. Please describe if the technology applied by the project activity results in a significantly better performance than any commonly used technologies in the host country in this section.	A.4.3.6.	Revision has been done to Section A.4.3. As analysed in PDD from page 6-2 to page 6-5, the technology applied by the Project is determined based on consideration of better performance.	☑
Corrective Action Request No.6. Please specify whether the project needs extensive initial training and maintenance efforts in the PDD.	A.4.3.8.	Revision has been done to Section A.4.3 to provide details. Training plan and etc. has been submitted to DOE.	☑
Corrective Action Request No.7. The information on the demand and requirements for training and maintenance should be described in the section or be delivered to the DOE.	A.4.3.9.	Revision has been done to Section A.4.3. A CDM Manual has been submitted to DOE to provide details.	☑

The planning schedule in the past and for the future was clearly described by the project owner during the audit. **Corrective Action Request No.8.** The time schedule of the implementation of the project should be included into the PDD.	A.4.3.10.	The time schedule of the Project has been provided in Section A.2.	☑
Corrective Action Request No.9. Yes. The estimated date of the first crediting period is from Oct. to Dec. in 2007. It's consistent with other data presented in the PDD.. The calculation table of the estimated emission reduction in English should be delivered to the DOE.	A.4.4.2.	The calculation table of the estimated emission factor in English is provided with calculation process of emission reductions given in Section B.6.3.	☑
Corrective Action Request No.10. Please identify the baseline scenario and describe the identified baseline scenario according to the methodology (grid electricity). The alternative scenarios have not to be described in this section. It is required only in B.5.of the PDD.	B.4.1.	Revision has been done to Section B.4 to simplify the analysis so as to make clear understanding.	☑

Yes, the following realistic and credible alternatives have been identified: (I) Construction of a fossil fuel-fired power plant with equivalent amount of installed capacity or annual electricity output; (II) The proposed project activity not undertaken as a CDM project activity; (III) Construction of a power plant using other sources of renewable energy with equivalent amount of installed capacity; (IV) Provision of equivalent amount of annual power output by the grid where the proposed project is connected with. **Corrective Action Request No.11.** Please explain why the proposed projects might not be realistic and credible alternatives to a CDM project activity and grid provision in this section.	B.5.3.	Revision has been done to Section B.5 to provide complete explanation.	☑

Corrective Action Request No.12. A discussion about the alternative (II)-(IV) concerning the compliance with applicable laws and regulations is missing. Please provide the relevant evidence to support the description below. The discussion about alternative (I) identified conflicts with the China's current regulations, e. g. : - considering the same annual electricity generation, - the alternative baseline scenario for the project should be a coal-fired power plant with installed capacity lower than 85 MW or an oil-fired/gas-fired power plant with installed capacity of 100 MW level	B.5.5.	Discussion for the alternative 2-4 concerning the compliance with applicable laws and regulations is added into Section B.5. And The discussion for alternative 1 has been revised for clear understanding. Evidence support the description has been submitted with the 4th version of PDD.	☑

Corrective Action Request No.13. • The evidence of feed-in tariff has to be delivered to the DOE. • Evidence (documents) for the claimed barriers have to be delivered that can be published finally together with the PDD!!! The data of the loan in the PDD should be revised according to the preliminary design report.	B.5.12.	The evidence has been submitted to DOE includes the preliminary design report and the Special report on complex groundwork treatment of Xiaoxi Power Plant issued by Hunan Design & Research Institute of Water Resources and Hydropower in Sep. 2006:51-59. The data of the loan in the PDD is obtained from P15-4 of the preliminary design report. **DOE´s First response:** The construction period is only 3 years without electricity generation. Please adapt the IRR calculation accordingly. Please provide evidence that the benchmark IRR is valid for a 30 year operational period. The time period of the benchmark and the project IRR have to be identical to make a valid comparison. The IRR with CDM in the Excel sheet and the PDD is different. Moreover, please quote the evidence for consideration of CDM before construction in the PDD (as required by the CDM PDD guidelines). Please update the starting date of the project activity (construction) and crediting periods (8 weeks after submission) as well as the calculation of the emission reduction.	☑ The updated IRR calculation has been checked and is correct. The description of the consideration of CDM is consistent with the validated evidence of the on-site audit.

		PP´s second response: To be consistent with the PDR, the IRR calculation is revised to include the electricity generation and according revenues in the 4th year of the construction period. The calculation results have been updated into the PDD. The benchmark IRR we select is based on electric power industry, irrelevant to specific parameters, such as total project cost or operation period. As long as it is within the electric power industry, the comparison between the calculated IRR and the benchmark IRR can be used to assess the financial situation of a Project. The evidence for consideration of CDM before construction in the PDD has been provided and described in the PDD. The starting date of the Project has been revised as the starting date of construction. And the description in Section C.2.1.1 has been revised as “or the date after the registration whichever is later”.	

Corrective Action Request No.14. Please provide transparent and documented evidence on the technological barrier.	B.5.14.	The evidence has been submitted to DOE includes the preliminary design report and the Special report on complex groundwork treatment of Xiaoxi Power Plant issued by Hunan Design & Research Institute of Water Resources and Hydropower in Sep. 2006:51-59.	☑
Yes. 3 similar activities have been identified. And they are appropriately analyzed by the PDD. **Corrective Action Request No.15.** The capacity of the Fengtan hydropower should be revised according to the relevant evidence.	B.5.16.	Revision has been done to Step 4a. Since the total installed capacity of Fengtan hydropower project is much higher than the Project, it is not identified as similar project activities. **DOE´s First response:** Please clarify why the Xiaoxiang Hydro power plant is different from the project only due to the fact that the investor is based in Hongkong. **PP´s second response:** Revision has been done to Step 4b to make the description easier to understand.	☑

Corrective Action Request No.16. The presentation of the emission factor of the grid is missing.	B.6.2.4.	Detailed information of data used in OM and BM calculation has been added into Section B.6.2. **DOE´s First response:** Page 21: The unit of the weighted average fuel consumption for power generation has to be clarified (gCe/kWh?). The name of the parameter should be given in the head of the table. **PP´s second response:** The unit “gCe/kWh” is revised to “gram of standard coal equivalent” to make it clear. The names of the parameters are added in the head of the table.	☑

Corrective Action Request No.17. The latest three years data for thermal power supply shall be adopted.	B.6.2.7.	The result of emission factor issued by China's DNA is strongly recommended to be used in PDD. Relevant document is provided to DOE. **The first response from DOE:** The statistics yearbooks of Year 2006 have been published in April, according to the methodology, the baseline calculation shall be updated with these latest data. **Response from project owner:** The emission factors have been revised as last published Chinese DNA document (9/Aug./2007), relevant data such as emission reductions, IRR have been updated in PDD and highlighted in grey, other relevant documents have been provided to DOE.	☑ The last response from the project owner has been accepted because the NDRC calculation is the last available data source and can be seen as a guidance. The calculation is correct and the figures used are correct as well. This has been validated.

		The second response from DOE: Although the new emission factors were issued by NDRC on August 9th, 2007, some mistakes have been found after checking input data and calculated result of NDRC(for details please see below). The calculation formula of OM and BM is kept same as NDRC. The checked data sources include Electricity Yearbook 2004-2006, Energy Yearbook 2004-2006 and IPCC2006. **Central China Power Grid** 1. According to IPCC2006, the emission factor of coke should be 29.2tC/TJ, instead of 25.8 in NDRC. This has to be revised. 2. According to IPCC2006, the emission factor of refinery gas should be 15.7tC/TJ, instead of 18.2 in NDRC. This has to be revised. After above revision, the calculated OM factor shall be 1.2909 tCO2/MWh, instead of 1.2899 tCO2/MWh in NDRC. **BM calculation** After above revision of point 1 and point 2, the value of λcoal, λoil, and λgas shall be 99.48%, 0.17% and 0.35% respectively, instead of 99.47%, 0.36% and 0.17% in NDRC. Accordingly, the calculated EF thermal will be 0.9483 tCO2/MWh, instead of 0.9370 tCO2/MWh in NDRC. In addition, according to Electricity Yearbook 2006 P571, the installed capacity of Hydro power of Hubei Province in 2005 shall be 17888.9MW, instead of 8088.9MW in NDRC. After the above revision, the calculated BM factor shall be 0.4695CO2/MWh, instead of 0.6514tCO2/MWh in NDRC. (Note, the valiue of λoil and λgas issued by NDRC are reverse originally.)	

		Response from project owner OM calculation is no problem, but there is an argument in BM calculation. Referring to the published first version NDRC emission factor (15/12/2006), the capacity of Three Gorge Power Station is excluded from Hubei Province capacity. This emission factor has been accepted by DOEs and EB. From the Electricity Yearbook 2006 P571, the capacity of Hubei Province is 17888.9MW, from the P560, the capacity of Three Gorge Power Station at end of 2005 is 9800MW. Excluding the Three Gorge, the capacity of Hubei Province is 17888.9-9800=8088.9MW. The last version published NDRC emission factor (9/8/2007) BM calculation adopted 8088.9MW for Hubei Province capacity. In our opinion, since the Three Gorge is national project and does not only supply electricity to Central china Grid, therefore excluding Three Gorge from Hubei is reasonable and authoritative. This idea has been accepted by some DOEs. After revising those 2 obviously mistakes, the final BM is 0.6592tCO_2e/MWh. The PDD and other relevant documents have been revised as this emission factor.	
Corrective Action Request No.18. surface area of full reservoir level is missing.	B.6.2.10.	Information on surface area of full reservoir level is added in Section A.4.3.	☑

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 in voices by local grid will also be obtained as an additional check. **Corrective Action Request No.19.** • The measurement equipments have to be installed to ensure the availability of back-up data. It has to be clarified that only the net electricity will be monitored finally.	B.7.1.1.	Information on backup ammeter has been added into Section B.7.1. **DOE´s First response:** According to the monitoring plan the equation for BEy on page 23 is EGy-EGaux. **PP´s second response:** Revision has been done to PDD in Section B.6.1, Section B.6.3 and Section B.7.	☑
During on-site audit, QA/QC procedures are unavailable. **Corrective Action Request No.20.** The above mentioned documents should be supplied to DOE.	B.7.1.2.	Accuracy of the meters has been added into Section B.7.2. Detailed monitoring procedures and calibration and measurement plan please refer to the draft CDM manual.	☑

Corrective Action Request No.21. The following procedures have to be described (more detailed) 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 draft CDM manual on implementation of monitoring is submitted to DOE which includes the information required.	☑

Corrective Action Request No.22. No, section B.7.2 mentioned in Annex 4 is not sufficient. Please include a principal diagram of the meter positions.	B.7.2.4.	The diagram of the location of the power meters has been added into Annex 4 of PDD.	☑
Referred to the EIA and the approval of EIA, the project will create no negative environmental impacts. **Corrective Action Request No.23.** The resettlement and compensation should be described in the PDD.	D.1.3.	Detailed information on resettlement and compensation has been added into Section D and Section E.	☑
Corrective Action Request No.24. Please describe how due account was taken of any comments received in this section.	E.3.1.	Detailed information on stakeholder comments has been provided.	☑

Industrie Service

Annex 2: Information Reference List

Reference No.	Document or Type of Information
1.	Project Design Document for CDM project "Xiaoxi Hydropower Project", version *03*, submitted on Feb. 28th*2007*
2.	Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002, version 06
3.	Tool for the demonstration and assessment of additionality, version 02
4.	Participant list of on-site interview, signed on *March 15th2007*
5.	On-site interviews at the project site in *Xiaoxi Village, Pingshang Town, Xinshao County, Shaoyang City P.R. China*, conducted on *March 15 in 2007* by auditing team of TÜV SÜD: Validation team: Mr. Carl Zhou CDM Auditor, Jiangsu TÜV Product Service Ltd. Interviewed persons: Mr. Liu Jiang Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd. general manager Mr. Tao Ran Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd. manager of material dept. Mr. Wang Yi Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd. vice manager of engineer dept. Mr. Li Jianwei AGET Co. Ltd... assistant GM Mr. Cao Xin AGET Co. Ltd... technical manager
6.	The meeting summary of planning to implement CDM project, Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd. dated on 26/2/2004, submitted on March 15 2007.
7.	Approval of the proposal hydro power project, dated on Sept. 24, 2003, Hunan province development and planning committee, (2003)722, submitted on March 15 2007.
8.	Approval of feasibility study report, (2004)534, dated on July 24, 2004, Hunan province development and reform committee, submitted on March 15 2007. .(the approved installation capacity is 120MW)
9.	Initial design report of the proposal hydro power project, dated in October 2005, Hunan province survey design and research institute for water source and hydro power, submitted on March 15 2007.
10.	Approval of initial design report, dated on Nov. 28, 2005, Hunan province hydro power department, (2005)41, submitted on March 15 2007.(the approved installation capacity is 135MW)
11.	The letter about approval of the capacity adjusting of Xiaoxi hydro power station, dated on July 28 2006, submitted on March 15

Reference No.	Document or Type of Information
	2007.(the designed installation capacity is increased from 120MW to 135MW)
12.	EIA, dated in March.2005, Hunan province survey design and research institute for water source and hydro power, submitted on March 15 2007.
13.	Approval of EIA, dated April 29 2005, Hunan province survey design and research institute for water source and hydro power, submitted on March 15 2007.(the approved installation capacity is 120MW)
14.	Organization chart of Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd, submitted on March 15 2007.
15.	The approval of design report of migrant’s resettlement for the proposal hydro power project, dated on Jan.15 2006, Hunan province government, submitted on March 15 2007.
16.	The approval of the preservation program about water and soil, dated on July 12 2004, Hunan province water power department, No. (2004)44, submitted on March 15 2007.
17.	The purchase contract of the devices of generator units and main transformer, submitted on March 15 2007.
18.	The license of Hunan Xinshao Xiaoxi Hydropower Development Co. Ltd, submitted on March 15 2007.
19.	Evidences of capital source, submitted on March 15 2007.
20.	Approval of pre-utilization land, issued by Hunan province government, dated on Jan.5 2005, Submitted on March 15 2007.
21.	Sample of the resettlement agreement, dated on May 8 2006, submitted on March 15 2007.
22.	Approval of connected to the Hunan grid, issued by Hunan province power company, No.(2006)936, dated on August 29, 2006, Submitted on March 15 2007.
23.	Sample of questionnaires, submitted on March 15 2007.
24.	Construction schedule (starting date 20/10/2004), Submitted on March 15 2007.

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document
25	08/04/2005	Accumulated cost by the end of 2004
26	20/01/2007	Accumulated cost by the end of 2005 and 2006

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document
27	10/01/2008	Accumulated cost by the end of 2007
28	07/10/2008	Accumulated cost up to September 2008
29	17/04/2003	License of Hunan Hengji Auditing
30	17/03/2004	License of Hunan Jianye Auditing
31	14/03/2001	License of Shenzhen Nanfang Minhe Auditing
32	03/11/2008 submitted	List of staff and salary _Sept 2008
33	14/06/1994	Interim Rules on Economic Assessment for Hydropower Projects (Document No. SGG[1994]26)
34	20/07/2003	Circular on Regulating the Standard of Water Resource Fee (Document No.XJF[2003]128)
35	04/10/2008 submitted	Decision of the State Council on Setting Up Uniform Old-Age Insurance System for Employees of Enterprises (Document No.GF[1997]26)
36	24/03/2002	Decision of the State Council on Revision of Regulations on Management of Housing Provident Fund (Decree No.350 of the State Council of the People's Republic of China).
37	04/11/2008 submitted	Financial Assessment Methods and Parameters for Construction
38	03/11/2008 submitted	Transaction notes of Xiaoxi hydropower project
39	05/11/2008 submitted	Example IRR spreadsheet calculation high tariff
40	05/11/2008 submitted	Example IRR spreadsheet calculation increasing tariff
41	28/07/2008	Circular on Relevant Issues of the Electricity Tariff of Power Plants Not dispatched by the provincial grid in Hunan Power Grid (No.XJC(2006)111)